
Western Australian Year Book 1968

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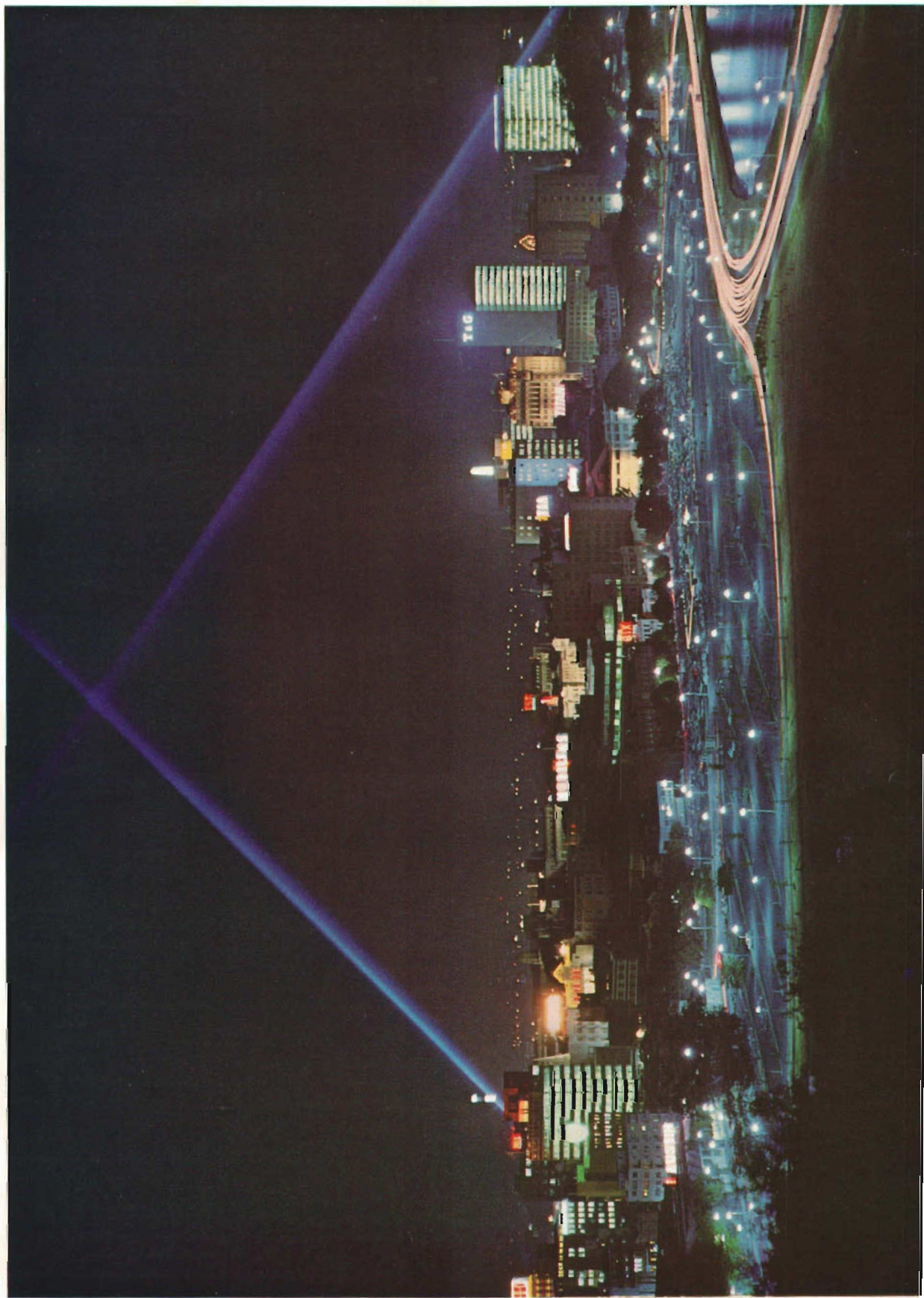


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CITY OF PERTH

View from King's Park by night

Perth, the capital of Western Australia, is situated on the right bank of the Swan River about 12 miles upstream from the Port of Fremantle. The town of Perth was founded on the 12th August, 1829. Perth was constituted a City on the 23rd September, 1856 when it became the seat of a Bishop. The status of Mayor of the City was raised to that of Lord Mayor in 1929 on the centenary of its foundation.

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS
WESTERN AUSTRALIAN OFFICE

**WESTERN AUSTRALIAN
YEAR BOOK**

No. 7-1968



F. W. SAYER
Deputy Commonwealth Statistician
and
Government Statistician

PREFACE

This issue of the *Western Australian Year Book* is the seventh of a new series. The old series, originally published for the year 1886 and discontinued in 1905, developed from the Blue Books of the Colonial Office, London, which contain the early statistical records of Western Australia.

The aim of the Year Book is to provide a general description of the State of Western Australia and its development, in terms of its geography, climate and geology, the plants and trees which grow on its surface, its animal life, and the activities and social patterns of its people in relation to this physical environment. Ample use has been made of statistical tables to supplement the descriptive text and to give a numerical account of what has been happening in the several fields of production, trade and commerce, population and social condition, the functions of government, and so on. A list of illustrations, in the form of plates, graphs and maps, and a synopsis of the contents are given in the opening pages.

The statistical tables in this issue relate in the main to periods ended the 30th June, or the 31st December, 1966 and, in general, were the latest available at the time the manuscript was prepared. Because of the time required for editing and printing the Year Book, later data on a particular topic will often be available in mimeographed publications or on request from the appropriate section of this Office. The descriptive text has been taken forward, wherever possible, to the 31st December, 1967 and incorporates the effect of 1967 Commonwealth and State legislation or administrative decisions. In some instances, the most recent developments have been included in the *Appendix* which also contains a selection of such information from the 1966 Census as was available at the time of printing.

A wide range of current statistics is available in the periodical publications produced by this Office in printed or mimeographed form, and listed at the back of the Book, as well as in the various publications issued by the Commonwealth Statistician, Canberra and by the Deputy Commonwealth Statisticians in other States. Many of the statistical tables in the Year Book have been adapted from information appearing in the several Parts of the *Statistical Register of Western Australia*, to which reference should be made if more detail is required.

My thanks are again expressed to the many government officials and others who willingly collaborated in the preparation of letterpress or in the review of existing matter, to BP in Western Australia, Goldsworthy Mining Limited, Western Mining Corporation Limited, Westralian Farmers Co-operative Ltd, Paul Pearson and Associates, the Australian National Shipping Commission, The Western Australian Art Gallery, the Library Board of Western Australia, the Main Roads Department, the Department of Industrial Development, the Department of Mines, The Rural and Industries Bank of Western Australia, the State Electricity Commission and the Fremantle Port Authority for the loan of blocks used in some of the illustrations, and to the Government Printer and his staff for their continuing interest in the work and for assistance and advice freely given at all times.

The authors of the articles appearing in Chapters I and II are especially thanked for contributions of new material and for their ready co-operation in revising the earlier text of Chapter II.

I wish to pay particular tribute to the Editor of Publications, Mr. J. E. Gowdy, B.Ec. (Hons), who prepared various sections of the Year Book and edited the remainder.

The reader's attention is drawn to the information service and library facilities provided by this Office, where all publications of the Bureau of Census and Statistics are available for reference. Business men, manufacturers, primary producers, government authorities, students and the public generally are invited to make full use of these services.

In the preparation of the Year Book, every care has been taken to ensure that the statistical and other material is free from error. Limitations of space restrict the range of contents or amount of detail that can be included in this publication but I shall be grateful to those who will be kind enough to make suggestions for improvement.

Readers requiring the main statistical information of the Year Book in a concise form are referred to the *Western Australian Pocket Year Book*.

F. W. SAYER
Deputy Commonwealth Statistician
and
Government Statistician

Commonwealth Bureau of Census and Statistics
Western Australian Office
PERTH, W.A.

22nd April, 1968

CONTENTS

CHAPTER	SUBJECT	PAGE
	LIST OF MAPS, GRAPHS AND PLATES	ix
	SYNOPSIS	x
I	DISCOVERY, COLONIZATION AND DEVELOPMENT	1
II	PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA	14
III	CONSTITUTION AND GOVERNMENT	88
IV	POPULATION AND VITAL STATISTICS	112
V	SOCIAL CONDITION	144
VI	FINANCE	213
VII	LAND TENURE AND SETTLEMENT, WATER CONSERVATION AND SUPPLY	240
VIII	PRODUCTION	258
IX	TRADE, TRANSPORT AND COMMUNICATION	343
X	EMPLOYMENT, WAGES AND PRICES	383
	STATISTICAL SUMMARY FROM 1829	422
	APPENDIX	442
	NOTE ON STATISTICAL DIVISIONS	457
	LIST OF STATISTICAL DIVISIONS AND LOCAL GOVERNMENT AREAS	458
	INDEX	461
	LIST OF STATISTICAL PUBLICATIONS	477
	GENERAL MAP OF WESTERN AUSTRALIA	inside back cover

ROUNDING OF FIGURES

Many of the figures appearing in the tables have been rounded (to thousands or, in some cases, millions), without making those adjustments which would be needed to make the rounded figures add to the rounded total. It is for this reason that figures do not always add to the totals shown in the tables.

Percentages appearing in the tables have been corrected to the second place of decimals without making any adjustments which would be necessary to make the percentages so expressed add to precisely 100.

LIST OF MAPS, GRAPHS AND PLATES

	Page
City of Perth—View from King's Park by night	<i>Frontispiece</i>
Perth from Mount Eliza, 1847	... <i>facing</i> 16
Perth and the Swan River from St George's Terrace, 1850	... <i>facing</i> 16
Geological Map	... 18
Wettest Six-Monthly Period of Year (Map)	... 27
Cyclone "Shirley"	... <i>facing</i> 32
Evaporation (Map)	... 36
Agricultural Area—Growing Season (Map)	... 38
Structure of a Cyclone (diagrammatic)	... 39
Reproduction of Barograph Chart	... 41
Reproduction of Anemometer Chart	... 42
Selection of Western Australian Orchids	... <i>between</i> 48 and 49
Bird Orchid	... <i>between</i> 48 and 49
Vegetation Provinces (Map)	... 51
Red-eared Firetail Finch	... <i>facing</i> 64
Red-collared Lorikeet	... <i>facing</i> 64
Natural Regions (Map)	... 85
Perth Statistical Division (Map)	... <i>facing</i> 112
Population at the Census—1901 to 1966 (Graph)	... 114
Births, Deaths and Marriages—1880 to 1966 (Graph)	... 130
Rates of Birth, Death and Marriage—1880 to 1966 (Graph)	... 136
Primary and Secondary Schools—Pupils, 1900 to 1966 (Graph)	... 145
Old Farm at Strawberry Hill, Albany	... <i>facing</i> 160
National Welfare Fund—Expenditure, 1961–62 to 1965–66 (Graph)	... 199
Bank Deposits and Advances—1956–57 to 1965–66 (Graph)	... 232
Lake Cave, Margaret River	... <i>facing</i> 240
Comprehensive Agricultural Areas Water Supply Scheme (Map)	... 250
Irrigation Districts in South-West Division (Map)	... 254
Mundaring Weir	... <i>facing</i> 256
Net Value of Production—1956–57 to 1965–66 (Graph)	... 260
Wool and Wheat—Annual Production, 1901 to 1965–66 (Graph)	... 272
Wool and Wheat Production—Annual Values 1901 to 1965–66 (Graph)	... 289
State Forests (Map)	... 303
Solar Salt Industry, Shark Bay	... <i>between</i> 304 and 305
Iron Ore Mine, Koolanooka	... <i>between</i> 304 and 305
Barrow Island Oilfield	... <i>between</i> 304 and 305
Port of Fremantle (Outer Harbour)	... <i>between</i> 320 and 321
Alumina Refinery at Kwinana	... <i>between</i> 320 and 321
Loading Bauxite at Jarrahdale	... <i>between</i> 320 and 321
Mining Ilmenite at Capel	... <i>between</i> 320 and 321
Muja Generating Station	... <i>between</i> 320 and 321
Imports and Exports—1956–57 to 1965–66 (Graph)	... 345
Shipping Facilities at Finucane Island	... <i>between</i> 352 and 353
Loading Iron Ore at Cockatoo Island	... <i>between</i> 352 and 353
Standard Gauge Wheat Train	... <i>between</i> 352 and 353
Railway Bridge over the De Grey River	... <i>between</i> 352 and 353
Main and Important Secondary Roads (Map)	... <i>facing</i> 368
Industry of the Work Force—Census, 30th June, 1966 (Graph)	... 389
State Basic Wage—Males and Females, 1926 to 1966 (Graph)	... 403
General Map of Western Australia	... <i>inside back cover</i>

SYNOPSIS

CHAPTER I—DISCOVERY, COLONIZATION AND DEVELOPMENT

	Page		Page
Discoveries and History up to 1829	1	Consolidation 1901-29	8
The Swan River Colony	2	Depression and War	10
The Convict Era	4	A State on the March	12
The Gold Rushes of the 'Nineties	6		

CHAPTER II – PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

PART 1—PHYSICAL FEATURES AND GEOLOGY		PART 3—VEGETATION— <i>continued</i>	
General	14	Vegetation Formations— <i>continued</i>	
Physical Features—		Woodland Formations	53
The Great Plateau	14	Shrub Formations	53
The Coastal Plains	16	Savannah and Steppe Formations	53
Geology—		The Economic Value of the Flora	54
The Precambrian Basement	17	Conservation of the Flora	55
The Sedimentary Basins	20		
The Superficial Deposits	23	PART 4—FAUNA	
Conclusion	24	Zoogeography—	
		Terrestrial Vertebrates	58
		Coastal Marine Fauna	59
		Fauna of Inland Waters	60
		Composition of the Fauna—	
		Mammals	60
		Birds	64
		Reptiles	67
		Amphibia	68
		Freshwater Fishes	68
		Marine Fishes	68
		Echinodermata	71
		Mollusca	71
		Coelenterata	72
		Crustacea	72
		Spiders	72
		Insects	73
		Conservation of the Fauna	73
		Further Sources of Information	74
		PART 5—ENTOMOLOGY	
		(With Particular Reference to Agriculture)	
		General	77
		Class Insecta (Insects)	77
		Class Arachnida (Spiders, Mites, Ticks, etc.)	82
		The Effect of Pesticides on Beneficial Forms of Life	82
		Further Sources of Information	83
		PART 6—NATURAL REGIONS	
			85
PART 2—CLIMATE AND METEOROLOGY			
General	26		
Pressure Systems	26		
Rainfall	28		
Temperature	31		
Thunderstorms	35		
Evaporation	37		
Growing Season	37		
Snow	37		
Metropolitan Climate	37, 45		
Tropical Cyclones	37		
Interstate Comparisons	45, 46		
PART 3—VEGETATION			
(With Special Reference to Orchids)			
General	47		
Vegetation Provinces—			
Climatic Characteristics	50		
Vegetative Characteristics	50		
Vegetation Formations—			
The Forest Formations of the South-West	52		

CHAPTER III – CONSTITUTION AND GOVERNMENT

General	88	Legislation during 1966	99
Outline of Constitutional Development	88	The Judicature—	
Vice-Regal Representation	89	Commonwealth Courts	106
The Federal Parliament—		State Courts of Western Australia	106
The Senate	90	State Representation Overseas and in other States	107
The House of Representatives	91		
The State Parliament	91	The Local Government System—	
The Legislative Council	93	General	107
The Legislative Assembly	95	Local Government Districts	107
Elections, Electors on Roll and Votes Recorded—		Constitution and Electoral Provisions	108
The Federal Parliament	97	Functions of Local Authorities	109
The State Parliament	97	Financial Provisions	109

CHAPTER IV – POPULATION AND VITAL STATISTICS

	Page	Page
PART 1—POPULATION		
General	112	
Censuses—		
General	113	
Masculinity	113	
Age Composition	113	
Birthplace	116	
Nationality	116	
Religion	116	
Conjugal Condition	117	
Estimates of Population	118	
Intercensal Increases	119	
Geographical Distribution	120	
Population Density	125	
Aboriginal Population	126	
PART 2—BIRTHS, DEATHS AND MARRIAGES		
The Registration System	128	
Births—		
Numbers	128	
Birth Rates	131	
Gross and Net Reproduction Rates	131	
Deaths—		
Numbers	132	
Death Rates	133	
Infant Mortality Rates	133	
Causes of Infant Deaths	134	
Stillbirths	134	
Standardized Death Rates	135	
Causes of Death	137	
Expectation of Life	137	
Marriages—		
Numbers	139	
Age At Marriage	139	
Religious and Civil Marriages	141	
Marriage Rates	141	
Divorce	141	

CHAPTER V – SOCIAL CONDITION

PART 1—EDUCATION		PART 2—PUBLIC LIBRARIES, MUSEUM, ART GALLERY, AND SCIENTIFIC INSTITUTIONS	
Primary, Secondary and Technical Education—		Public Libraries—	
General	144	The Library Board of Western Australia	161
Government Financial Assistance	144	The State Library of Western Australia	162
School Attendance	144	Local Public Libraries	162
School Enrolments	146	Museum	162
The Education Department—		Art Gallery	163
General	148	Botanic Garden	163
Primary and Secondary Schools	148	Scientific Institutions—	
Primary and Secondary Curriculum	149	State Government Observatory	164
Radio, Television and Film Aids	150	State Government Chemical Laboratories	164
Student Counselling and Vocational Guidance	150	The Institute of Agriculture, University of Western Australia	165
Special Schools and Classes	150	Commonwealth Scientific and Industrial Research Organization	166
Correspondence Tuition	150		
Education of Aborigines	150	PART 3—HEALTH SERVICES, HOSPITALS AND HOMES FOR THE AGED	
Agricultural Education	150	Health Services—	
Technical Education	151	Health Administration	169
Teacher Education	152	Infectious Diseases	169
Other Government Education—		Special Health Services for Children	170
Muresk Agricultural College	152	Hospitals other than Mental Hospitals—	
School of Mines	153	Commonwealth Government Hospitals	171
Non-Government Schools	153	State Government and Government-Assisted Hospitals	171
University Education—		Private Hospitals	173
General	154	Mental Health Services	173
Degrees	154	Homes for the Aged and Infirm	175
Teachers, Students, Degrees Conferred	155		
University Government	155	PART 4—HOUSING	
Principal Benefactions	156	Housing and the Census—	
Student Fees and Scholarships	156	General	177
Tuition	157	Dwellings—	
Colleges and Hall of Residence	157	Class of Dwelling	177
Public Examinations Board	157	Material of Outer Walls	178
Adult Education Board	157	Number of Inmates	178
Finance	158	Number of Rooms	179
The Western Australian Institute of Technology	159	Nature of Occupancy	179
Commonwealth Financial Assistance for Tertiary Education—		Weekly Rent (Unfurnished)	179
Universities	159	Facilities	180
Colleges of Advanced Education	159	Unoccupied Dwellings	181
Commonwealth Financial Assistance for Research	160	Censuses from 1901	181

CHAPTER V – SOCIAL CONDITION – continued

	<i>Page</i>
PART 4—HOUSING—continued	
Government and Government-Sponsored Housing—	
The State Housing Commission	181
Government Employees' Housing Authority	184
War Service Homes	184
Homes Savings Grants	185
Housing Loans Insurance Scheme	185
Control of Building	186
Building Operations—	
General	186
Operations of The State Housing Commission	187
Dwellings Completed in Australia	188

PART 5—SOCIAL BENEFITS, RELIEF PAYMENTS AND CHILD WELFARE	
General	189
Social Services Benefits—	
Age and Invalid Pensions	189
Widows' Pensions....	191
Unemployment, Sickness and Special Benefits	191
Maternity Allowances	192
Child Endowment	193
Reciprocal Arrangements with other Countries	194
War and Service Pensions—	
War Pensions	194
Service Pensions	195
National Health Services—	
Hospital and Nursing Home Benefits	196
Medical Benefits	197

	<i>Page</i>
PART 5—SOCIAL BENEFITS, RELIEF PAYMENTS AND CHILD WELFARE—continued	
National Health Services—continued	
Pharmaceutical Benefits	198
Free Milk for School Children	198
Tuberculosis Campaign	198
Miscellaneous Health Services	200
Summary of Expenditure	200
Mental Health Institutions	200
State Relief Payments	200
Child Welfare—	
General	201
Expenditure	202
Wards of the Child Welfare Department	202
Private Children	202
Institutions	202
Maintenance of Children	203
Employment of Children	204
Adoption of Children	204

PART 6—LAW COURTS, POLICE AND PRISONS	
Law Courts—	
High Court of Australia	205
Supreme Court of Western Australia	205
Courts of Session	205
Magistrates' and Coroners' Courts	205
State Licensing Court	206
Court Proceedings	206
Liquor Licences	209
Police	210
Prisons	211
Probation and Parole Service	212

CHAPTER VI – FINANCE

PART 1—PUBLIC FINANCE	
Commonwealth-State Financial Relations—	
The Financial Agreement of 1927	213
The Australian Loan Council	213
The Commonwealth Grants Commission	213
Tax Reimbursements	214
Special and Additional Financial Assistance	214
Financial Assistance Grants	214
Other Financial Assistance	215
Financial Assistance to Western Australia—	
Commonwealth Consolidated Revenue Fund	215
National Welfare Fund	216
Commonwealth Taxation Collections in Western Australia	216
State Government Finance—	
Consolidated Revenue Fund	217
General Loan Fund	221
Public Debt	223
Trust Funds	223

PART 1—PUBLIC FINANCE—continued	
Local Government Finance—	
General	225
General Revenue	225
General Expenditure	226
Loan Transactions	227
PART 2—PRIVATE FINANCE	
Currency	229
Rates of Exchange	229
Banking—	
Commonwealth Banking Institutions	230
The Rural and Industries Bank	230
Trading Banks	230
Savings Banks	233
Insurance—	
Life Insurance	235
General Insurance	235
Motor Vehicle Third Party Insurance....	237
Health Insurance Organizations	237
Building Societies	238
Bankruptcy	239

CHAPTER VII—LAND TENURE AND SETTLEMENT, WATER CONSERVATION AND SUPPLY

	Page
PART 1—LAND TENURE AND SETTLEMENT	
Legislation and Administration	240
Methods of Land Alienation—	
Conditional Purchase	240
Sale by Public Auction	241
Sale by Private Tender	241
Endowment of Land and Reservation for	
Public Purposes	241
State Forests and Timber Reserves	242
Methods of Leasing	242
Land Classification	242
Occupation of Land	242
Government Land Settlement Schemes—	
Soldiers' Settlement Scheme	245
Group Settlement Scheme	245

	Page
PART 1—LAND TENURE AND SETTLEMENT	
<i>—continued</i>	
Government Land Settlement Schemes—continued	
War Service Land Settlement Scheme	245
Other Schemes of Settlement	246
Public Parks and Reserves	246
PART 2—WATER CONSERVATION AND SUPPLY	
General	248
Metropolitan Water Supply	249
Country Water Supplies—	
Modified Comprehensive Scheme	249
Goldfields and Agricultural Water Supply	251
Great Southern Towns Water Supply	252
Supplies to other Country Towns	252
Underground Water	253
South-West Irrigation Schemes	253
Northern Irrigation Schemes	255

CHAPTER VIII—PRODUCTION

General	258
Geographical Distribution of Industry	259

PART 1—PRIMARY PRODUCTION

Land Utilization on Rural Holdings	261
Classification of Rural Holdings	262
Employment and Population	266
Value of Production	266
Seasonal Calendar	267
Bushel Weights	268
Summary of Australian Statistics	269
Agriculture—	
Wheat	270
Oats	275
Barley	275
Rice	276
Other Grain and Pulse Crops	276
Hay	276
Green Feed	277
Pastures	277
Tobacco	277
Flax	278
Cotton	279
Potatoes	279
Onions	280
Tomatoes	280
Other Vegetables	280
Orchards	281
Apples	282
Pears	282
Citrus Fruit	282
Stone Fruits	283
Bananas	283
Vineyards	284
Pastoral—	
General	284
Sheep	285
Wool	287
Cattle	288
Slaughtering	290
Dairying	292
Pig Raising	294
Livestock in Australia	296
Poultry Farming	297
Bee Keeping	298

PART 1—PRIMARY PRODUCTION— *continued*

The Department of Agriculture—	
General	299
State Farms and Research Stations	299
Advisory Services	300
Research Activities	300
Agriculture Protection	301
Other Services	301
Administration of Acts	302
Trapping	302
Forestry—	
The Prime Indigenous Forests	302
The Inland Forests	302
Forestry Administration	304
Principal Forest Products	304
Fisheries—	
General Fisheries	305
Whaling	307
Pearl-shell Fishing and Pearl Culture	308
Mining—	
General	309
Gold	310
Silver	312
Asbestos	312
Bauxite	313
Beryllium Ore	313
Coal	313
Copper Ore	314
Ilmenite, Leucocxene, Monazite, Rutile and Zircon	315
Iron	315
Lead Ore	316
Manganese Ore	316
Pyrites	317
Tin Ore	317
Nickel	317
Petroleum	317
Other Minerals	309, 318
Quarrying	318

CHAPTER VIII – PRODUCTION – continued

	Page	Page
PART 2—SECONDARY INDUSTRY		
Explanatory Notes and Definitions	319	
Historical Review	319	
General Summary—		
Location of Secondary Industry	321	
Size Classification of Factories	323	
Employment and Wages	324	
Capital Employed	327	
Motive Power and Fuel Consumed	327	
Value of Output and Net Production	328	
Summary according to Industry	328	
PART 2—SECONDARY INDUSTRY—continued		
General Summary—continued		
Government Factories		330
Articles Produced		330
Individual Industries		331
Electricity and Town Gas Undertakings—		
Electricity Generation and Transmission		339
Town Gas Production		341
Department of Industrial Development		341
Summary of Australian Statistics		341

CHAPTER IX – TRADE, TRANSPORT AND COMMUNICATION

PART 1—TRADE			PART 2—TRANSPORT—continued		
Constitutional Provisions and Legislation	343		Roads and Road Traffic—		
Sources of Statistics	343		General		366
Classification of Commodities	343		Vehicle Registration, Licences and		
Valuation of Items of Trade	344		Traffic Control		367
Direction of Trade	344		Finance for Roads		368
Summary of Trade	344		Road Passenger Transport Services		369
Imports	348		Passenger Ferry Service		370
Exports	351		Road Traffic Accidents		371
Ships' Stores	354		Motor Vehicle Usage		373
Overseas Trade of Ports	354		Air Transport		373
Customs and Excise	355		Transport Co-ordination		374
The Customs Tariff	356		PART 3—COMMUNICATION		
PART 2—TRANSPORT			Posts, Telegraphs and Telephones—		
General	357		General		376
Shipping	357		Posts		378
Administration of Ports	359		Telegraphs and Telephones		378
Railways—			Radiocommunication		379
Origin and Development	360		Broadcasting and Television—		
The Western Australian Government			General		380
Railways Commission	361		Broadcasting and Television Stations		380
Summary of Operations	362		Receiving Licences		381
Road Services	363				
Goods and Livestock Carried	363				
Timber Railways	363				
Commonwealth Government Railways	364				
Operations of Government Railways in					
Australia	364				
Railway Gauges	364				

CHAPTER X – EMPLOYMENT, WAGES AND PRICES

PART 1—EMPLOYMENT			PART 2—WAGES—continued		
General	383		The Basic Wage—continued		
The Work Force	383		Commonwealth Basic Wage		396
Classification According to Industry	387		State Basic Wage		403
Classification According to Occupation	389		Minimum Rates of Wage		406
Work Force Survey	390		Components of Total Wage Rates		409
Estimates of Employment	391		Wage and Salary Payments		410
Unemployment	393		PART 3—RETAIL PRICES		
PART 2—WAGES			General		
The Basic Wage—			Retail Price Index Numbers		
General		395	The Consumer Price Index		
Industrial Authorities		395	Retail Price Index Numbers, 1901 to 1966		

STATISTICAL SUMMARY FROM 1829 (p. 422)

APPENDIX (p. 442)

CHAPTER III—CONSTITUTION AND GOVERNMENT

Western Australian Members of the Senate

Members of the Legislative Assembly

Senate Election of 25th November, 1967

CHAPTER IV—POPULATION AND VITAL STATISTICS

Part 1—Population

Estimated Population, 1961 to 1966

Population Census, 30th June, 1966

CHAPTER V—SOCIAL CONDITION

Part 4—Housing

Housing and the Census

CHAPTER VI—FINANCE

Part 2—Private Finance

Rates of Exchange

STATISTICAL DIVISIONS (p. 457)

LIST OF LOCAL GOVERNMENT AREAS (p. 459)

INDEX (p. 461)

LIST OF STATISTICAL PUBLICATIONS (p. 477)

GENERAL MAP OF WESTERN AUSTRALIA (inside back cover)

Including : LOCAL GOVERNMENT AREAS

STATISTICAL DIVISIONS

PRINCIPAL AIR ROUTES

ISOHYETS

CORRIGENDA

page 173

Receipts and Payments of Departmental and Board Hospitals.

The figures below should be substituted for those appearing in the table.

Particulars	1964-65	1965-66
Receipts—	\$'000	\$'000
Public Subscriptions, Legacies, etc.	881	448
Total	29,729	31,441
Payments—		
Capital Expenditure	6,761	6,604
Total	29,557	31,765

page 305

Timber Production

The figures for Timber-Sawn for 1965-66 should read 211,638 in lieu of 214,015.

CHAPTER 1—DISCOVERY, COLONIZATION AND DEVELOPMENT

WESTERN AUSTRALIA—AN HISTORICAL SURVEY

Contributed by

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The earliest inhabitants of Western Australia were the people now known as the Australian Aborigines, a brown-skinned people of medium height and slender build, who migrated to Australia from Southern Asia at least 20,000 years ago. In the absence of animals suitable for domestication or grasses suitable for cultivation, the Aborigines remained a nomadic people dependent on hunting and food collecting and with simple but effective implements made of stone, bone or wood. Nevertheless they had achieved a delicate balance with an extremely harsh environment, and the limitations of their technology were compensated for by an extremely complex and satisfying religious and cultural life.

For many thousands of years the Aborigines occupied Australia in tranquil isolation from the rest of the world. It is likely that Indonesian fishermen and traders, and perhaps some Malays and Chinese, occasionally visited some parts of the continent including the Kimberley coast, but their influence cannot have penetrated far inland. To the developing civilization in Europe, Australia remained a complete mystery; a hypothetical Great South Land was often drawn in at the bottom of maps of the world, but there was no real evidence for its existence. By the sixteenth century, however, the improvement of shipbuilding and navigational techniques enabled Portuguese and Spanish sailors to explore the Pacific and come close to the north-east coast of Australia. The long period of isolation was nearing an end.

The first Europeans definitely known to have visited the shores of Western Australia were the crew of the tiny Dutch sailing ship, "Eendracht", which in October 1616 explored the area now called Shark Bay. We can speak with certainty about the visit of the "Eendracht" because its skipper, Dirk Hartog, left behind a pewter dish fixed to a pole and inscribed with the details of the incident. It is possible that other European sailors had reached Western Australia before 1616; indeed there are tantalising fragments of evidence which suggest this, but Hartog and the "Eendracht" remain the earliest authenticated visitors.

From 1616 onwards, however, Dutch vessels touched on the Western Australian coastline in rapid succession, some, such as the "Batavia" in 1629 and the "Vergulden Draeck" in 1656, being wrecked there. All of these visits were largely accidental, being brought about by the strong westerly winds which blew ships engaged in the thriving trade between Holland and the East Indies off their course. One exception to this rule was the visit in 1644 of Abel Tasman, who was sent by the authorities of the Dutch East India Company to explore the north and north-west coasts of the new land about which reports were constantly being received. Tasman named the western end of the continent "New Holland", but like all the other early visitors he was not very impressed by what he saw of the arid terrain and its aboriginal inhabitants. Thus although the Dutch had pieced together quite a lot of information about Western Australia by the mid-seventeenth century, they showed no interest in further exploration or settlement.

The first British ship to reach Western Australia was almost certainly the "Trial", which in May, 1621 was wrecked in the vicinity of the Montebello Islands. Two boatloads of the survivors made their way to Batavia. There was no further British activity in the area until 1688 when a group of buccaneers in the "Cygnets" spent some time on the north-west coast, beaching their vessels for repairs in King Sound. One of these men was William Dampier, who subsequently published an account of "New Holland" in a volume called *New Voyage Around the World* which attracted a great deal of attention. The British Government was stirred into outfitting the "Roebuck" and commissioning Dampier to make a further voyage of exploration. In 1699 Dampier again visited the north-west coast of Australia, from Shark Bay to the Dampier Archipelago, and kept a careful record of all that he saw. On both occasions Dampier, like the Dutch, formed an unfavourable impression of "New Holland", which he described as dry, sandy, and unsuitable for agriculture. "The inhabitants of this country" Dampier described as "the miserablest people in the world", and he held out little hope of profitable trade with them. Such comments did not encourage governments to spend further money on investigation, and for another one hundred years there was little activity off the west coast.

In the meantime, Captain James Cook in the "Endeavour" had in 1770 discovered the east coast of Australia, and his reports about it were much more favourable than those of earlier sailors about the north and west coasts. Cook formally claimed the eastern portion of "New Holland" for the British Crown and named it "New South Wales". Thus it came about a few years later that the British Government, no longer able to send convicts to a newly-independent America and with gaols bursting at the seams, decided to make New South Wales the site for a new penal colony.

In January, 1788, Captain Arthur Phillip arrived at Sydney Cove with a party of convicts and marines and the European occupation of Australia had begun, though it was some time yet before Western Australia was colonized, for Phillip's commission as first Governor of New South Wales gave him authority over little more than half the continent. In 1825 Governor Darling's commission was extended beyond that of his predecessors to cover two-thirds of the country, but the western third remained unclaimed territory. However, the colonization of New South Wales had provided a base for more detailed exploration of Australian coastal waters and by the 1820s the western coast had been extensively charted by two enterprising British naval officers, Matthew Flinders and Philip Parker King, and by French navigators such as Baudin, Hamelin, and Freycinet.

The interest being shown in "New Holland" by the French alarmed the British Government slightly, and although the area was still not formally claimed for Britain a small military garrison under the command of Major Edmund Lockyer was sent from Sydney to keep out "trespassers". On Christmas Day, 1826 Lockyer and his party arrived at the majestic anchorage of King George Sound; the tiny and isolated outpost they established there was the first British settlement in Western Australia. This was not intended to be a permanent settlement, but before its abandonment in 1831 a full-scale colony was established several hundred miles up the west coast.

THE SWAN RIVER COLONY

The British authorities were reluctant to add the trouble and expense of a new and remote colony to their already vast imperial responsibilities, but their hand was forced by a combination of pressures. A naval officer named James Stirling, who was in Australian waters in 1826-27 in command of H.M.S. "Success", secured permission from Governor Darling to visit the west coast. In March, 1827 Stirling spent a fortnight examining the Swan River area, hitherto better known to the Dutch and French than to the British. His report, and that of the New South Wales Government Botanist who accompanied him, spoke in glowing terms about the desirability of establishing a permanent settlement on the Swan, and Stirling offered to lead a party for this purpose. Governor Darling was easily persuaded to endorse the proposal but the British Government firmly rejected it and the scheme might well have ended there had Stirling not been invalided back to London in 1828. Once he had recovered from his illness Stirling lost no time in seeking support for his plan for a Swan River colony, and he soon aroused the interest of a syndicate of capitalists who were prepared to invest large sums there. Stirling's frequent visits to the Colonial Office, together with his evidence that there was considerable public support for a new colony and recurrent rumours that the French still had designs upon "New Holland", at last overcame official reluctance.

In November, 1828 Captain Fremantle was despatched in H.M.S. "Challenger" to take formal possession of the western third of the Australian continent, and this he did on the 2nd May, 1829. In the meantime the Colonial Office had announced that a colony was to be established at the Swan River with Captain Stirling as its first Lieutenant-Governor and that all settlers who arrived there before the end of 1830 would be granted one acre of land for every one-and-sixpence worth of capital, stock or equipment they took with them, with a further two hundred acres for every labourer they took. These grants were to be absolutely free provided that the land was developed within ten years of arrival, though the settlers had of course to meet the expense of transporting themselves, their families and their servants to the colony.

These were remarkably favourable terms and they caused a great deal of excitement in an England where social status was still largely dependent on landownership and where land was increasingly difficult to obtain. The Colonial Office was bombarded with enquiries about the proposed colony and there were references in the press to "Swan River Mania". Many of the enquirers ultimately stayed at home, or went elsewhere, but there was no shortage of those who decided to throw in their lot with the new colony. Perhaps the most famous of the early colonists was Thomas Peel, son of a wealthy Manchester manufacturer and merchant, and cousin of the Tory Prime Minister, Sir Robert Peel. Peel was promised no less than 250,000 acres of land on the south bank of the Swan in return for taking out 450 workmen and

sinking his fortune of at least £20,000 in the Colony. Many of the other colonists were ex-naval or military men who could not afford to bring up families in England on the half-pay to which they had been retired after the Napoleonic wars. Others were younger children of the minor gentry and clergy with small expectations at home, or merchants who had amassed a modest fortune and wished to take up land. Such people were attracted by the Swan River scheme not only by the cheap land but because, unlike New South Wales, this was to be a colony for free men and free men only.

Captain Stirling set sail for the colony in the transport ship "Parmelia", which was accompanied by H.M.S. "Sulphur" bearing a detachment of troops under the command of Captain F. C. Irwin. Other officials in the party were J. S. Roe, who was to be Surveyor-General and Peter Brown, the Colonial Secretary. The Colonial Chaplain, Rev. J. B. Wittenoom, followed a few months later. The "Parmelia" arrived off Rottnest Island on the 1st June, 1829, followed by the "Sulphur" a week later, and on the 18th June, 1829 a Proclamation was read and the colony officially came into being. However, wet and wintry weather conditions kept the shiploads of settlers who began to arrive, huddled in tents on Garden Island. The name "Fremantle" was bestowed on a site at the mouth of the Swan River and this was then proclaimed to be the port of the colony. The choice of a capital was more difficult and several sites were toyed with before a spot at the foot of Mount Eliza, twelve miles up river, was selected. The name "Perth" was given to the capital, this being the shire represented in the House of Commons by the Secretary of State for Colonies, and the new town was founded on the 12th August, 1829, with the ceremonial felling of a tree.

The colonists now began to move up to Perth from Garden Island, and by the end of 1829 most of the central blocks had been allocated and occupied. The number of settlers built up with embarrassing speed for twenty-five ships had arrived between June and December and by the end of 1831 the permanent population had reached 1,500. The surveyors could not keep pace with the spate of new arrivals clamouring for immediate land grants, so that the land was occupied most haphazardly and grants allocated with little knowledge of its quality.

In the first instance exploration and settlement was to the south of Perth. Once the land up the river to Guildford had been taken, small settlements were made down the coast at Bunbury and Augusta and on the Vasse River. A party from Perth visited the military outpost at King George Sound, and after that garrison was withdrawn to Sydney in 1831 the area was renamed the Plantagenet District with Albany as its town, and settled by intending farmers. Albany was also important to the infant colony as a port, for it had much better harbour than Fremantle and it was also closer to the main shipping route to Sydney. For much of the nineteenth century therefore, most overseas vessels called at Albany and goods and mail were then carried to Perth either overland or in small coastal packets. Another party led by Ensign Hay at length crossed the Darling Range and found good land in the York-Northam-Beverley district and after Stirling had verified this for himself settlement was allowed to spread in this direction also.

Unfortunately the rate of agricultural development was much slower than had been hoped and the first few years of the Swan River Colony were just such a struggle for subsistence as they had been in New South Wales. Few of the colonists were experienced practical farmers. Few had any conception of what Australia would be like or of the difficulties in bringing virgin bush under cultivation. Few had any idea what implements would be needed in the colony, or how little use they would have for their fine carriages, their pianos and their gracious furniture. Few indeed were accustomed to, or capable of, the manual labour which the shortage of workmen in the colony soon made imperative. Moreover many of the workmen who did come to the colony were little more suited to the pioneering life than their masters, having been recruited from among the paupers of London and other big towns in the south of England.

The delays which occurred in surveying and granting land in the early years added to the problem, as did the poor quality of the soil near Perth and along the coast. Further south where the soil was richer there were dense hardwood forests which were difficult to clear. The best agricultural and pastoral lands of Western Australia lay further inland and to the north and were not opened up for some years. In the meantime many settlers became discouraged and left the colony. Rumours reached England that the Swan River Colony was a stagnant backwater, a place better avoided, and this discouraged further investment and migration.

It was particularly unfortunate that Thomas Peel's grandiose plan did not succeed, for this might have given the colony the boost it needed. Peel fulfilled his undertaking to bring out 450 immigrants but he arrived too late to qualify for his original grant on the south bank of the Swan and had to be

content with a quarter of a million acres of coastal sandplain and swamp between Armadale and Pinjarra. He proved incapable of running his vast estate, his men deserted him, his partner failed to send essential equipment and supplies, and the whole scheme collapsed. A land settlement scheme at Australind organized by the Western Australian Company, a few years later, was also unsuccessful.

For those who remained in the colony and settled down to adapt themselves to the hard conditions and make the best of their new home, life was relatively uneventful through the 1830s and 1840s. Even after the establishment of colonies in South Australia and Victoria in the mid 1830s the Swan River settlers were still isolated by many hundreds of miles from other European settlements, and visitors were few. The Aborigines did not offer any real resistance to the white men who displaced them from their ancestral lands, though in 1834 thirteen Aborigines and one white policeman died as a result of the "Battle of Pinjarra", the only serious clash between the two peoples.

The colonists were too scattered and too absorbed in wresting a living from the soil for there to be much social and cultural life, though in Perth itself there were regular balls, picnics, race meetings, and musical evenings, with Government House the centre of polite society. From the beginning the Swan River settlers emphasised the fact that theirs was a "gentleman's colony" as opposed to the "pick-pocket colonies" of New South Wales and Van Diemen's Land, and for many years Western Australia remained the most "English" of the antipodean colonies. Divisions between classes were naturally more fluid and more informal than in Britain, but an elite group of wealthy land-owning families quickly established a monopoly first of social prestige and later of political influence. There were few facilities for education in the early years. Those who could afford to do so imported governesses for their children until they were old enough to be sent to English boarding schools, but most children received scarcely any schooling. There were few clergymen in the colony but devoted lay people saw to it that religion was not entirely neglected. From 1840 onwards the colonial government subsidised the main denominations and Anglican, Wesleyan and Congregational churches were built. Catholic priests arrived from Ireland in the 1840s, and at much the same time a party of Spanish Benedictine monks founded a monastery and mission to the Aborigines at New Norcia.

Until 1838 Captain Stirling remained governor of Western Australia, as the Swan River Colony came to be known following the suggestion by Matthew Flinders that the continent as a whole should be called Australia. He was succeeded by John Hutt, who held the office from 1839 until 1846. For the first few years Stirling wielded absolute and undivided authority. In 1832 Legislative and Executive Councils were created, composed of a handful of government officials and later a few wealthy colonists nominated by the governor, but in practice for more than half a century the governor remained the supreme power in the colony.

THE CONVICT ERA

By the late 1840s, two decades after the colony's foundation, the population of Western Australia was still less than 5,000 strong and the rate of economic development remained painfully slow. An impasse had been reached. The colony could not attract the labour and capital it needed until it showed signs of more dynamic progress, but without additional labour and capital, progress was impossible. In desperation the leading colonists swallowed their pride and asked the British Government to send out convicts to Western Australia. Their request was acceded to with embarrassing speed, for by this time New South Wales had refused to accept any more convicts and Britain was once again facing its old problem of overcrowded gaols. In June, 1850 the first boatload of convicts arrived, before any preparations had been made for their reception and deployment. Convicts continued to be transported to the colony for a period of eighteen years, the total number sent being 9,668, all of whom were men. The last party arrived in 1868 and thereafter the number of convicts gradually dwindled, though it was not until 1886 that the convict system was finally disbanded.

Each convict spent an initial period under direct government control, usually employed on public works, and then was given a ticket-of-leave to work for a private employer in one of the country districts. A man with a ticket-of-leave remained under the supervision of police and magistrates and could be re-arrested for even the most trivial of offences, but he had a choice of employers and had to be paid wages. In due course a well-behaved ticket-of-leave holder could apply for a conditional pardon, which made him a free man provided that he did not return to the United Kingdom before the expiration of the full term of his sentence. This scheme differed considerably from the haphazard assignment system of New

South Wales, and the treatment of convicts in Western Australia was also less brutal than had been the case in the eastern colonies. Chain gangs, solitary confinement, and the cat-o'-nine-tails were still used, but they were used less frequently and less indiscriminately.

One of the most obvious ways in which the convicts made an impact on Western Australia was that their labour gave the colony its first good roads, bridges, and public buildings. Before 1849 there had been neither the money nor the labour for public works; even between Perth and Fremantle most of the traffic had been by river because the road was so bad. The availability of convict labour changed this and though for the first few years the convicts were used mainly for the construction of buildings for themselves and their gaolers, later the benefits of their work were spread around the colony. The streets of Perth and Fremantle were levelled and improved; a main road to Albany was cleared; scores of bridges were built including a new causeway at Perth; jetties were constructed at Bunbury and Busselton; and courthouses were built in all the major country towns. In Perth itself the convicts were solely or partially responsible for such buildings as the old Perth Boys' and Bishop Hale's schools, the Town Hall, the Pensioners' Barracks, and a new Government House. By 1870 Perth gave an appearance of solidity and prosperity and looked like a town rather than an untidy village.

Convict labour also gave a boost to agriculture and other industry, for the settlers now had a much larger work force on which to draw. Moreover there were more people to be fed, clothed, and housed, and there was a more reliable flow of shipping to and from the colony, so that both the internal and external market for colonial produce was expanded. The introduction of convict transportation also injected much needed capital into the colony, for the British Government had necessarily to spend a great deal of money on feeding, clothing, and guarding the convicts.

As a result of these and other factors the colony developed much more rapidly in the 1850s and 1860s, the convict decades, than it had done in its first twenty years. The population soared from 5,886 in December 1850 to 22,915 in December 1869, and clearly the arrival of nearly ten thousand convicts and five-and-a-half thousand assisted migrants, sent out as part of the colony's bargain with the British Government, had a lot to do with this. The total area of land under cultivation increased sixfold in the same period, and the number of sheep, cattle and other livestock kept pace with this rate of expansion. Wool-growing boomed just as it had done in the eastern colonies thirty years before, and this was particularly valuable because it provided the colony with an export industry, most of the clip going straight to Britain. Other useful exports were hardwood timber to South Australia, sandalwood to China and horses to India.

With so much progress being made, some colonists began to feel that the colony was ready to stand on its own feet again. At much the same time the British Government came around to the view that transportation was an expensive and inefficient method of dealing with the penal problem and in 1865 it announced that no further convicts would be sent to Western Australia after 1868. The eastern Australian colonies were jubilant at the news, for they had long objected to the steady trickle of ex-convicts making their way across the continent, and most Western Australians were also pleased with the decision. However, in the 1870s and 1880s it became apparent that the colony had been more dependent on the convict system than most people had realized. In the twenty years after the end of transportation the rate of population growth dropped back to only half that of the previous twenty years, and for a time the agricultural industries actually lost ground. A series of bad seasons aggravated the problem, and, for a time, food supplies had once again to be imported. Fortunately the export of sandalwood and hardwoods continued to prosper and the pastoral industry also flourished, the total number of sheep in the colony being in excess of one-and-a-half million by the mid-1880s. Another bright feature of the period was the dramatic rise of the pearling industry off the north-west coast to become a valuable export-earner.

As time passed, the search for minerals, timber, and better farming land, plus curiosity and adventurousness, led the colonists to explore their vast territory more widely and the frontiers of settlement spread. In the 1850s and 1860s the South-West was extensively occupied as far south as Albany and Kojonup, and to the north the Greenough district was opened up and quickly became the principal wheat-producing region. In the 1870s the pastoralists pushed further north to occupy the De Grey, Gascoyne and Murchison districts, and by the 1880s even the Kimberley districts were beginning to be settled. The completion in 1877 of the Overland Telegraph line connecting Perth with Adelaide and Darwin and thence with the outside world did much to reduce the isolation of the colony, and railway building

in the late 1870s and the 1880s improved communication and transport within the colony. However, the scope of such works was limited by the impoverishment of the colonial treasury in the post-transportation period.

Part of the price which the colonists paid for their convict labour was that political development was very slow. Throughout the convict era Western Australia was ruled by semi-autocratic governors sent from Britain, with the aid of their paid officials and a few prominent settlers chosen by themselves. Once transportation ended the colonists lost no time in agitating for a greater voice in the conduct of affairs, and in response to their demands a new constitution was introduced in 1870 embodying the principle of representative government. Thereafter the Legislative Council consisted of eighteen members, twelve of whom were elected by the colonists, and was presided over by its own Speaker rather than by the Governor. However, the powers of the Council were very restricted and when the Governor and the Council clashed, the former always prevailed.

The introduction of ten thousand convicts changed the character of Western Australian society much less than many people feared. Naturally there was a slight increase in lawlessness but few of the convicts committed further serious crimes in the colony and bushranging was less common than it had been in eastern Australia. The colony was so isolated that few convicts attempted to escape from it, though a party of sixty Irish Fenians who arrived on the last convict ship caused some trouble. One of them, John Boyle O'Reilly, escaped by stowing away on an American whaler in 1869, and seven years later he successfully arranged for a group of his friends to abscond from Fremantle Gaol to another American ship, the "Catalpa", which escaped because the local authorities were afraid to fire on the American flag. Such incidents were rare, however. Most of the convicts gave no trouble at all, and the policy of dispersing them around the agricultural districts enabled them to be absorbed so easily that they soon became indistinguishable from the rest of the working-class population. Since all of the convicts were men and few of their wives were prepared to accompany them, even when offered a free passage, the ratio of men to women in the colony rose as high as two to one for a time. However, the Government saw to it that most of the assisted migrants brought out to the colony were young single women, mostly Irish, and this helped to redress the balance of the sexes. Fortunately there was little prejudice against the convicts once they had served their sentence, and marriages between ex-convicts and free women were common. At the other end of the social ladder, the grip of the old-established land-owning families on the affairs of the colony remained unchallenged during and immediately after the transportation period. Western Australia was a quiet and conservative colony and retained its quaintly "English" flavour well into the 1880s. Though no longer the stagnant backwater of the 1830s and 1840s, it was still very much the "Cinderella" of the Australian group of colonies when compared with its brash and prosperous neighbours. However, before the end of the century the state of the colony was altered dramatically by the discovery of gold.

THE GOLD RUSHES OF THE 'NINETIES

The Western Australian colonists had always hoped that one day gold would be found in their colony, just as it had been in most of the others, and in 1885 their dream began to come true. The first goldfield to be proclaimed as such was situated at Halls Creek in the Kimberley district, a remote spot some 300 miles east of Derby and 250 miles south of Wyndham. Despite its extreme inaccessibility and the scarcity of food and water there, several thousand men flocked to it as soon as the strike was announced. The Kimberley gold was exhausted within a few years but the experienced prospectors it had attracted to the colony soon began to find payable gold elsewhere. From the Yilgarn and Pilbara fields, which were both proclaimed in 1888, the golden trail led through the Ashburton and Murchison finds in 1890 and 1891, to the fabulous discoveries of Bayley and Ford at Coolgardie in 1892 and of Hannan, Flanigan and O'Shea at Kalgoorlie in 1893. Suddenly Western Australia came to life and began to overtake the eastern colonies with giant strides.

While the gold rushes were at their height thousands of men streamed towards the 'fields on foot, on bicycles, on camels and horses, across hundreds of miles of arid scrub and desert. Settlements rose and fell almost overnight as rumours of new finds lured diggers from one area to another. Even on the established fields conditions were very tough in the early years, with makeshift huts or tents for shelter, a continual shortage of food and water, high temperatures, choking red dust, and little or no sanitation. The death toll was high from thirst, dysentery and typhoid, but by and large the diggers were law-abiding and there was little of the violence of the Californian gold rushes or the bushranging of the Victorian diggings.

In the early days most of the diggers prospected for alluvial gold by dry-blowing, or sank shallow shafts in search of gold-bearing reefs. Each man worked his own small claim, or joined together with a few mates to do so. Alluvial mining of this kind reached its peak in 1897 and then fell away rapidly. As early as 1894 it had become apparent that the richest deposits lay underground and required expensive machinery and large-scale operations. By the end of the 'nineties the average digger had reluctantly abandoned his hopes of easy wealth and turned to working for wages in deep-shaft mines operated by large companies. The decline of alluvial digging brought to a close the colourful pioneering phase of the gold boom, but the value of gold production continued to rise yearly until 1903 when it reached a record of more than 2 million ounces. The bigger centres such as Kalgoorlie gradually took on a more permanent appearance with hotels, theatres, hospitals and schools being constructed. With the arrival of the wives and children of miners in increasing numbers, the goldfields had begun to settle down.

One indication of the startling impact which the discovery of gold made on the colony was that the population leapt from 35,000 in 1885 to 101,000 in 1895, and by 1904 had reached 239,000. In other words the number of people in Western Australia increased almost sevenfold in the space of twenty years. Most of the new arrivals came from eastern Australia, which was suffering from a severe depression and a series of prolonged strikes in the early 1890s. Quite a large number migrated directly from Britain and there was a sprinkling from Europe and North America. By 1901 the "old colonists", those who had been born in Western Australia or had lived there before the gold rushes began, were in a distinct minority in their own colony.

The gold boom attracted capital as well as people to the colony; British investors lost confidence in the other Australian colonies in the late nineteenth century but they vied with each other for opportunities to invest in Western Australia. More than 600 companies were floated in London for mining operations in Western Australia and shares changed hands feverishly in London, Perth, and Kalgoorlie, often at inflated prices. Large sums of money were thrown away on speculative or bogus ventures, but the more successful mines returned rich dividends to their shareholders.

From 1890 onwards the Colonial Government boldly embarked on a programme of large-scale developmental works financed by extensive borrowing on the London money market. The Eastern Railway was extended to Southern Cross in 1894 and then on to Coolgardie and Kalgoorlie. At the same time a new South-Western line was constructed, and the Government encouraged private investors to build the Great Southern line to Albany and the Midland Railway line into the northern wheatbelt. Fremantle Harbour was dredged and moles were built to make it a deepwater port, and ships were encouraged to make Fremantle rather than Albany their main port of call. Not least among the Government works, most of which were presided over by C. Y. O'Connor, the colony's brilliant Engineer-in-Chief, was the Eastern Goldfields Water Scheme. This ambitious project which was completed in 1903, piped fresh water 350 miles from Mundaring Weir to Kalgoorlie and also supplied the agricultural districts along its route.

Not all of these projects were for the benefit of the goldfields, indeed it was the policy of the Government to channel much of its revenue and loan money into agricultural and pastoral development so that the colony would have a solid base to fall back on when the gold began to peter out. Thus the Homestead Act of 1893 allowed bona fide settlers to take up small holdings free of charge provided they made specified improvements. An Agricultural Bank was founded in 1894 to finance new farmers, and an Agricultural Bureau was opened to give them advice. Moreover, the Government placed tariffs on imported livestock and foodstuffs to give the farmers further encouragement. With all these incentives and a vastly expanded local market as well, the agricultural industries could scarcely fail to prosper, and despite some bad seasons the acreage under cultivation soared. The pastoral industry experienced a lean period in the early 'nineties but recovered around the turn of the century, with wool remaining a valuable source of export income. Other established industries such as pearling and timber shared in the general prosperity and various forms of light manufacturing industry sprang up around Perth and its metropolitan area.

The changed economic circumstances of the colony were gradually reflected in its politics. In 1890 a new constitution conferred upon Western Australia the same kind of responsible self-government which the other colonies had enjoyed for thirty years. The old Legislative Council was abolished and in its place there was to be an elected Legislative Assembly of thirty members and a nominated Legislative Council of fifteen members; executive government was to be entrusted to a Premier and Cabinet responsible to the Assembly.

When the new parliament met in 1891, Sir John Forrest was appointed as the first Premier of Western Australia, a position which he retained for a decade. A native-born Western Australian and a former explorer and Surveyor-General, Forrest gave the colony the strong leadership it required. There were no political parties at this stage and all members prided themselves on their independence, but Forrest's ministry could always muster the support of a majority in the Assembly.

The miners had little to do with the movement to secure responsible government and after it was granted, the restricted franchise meant that few of them were eligible to vote, and the electoral boundaries left the mining districts practically unrepresented. At first the miners were too preoccupied with the search for gold to pay much attention to their political rights, but as they became dissatisfied with the Government's mining regulations, high tariffs and freight charges, and emphasis on agricultural development, they began to agitate for reform. The protests of the mining community strengthened the hand of the more liberal representatives from metropolitan and agricultural constituencies and by 1901 all adult men and women had been granted the right to vote in elections for the Legislative Assembly, which was increased in size to give reasonable representation to the goldfields. The Legislative Council had been enlarged and made elective, and payment of members of parliament introduced. For the time being the old colonial elite remained in control of the government but it was obvious that their days were numbered, for the transfusion of men and ideas which it had received had changed the character of the colony and brought it much more into line with the rest of Australia.

This trend was at once demonstrated and reinforced by the colony's reaction to the movement for the federation of the Australian colonies. Forrest himself favoured federation but most of his colleagues and supporters were reluctant to relinquish to a central government the powers which they had only just received, and feared that Western Australia would suffer from being yoked with areas which were economically more advanced. On the other hand, the miners were solidly in favour of federation, partly because so many of them had come from the eastern colonies and partly because they hoped that a central government would be more sympathetic to their needs than the local government was. When the Government refused to allow a referendum on the subject, the goldfields petitioned the British Government for separation from Western Australia and the creation of a new colony which could then federate in its own right. Although Britain did not take this request seriously, the agitation on the goldfields helped to force the Government's hand. A hasty referendum showed a heavy majority in favour of federation, and the Colony of Western Australia was just in time to become an original State of the Australian Commonwealth when it was proclaimed on the 1st January, 1901.

CONSOLIDATION 1901-29

The impetus of the gold rushes naturally carried over into the first decade of the twentieth century ; indeed gold production did not reach its peak until 1903. But after the turn of the century gold no longer dominated the colony as it had done in the 1890s. The mining population dwindled steadily and agriculture took up the slack, just as the Government had hoped and planned. The thirty-year period between federation and the onset of the great depression was for Western Australia a time of consolidation of the gains made during the gold boom, through the development of primary resources.

The incentives to agricultural expansion which Forrest had introduced in the 1890s were continued and supplemented by all the governments of this period. Newton Moore and James Mitchell were perhaps the principal architects of the expansion of the wheatbelt, but Labour Premiers in John Scaddan and Phillip Collier ably seconded their efforts. All the land along existing railway routes was surveyed and thrown open on generous terms and more than 2,500 miles of new line was constructed, most of it between 1904 and 1919, to give access to hitherto unsettled areas. Settlers were enabled by the experimental work of the Department of Agriculture (formerly the Agricultural Bureau) to push out in an easterly direction into districts which earlier generations had considered too dry for farming. Most significant in this respect was the development of two new strains of wheat, Nabawa and Bencubbin, which were particularly suited to local conditions. Through its Agricultural Bank the Government made money available to almost anyone who was prepared to try his hand on the land. Moreover, once the torrent of gold-seekers tapered off the Government began to bring out assisted migrants from Great Britain in considerable numbers. Thirty-three thousand people arrived in this way before the outbreak of the Great War in 1914, with a further forty-three thousand in the 'twenties, and many of the "new chums" were turned into farmers.

These policies soon produced results. The acreage under cultivation trebled between 1905 and 1911, and trebled again between 1911 and 1916. The war gave a slight check to development, but in the 'twenties wheat production trebled again to reach a record of thirty-nine million bushels in the 1929-30 season. Long before then Western Australia had been transformed from an importer of grain and flour to a large-scale exporter; indeed wheat had displaced gold and wool as the State's principal export commodity.

Of course not all government policies succeeded as well as this, the most notorious failure being Sir James Mitchell's attempt in the 1920s to found a dairying industry. Under a plan known as the Group Settlement Scheme, British migrants and others were sent in small groups to various spots in the south-west corner of the State and set to work in teams at clearing the heavily-timbered land. Once this had been done each man was allocated a block and equipped with a home and stock. Unfortunately the inexperience of the men, their difficulties in clearing the land, and the poor prices obtained when their farms did begin to produce, meant that many of the "groupies" gave up in despair. The State did receive some benefits from the scheme but scarcely in proportion to the money outlayed. At the other end of the State the Kimberley beef cattle industry also made little progress, due to transport difficulties and the paucity of markets.

Most other primary industries flourished, however. The increasing popularity of mixed farming in the southern wheatbelt kept sheep numbers and wool production on the rise despite a degree of stagnation in the northern pastoral areas. Fruit and vegetable growing expanded, with the Harvey irrigation scheme of 1916 and the introduction of banana growing near Carnarvon in the 'twenties being noteworthy developments. The Australia-wide wave of railway and telegraph construction and general building ensured the prosperity of the timber industry, and pearling reached its peak just before the outbreak of the war.

Secondary industry made much less progress in this period and was almost insignificant in the overall economy of the State. In this respect some of the fears of the anti-federationists may have proved justified, for the Commonwealth Government's twin policies of external tariff protection and interstate free trade made it almost impossible for infant Western Australian industries to compete with established industries in the Eastern States. Apart from this the new Commonwealth Parliament and Government did not make much impact on the lives of most Western Australians. Even after the completion in 1917 of the Transcontinental Railway Line, part of Western Australia's price for federating, Melbourne and later Canberra still seemed remote and irrelevant to the citizens of the West, though in fact the financial supremacy of the Commonwealth over the States was growing rapidly in this period.

In the political sphere Western Australia experienced several important developments in the first three decades of the twentieth century. In 1901 Sir John Forrest left State politics to enter the first Federal Cabinet and with his departure the State was plunged into a period of unstable Ministries, which culminated in the formation of a party system. Among the gold seekers of the 1890s there had been some experienced trade unionists, who were largely responsible for organizing Western Australia's first Trades and Labour Congress in 1899. This Congress decided upon the formation of a Political Labour Party—which at the State elections of 1901 captured eight seats in the Legislative Assembly. Only three years later the State had its first taste of Labour rule when a minority government led by Henry Daglish held office for twelve months. The rapid rise of the Labour Party as a parliamentary force compelled the existing independents and liberal and conservative factions to come together to form a Liberal Party, which governed from 1906 until 1911. In the latter year Labour won a resounding electoral victory which enabled it to enjoy five years of office and to experiment with State socialism of a mild kind. Nationwide controversy about conscription for war service led to a serious split in the Labour Party in 1917, however, and its leader, John Scaddan, and some of his followers joined a Nationalist coalition with the Liberals. For a few years political instability returned, but in the 'twenties the State settled to the regular alternation of Nationalist and Labour Ministries. One complicating factor was the Country Party, which had appeared on the scene in 1914 to represent the interests of the farming community. The Country Party normally supported the Nationalists, but not without periodic tensions and disagreements within the non-Labour camp.

Western Australia loyally backed-up the Commonwealth Government's decision to enter the 1914-18 war in support of Britain, by providing more volunteers for military service overseas, in proportion to its population, than any other State. The absence of so many able-bodied men caused difficulties in some industries, as did the disruption of shipping to overseas markets, but the war did not otherwise change the tempo of life very much for those who remained in the State.

By 1929, the centenary of its foundation, Perth had grown into quite a large city for, despite the State's reliance on primary industries, more than fifty per cent. of its population lived in the metropolitan area. Though there were fresh challenges and fresh opportunities for every generation, the introduction of modern conveniences had made Western Australia a more comfortable place to live in than it had been during the pioneering years. Most parts of the State were well supplied with fresh water, and Perth, at least, had electricity. In addition to its railways, the State had an improving network of main roads and almost forty thousand licensed motor vehicles to use them. In the city these were supplemented by a tram service, which had begun around the turn of the century, and several private bus companies. As befitted a State of vast distances and dispersed population, Western Australia was also well to the fore in the development of civil aviation. W.A. Airways, which was founded by Major Norman Brearley in 1921 for operations in the North-West, was Australia's first commercial airline, and by 1929 there was also a regular Perth-Adelaide service. In 1913 the University of Western Australia received its first students, and its establishment crowned a system of free and secular State education which catered for the needs of children all over the State.

In its centenary year of 1929 the State was able to look back over one hundred years of progress with a great deal of satisfaction. Few people had any inkling of the dark days which lay just around the corner.

DEPRESSION AND WAR

The worldwide economic depression of the early 1930s affected Western Australia severely. There were several reasons for this, one of the most important being the State's over-dependence on a few primary industries, which left it vulnerable to fluctuations in prices. Then again, the Government had financed its ambitious development schemes, many of which had not yet begun to pay for themselves, by raising large and frequent overseas loans. When the sources of overseas capital dried up, not only did the public works programme come to an abrupt halt, but the Government had great difficulty in meeting interest payments. To make matters worse, the financial crisis was reinforced by a series of poor seasons.

The onset of the depression first attracted attention in Western Australia through a steep fall in the world prices of wheat and wool in 1930. As the situation worsened many farmers were forced off the land, and there was a general withdrawal from the marginal areas which had been brought under cultivation during the optimistic years of prosperity. When the Government cut back its public works, and commercial activity of all kinds slowed to a walk, thousands of men found themselves out of work. Even those who kept their jobs had to accept wage cuts, the State basic wage being slashed from £4 7s. (\$8.70) to £3 9s. (\$6.90) per week. Oddly enough the only industry to benefit from the depression was gold mining. The financial difficulties of the 1930s led to an increased world demand for gold and induced the Commonwealth Government to offer a bonus to producers. This bonus plus a rise in the price of gold caused by devaluation of the currency, brought prosperity back to the goldfields and helped to draw off some of the unemployed.

Elsewhere in the State the picture was a gloomy one. Some men left their families in Perth and went out to the backblocks in search of work, or lived in government camps whilst employed part-time on relief projects. Thousands of families were dependent on the "dole" and on handouts from charitable organizations to keep them from starvation. Though few people actually starved, malnutrition was common. The widespread dismay at this turn of events resulted in an increase in lawlessness and violence; on many occasions the police were called in to control rowdy demonstrations by the unemployed.

The impotent discontent felt by so many Western Australians was further reflected in a move for the State to secede from the Australian Commonwealth. The old anti-Federal feeling of the 1890s had never entirely died out, and the social and economic dislocation of the 1930s gave it new life. Those who favoured secession argued variously that Western Australia would never be able to develop secondary industry until it could protect its manufacturers from Eastern States' competition; that the protective tariffs imposed by the Commonwealth for the benefit of manufacturers in the Eastern States increased the costs of farm production to a level which was disastrous for a State dependent on primary industry; and that the Commonwealth Government had starved Western Australia of funds. So strong did the secession movement become that the State Government agreed to hold a referendum on the subject. The Commonwealth prepared a booklet and sent a deputation to argue the case for preserving the Federal union, but when the vote was taken, in April, 1933, a two-to-one majority of voters favoured secession. A delegation was then despatched to London to ask the British Parliament to pass legislation

making Western Australia independent, only to be told that this was constitutionally impossible. Despite the overwhelming vote a few months earlier, the British rebuff was accepted and the secession movement died away, which lends credence to the view that many voters had realised that secession was impossible but had used the opportunity to express their dissatisfaction with the Commonwealth's failure to cope with the depression.

Apart from the secession episode, State politics were very dull during the 'thirties. Labour had the good fortune to be defeated at the polls in 1930, which meant that a Nationalist-Country Party government under Mitchell held office between 1930 and 1933 and incurred the illwill of those adversely affected by the depression. On the same day as the secession referendum, Labour won an electoral victory and embarked on what was to prove to be a period of fourteen years unbroken Labour government, under Premiers Collier, Willcock, and Wise. Of course the real responsibility for dealing with the depression lay with the Commonwealth Government, which by this time had assumed far-reaching economic and financial powers. At first the Commonwealth did not handle the task very well. The Scullin Government was torn by internal divisions and handicapped by its lack of a majority in the Senate and a lack of co-operation from the Commonwealth Bank. Not until 1933 was a definite plan adopted for meeting the emergency and by that time conditions had in any case begun to improve. However, the Premiers' Plan of 1933 did assist the recovery by rallying the nation to a united course of action for the first time. By 1935 conditions were considerably better than they had been at the height of the depression, between 1931 and 1933, but even in 1939, on the eve of the World War, it is doubtful whether the State was back to normal.

Australia, and hence Western Australia, entered the war against Germany on the 3rd September, 1939. Volunteers for overseas military service were called for, as they had been twenty-five years before, and once again the response was extraordinarily good. But for the first two years of the war the lives of those who remained at home differed little from peacetime. All this changed dramatically in December, 1941, when Japan attacked the United States base at Pearl Harbour and began her southward advance through South-East Asia and the Pacific in the direction of Australia. For a time it seemed likely that Australia would be invaded. Several towns in the North-West of Western Australia were bombed and the whole State was placed on a war footing. A total blackout was imposed and air raid shelters were dug all round Perth and in country centres. Most able-bodied men were compulsorily called up for military service and other men and women were directed to work in strategic industries. Food, clothing, and petrol were rationed, and stringent price control introduced, as the nation channelled all its resources into a total war effort.

In response to Japan's entry into the war, Prime Minister Curtin recalled Australian troops from North Africa and the Mediterranean for defence of their homeland, and also turned to the United States for aid. Thousands of American servicemen passed through Australia, and fought side by side with Australians in the Pacific. Fremantle became for a time a major allied naval base for operations in the Indian Ocean and the South-West Pacific. By the end of 1942 the Japanese advance had been halted and the danger of invasion had passed, but the war continued for a further three years before cease-fire agreements were reached in both Europe and the Pacific. By then Western Australians had fought with distinction in practically every theatre of war.

Throughout the war years and the period of reconstruction immediately afterwards, the primary industries on which Western Australia was so dependent were subject to government control. Farmers were told what crops to grow and in what quantity, and their entire output was purchased at fixed prices. This meant that primary producers were protected from the price fluctuations of the 'thirties, at the cost of accepting organized marketing. The shortage of manpower led to further mechanization and in many cases to improved efficiency. Industries located in the North-West and Kimberley regions suffered most from the war, through the closure of the Wyndham Meatworks and the disruption of transport facilities. Manufacturing industry experienced mixed fortunes. On the one hand the need to produce munitions, small arms, and other military supplies led to a growth in factory production, but on the other hand those factories which could not be converted to wartime uses were deprived of their manpower and forced to close. However, the vigorous programme of reconstruction after the cessation of hostilities gave secondary industry a valuable shot in the arm.

The highly-centralised administration of the war and reconstruction years carried Western Australia a stage further towards complete integration with the rest of the Commonwealth. By the 1940s the expanded role of the Commonwealth in both raising and spending revenue, and its monopoly of power in such fields as foreign policy and defence, had made clear its paramountcy over the States. The vast increase in

Commonwealth expenditure in Western Australia reconciled most people to this development, and in contrast to the secession movement of the 'thirties, Western Australia offered more support than any other State for further increases in Commonwealth powers at several referenda held in the 'forties.

A STATE ON THE MARCH

The years since the end of the Second World War have been good ones for Western Australia.

The vigorous immigration policy launched by the Commonwealth at the conclusion of the war received the full support of the State Government, and contributed to a rapid growth in population to reach a total in excess of 836,000 by the Census of 1966. In addition to the British migrants of earlier years, migrants from a wide range of European countries were now included in assisted passage schemes and absorbed into the community without difficulty.

Most of the traditional primary industries enjoyed continued growth and prosperity. In the early 1950s wool prices soared to six times their pre-war level, largely due to stockpiling by nations involved in the Korean War, and a pastoral boom followed. For a time everyone who could lay their hands on grazing land and stock sought to grow wool, but the boom tapered off and by the 'sixties the wool industry had fallen back on an expensive research and promotion campaign to stave off the competition from synthetic fibres. Whereas the woolgrowers returned to their pre-war auction system as soon as they were permitted to do so, wheatgrowers agreed to the continuation of organized marketing. The Australian Wheat Board proved very efficient at disposing of large harvests at reasonable prices, and apart from slight seasonal fluctuations, Western Australian wheatfarmers enjoyed a series of good years. Further mechanization of rural industry and the application of scientific discoveries to combat disease and increase fertility led to improved yields from established farms and the opening up of additional lands. In particular the scientific innovations of the post-war years enabled several million acres of "light" land in the south-east of the State to be brought under cultivation. In addition to many individual holdings in this area, an American syndicate undertook to develop one-and-a-half million acres in the vicinity of Esperance and has made good headway on the project. By 1967 Western Australia boasted of at least thirty-two million acres of arable land and a record wheat harvest of over one hundred and three million bushels. The production of other cereals, fruit, vegetables, pigs, and other primary produce also made excellent progress.

One of the features of post-war economic planning was a revived interest in northern development. Transport facilities for the northern pastoral industry were improved, firstly by the "Air Beef" scheme of 1949, and later through substantial government expenditure on beef roads. However, the pastoralists continued to suffer from marketing difficulties and the deterioration of their land through insufficient expenditure on improvements. In 1961 the State embarked on an imaginative scheme of water conservation and irrigation based on the Ord River in the East Kimberley region. By 1962 a diversion dam had been completed and in subsequent years increasing quantities of cotton, sorghum and other tropical crops were produced, though not until 1967 did the Commonwealth agree to make funds available for the construction of the main dam and irrigation works. The establishment of an American low frequency naval communications station at North-West Cape also contributed to the opening up of the North, quite apart from the mineral boom which was perhaps the most exciting development of the 'sixties.

The search for oil in the north of Western Australia began soon after the war and was quickly rewarded by a strike near Exmouth Gulf in 1953. Not until 1966 was oil found again, this time in commercial quantity, at Barrow Island. Several further finds of oil and natural gas were made subsequently, with a possibility of commercial exploitation in the future. However, the most startling progress has been made in the field of iron-ore extraction. In 1960 the Commonwealth Government was persuaded to lift a long-standing embargo on the export of iron ore and this gave a stimulus to exploration and survey which resulted in the location of thousands of millions of tons of ore reserves. With Japan providing a ready market for the ore and British, American, Japanese and Australian capital available to finance its extraction, developments were very rapid. By 1967 contracts had been approved for the export of 320 million tons of ore, and shipments had well and truly begun; new townships, railways, and port facilities had sprung up in the Mount Goldsworthy, Mount Tom Price, and Mount Newman areas. Moreover, the mineral boom was not confined to iron. Bauxite extraction in the Darling Range was expanding and vast new bauxite reserves were being tested near Gingin and in the Kimberleys. And a wild scramble for nickel shares occurred in 1967, following the successful operation of Australia's first nickel mine, at Kambalda, and the discovery of further deposits in the Eastern Goldfields region.

The two post-war decades also witnessed significant progress in the field of manufacturing industry, beginning with the opening in 1955 and 1956 of an oil refinery and a steel rolling mill at Kwinana, on Cockburn Sound. By 1967 work was well under way on the first stage, the construction of a blast furnace, of the conversion of the rolling mill into an integrated iron and steel complex. Other major industrial concerns were attracted to the Cockburn Sound area by the improved transport facilities and favourable terms offered by the Government, and by the late 1960s Western Australia had at last overcome the handicaps which had inhibited industrial development for so long.

Much of the credit for these achievements must be assigned to the governments of the period, all of which did their best to promote local industry and draw the attention of the Commonwealth to the needs of the State. In its term of office between 1953 and 1959 the Hawke Labor Government sowed the seeds of future industrialization by attracting to Western Australia the oil refinery and steel rolling mill which subsequently became the symbols of a new era in the State's development. The Liberal-Country Party Government led by David Brand, which took over from Labour in 1959 and was still in office at the end of 1967, was even more active in this respect. Brand, and his dynamic Minister for Industrial Development, Charles Court, succeeded in persuading the Commonwealth to make large sums available for beef roads, the Ord River Scheme, and a standard gauge rail link between Perth and the Eastern States, in addition to providing for expanding needs in the field of housing, hospitals, education, transport, and social services. The Brand Government also attracted to the State the vast quantities of private investment capital needed to finance the development of mineral extraction and industrial diversification. Relations between the major parties remained amicable, whichever was in office, and the differences between them were differences of means rather than ends. In the late 'fifties politics were enlivened by the birth of the Democratic Labor Party, but though this party influenced the outcome of subsequent elections, it was not able to win any seats.

The State's capital city, Perth, and the tempo of life in it, naturally reflected all these developments of the post-war years. The city skyline became higher and more modern as nineteenth century buildings gave way to multi-storeyed concrete and glass structures. The Narrows Bridge, spanning the Swan just outside Perth, was opened in 1959, and progress was made on several freeways to cater for increasingly heavy motor traffic. Trams were banished from the city in 1958, and a new Transport Trust took over the responsibility for all metropolitan bus services. The suburbs of Perth sprawled out in many directions to provide accommodation for the growing population. The influence of European migration made itself felt in changes in eating and recreational habits and modes of dress and a slightly more cosmopolitan atmosphere. Something of the characteristic rush and bustle of big cities began to manifest itself, but most Western Australians were determined that the price of progress should not be the erosion of the friendly informality on which they prided themselves.

CHAPTER II—PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

PART 1—PHYSICAL FEATURES AND GEOLOGY

Contributed by

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The development of any country depends on its natural resources and the industry of its people, and there can be few more important investigations for any country than those dealing with the productive capacity of its territory. Natural resources—be they power, mineral, or soil resources—are dependent entirely on the climate, physical features and geology. Looking at the pattern of development of Western Australia we see that for nearly seventy years after the foundation of the Swan River Colony in 1829 agricultural production barely kept pace with the requirements of the small population. The discovery of gold in the 1890's, however, led to a period of rapid expansion, and Western Australia became one of the major gold-producing areas of the world, and with this increase in mining production there was a corresponding expansion of the agricultural and pastoral industries. We are now experiencing an expansion of our secondary industries. Moreover today, with the realization of the extent of the iron-ore deposits of the State, particularly those of the Pilbara, and the discovery of important nickel deposits, we are entering another period of major development in this country. In each of these phases of development we can, if we look closely, see the dominating influence of the geological environment.

The nature of the rocks underlying any region is one of the major factors controlling topography, soil, and mineral resources. The latter is self-evident. The soil, on which we are so dependent, was formed by the weathering of the underlying rocks and many of its characters are due to the parent rock material. Much research has been carried out into trace element deficiencies in soils and the application of the new knowledge has produced astounding results as far as land utilization is concerned. At first sight it would seem fantastic to think of the underlying rocks being in any way responsible for malnutrition of stock, but when it is demonstrated that the malnutrition is due to the lack of some minor element in the fodder which is due to its deficiency in the soil, a deficiency which, in its turn, is due to the absence or relative absence of such elements from the parent rocks from which the soil was derived, the significance of the geological environment becomes evident. Topography which is important in connexion with land utilization, water conservation, power (hydro-electric) resources, and in affecting climate, soil erosion, coastal erosion, transport routes, harbours, and so on is also dependent to a great extent on the nature and structure of the underlying rocks.

It is appropriate therefore that we should consider here the physical features and geology of Western Australia since they, together with the climate, are the primary controls of our soil, mineral, water and power resources, on which our existence and future development are entirely dependent.

PHYSICAL FEATURES

In the broadest way this State can be divided into two physical regions: (i) a tableland (the *Great Plateau*) in various stages of dissection occupying the whole of the interior of the State, (ii) a low-lying narrow strip (the *Coastal Plains*) running almost continuously along the coast from near Albany to Broome. A third physical region, the *Scarplands*, separating the Coastal Plains from the Great Plateau, may be distinguished. This, although only a narrow belt, is a significant one in the southern part of the State because of its importance in connexion with the water conservation schemes on which the metropolitan area, the major gold-mining field in the vicinity of Kalgoorlie, the intervening agricultural and pastoral districts, the irrigation areas on the coastal plains south of Perth, and more recently the wheat belt along the Great Southern Railway, are dependent.

The Great Plateau

The Great Plateau which occupies more than 90 per cent. of the area of the State varies considerably in elevation. In its highest parts (in the North-West) it attains a height of approximately 4,000 feet above sea-level. The greater part is, however, below the 2,000-ft. contour and its average elevation is of the order of 1,000 to 1,500 feet above sea-level. Although there is this considerable variation in level the

changes are so gradual that the plateau character of the country is not obscured and for the most part it may be regarded as having a vast gently undulating surface. Occasional hills (monadnocks, which are remnants of a previous cycle of erosion) rise above the general surface of the plateau.

The Great Plateau may be conveniently subdivided into an area of exterior drainage (where there are definite rivers which flow to the sea), an area of interior drainage (where such water as flows passes into inland basins), and two areas of no surface drainage but which, if they had drainage, would belong to the exterior drainage system. The area of exterior drainage can be marked out by connecting the source of the streams which flow to the sea and if this is done it will be seen that the width of the exterior drainage belt varies considerably. Thus in the Kimberley and North-West Divisions some of the rivers are hundreds of miles long, but in the south-west part of the State many of them are comparatively short. The areas of no surface drainage are in the north North-West along the Eighty Mile Beach from the mouth of the De Grey River to the north of Broome, and on the Nullarbor Plain in the south-eastern corner of the State. The remainder of the country forms the interior drainage area.

In the area of exterior drainage the dominant feature of the extreme south-west and the northern part of the plateau is a reticulate pattern of rather deeply-incised watercourses. In the southern part of the State these deeply-incised watercourses where they pass from the plateau to the coastal plains are of great significance (as has already been mentioned) in connexion with water supply schemes. Elsewhere in the State the marginal portion of the Plateau is drained by rivers that flow to the sea only at times of exceptional rainfall and, speaking in the most general way, have courses at right angles to the coast.

The area of interior drainage is arid and practically riverless. Small creeks run from the higher parts of the country but they either disappear on the extensive flats or reach the shallow basins which are termed salt or "dry" lakes, the term "dry" being used since these so-called lakes are free from water except after fairly heavy or long-continued rain. These "lakes" are generally elongated, narrow, and often winding salt-encrusted flats arranged in long, more or less connected streams. After heavy rain they are covered with a thin layer of water and, after unusually heavy rain, water has been known to flow southwards from one to another of the "lakes" of a string, except towards the western margin of the plateau where the drainage is to the west. It is evident that these elongated "lakes" are the remnants of an old river system developed during a more humid period. The salt lakes are of some economic significance since, on the evaporation of the water, common salt and other substances such as gypsum are deposited on the floor of the lake. The gypsum, which crystallizes earlier than the common salt, is generally blown from the damp surface of the dried-up lake and deposited as dunes of "seed gypsum" on the leeward (eastern) side of the lake. These dunes are utilized, for example at Lake Seabrook north of Yellowdine, as a source of gypsum for plasters. Common salt, which separates later, forms a crust on the floor of the lake when it has been completely dried up and such salt deposits are exploited, for example at Lake Lefroy near Widgiemooltha. In a few of the Western Australian salt lakes significant deposits of alunitic clay have been discovered which have been worked as a source of potash.

Over a large portion of the interior drainage part of the Great Plateau there are extensive sand-plain soils overlying a hard laterite ("ironstone") layer, which is of the order of up to fifteen feet in thickness, below which lies an intensely weathered zone from which most of the nutrient elements so important for plant growth have been leached. These more recent geological formations will be discussed in the section of this Part dealing with geology, but we may note here the significance of this lateritic profile (sandy soils near the surface, "ironstone" a few feet below, and completely kaolinized rocks still deeper) so far as soil fertility is concerned. This lateritic profile is the result of long-continued weathering processes which have resulted in almost complete leaching of the valuable nutrients and as a result soils developed in any part of this profile are generally very poor in character. It is only where erosion has cut through the lateritic profile and still younger soils have been formed by weathering of the underlying rocks that the better soils are found. As has been mentioned, however, with recent studies of trace element deficiencies much can be done with these "light" soils by the addition of suitable nutrients.

The areas of no surface drainage include the Eucla Division and portions of the Eastern Division of the State. This area is occupied largely by horizontal or nearly horizontal limestones of the Nullarbor Plain and the drainage here is sub-surface in character through subterranean streams and caverns in the limestone. The Nullarbor Plain is an extensive monotonously level plain standing at a height of about 600 feet above sea-level. The Western Australian part of the Nullarbor Plain is bordered to the

south by a narrow coastal plain but further east, at the head of the Great Australian Bight, in South Australia, this coastal plain is absent and the southern edge of the Plain is truncated by cliffs which rise almost sheer for 200 to 400 feet above sea-level.

The hills of the Great Plateau are of two kinds, ridged and table-topped. In the southern half of the State the ridged hills, a few of which rise as much as 1,500 feet above their surroundings, are generally elongated in a north-north-west direction, reflecting in their trend the structure of the underlying rocks. The table-topped hills are seldom more than 200 feet above the general level. They are capped with a subhorizontal layer of laterite ("ironstone") and bounded by low cliffs, in many places undercut, which are known in Western Australia as "breakaways." The table-topped hills are relicts of erosion of a former laterite-covered peneplain (the *Darling Peneplain*) which was uplifted in Pliocene times to form the Darling Plateau and has subsequently been subjected to erosion under semi-arid conditions. The ridged hills on the other hand are elongated monadnocks which, being cored by resistant rocks such as jasper bars, withstood erosion and so rise above the general level of the remnants of the laterite-covered Darling Plateau.

The Great Plateau slopes down very gradually to the south and west. The downward slope to the south is interrupted by a narrow broken chain of rugged hills, the Stirling and Mt. Barren Ranges which rise to heights of from 1,000 to 3,600 feet above sea-level. The western margin of the Plateau is, in the south, formed by the "Darling Range" which, being merely the dissected margin of the Plateau, is much better called the *Darling Scarp*. This Darling Scarp is clearly defined between latitudes $31^{\circ} 30' S.$ and $33^{\circ} 30' S.$, i.e., between Moora and Donnybrook, but it is difficult to recognize farther north or south. In the Kimberley Division the mountain ranges are the relicts of erosion between the deeply-incised rivers and in this region the highlands of the plateau terminate abruptly along a steep, deeply-indented coastline.

The Coastal Plains

Bordering the Great Plateau are the Coastal Plains which vary in width. The *Swan Coastal Plain* which extends from the neighbourhood of Perth to near Busselton averages about fifteen miles in width and is divisible into the following belts: a narrow band of moving sand dunes along the coast; a zone, averaging three or four miles wide, of sandy limestone which rises in places to heights of 100 to 200 feet above sea-level; a zone three or four miles wide of loose sand fixed by vegetation; and, abutting against the Scarp which forms the western margin of the Plateau, a zone of clayey soils of about the same width. A strip of low plain extends along the coast at intervals as far north as King Sound and coastal plains of some width occur near Port Hedland and Exmouth Gulf. A narrow plain fronts the cliffs of the Great Australian Bight for some distance and also occurs in other places along the south coast.

The coastline of Western Australia, some 4,350 miles in length, is broken by capes between Wyndham and Broome, between Port Hedland and Shark Bay, and between Cape Naturaliste and Israelite Bay. The intervening parts are comparatively featureless.

It has only been possible here to briefly outline the principal physical features of Western Australia and for a fuller description of the physiography of this State the reader should consult J. T. Jutson's "Physiography (Geomorphology) of Western Australia" (*Geol. Surv. West. Aust. Bull.* 95).

GEOLOGY

More than two-thirds of Western Australia is occupied by the ancient Australian Precambrian shield which is composed of a complex of igneous, metamorphic and sedimentary rocks formed more than 600 million years ago. Most of our mineral deposits of economic importance, except coal, oil and water and superficial deposits such as lateritic iron and aluminium ore deposits and black sand and other alluvial accumulations, occur in these Precambrian rocks. The remainder of the State is occupied by sedimentary basins in which Palaeozoic and later sediments are developed. It is in these younger sedimentary basins that artesian water, coal, oil and natural gas are likely to occur. Finally there are the still younger superficial deposits—laterites, salt-lake deposits, and soils on which much of the economy of this country depends. It will be convenient therefore, in outlining the geology of the State, to consider it under the three main headings:

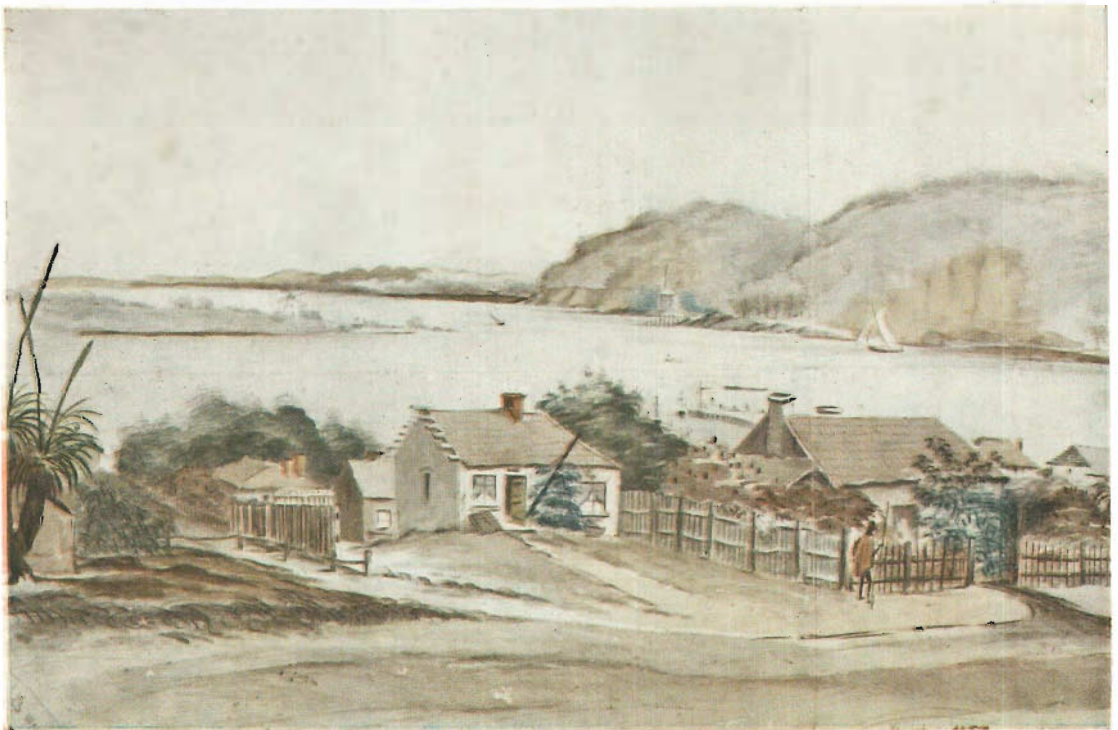
- (a) The Precambrian basement.
- (b) The sedimentary basins.
- (c) The superficial deposits.

The distribution of the solid rocks (omitting superficial deposits) is shown in the accompanying map (see page 18).



PERTH FROM MOUNT ELIZA, 1847
From a watercolour by Horace Samson

Blocks
by courtesy of
The Western
Australian
Art Gallery



PERTH AND THE SWAN RIVER FROM ST. GEORGE'S TERRACE, 1850
From a watercolour by A. Taylor

The Precambrian Basement

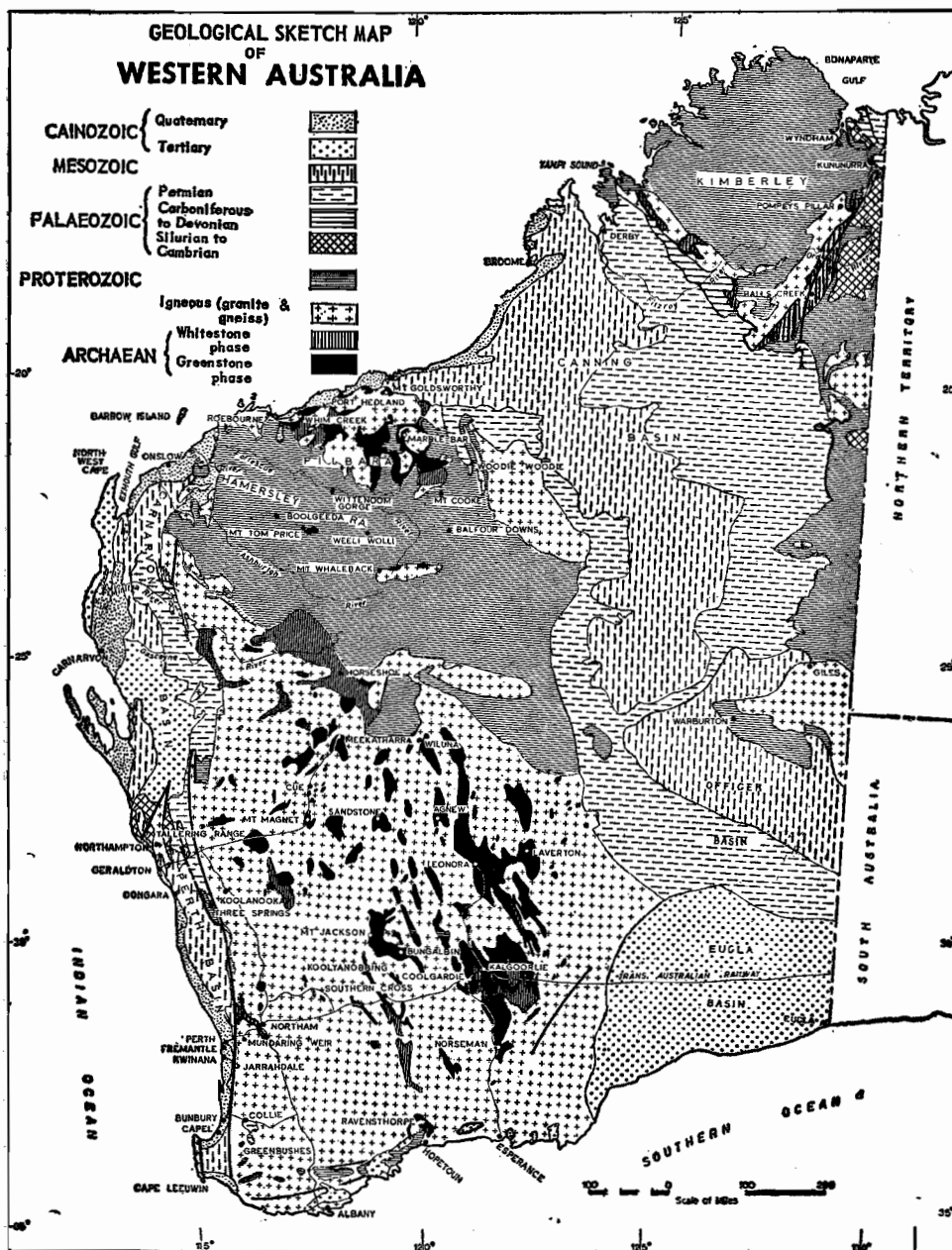
This includes the Archaean and Proterozoic rocks. The Archaean is a complex of crystalline igneous and metamorphic rocks, dominantly granites and gneisses with minor amounts of basic igneous and schistose metasedimentary formations. In places, particularly in the North-West and Kimberley Divisions, this Archaean complex is overlain unconformably by sedimentary and volcanic rocks of Proterozoic age which do not exhibit the extensive metamorphism so characteristic of the older Archaean complex. Within the different areas occupied by the Precambrian rocks the same generalized sequence can be distinguished.

In the Kimberley the oldest rocks are metamorphosed igneous and sedimentary rocks intruded by granite and carrying in places auriferous ore deposits, and these are overlain by un-metamorphosed sediments with basic igneous intrusives. The Precambrian age of all these rocks is evidenced by the fact that in the East Kimberley they are overlain by sedimentary rocks containing fossils of Cambrian age. This is the only area in Western Australia where the Precambrian age of the rocks of this crystalline complex can definitely be proved on stratigraphical evidence alone. In the southern part of the State we find a similar sequence of crystalline schists with intrusive granites and by lithological correlation (which is not a very sound method) we assume that they are Precambrian although they cannot actually be traced through from the Kimberley. We do know that in the Carnarvon Basin these gneisses, schists and granites are older than the Devonian, which unconformably overlies them, and in the Perth Basin they are older than the Permian. During recent years the Precambrian age of these rocks has been confirmed by actual age determinations based on the decay of radioactive elements which occur in them. This work indicates that the bulk of the massive granitic intrusions of the southern part of the State crystallized from a molten state some 2,700 million years ago. Some, however, such as those in the vicinity of Albany and along the south coast, are much younger, being emplaced approximately 1,100 million years ago.

The Precambrian sequence in the North-West Division appears to be the most complete that is present in Western Australia and, from oldest to youngest, is as follows:

The *Warrawoona Succession*, which consists mainly of greenstones and green schists which were, prior to the intense folding and metamorphism to which they were subjected after deposition, basaltic lavas and tuffs with interbedded chemically deposited secondary rocks (jaspilites or banded iron formations) in the upper part of the sequence. These jaspilites have been the protore of important iron-ore deposits such as those of Mount Goldsworthy. The Warrawoona Succession is overlain by a succession (the *Mosquito Creek Succession*) of sedimentary rocks which have also been intensely folded and metamorphosed to various types of platy-structured schists, slates and quartzites. Both the Warrawoona and Mosquito Creek Successions are invaded by granitic igneous rocks emplaced approximately 2,700 million years ago and both carry auriferous ore-bodies. All of these rocks in the North-West Division—the Warrawoona and Mosquito Creek Successions and the granites intrusive into them—are therefore of Archaean age and have been called the Pilbara System. Still younger sedimentary rocks such as conglomerates, sandstones, shales and banded iron formations with interbedded basic igneous rocks, were deposited unconformably on the highly-folded, granite-intruded Pilbara System. This thick succession consists of a number of distinct groups. The three lower groups (the *Fortescue*, *Hamersley* and *Wyloo Groups*) are of lower Proterozoic age as the youngest (the Wyloo Group) is intruded by granite aged approximately 1,700 million years. The two upper groups (the *Breshnahan* and *Bangemall Groups*) are of Middle and Upper Proterozoic age respectively. Of these Proterozoic rocks the Hamersley Group is most important economically since most of the iron-ore deposits of the Hamersley and Ophthalmia Ranges occur within, or have been derived from, the thick jaspilites (banded iron formations) within this group. Except in occasional narrow belts the Proterozoic rocks have not suffered the intense folding that affected the older rocks and consequently they are flat-dipping to horizontally bedded unmetamorphosed sediments. Such sediments cover very extensive areas in the North-West (see Geological Map of Western Australia on page 18) and they are similar in many respects to the flat-dipping Proterozoic sediments which cover the plateau country of the North Kimberley. The final episode in the Precambrian history of the North-West was the intrusion of dolerite dykes and sills into all of the earlier rocks.

Coming to the southern half of the State we find a similar sequence to that in the North-West. In the part of the Precambrian shield extending south of latitude 26° S. the oldest rocks that are recognized are the greenstones of the various gold-mining fields which occur in comparatively narrow belts elongated in a general N.N.W. direction (see Map, page 18). These greenstones, which are for the most part



metamorphosed basaltic lavas, contain interbedded jaspilites and are overlain by metamorphosed sedimentary rocks (generally referred to as whitestones). This System of rocks is the *Kalgoorlie-Yilgarn System*. From the mining point of view it is most important since the auriferous ore deposits of the main mining fields are confined to it and it also contains, in the jaspilites, important iron-ore deposits such as those of Koolyanobbing in the Yilgarn. It appears to be the equivalent of the Pilbara System of the North-West. After the formation of the Kalgoorlie-Yilgarn rocks they were intensely compressed into tightly closed folds with N.N.W.-trending axes. During this period of intense earth-movement alkaline solutions permeated the older rocks, converting them into granitic gneisses which occupy the bulk of the southern half of Western Australia. Subsequently granite magma was intruded as in the North-West. This completes the Archaean sequence. The Proterozoic is represented by a narrow strip of slightly altered sedimentary rocks along the Darling Scarp and the rocks of the east-west Stirling and Mt. Barren Ranges along the south coast. As in the North-West all of these Precambrian rocks are intruded by dolerite dykes.

Putting together the information available throughout the State, we conclude that the oldest rocks found in Western Australia belong to the older part of the Archaean Era. It is a great succession of rocks, generally much metamorphosed, which is called the Kalgoorlie-Yilgarn System in the southern part of the State and the Pilbara System in the North-West region. In the early part of Kalgoorlie-Yilgarn times there was much volcanic activity which took the form of eruptions of basic and intermediate lavas, tuffs, and breccias. These were penetrated, shortly after their extrusion, by intrusions from the same magma; similar events must be occurring now in the interior of great volcanic masses like Etna or Hawaii. In later Kalgoorlie-Yilgarn times, the dominant process was sedimentation, so that the earlier volcanic rocks, with the minor associated bands of sediment, became overlain by a great thickness of sandy and clayey sediments. These sediments must have been derived from some land mass composed of rocks of pre-Kalgoorlie-Yilgarn age but this, possibly the oldest of all rock assemblages, has apparently not yet been found in Australia or any other part of the World.

After the accumulation of the Kalgoorlie-Yilgarn System came a period of intense earth-movement during which the rocks were, in most places, closely folded and regionally metamorphosed. The folding was accompanied by widespread granitic intrusions, some of which consolidated into primary gneisses whereas others soaked into the Kalgoorlie-Yilgarn rocks, penetrating them along bedding planes, joints, and other fractures, and so forming hybrid granitic gneisses by granitization.

Where they were not affected by this First Granite Invasion, the volcanic rocks of the Kalgoorlie-Yilgarn System were regionally metamorphosed, in some places very strongly into dark-coloured schists, in others only very slightly. Similarly, the sedimentary rocks of the Kalgoorlie-Yilgarn System, where they have escaped the first granite invasion, i.e., have not been granitized, are in some places but slightly regionally metamorphosed, in others they are converted into various types of schist and quartzite.

All the Archaean rocks described above were invaded by the "Younger" Granite, which, unlike the "Older" Granite, formed well-defined intrusions many of which are stocks, though smaller offshoots from the same magma, in the form of "porphyry dykes," occur at nearly every mining centre. These events occurred after the folding but before Proterozoic times. Any of the Archaean rocks in Western Australia may contain ore-bodies yielding gold and other minerals of economic value. It seems likely that many of these ore-deposits were formed at the time of the Second Granite Invasion which, from radioactive age determination studies, occurred about 2,700 million years ago. Important iron-ore deposits occur in the Archaean rocks at many localities, for example at Mt. Goldsworthy in the Pilbara, Talling Peak in the Yalgoo Goldfield, and Koolyanobbing, Bungalbin and many other localities in the North Yilgarn. These are all banded ironstone deposits which are interbedded with the basaltic lavas and sedimentary rocks of early Archaean age. In many places there are important manganese deposits associated with these banded iron formations. A rich nickel deposit discovered in Archaean rocks at Kambalda near Kalgoorlie in 1966, has now become an important producer of nickel concentrates.

Finally, in Proterozoic times we had the deposition, under shallow-water conditions, of conglomerates, sandstones, shales and banded iron formations and another period of volcanic activity yielding basaltic lava flows. These rocks have not suffered the intense earth movements which affected the older rocks, and so are practically un-metamorphosed. Important blue asbestos deposits in these rocks have been exploited at Wittenoom Gorge in the Hamersley Range of the West Pilbara. The deposits occur in banded ironstone formations which also contain large iron-ore deposits. The well-known iron-ore deposits of Cockatoo and Koolan Islands in Yampi Sound, which have been exploited for many years, are meta-sedimentary deposits of Late Proterozoic age. Although the Proterozoic rocks cover extensive areas in

the northern parts of the State they have largely been stripped off the southern half by erosion. The final episode in the Precambrian history of this State was the widespread intrusion of dolerite dykes approximately 550 million years ago.

The Sedimentary Basins

There are five major sedimentary basins in Western Australia—the *Bonaparte Gulf Basin* in the north-east part of the Kimberley Division extending into the Northern Territory, the *Canning Basin* of the West Kimberley, the *Carnarvon Basin* of the North-West, the *Perth Basin* extending from lat. 29°S. to lat. 33°S. and the *Eucla Basin* occupied by the Nullarbor Plain. Large areas of the Central Division are covered by sediments of the *Amadeus Basin* of Central Australia and the shallow *Officer Basin*. In addition to these major basins there are smaller basins such as that at Collie and scattered areas where sediments, which are dominantly lacustrine in nature, have been deposited. In these sedimentary areas we find sediments ranging from Lower Palaeozoic to Pleistocene in age. These sediments of Palaeozoic and later age are, as a rule, less disturbed than those of Precambrian times and many are abundantly fossiliferous. Therefore, there is a sure means of correlating formations even in widely separated places, and so our knowledge of the history of these sedimentary areas is more detailed than in the much altered, highly folded, unfossiliferous Precambrian rocks of the basement.

Apart from the superficial deposits the economic significance of these basins is confined to their possibilities for the occurrence of artesian water, coal, oil and natural gas. A prime requisite for the occurrence of artesian and sub-artesian water is the occurrence of interbedded strata of varying porosity and permeability. These conditions are met in a number of the sedimentary basins in Western Australia and the development of the pastoral industry in the arid or semi-arid parts of these basins has been largely dependent on the occurrence of artesian water. In the metropolitan area, artesian bores are an important source of water supplies. Coal deposits are also confined to areas of sedimentary rocks and occur in the Permian rocks of two of the minor basins, viz., the *Collie* and the *Irwin River Basins*, and in the Lower Jurassic sediments of the *Perth Basin* (at Eneabba, where a seam 100 feet thick has been found at a depth of 6,000 feet in a borehole sunk in search for oil, and as indicated in shallow shot-holes in the Hill River area). Up to 1966 the coal deposits of the lacustrine Permian beds of the *Collie Basin* constituted the only power source in Western Australia, since oil of commercial significance had only then been proved and the gently undulating topography combined with low rainfall make the hydro-electric resources insignificant. So far as oil is concerned the first occurrence of flow oil in Australia was encountered in Rough Range Bore No. 1, in the *Carnarvon Basin*, late in 1953. This discovery of flow oil resulted in an increase in the rate of geological exploration of all the major sedimentary basins. The results of extensive geological mapping, geophysical surveys and exploratory drilling have to date been rather disappointing. However, a commercial field was proved at Barrow Island off the north-west coast in 1966. Smaller oil occurrences have been located at various localities in the *Perth Basin* and this indicates the presence of suitable source material and conditions for oil formation and preservation. Moreover, oil search drilling operations have located some widely-spaced finds of natural gas in considerable quantities, which may ultimately prove to be of commercial significance. The possibilities, therefore, of locating other commercial oilfields in the *Carnarvon*, *Canning* and *Perth Basins* are by no means exhausted and the search is being actively continued.

A detailed description of the sedimentary formations of different ages, from the Cambrian to the Recent, in the various sedimentary basins has been set down in "The Stratigraphy of Western Australia" (*Journal Geological Society of Australia*, volume 4, part 2, pp. 1-161, 1958). It is proposed here merely to indicate the main features of the various basins.

The *Bonaparte Gulf Basin*, in the East Kimberley, extends into the Northern Territory. As already mentioned, this and the nearby *Ord Basin* are the only basins in Western Australia where rocks of proved Cambrian age are exposed. On Western Australian territory the Cambrian rocks extend as a narrow belt along the interstate border between lat. 16° 15' S. and lat. 18° 30' S., reaching westward from the border for 15 to 75 miles. The Cambrian consists of basalts at the base of the sequence, overlain by Middle Cambrian fossiliferous limestones, shales and sandstones. There is a small development of sandstones which are considered to be of Lower Ordovician age, following which there is a big time gap and the next youngest formations are sandstones and limestones of Upper Devonian and Lower Carboniferous age. Upper Carboniferous and Lower Permian formations are absent, the next marine transgression being in the Middle Permian when there was a thick sequence of conglomerates, sandstones, and limestones

deposited. The only other sedimentary rocks in this basin are freshwater sediments (siltstones, marls and cherts containing freshwater fossils) of late Tertiary age.

The *Canning Basin* (formerly named the Desert Artesian Basin), in the West Kimberley, extends from the coast between Derby and the De Grey River in a south-easterly direction almost to the 128° meridian (see Map, page 18). The north-east or Fitzroy part of this basin contains sediments ranging in age from Ordovician to Triassic and in the larger Canning Desert portion, to the south of the Fitzroy River, the sediments range from Permian to Lower Cretaceous in age. Most of the Canning Desert section of the basin is unexplored but the Fitzroy section is comparatively well known. It was in this area that the early bores seeking oil were first drilled in Western Australia, following the discovery in 1919 of traces of oil in a water bore on Gogo Station.

The oldest Palaeozoic sediments in the Fitzroy portion of the basin are richly fossiliferous limestones of Ordovician age outcropping near Price's Creek. These are overlain by Devonian reef limestones, sandstones and conglomerates, followed by Carboniferous sandy limestones. These in turn are followed by a thick Permian sequence of sandstones (of marine glacial origin deposited from floating ice), fossiliferous calcareous shales and limestones, and in Upper Permian times fossiliferous ferruginous siltstones and sandstones. All of these formations dip gently in a general south-westerly direction towards the centre of the basin but these regional dips are interrupted by local folding. Shale and sandstone beds of Triassic age occur in the Fitzroy section of the basin. The youngest rocks in this area are igneous intrusions in the form of intrusive sheets, dykes, and volcanic necks which have been found intruding all rocks of the sequence from the Precambrian granitic basement to the youngest sediments (Triassic) present. These igneous rocks, from direct geological evidence, are of post-Triassic age, and radioactive age determinations made in 1959 indicate that they were formed 180 million years ago (*i.e.*, in Jurassic times). This is one of the two areas in the whole of Western Australia where post-Cambrian igneous activity is known.

In the Canning Desert section of the basin the Palaeozoic rocks are not well exposed and the greater part of this portion of the basin (where not obscured by superficial unconsolidated sands) is occupied by Mesozoic sediments ranging in age from Lower Jurassic to Lower Cretaceous. There is no evidence in the entire basin of any marine transgression after Lower Cretaceous times.

The *Carnarvon Basin* (formerly called the North-West Artesian Basin) has been the most intensively studied of the major sedimentary basins in Western Australia. It extends along the west coast from Onslow near the mouth of the Ashburton River as far south as the mouth of the Murchison River (see Map, page 18), the maximum width of the basin being 125 miles at the latitude of Carnarvon. In this basin the eastern portion up to 50 miles wide is occupied by a thick sequence of marine Palaeozoic sedimentary rocks ranging in age from Middle Devonian to Upper Middle Permian, all of which have a westerly regional dip. The estimated maximum thicknesses of the Palaeozoic strata are:

Permian	.....	13,175 feet
Carboniferous	.....	2,510 feet
Devonian	.....	5,120 feet

This Palaeozoic sequence which consists of fossiliferous Devonian limestones and sandstones, Carboniferous limestones and Permian marine glacial beds, limestones, sandstones, and shales, is almost entirely marine in origin. In the Carnarvon Basin we have the only wholly marine Permian sequence in Australia, and without doubt *one of the thickest marine Permian sequences in the World*.

No rocks of Silurian age were known from the western half of the Australian continent until 1957 when a bore sunk by West Australian Petroleum Pty. Ltd. at Dirk Hartogs Island in Shark Bay encountered limestones of Silurian age underlain by sandstones which are now correlated with the reddish sandstones which outcrop in the lower reaches of the Murchison River.

To the west the Permian rocks are unconformably overlain by Cretaceous sandstones, shales, marls and limestones attaining a total thickness of 2,000 feet. It is the basal formation, the *Birdrong Sandstone*, of the Cretaceous sequence that is the oil sand encountered in Rough Range Bore No. 1. Another Cretaceous formation, the Windalia Formation, is one of the important oil reservoirs of the Barrow Island Oilfield. The Cretaceous rocks outcrop in a north-south belt averaging 50 miles wide between the Palaeozoic and Precambrian rocks on the east and the Tertiary limestones to the west. The only other Mesozoic formation exposed at the surface in this basin is a Jurassic sandstone 25 feet thick. However, a deep well (Cape Range No. 2) drilled in search of oil at Exmouth Gulf, after passing through the base of the Cretaceous at 3,707 feet, entered the Lower Jurassic which extended to the depth of 15,169 feet at which the bore was discontinued, thus proving a thickness of at least 11,462 feet of Lower Jurassic strata in

this area. It is apparent that there is a marked thickening of the Mesozoic formations from east to west in this area. The westernmost belt of the Carnarvon Basin is occupied by Tertiary strata, mainly limestones, which are well exposed in the Rough and Cape Ranges of the Exmouth Gulf area. These limestones, which range from Lower Miocene to Pliocene in age, total 1,200 feet in thickness and are discontinuously overlain by Pleistocene and Recent beds approximately 450 feet thick. Marine Tertiary sediments which are so well developed along the western margin of the basin extend as a thin discontinuous formation unconformably over the Permian beds of the eastern part of the basin, indicating that in Upper Eocene times the sea transgressed practically the whole of the Carnarvon Basin.

The sedimentary rocks of the Carnarvon Basin were affected by earth movements at various times. Even the youngest of the Tertiary rocks have been thrown into gentle folds which are significant so far as the search for oil is concerned because, in addition to having suitable conditions for the formation and preservation of oil, suitable structures are necessary for its concentration into local areas (oil "pools"). So far as structure is concerned, the general picture of the Carnarvon Basin is the gentle westerly regional dip of the Palaeozoic sediments of the eastern half of the basin and the gentle dome and basin folding of the western half.

The *Perth Basin* (formerly called the Coastal Plain Artesian Basin) is a narrow elongated basin on the western border of Western Australia extending from Geraldton in the north to Cape Leeuwin in the south. At Geraldton it is 30 miles wide and is flanked both to the west and east by Precambrian crystalline rocks (mainly gneisses). The maximum width of the basin is approximately 50 miles at Watheroo and it narrows again to the south being approximately 30 miles wide in the sunkland between Busselton and Augusta. At this southern end it is again flanked both to the east and west by Precambrian rocks. The surface of the basin is mostly covered by Recent sands but occasional outcrops of rocks as old as the Permian occur in places. The only evidence available regarding the structure, thickness and age of the sediments in the basin is that provided by geophysical surveys and some deep bores sunk in the search for oil and a number of water bores up to 2,400 feet deep in the metropolitan area. Gravity surveys indicate that there is a very considerable thickness of sediments, perhaps exceeding 30,000 feet, and it is probable that in this basin we have a complete succession from the Younger Proterozoic (*Cardup Group*), which outcrops along the Darling Scarp, to the Recent sands. Other than the Proterozoic of the Darling Scarp, the oldest sediments exposed are the gently folded Permian marine sediments of the *Eradu* and *Irwin River Basins* at the north end of the main basin. The Permian sediments of the Irwin River area have a total thickness of 4,000 feet and vary from marine glacial beds at the base (as in the Carnarvon and Canning Basins) through fossiliferous marine shales and limestones to lacustrine sandy sediments with coal seams in the upper part of the sequence. Marine and continental Jurassic limestones and sandstones outcrop east of Geraldton and Jurassic beds, overlain by Cretaceous chalks and greensands, occur near Gingin and Dandaragan. In the southern part of the Perth Basin the oldest rocks exposed (if we except the Permian of the separate minor *Collie Basin* which is situated well to the east of the Darling Scarp in a glacially-gouged trough) are the Cretaceous *Donnybrook Sandstones*.

In the vicinity of Perth, artesian bores to a maximum depth of 2,400 feet expose a sequence varying from Jurassic sandstone at depth, through Cretaceous and Eocene shales. The *King's Park Shale* of Eocene (older Tertiary) age is overlain by Pleistocene aeolian sandstones of the *Coastal Limestone Formation*, the base of which is approximately 100 feet below sea-level. There is therefore a big gap in the succession here between the Eocene and Pleistocene. Many boreholes have been sunk in the north-central part of the basin in the course of oil search operations. Boreholes near the coast (at Jurien Bay and Beagle Ridge) struck Precambrian crystalline basement rocks at comparatively shallow depths of 3,360 feet and 4,860 feet. The sediments thicken further inland, as evidenced by the increasing depth to the Precambrian basement in Cadda No. 1 (9,002 feet), Woolmulla No. 1 (9,218 feet) and Arrowsmith No. 1 (11,220 feet). Very thick sedimentary sequences have been disclosed by Eneabba Bore No. 1 (which bottomed in Lower Triassic at 13,712 feet) and Gingin No. 1 (in Lower Jurassic at 14,908 feet). To the south of Perth three deep wells have been drilled, namely Pinjarra No. 1 (the second deepest well yet drilled in Western Australia) which bottomed in Upper Triassic sandstone at 15,001 feet, in the far south (near the south coast) Sue No. 1 which encountered Precambrian granulites at 10,021 feet, and near Perth, Cockburn No. 1 which was abandoned at 10,020 feet in Lower Jurassic sandstone.

The only evidence of igneous activity in the Basin is the Cretaceous basalt of the sunkland between Bunbury and Cape Gosselin on the south coast.

Very little is known about the structure of this basin. It is bounded to the east by a large fault or monoclinical fold. The evidence available indicates that the main structural character of the deeper

part is a regional dip to the east (of 15° to 20°) traversed by north-south trending faults with down-throws to the west. There is an unconformity (Upper Jurassic to Lower Cretaceous) at a depth of approximately 2,000 feet above which the Cretaceous and Tertiary sediments are almost horizontal.

The *Eucla Basin* occupying the Nullarbor Plain, in the south-eastern corner of the State is occupied at the surface by marine fossiliferous Middle Tertiary (Miocene) limestones with a marginal belt of Lower Tertiary (Eocene) limestones. The Tertiary rocks lie on sandstones and shales of probable Cretaceous age, which in turn overlie the Precambrian crystalline rocks. Little is known of the details of the stratigraphy and structure of the Eucla Basin since the beds are very flat-lying and have only been penetrated by water bores in a few places such as Madura near the coast and Loongana on the Trans-Australian Railway. The Madura bore is artesian but bores along the Trans-Australian Railway have only yielded sub-artesian water (i.e., the water will rise under pressure only part of the way to the surface). The oil prospects of this basin are poor because of the comparatively small thickness (2,000 feet) of the sediments and the absence of suitable folded structures to form oil traps.

The *Collie Coal Basin*—Of the minor basins and isolated occurrences of post-Cambrian sediments, Collie, since it is the only operating coalfield in Western Australia, is the only one which will be considered here. It is situated approximately 100 miles S.S.E. from Perth, and has an area of about 100 square miles. Actually it is made up of two basins separated by a subsurface granitic ridge. It is composed of sandstones and shales with interbedded coal seams and is surrounded by Precambrian rocks. The coal measures, of Permian age, are of the order of 2,000 feet in thickness of which approximately 130 feet is coal. The actual contact between the Permian coal measures and the Precambrian granitic basement has nowhere been seen at the surface but has been encountered in deep drill holes in various parts of the Basin. Such drill holes reveal that Permian mudstone containing granite pebbles lies on an ice-planed surface of the Precambrian granitic rocks. This suggests that the Collie Basin, formerly considered to be a block of the Permian downfaulted into the Precambrian basement, is actually a glacially-gouged trough formed by terrestrial glaciation in the Permian and since filled with Permian lacustrine sediments. Coal occurs at three horizons and the seams, which average six feet in thickness, persist over fairly long distances. From the associated plant fossils these coal measures appear to be comparable in age with those of the upper part of the Permian sequence at the Irwin River near the northern end of the Perth Basin.

The Superficial Deposits

Over a great part of the State fresh rock outcrops are comparatively sparse and are covered by highly-weathered rocks, laterite, drift sand, soils, and, in the salt lake country, by thin evaporite deposits.

Laterite—In the southern half of the State the remnants of the Darling Plateau are covered by a thin layer up to 10 or 15 feet thick of a reddish brown rock composed of spherical pebbles tightly or loosely cemented together by a lighter-coloured earthy matrix. This material in its poorly consolidated state is popularly referred to as "ironstone gravel" and when strongly cemented as "ironstone." This rock, called laterite, although it covers large areas, is purely superficial and wells or bores sunk in it pass within a few feet into highly weathered country rock which may extend down for distances up to 100 feet before encountering fresh unweathered rock. This laterite crust and the underlying highly weathered country rock were developed on a gently undulating surface during a period of warmer, more humid, climatic conditions. These tropical conditions probably existed in Late Tertiary (Pliocene) times when a great part of Western Australia had been reduced by long-continued erosion to a peneplain lying close to sea level, or soon after, when this peneplain had been uplifted to form the *Darling Plateau*. This uplift, judged by the elevation of the laterite-capped hills and the occurrence of fossiliferous marine Eocene sediments 900 feet above sea-level at Norseman, was of the order of one thousand feet. On the Great Plateau, remnants of this Darling Plateau are evidenced by the table-topped hills so characteristic of much of the Plateau country. The significance of the laterite profile and the soils developed from the laterite and associated weathered rocks has already been mentioned. Economically, the laterite is important for road-making materials and in a few places (such as Wundowie) as an iron ore. The main constituents of the laterite are the insoluble products of intense rock weathering—iron oxide, alumina and silica. In many places the alumina content is sufficiently high to call them bauxites. Bauxites are the main source of aluminium, and the bauxite laterites of the Dwellingup area in the Darling Range near Perth are being exploited as aluminium ore.

The mid-Tertiary land surface of the Southern half of Western Australia on which the laterite profile was developed at a time when this country was subjected to a tropical climate extends into the northern

part of the State. In the Hamersley Iron Province of the North-West Division this old land surface truncated the Lower Proterozoic banded iron formations of the Hamersley Group. On this old land surface, (the *Hamersley Surface*) which can be traced without tectonic break from sea-level to elevations of 4,000 feet, there was a secondary concentration of the iron of the Lower Proterozoic rocks resulting in extensive rich iron-ore deposits which make this area one of the richest iron provinces in the World.

In the far south-west of the State subsurface hard pan formations consisting of ferruginous sandstone are a potential source of low-grade iron ore.

Soils and drift sands—Western Australia, an area of 975,920 square miles extending from lat. 13° 44'S. to lat. 35° 08' S., although having little variety in its broad physical features, has very considerable variation in climates from the tropical areas of summer rainfall in the north through a central and inland province of low rainfall to the temperate areas of winter rainfall in the south. Moreover, throughout this enormous area there is very considerable variation in the nature of the country rocks. The nature of the soils developed is dependent on these two factors—climate and parent rock—so it will be apparent that there will be very considerable variation in the soils over this extensive area. L. J. H. Teakle has recognized the following major soil zones of Western Australia :

- A. Grey, yellow and red podsolised, or leached, soils of the temperate sclerophyll forests.
- B. Red brown earths of the eucalyptus-acacia woodlands.
- C. Grey and brown calcareous, solonised soils of the low rainfall eucalyptus woodlands—("mallee" soil zone of Prescott).
- D. Red and brown acidic soils of the acacia semi-desert scrub—mulga, etc.
- E. Brown acidic soils of the spinifex semi-desert steppes of the north-west.
- F. Pinkish brown calcareous soils of the Nullarbor Plain desert shrub steppes.
- G. Pinkish brown calcareous soils of the acacia semi-desert scrub, mallee and salt bush-blue bush zone.
- H. Brown soils of the tropical woodlands, savannahs and grasslands.
- I. Red sands of the central desert sandhills—spinifex with desert acacias, desert gums and mallees (*Eucalyptus spp.*)

Each of these major soil zones may be subdivided into one or more soil regions and the reader is referred to a paper "A Regional Classification of the Soils of Western Australia" by L. J. H. Teakle (*Jour. Roy. Soc. West. Aust. XXIV, pp. 123-195*) for details concerning the soil characteristics of these various zones and regions.

There are considerable areas of Western Australia covered by drift sand which may be in the form of parallel red sand dunes or, in the southern part of the State, extensive sandy plains. The latter have been generally considered to be residual from the weathering of granite. These sand plains are often underlain by lateritic material and they probably represent the leached zone of the laterite profile. The youngest of the drift sand deposits are the coastal sand dunes.

Coastal sand deposits are of considerable economic importance. At various places along the south and west coasts there are beach sand deposits in which there is a natural concentration of heavy minerals such as zircon, monazite, rutile and ilmenite. Such deposits are at present being exploited at Capel and Bunbury for their ilmenite content, which is valuable because of its low chrome content. The other heavy minerals such as zircon and monazite are also being exported overseas.

Salt lake deposits—These together with the coastal sand deposits represent the youngest of the geological formations developed—indeed they are in course of formation at the present time. They are evaporite deposits resulting from the evaporation of lake waters in the areas of internal drainage. Soluble salts produced by rock weathering are leached out by rain and running water and transported by streams to these lakes. During the long dry summers most of these lakes dry up and the soluble salts are deposited, yielding accumulations of gypsum and common salt. In a few of these lakes hydrated potassium aluminium sulphate (alunite), which is a valuable source of potash for fertilizers, has been formed but its actual mode of formation has not yet been satisfactorily explained.

Conclusion

From the foregoing summary of the geology of Western Australia we see that, although nowhere do we find the complete geological succession, somewhere in the State there are deposits representative of every Period. The geological history of Western Australia begins with the basaltic igneous activity

of the Early Archaeozoic some 3,000 million years ago, followed by sedimentation, intense mountain building activity and associated granitization and granite intrusions leading to the formation of the major deposits of economically important minerals. In post-Archaeozoic times there is a record of sedimentation throughout all the main geological periods. Igneous activity ceased in the Lower Palaeozoic and only re-occurred during the late Mesozoic, yielding the basaltic lavas of the far South-West and the volcanic rocks of the West Kimberley. By mid-Tertiary times much of Western Australia had been reduced by denudation to a gently undulating peneplained land surface on which, under tropical climatic conditions, there was an extensive development of laterite which in places constitutes valuable aluminium and iron ore deposits. Geological processes are continuing and at the present day rocks and soils are still in the process of formation.

CHAPTER II—continued

PART 2—CLIMATE AND METEOROLOGY⁽¹⁾

(Contributed by the Western Australian Regional Office of the Bureau of Meteorology)

Western Australia is the largest State in the Commonwealth, extending from latitude 13° 44' S. to 35° 08' S., and from longitude 113° 09' E. to 129° E. It stretches a distance of about 1,500 miles in a north-south direction and about 1,000 miles west-east. A little more than one-third of the State lies within the tropics, while the remainder extends southward to the temperate zone.

Because of its large size and its latitudinal position, Western Australia has entirely different climates in its northern and southern parts, while in the central regions there is a gradual change from the tropical climate of the north to the typical Mediterranean climate of the south.

Most of the State is a plateau between 1,000 and 2,000 feet above mean sea-level and there are no outstanding mountain ranges. Where the edge of the plateau forms the Darling Range along the southern part of the west coast, it exerts a marked influence on the rainfall, causing a rapid increase from the coastal plain to the higher land. Elsewhere the effect of topography is less marked and its main influence is seen in the general decrease of rainfall with increasing distance from the coast.

PRESSURE SYSTEMS

Weather during the year is controlled largely by the movement of the anticyclonic belt (high pressure systems with anti-clockwise winds), which lies in an east-west direction across the continent for about six months of the year.

In winter this system moves northward, bringing clear skies with fine sunny days and easterly winds to the tropics. With this northward movement, westerly winds on the southern side of the anticyclones extend over the southern part of the State, bringing with them cool cloudy weather and rain. In mid-winter the northern fringe of the "Roaring Forties" extends to Western Australia and there are frequent westerly gales in the south coastal belt.

These westerly winds are maintained by a series of depressions (low pressure systems with clockwise winds), which move eastward well south of the Western Australian coast, and others which originate in the Indian Ocean and move south-eastward past Cape Leeuwin. The extent to which westerlies affect the State depends largely on the intensity and the position of these depressions.

Towards the end of winter the anticyclonic belt moves southward, and the westerlies are confined more to the lower south-west and the south coastal districts. By summer the anticyclonic belt has moved so far south that its centre is off the south coast and easterly winds prevail over most of the State.

During this summer period the midday sun is at a high elevation in the tropics and the continual heating leads to the development of a monsoonal depression over this region. Wind circulation round this system causes easterlies on its southern or inland side, but in the coastal districts north-east from Onslow, and in parts of the Kimberley, westerlies prevail. Winds in both the north and the south of the State are then in the opposite direction to those prevailing during the winter.

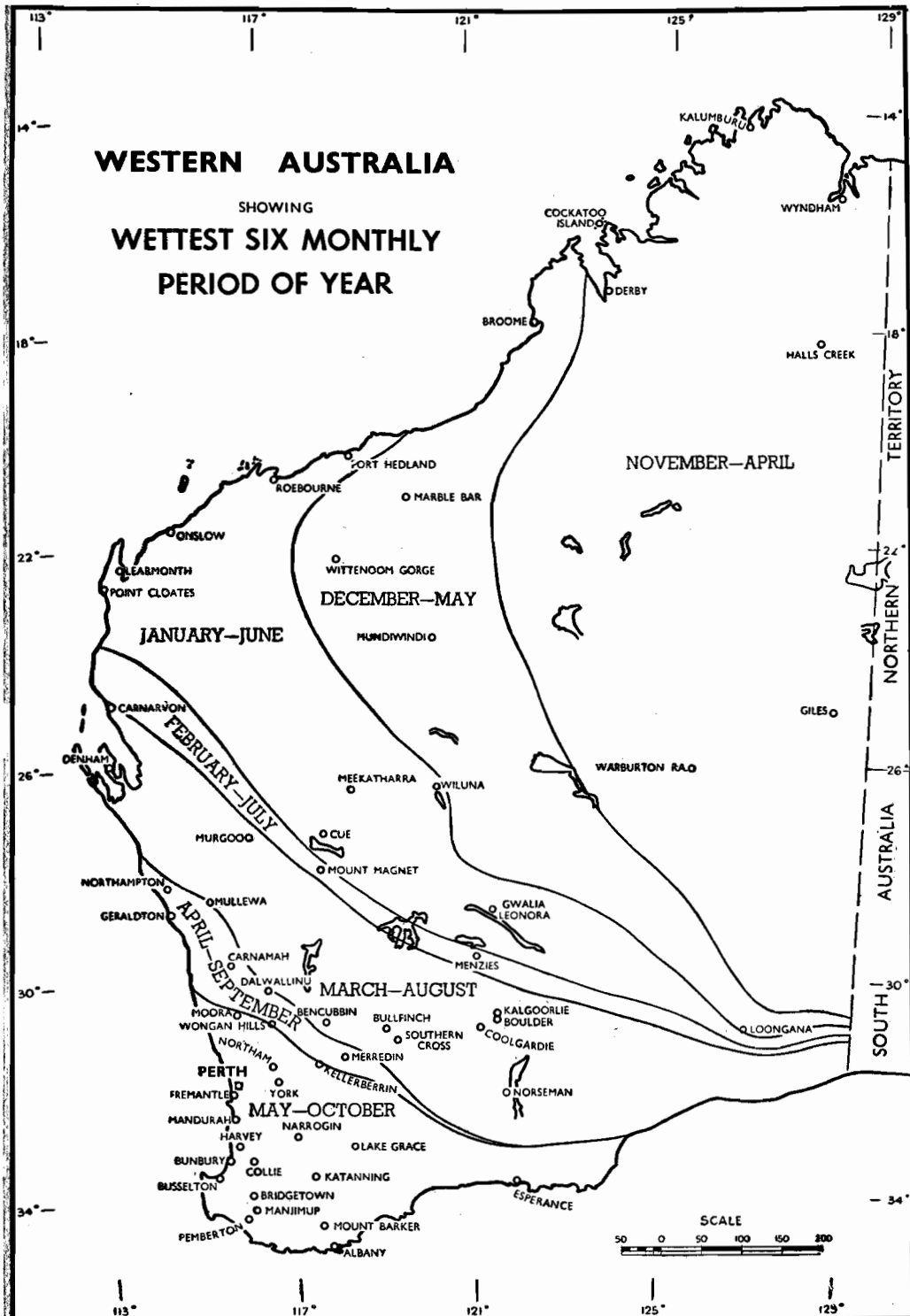
As the sun moves northward again the anticyclonic belt follows it. The monsoonal depression over the tropics dissipates and westerlies again gradually extend northward to the southern part of the State.

During the northern "Wet" season (from about December to March), occasional cyclones, known locally as "willy willys," bring strong winds and rain to the tropics. They originate generally in the Timor Sea or off the north-west coast and often move first in a south-westerly direction parallel to the coast and later in a south-easterly direction.

They frequently move inland between Broome and Onslow but occasionally travel further westward before curving to the south-east and moving inland over the west coast. Others fade out at sea without ever crossing the coast. Those that move inland usually commence to dissipate soon after crossing the coast, but occasionally they move right across the State, passing into the Southern Ocean and moving off towards Tasmania.

These storms are often extremely violent and have on occasions almost completely wrecked towns on the north-west coast, while a cyclone which struck a pearling fleet off the Eighty Mile Beach in 1887 caused the loss of 22 vessels and 140 lives.

⁽¹⁾ A brief account of the historical development of meteorological services in Western Australia is given on pp. 34-35 of the *Official Year Book of Western Australia*, No. 2—1960 (*New Series*) and on pp. 36-37 of the succeeding issue, No. 3—1962. The provision of Meteorological Services in the State is summarized on pp. 44-45 of the *Official Year Book of Western Australia*, No. 4—1964 and No. 5—1965, and on pp. 46-47 of the *Western Australian Year Book*, No. 6—1967.



However, despite the damage which they cause, the storms are of great benefit to the pastoral regions on account of the heavy and widespread rain which generally accompanies them. The heaviest fall ever recorded in one day in Western Australia, 29·41 inches, was received at Whim Creek from a cyclone in 1898.

RAINFALL

The moist rain-bearing winds in this State are in general from a westerly direction. The easterlies, having come from the dry inland parts of Australia, usually bring fine weather and clear skies.

Because of this the highest rainfall occurs in the winter months in the south of the State, and in the summer months in the north. In between these areas there is a gradual change from one rainfall regime to the other.

From the map on page 27, which shows the wettest six-monthly period of the year, it can be seen that summer rains extend southward from the Kimberley to the Trans-Australian Railway, where there is a rapid change to the winter rainfall regime of the south coast. However, the difference between summer and winter totals decreases southward, and the southern part of this region is one of almost uniform rainfall.

Proceeding northward from the winter rainfall area of the south-west of the State, the wet period occurs earlier during the year. Across a belt Carnarvon-Menzies-Eucla, there is a more rapid change, and this belt divides the winter rainfall area from that which receives most of its rain in the first six months of the year. Further north, the change is more gradual but continuous, and in the Kimberley most of the year's rainfall is received in the summer months, which in the southern parts of the State are the driest of the year.

The mean annual rainfall for the State is shown on the map following the index to the Year Book.

The following table shows the average rainfall and number of wet days, the highest and lowest monthly totals, and the highest daily fall for various centres.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS
(Stations are arranged from north to south in three groups: Coastal, Wheat Belt and Other Inland)

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL													
<i>Wyndham</i> (23 feet)†—													
Rainfall —Average (points)	749	649	470	109	30	20	17	2	8	45	185	434	2,718
Highest (points)	2,842	2,058	1,758	2,027	347	473	524	84	186	334	558	1,088	5,634
Lowest (points)	51	54	0	0	0	0	0	0	0	0	3	28	1,438
Highest one day (points)	1,212	590	1,250	1,732	247	445	338	42	136	225	335	333	1,732
Wet days—Average number	13	12	9	3	1	1	1	0	0	2	6	10	58
<i>Broome</i> (37 feet)†—													
Rainfall —Average (points)	410	559	299	128	137	66	35	8	7	5	34	115	1,303
Highest (points)	3,256	2,358	2,360	1,019	700	973	283	374	86	48	1,095	1,449	4,307
Lowest (points)	11	6	0	0	0	0	0	0	0	0	0	0	544
Highest one day (points)	1,400	1,191	1,062	714	346	563	216	147	82	28	553	680	1,400
Wet days—Average number	10	10	7	3	2	2	2	0	1	1	1	5	44
<i>Port Hedland</i> (25 feet)†—													
Rainfall —Average (points)	193	365	176	74	130	58	46	17	4	6	9	86	1,164
Highest (points)	1,969	1,432	1,716	1,096	873	696	384	584	99	129	336	1,023	4,013
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	125
Highest one day (points)	600	955	1,113	469	638	560	185	364	85	127	304	900	1,113
Wet days—Average number	4	6	4	2	3	2	2	1	1	1	0	1	27
<i>Roebourne</i> (40 feet)†—													
Rainfall —Average (points)	247	240	283	124	116	102	56	21	6	3	7	38	1,243
Highest (points)	1,448	1,278	1,607	2,173	887	734	530	385	158	120	120	507	4,173
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	13
Highest one day (points)	911	666	1,032	1,144	660	325	530	172	90	115	66	383	1,144
Wet days—Average number	3	4	4	2	2	2	1	1	0	0	0	2	21
<i>Onslow</i> (14 feet)†—													
Rainfall —Average (points)	106	291	305	26	186	203	87	18	2	2	15	11	1,252
Highest (points)	1,028	1,498	1,633	1,100	1,020	908	872	421	49	61	237	241	4,265
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	57
Highest one day (points)	932	1,079	1,238	617	937	436	355	251	27	29	117	198	1,238
Wet days—Average number	2	4	3	2	4	4	4	2	1	0	1	1	28

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL—<i>continued</i>													
<i>Carnarvon</i> (15 feet)†—													
Rainfall —Average (points)	21	95	65	31	168	198	168	70	18	17	8	3	862
Highest (points)	614	719	520	647	800	865	593	355	96	198	75	483	2,536
Lowest (points)	0	0	0	0	0	5	6	0	0	0	0	0	266
Highest one day (points)	358	441	470	197	410	475	322	193	63	104	28	469	475
Wet days—Average number	2	3	2	3	6	7	7	5	2	3	1	1	42
<i>Geraldton</i> (13 feet)†—													
Rainfall —Average (points)	33	51	38	107	278	423	406	268	105	60	21	28	1,818
Highest (points)	379	517	666	457	1,292	1,292	958	952	412	429	157	230	3,365
Lowest (points)	0	0	0	0	0	132	70	33	0	0	0	0	902
Highest one day (points)	310	324	369	270	307	430	201	365	169	280	140	202	430
Wet days—Average number	2	3	3	6	10	14	16	12	9	7	4	2	88
<i>Perth—Observatory</i> (197 ft.)†—													
Rainfall —Average (points)	32	44	81	181	497	722	688	557	319	216	82	59	3,478
Highest (points)	217	655	571	585	1,213	1,875	1,673	1,253	784	787	278	317	5,267
Lowest (points)	0	0	0	0	77	216	242	46	34	15	0	0	2,000
Highest one day (points)	174	343	303	262	300	390	300	291	182	173	154	184	390
Wet days—Average number	3	3	4	8	14	17	18	18	14	12	6	4	121
<i>Bunbury</i> (17 feet)†—													
Rainfall —Average (points)	38	47	93	183	515	732	690	501	325	216	97	54	3,491
Highest (points)	340	405	330	690	1,047	1,620	1,640	1,137	793	769	331	316	5,374
Lowest (points)	0	0	0	0	38	287	194	82	0	26	0	0	1,904
Highest one day (points)	222	338	258	240	317	472	372	263	227	154	205	104	472
Wet days—Average number	3	3	4	7	14	18	18	17	14	11	6	4	119
<i>Pemberton</i> (565 feet)†—													
Rainfall —Average (points)	103	69	180	353	662	831	902	730	488	390	241	156	5,105
Highest (points)	579	347	519	821	1,331	1,469	1,563	1,572	860	764	577	379	6,897
Lowest (points)	9	5	11	42	141	497	519	412	208	97	43	19	3,601
Highest one day (points)	252	133	309	284	310	248	280	181	163	210	222	137	310
Wet days—Average number	7	5	9	12	18	20	21	20	17	15	12	9	165
<i>Mound Barker</i> (829 feet)†—													
Rainfall —Average (points)	88	94	144	224	341	394	420	367	325	281	159	117	2,954
Highest (points)	706	702	505	920	957	824	1,027	683	618	630	532	343	4,326
Lowest (points)	4	3	14	15	64	170	88	131	72	64	13	5	1,688
Highest one day (points)	412	284	192	548	270	206	285	259	175	214	251	173	548
Wet days—Average number	7	7	10	12	17	19	20	19	17	16	11	9	164
<i>Albany</i> (41 feet)†—													
Rainfall —Average (points)	94	90	160	286	485	540	573	511	408	318	157	126	3,748
Highest (points)	854	635	653	921	1,140	1,152	1,060	1,124	796	736	671	459	5,484
Lowest (points)	4	0	10	19	174	159	205	198	80	56	19	6	2,507
Highest one day (points)	345	226	353	226	408	285	240	443	312	184	307	323	443
Wet days—Average number	7	7	10	13	18	20	20	20	18	16	11	9	169
<i>Esperance</i> (14 feet)†—													
Rainfall —Average (points)	68	79	107	181	322	401	417	375	280	217	114	92	2,653
Highest (points)	524	471	491	691	705	1,076	945	727	687	574	453	320	3,625
Lowest (points)	0	0	0	8	80	109	93	75	42	52	0	0	1,724
Highest one day (points)	274	154	175	496	178	416	218	232	455	179	200	279	496
Wet days—Average number	5	5	7	9	14	16	17	16	14	12	7	6	128
WHEAT BELT													
<i>Carnamah</i> (879 feet)†—													
Rainfall —Average (points)	42	54	84	85	200	312	283	219	117	68	42	35	1,541
Highest (points)	404	405	551	422	551	910	742	757	332	288	357	222	3,078
Lowest (points)	0	0	0	0	6	83	53	48	2	0	0	0	837
Highest one day (points)	380	226	299	350	290	241	170	260	129	157	280	197	380
Wet days—Average number	2	2	2	4	9	12	13	11	8	6	2	2	73
<i>Wongan Hills</i> (906 feet)†—													
Rainfall —Average (points)	43	49	86	88	209	302	282	207	107	72	40	39	1,524
Highest (points)	274	435	653	320	739	866	687	515	285	202	171	230	866
Lowest (points)	0	0	0	0	1	87	32	33	6	0	0	0	0
Highest one day (points)	273	314	320	243	250	274	161	135	146	141	117	225	320
Wet days—Average number	1	1	2	4	8	11	13	10	7	5	2	1	65

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
WHEAT BELT—<i>continued</i>													
<i>Kellerberrin</i> (820 feet†)—													
Rainfall —Average (points)	38	50	89	80	170	224	220	167	104	76	42	55	1,315
Highest (points)	282	499	599	396	398	603	483	392	289	303	266	265	603
Lowest (points)	0	0	0	0	0	59	41	10	8	1	0	0	0
Highest one day (points)	198	426	404	228	159	184	150	158	93	168	129	224	426
Wet days—Average number	2	2	3	5	8	12	13	10	8	6	3	2	74
<i>Southern Cross</i> (1,170 feet†)—													
Rainfall —Average (points)	47	72	94	80	130	143	149	116	73	60	51	45	1,060
Highest (points)	389	538	665	504	469	371	420	346	418	312	293	282	1,957
Lowest (points)	0	0	0	0	0	20	42	2	0	0	0	0	464
Highest one day (points)	172	331	240	172	217	131	143	120	205	216	200	156	331
Wet days—Average number	3	2	4	4	7	8	9	9	6	5	3	2	62
<i>Merredin</i> (1,046 feet†)—													
Rainfall —Average (points)	39	50	87	89	161	203	216	156	101	77	51	54	1,284
Highest (points)	220	315	634	447	462	516	498	340	337	296	271	364	2,219
Lowest (points)	0	0	0	0	5	23	46	24	0	3	0	0	512
Highest one day (points)	157	260	325	235	194	160	181	132	176	105	144	191	325
Wet days—Average number	2	3	3	4	8	11	12	10	7	6	3	2	71
<i>Northam</i> (490 feet†)—													
Rainfall —Average (points)	33	46	76	89	226	327	340	249	142	96	42	36	1,702
Highest (points)	219	747	744	304	555	916	871	669	506	395	162	259	2,798
Lowest (points)	0	0	0	0	4	40	77	12	10	0	0	0	764
Highest one day (points)	148	455	497	258	257	226	220	150	180	185	126	195	497
Wet days—Average number	2	2	3	5	10	14	15	13	10	7	3	2	86
<i>Wandering</i> (1,100 feet†)—													
Rainfall —Average (points)	37	54	91	180	324	474	472	378	257	181	70	60	2,528
Highest (points)	222	961	481	476	766	1,450	1,274	1,062	757	508	254	416	1,450
Lowest (points)	0	0	0	0	42	99	133	54	33	11	0	0	0
Highest one day (points)	192	543	410	199	240	336	273	210	180	168	190	250	543
Wet days—Average number	3	3	5	8	13	17	19	17	13	11	6	4	119
<i>Narrogin</i> (1,114 feet†)—													
Rainfall —Average (points)	39	65	86	117	255	357	364	277	190	132	56	51	1,989
Highest (points)	270	934	502	495	599	1,182	957	729	478	483	212	373	2,917
Lowest (points)	0	0	0	0	38	99	115	62	26	6	0	0	1,056
Highest one day (points)	197	454	450	158	269	280	320	165	144	139	87	196	454
Wet days—Average number	2	2	4	6	11	13	15	14	11	8	4	3	93
<i>Katanning</i> (1,016 feet†)—													
Rainfall —Average (points)	42	61	94	122	245	306	308	243	182	144	71	67	1,885
Highest (points)	341	884	525	638	583	721	685	681	484	450	355	293	3,077
Lowest (points)	0	0	0	2	28	84	86	51	14	17	0	0	1,072
Highest one day (points)	253	495	271	417	233	276	182	117	145	198	165	216	495
Wet days—Average number	3	3	5	7	12	15	17	15	13	10	5	4	109
OTHER INLAND													
<i>Halls Creek</i> (1,225 feet†)—													
Rainfall —Average (points)	528	463	156	76	51	22	33	10	9	52	120	251	1,771
Highest (points)	2,274	1,467	1,451	646	659	344	316	221	207	408	789	905	4,204
Lowest (points)	20	11	0	0	0	0	0	0	0	0	0	12	844
Highest one day (points)	331	510	685	578	241	143	189	205	123	142	198	471	831
Wet days—Average number	12	12	6	3	2	1	1	0	1	2	6	9	55
<i>Marble Bar</i> (595 feet†)—													
Rainfall —Average (points)	285	290	214	83	89	93	52	21	4	18	35	135	1,319
Highest (points)	1,219	924	1,530	947	588	625	527	135	95	458	242	957	2,920
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	280
Highest one day (points)	574	470	1,200	536	274	412	247	125	95	332	238	592	1,200
Wet days—Average number	7	6	4	2	2	2	2	1	0	0	2	4	32
<i>Mundiwindi</i> (1,840 feet†)—													
Rainfall —Average (points)	177	181	193	86	84	76	33	31	14	32	42	107	1,056
Highest (points)	1,262	1,278	1,051	543	477	445	276	209	240	368	280	628	3,211
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	103
Highest one day (points)	274	278	688	223	219	159	168	152	135	210	227	450	688
Wet days—Average number	6	6	5	3	3	3	2	2	1	1	3	4	39

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
OTHER INLAND—<i>continued</i>													
<i>Meekatharra</i> (1,676 feet)†—													
Rainfall—Average (points)	135	118	80	34	78	160	64	38	16	11	41	21	796
Highest (points)	841	526	608	542	514	615	200	304	143	101	371	411	2,031
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	191
Highest one day (points)	335	330	405	431	303	238	134	153	132	84	322	270	431
Wet days—Average number	5	4	4	3	5	7	6	3	2	1	1	2	48
<i>Kalgoorlie</i> (1,247 feet)†—													
Rainfall—Average (points)	73	143	64	82	88	108	99	76	68	36	61	45	943
Highest (points)	802	1,238	655	404	376	468	324	318	386	314	276	257	1,804
Lowest (points)	0	0	0	0	0	0	8	0	0	0	0	0	475
Highest one day (points)	379	700	279	282	315	225	147	137	174	246	254	199	700
Wet days—Average number	3	4	4	5	7	8	9	7	5	4	3	3	62
<i>Rawlinna</i> (607 feet)†—													
Rainfall—Average (points)	59	57	72	72	65	72	51	69	42	52	48	53	712
Highest (points)	828	483	336	448	317	513	207	609	334	250	317	461	1,956
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	310
Highest one day (points)	393	229	187	227	122	149	100	261	282	98	257	192	393
Wet days—Average number	2	2	3	3	4	5	4	4	3	3	3	2	38
<i>Collie</i> (624 feet)†—													
Rainfall—Average (points)	53	58	103	194	524	736	755	582	421	281	112	66	3,885
Highest (points)	304	702	414	719	1,036	1,865	1,731	1,628	977	837	352	317	1,865
Lowest (points)	0	0	0	15	68	230	203	123	57	24	2	1	0
Highest one day (points)	224	419	331	249	243	357	272	231	220	154	141	126	419
Wet days—Average number	4	3	6	10	10	19	21	19	17	13	8	5	141
<i>Manjimup</i> (917 feet)†—													
Rainfall—Average (points)	76	79	132	254	563	715	720	599	441	326	172	104	4,181
Highest (points)	285	462	542	763	1,069	1,307	1,258	1,272	1,010	652	423	306	1,307
Lowest (points)	0	0	2	34	104	339	168	193	94	74	10	0	0
Highest one day (points)	136	172	221	204	312	325	196	213	231	170	153	115	825
Wet days—Average number	6	5	8	11	18	20	22	21	16	15	11	8	161

† Height above mean sea-level.

TEMPERATURE

The hottest month in Western Australia is November in the Kimberley, December a little further south and January near the Tropic of Capricorn. In the tropics temperatures generally rise from July, the coldest month, to November. In some places further rises occur, but in others the onset of the "Wet" prevents this further rise and there is a slight fall. As the rains cease at these latter places temperatures commence to rise again and there is another minor peak in March or April. After this there is a general fall until July.

South of the tropics the hottest month is January, except in coastal districts where February is hotter. The coldest month is again July.

The most consistently hot place in the State is Wyndham, where the mean maximum throughout the year is 93.1°F. and the mean minimum for the coldest month is 66.2°F. At Marble Bar the yearly mean maximum of 96.2°F. is higher, but mean minimum temperatures are consistently lower, falling to 52.5°F. in the coldest month. The mean maximum at this centre is the highest in Australia, exceeding 100°F. in the six months from October to March inclusive. There are often long spells of hot weather in this region and during one period, from the 31st October, 1923 to the 7th April, 1924, the maximum temperature at Marble Bar reached or exceeded 100°F. on 160 consecutive days.

Further south temperatures are lower, but even in the southern parts of the State there are occasional heat waves, and the highest temperature on record, 123.2°F., was recorded at Eucla on the south coast.

Near the coast the sea breeze generally brings relief from high temperatures. It blows nearly every afternoon in the hot months, and is known in Perth as the "Fremantle Doctor". Away from the influence of the sea, extremes are greater, day temperatures being higher and night temperatures lower than in the coastal districts. During the winter, temperatures have fallen below 30°F. in most of the inland part of the State south from the tropics. The lowest on record is 20.2°F. which occurred at Booylgoo Springs near Sandstone, and as far north as Mundiwindi, almost in the tropics, 22.4°F. has been recorded.

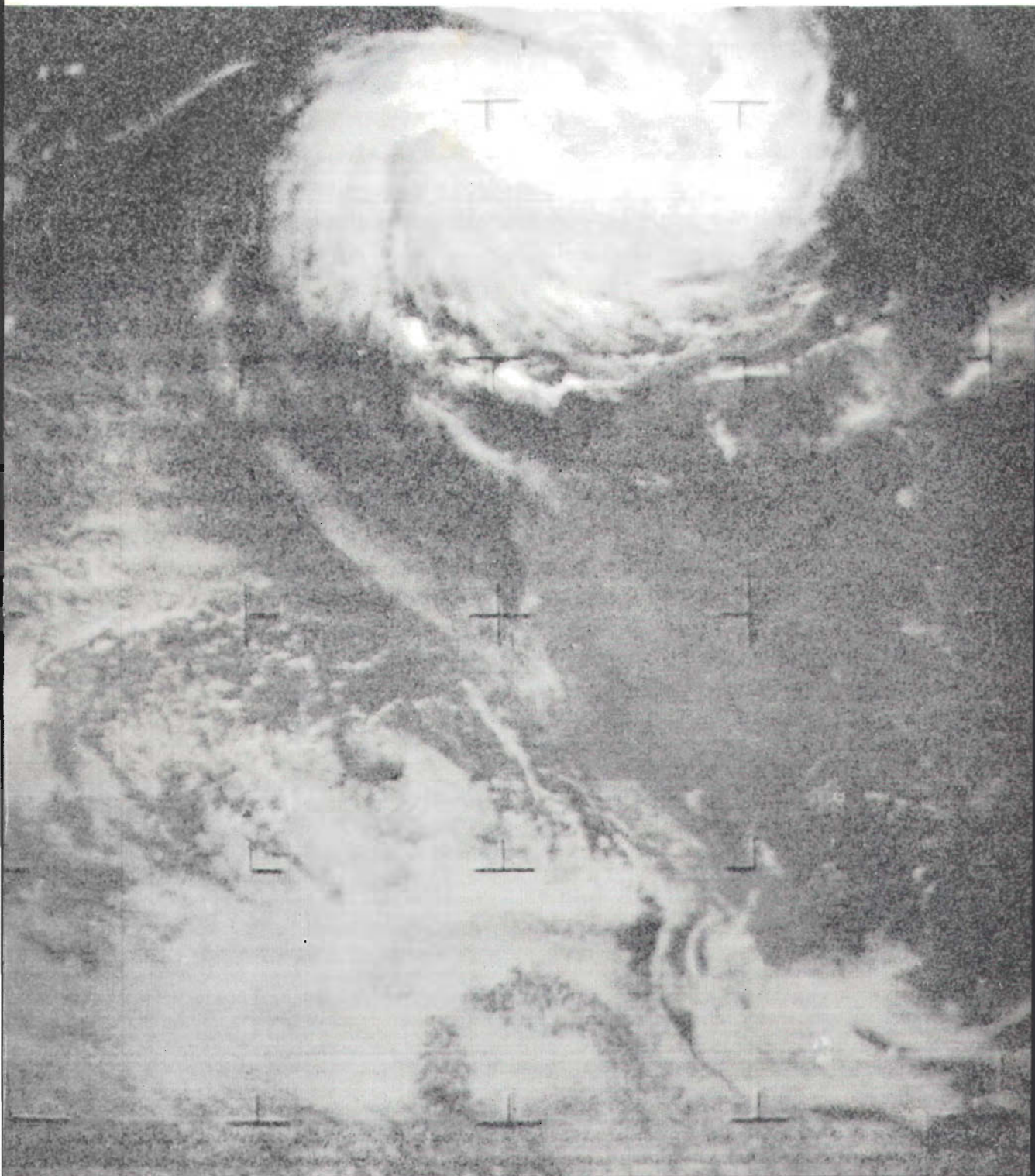
Frosts are at times widespread over the southern part of the State and occasionally extend into the tropics, but they are not particularly troublesome as they normally occur during that period of the year when crops are least susceptible to frost damage. They occur mainly in the months May to September inclusive and are most frequent in July and August.

The table below shows, for each month of the year, the mean maximum, mean minimum, and extreme temperatures and the average number of days with registrations of 90°F. and over and of 100°F. and over. The average number of days with temperatures of 36°F. or below, which provides an indication of frost frequency, is also shown.

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS

(Stations are arranged from north to south in three groups: Coastal, Wheat Belt and Other Inland)

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL													
Wyndham—													
Temperature :													
Mean max., °F.	95.9	95.5	95.3	94.7	90.1	85.8	85.0	88.5	93.5	96.9	98.5	97.6	93.1
Mean min., °F.	80.2	79.7	79.5	77.2	72.4	68.0	66.2	69.5	74.8	79.7	81.4	81.2	75.8
Highest max., °F.	113.5	111.0	108.0	106.0	103.0	97.5	96.0	102.0	106.0	111.0	113.6	112.0	113.6
Lowest min., °F.	67.0	62.0	65.0	63.0	52.0	50.0	48.0	47.0	60.1	65.0	58.0	65.0	47.0
Number of days 90° and over	29.2	25.6	29.1	26.3	26.2	11.7	13.4	24.1	29.5	30.6	29.3	29.0	304.0
Number of days 100° and over	17.3	12.3	15.6	7.2	0.7	0.0	0.0	0.4	4.3	16.8	21.9	18.3	114.8
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Broome—													
Temperature :													
Mean max., °F.	91.3	91.8	93.1	93.3	88.0	82.5	81.8	85.0	88.8	90.5	92.7	93.2	89.3
Mean min., °F.	79.2	79.1	77.7	71.6	64.8	59.5	57.0	60.0	65.1	72.1	76.7	79.4	70.2
Highest max., °F.	111.5	108.8	107.0	107.0	101.0	97.2	95.0	100.5	103.5	109.1	111.8	112.7	112.7
Lowest min., °F.	64.0	59.0	55.0	54.0	45.1	43.4	37.9	40.6	48.0	52.8	58.5	63.0	37.9
Number of days 90° and over	27.5	25.6	28.5	26.2	14.5	4.2	4.4	9.8	15.8	19.4	25.1	28.5	229.5
Number of days 100° and over	3.0	1.5	5.3	2.6	0.0	0.0	0.0	0.1	0.8	5.9	3.3	3.5	26.0
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Port Hedland—													
Temperature :													
Mean max., °F.	94.3	94.6	95.3	93.3	86.1	80.2	79.3	82.3	86.9	89.7	93.2	94.2	89.1
Mean min., °F.	79.4	79.1	77.6	71.2	63.7	57.9	55.6	58.4	62.5	68.1	73.5	77.5	68.7
Highest max., °F.	117.0	115.7	112.1	113.0	101.0	97.2	94.0	93.7	98.3	102.0	110.4	114.0	118.2
Lowest min., °F.	60.0	61.4	63.3	51.2	44.6	40.4	38.8	38.7	45.0	51.9	57.8	62.2	38.7
Number of days 90° and over	28.1	25.9	29.6	24.3	8.2	0.3	0.4	4.3	15.3	20.5	23.3	27.7	207.9
Number of days 100° and over	8.8	6.1	18.7	4.4	0.0	0.0	0.0	0.0	0.3	4.3	7.4	10.7	55.7
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roebourne—													
Temperature :													
Mean max., °F.	100.8	100.9	98.5	93.9	86.2	79.4	79.0	82.9	89.6	94.4	100.5	101.7	92.3
Mean min., °F.	79.2	79.3	77.4	70.6	64.0	58.2	55.4	57.5	61.5	66.6	73.2	76.7	68.3
Highest max., °F.	118.0	116.0	113.4	109.8	100.0	93.8	91.0	97.0	106.8	113.0	114.5	116.0	118.0
Lowest min., °F.	66.5	55.0	63.0	57.8	46.7	40.0	41.0	44.0	48.1	55.0	49.0	53.0	40.0
Number of days 90° and over	29.8	26.3	27.9	24.1	7.2	0.2	0.2	3.3	15.2	23.3	28.1	30.5	216.1
Number of days 100° and over	17.7	15.0	15.9	4.7	0.0	0.0	0.0	0.0	0.8	5.9	16.2	19.4	95.6
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Onslow—													
Temperature :													
Mean max., °F.	96.4	96.4	95.4	91.9	84.3	78.0	77.3	80.0	85.1	88.9	93.5	95.4	88.5
Mean min., °F.	74.2	74.7	73.5	67.1	60.3	54.5	51.5	53.5	56.8	61.0	66.3	70.5	63.7
Highest max., °F.	117.8	119.0	115.6	110.9	101.0	90.0	90.2	95.6	101.0	112.2	115.0	117.5	119.0
Lowest min., °F.	60.5	61.9	58.4	50.0	42.0	37.3	37.5	40.0	41.9	45.4	50.0	54.5	37.3
Number of days 90° and over	25.8	24.1	27.8	16.7	2.8	0.1	0.0	0.8	5.2	13.3	19.1	25.2	160.9
Number of days 100° and over	9.1	7.0	8.8	1.5	0.0	0.0	0.0	0.0	0.2	2.0	5.7	9.8	44.1
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carnarvon—													
Temperature :													
Mean max., °F.	87.2	88.1	86.9	84.4	78.3	73.7	71.7	73.1	75.4	77.4	81.4	84.2	80.2
Mean min., °F.	72.1	72.4	71.6	65.8	58.8	54.0	51.6	53.4	57.2	61.1	65.8	69.2	62.7
Highest max., °F.	117.8	115.2	112.8	105.9	100.4	90.2	86.8	90.2	97.8	108.3	109.1	113.0	117.8
Lowest min., °F.	58.0	61.2	56.8	47.0	42.8	37.0	37.0	38.3	42.0	45.5	50.4	54.6	37.0
Number of days 90° and over	8.0	9.8	11.3	7.0	0.4	0.0	0.0	0.1	0.9	2.1	2.5	3.6	45.7
Number of days 100° and over	3.4	3.8	3.7	1.3	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.9	14.0
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geraldton—													
Temperature :													
Mean max., °F.	84.5	85.2	83.6	80.5	74.2	69.7	67.7	68.8	71.4	73.6	78.5	82.0	76.6
Mean min., °F.	66.3	66.5	65.0	60.9	56.9	53.8	51.7	52.1	53.0	55.4	60.0	63.4	58.7
Highest max., °F.	117.9	115.5	111.7	108.0	94.7	83.8	81.9	88.9	96.5	104.6	108.8	113.0	117.9
Lowest min., °F.	48.0	51.0	47.0	41.8	36.0	33.5	33.4	35.1	35.3	37.9	44.0	45.8	33.4
Number of days 90° and over	8.2	9.8	9.8	3.9	1.1	0.0	0.0	0.0	0.1	1.3	4.9	5.0	44.1
Number of days 100° and over	3.4	3.5	2.1	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.9	1.8	12.1
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.4



CYCLONE "SHIRLEY"

This photograph of Cyclone "Shirley" was taken by the satellite ESSA 2 during its 386th orbit on the 31st March, 1966. The centre of the photograph is latitude $24^{\circ} 03' S.$ and longitude $113^{\circ} 02' E.$, while the centre of wind circulation is latitude $14^{\circ} S.$ and longitude $116^{\circ} E.$ The top of the photograph faces north.

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL—<i>continued</i>													
<i>Perth (Observatory)—</i>													
Temperature :													
Mean max., °F.	84.6	85.3	81.8	76.3	69.0	64.4	62.9	64.0	66.7	69.6	75.9	81.2	73.5
Mean min., °F.	63.2	63.6	61.4	57.3	52.6	49.7	48.0	48.3	50.1	52.4	56.7	60.5	55.3
Highest max., °F.	110.7	112.2	106.4	99.7	90.4	81.7	76.4	82.0	90.9	99.0	104.6	107.9	112.2
Lowest min., °F.	48.6	47.7	45.8	39.3	34.3	34.9	34.2	35.4	36.7	40.0	42.0	47.5	34.2
Number of days 90° and over	8.8	8.2	5.5	1.2	0.0	0.0	0.0	0.0	0.0	0.3	2.2	5.6	31.8
Number of days 100° and over	1.6	1.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	5.0
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2
<i>Sunbury—</i>													
Temperature :													
Mean max., °F.	82.1	81.9	78.9	74.4	68.1	64.1	62.5	63.1	65.5	68.1	74.4	78.9	71.8
Mean min., °F.	59.1	59.1	57.1	53.6	50.8	48.6	47.1	47.4	48.8	50.4	54.0	56.8	52.7
Highest max., °F.	106.2	104.2	101.0	93.0	83.7	77.2	72.2	75.5	83.8	92.5	99.8	101.5	106.2
Lowest min., °F.	42.0	41.3	39.3	36.7	32.1	33.0	28.0	33.0	30.0	33.0	39.2	38.4	28.0
Number of days 90° and over	4.2	3.2	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.1	10.5
Number of days 100° and over	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Number of days 36° and under	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.2	0.3	0.3	0.0	0.0	1.6
<i>Pemberton—</i>													
Temperature :													
Mean max., °F.	78.7	78.5	75.1	68.9	63.6	60.1	57.9	59.6	61.6	64.6	69.8	73.9	67.7
Mean min., °F.	55.4	56.1	54.8	51.3	48.4	46.8	44.4	44.2	44.9	46.6	49.8	52.9	49.6
Highest max., °F.	106.0	103.0	102.0	93.0	80.0	72.0	70.0	78.0	83.0	87.0	95.0	100.0	106.0
Lowest min., °F.	40.0	40.0	39.0	37.0	32.0	34.0	32.0	30.0	31.0	35.0	35.8	39.0	30.0
Number of days 90° and over	3.9	2.8	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	12.2
Number of days 100° and over	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Number of days 36° and under	0.0	0.0	0.0	0.0	0.2	0.7	1.3	1.6	0.9	0.2	0.0	0.0	4.9
<i>Mt Barker—</i>													
Temperature :													
Mean max., °F.	78.1	78.3	74.1	69.7	63.0	58.8	57.2	58.7	61.9	65.3	71.3	75.4	67.7
Mean min., °F.	54.1	54.3	53.4	50.5	46.8	44.1	42.0	42.4	44.0	45.9	49.3	52.2	48.3
Highest max., °F.	111.0	110.5	105.0	96.8	87.0	78.8	70.0	77.0	84.8	96.0	102.9	109.3	111.0
Lowest min., °F.	35.0	39.0	38.5	36.0	33.0	32.0	28.0	29.7	31.0	33.0	34.0	34.0	28.0
Number of days 90° and over	4.3	4.0	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	1.0	2.8	15.1
Number of days 100° and over	0.8	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	2.2
Number of days 36° and under	0.0	0.0	0.0	0.1	0.3	1.5	3.5	3.3	1.9	0.4	0.0	0.0	11.0
<i>Albany—</i>													
Temperature :													
Mean max., °F.	73.8	74.2	72.3	70.3	65.9	62.2	60.9	61.7	63.6	65.7	69.2	72.0	67.6
Mean min., °F.	58.5	58.8	57.5	54.5	50.7	47.8	46.3	46.6	48.3	50.0	53.6	56.5	52.4
Highest max., °F.	107.0	112.6	105.4	99.9	95.3	76.2	73.5	81.0	87.0	97.2	106.0	106.0	112.6
Lowest min., °F.	42.3	41.0	38.7	35.5	35.1	35.0	32.2	34.3	34.0	36.2	40.6	41.2	32.2
Number of days 90° and over	0.8	0.3	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	4.0
Number of days 100° and over	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Esperance—</i>													
Temperature :													
Mean max., °F.	76.6	77.5	75.4	72.2	67.4	63.6	62.1	63.5	66.4	68.4	71.9	74.5	70.0
Mean min., °F.	59.9	60.3	58.9	54.4	50.3	46.8	45.4	45.7	47.9	50.3	54.4	57.5	52.6
Highest max., °F.	117.0	111.4	110.5	102.0	91.5	81.0	78.8	88.7	96.0	103.8	108.0	109.0	117.0
Lowest min., °F.	40.8	40.8	39.0	38.0	35.0	32.0	31.0	32.0	34.3	33.9	38.0	40.0	31.0
Number of days 90° and over	3.1	3.1	2.6	0.8	0.1	0.0	0.0	0.0	0.1	0.6	1.6	2.5	14.6
Number of days 100° and over	1.2	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8	3.8
Number of days 36° and under	0.0	0.0	0.0	0.0	0.1	0.8	0.9	0.5	0.2	0.0	0.0	0.0	2.5
WHEAT BELT													
<i>Carnamah—</i>													
Temperature :													
Mean max., °F.	95.7	95.5	89.4	82.3	72.2	67.2	64.2	67.0	71.6	77.9	85.3	90.8	79.9
Mean min., °F.	63.5	63.7	60.5	56.0	49.7	47.3	44.7	44.6	45.5	49.4	54.6	59.2	53.2
Highest max., °F.	114.1	114.0	111.0	102.0	91.0	82.0	82.0	85.0	95.1	104.0	109.5	111.0	114.1
Lowest min., °F.	41.1	48.0	37.0	35.0	35.0	32.0	33.0	34.3	33.9	34.0	39.0	44.0	32.0
Number of days 90° and over	23.8	22.2	18.7	6.5	0.0	0.0	0.0	0.0	0.6	3.5	8.8	16.8	100.9
Number of days 100° and over	12.2	9.4	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	5.9	33.4
Number of days 36° and under	0.0	0.0	0.0	0.0	0.1	0.5	0.8	0.8	0.3	0.0	0.0	0.0	2.5
<i>Wongan Hills—</i>													
Temperature :													
Mean max., °F.	92.7	90.4	87.9	78.4	67.2	62.4	60.4	61.9	68.6	73.5	80.2	85.6	75.8
Mean min., °F.	63.1	62.9	61.1	55.5	48.5	45.2	41.8	41.7	45.6	47.9	52.0	57.1	51.9
Highest max., °F.	112.0	109.6	108.5	98.6	89.2	74.2	76.3	79.6	90.3	99.5	104.2	111.6	112.0
Lowest min., °F.	47.9	49.1	45.4	37.1	34.2	33.0	32.2	31.5	32.3	35.0	39.7	41.5	31.5
Number of days 90° and over	18.3	15.5	14.5	2.7	0.0	0.0	0.0	0.0	0.0	1.0	5.2	10.7	67.9
Number of days 100° and over	6.7	4.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.7	13.9
Number of days 36° and under	0.0	0.0	0.0	0.0	0.2	0.8	2.5	2.7	1.1	0.0	0.0	0.0	7.3

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
WHEAT BELT—<i>continued</i>													
Kellerberrin—													
Temperature :													
Mean max., °F.	93.0	92.3	86.4	79.1	69.3	63.4	61.3	64.0	70.2	76.1	85.0	90.5	77.5
Mean min., °F.	61.6	61.4	58.8	52.2	46.5	43.6	41.5	41.9	43.8	47.8	54.5	58.8	51.0
Highest max., °F.	115.0	116.0	112.0	102.6	96.0	80.4	76.0	82.6	97.7	103.0	109.5	113.0	116.0
Lowest min., °F.	45.0	43.0	40.7	34.0	28.0	26.5	26.0	27.6	30.0	32.5	39.0	42.0	28.0
Number of days 90° and over	19.9	16.7	11.3	2.7	0.2	0.0	0.0	0.0	0.2	1.8	8.5	15.0	76.3
Number of days 100° and over	6.9	5.5	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.4	4.6	20.4
Number of days 36° and under	0.0	0.0	0.0	0.1	2.4	4.6	7.4	7.0	3.4	0.6	0.0	0.0	25.5
Southern Cross—													
Temperature :													
Mean max., °F.	94.3	93.0	87.0	78.9	69.5	63.0	61.7	64.7	72.0	77.7	86.5	92.3	78.4
Mean min., °F.	62.2	62.2	58.4	51.7	45.1	41.5	39.1	40.3	43.1	47.9	55.0	59.9	50.5
Highest max., °F.	115.0	117.0	112.0	103.2	92.0	81.5	80.0	85.9	94.6	102.8	110.2	114.6	117.0
Lowest min., °F.	42.0	42.0	38.2	30.0	26.0	24.3	23.0	25.0	26.0	30.6	35.6	40.8	23.0
Number of days 90° and over	21.5	17.3	12.7	3.2	0.0	0.0	0.0	0.0	0.4	2.7	10.6	18.5	86.9
Number of days 100° and over	9.1	7.2	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.0	6.4	27.4
Number of days 36° and under	0.0	0.0	0.0	0.6	2.4	7.1	8.6	9.6	3.5	0.4	0.0	0.0	32.2
Merredin—													
Temperature :													
Mean max., °F.	92.8	91.5	85.8	77.2	68.0	62.1	60.1	62.7	69.3	75.3	83.3	89.1	76.4
Mean min., °F.	62.2	62.1	59.3	52.9	46.3	43.2	40.4	40.3	42.4	46.9	53.8	58.8	50.7
Highest max., °F.	118.0	112.0	109.6	101.8	93.5	81.4	77.4	82.2	92.6	102.5	107.0	112.1	113.0
Lowest min., °F.	45.5	43.0	41.2	29.8	25.0	27.0	25.3	25.9	27.5	29.8	33.0	41.0	25.0
Number of days 90° and over	19.8	16.1	10.6	1.7	0.0	0.0	0.0	0.0	0.1	1.5	7.1	14.0	70.9
Number of days 100° and over	6.2	5.0	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.7	3.5	17.0
Number of days 36° and under	0.0	0.0	0.0	0.4	1.4	4.2	6.5	8.7	4.2	0.8	0.0	0.0	26.2
Northam—													
Temperature :													
Mean max., °F.	92.8	92.3	86.5	79.2	69.5	63.5	61.8	63.8	69.1	74.2	83.6	89.6	77.2
Mean min., °F.	62.7	62.7	59.8	53.2	47.3	43.7	41.7	42.4	44.9	48.3	55.1	60.1	51.8
Highest max., °F.	115.2	116.0	111.0	103.0	93.0	81.0	76.0	82.4	94.2	103.0	111.3	114.0	116.0
Lowest min., °F.	45.1	45.5	41.9	33.0	27.2	25.0	28.3	30.0	30.4	32.8	37.4	42.0	25.0
Number of days 90° and over	20.2	17.3	11.7	3.2	0.1	0.0	0.0	0.0	0.1	1.3	7.1	15.0	76.0
Number of days 100° and over	7.3	5.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	4.5	21.3
Number of days 36° and under	0.0	0.0	0.0	0.2	1.1	4.7	5.5	6.2	2.0	0.2	0.0	0.0	19.9
Wandering—													
Temperature :													
Mean max., °F.	88.3	87.6	82.0	74.9	65.9	60.5	59.2	60.5	64.9	69.6	78.9	84.9	73.1
Mean min., °F.	56.5	55.9	53.6	47.5	43.6	40.5	39.0	39.3	41.4	43.8	48.9	53.5	47.0
Highest max., °F.	114.0	110.8	107.5	97.0	87.0	77.0	71.8	79.0	86.0	98.5	108.5	109.0	114.0
Lowest min., °F.	38.0	37.0	30.9	28.0	22.0	21.8	24.0	25.0	27.0	28.0	30.5	35.0	21.8
Number of days 90° and over	15.2	12.0	9.3	1.3	0.0	0.0	0.0	0.0	0.0	0.4	2.3	7.4	47.9
Number of days 100° and over	3.7	2.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.8	8.0
Number of days 36° and under	0.0	0.0	0.0	1.3	7.9	9.8	9.9	9.5	9.4	5.3	1.0	0.3	54.4
Narrogin—													
Temperature :													
Mean max., °F.	87.5	86.2	81.0	73.3	64.6	59.2	57.8	59.3	64.1	69.2	78.1	83.9	72.0
Mean min., °F.	56.5	56.5	54.4	50.1	45.6	43.1	41.2	41.1	42.4	44.5	49.1	53.1	48.1
Highest max., °F.	110.7	109.1	105.6	96.0	89.5	79.1	70.2	76.8	86.7	100.0	103.5	109.7	110.7
Lowest min., °F.	39.8	39.0	37.9	32.0	29.5	28.0	27.2	27.2	26.5	29.0	32.0	35.2	26.5
Number of days 90° and over	11.5	9.0	4.3	0.6	0.0	0.0	0.0	0.0	0.0	0.2	2.6	7.2	35.4
Number of days 100° and over	2.1	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	5.3
Number of days 36° and under	0.0	0.0	0.0	0.4	2.4	3.8	6.6	6.5	6.9	3.4	0.9	0.1	31.0
Katanning—													
Temperature :													
Mean max., °F.	86.0	85.1	79.3	73.2	64.7	59.7	57.9	59.5	64.1	68.8	77.6	82.8	71.6
Mean min., °F.	56.3	56.5	54.7	50.4	46.5	43.6	41.9	42.0	43.7	45.7	50.2	53.8	48.8
Highest max., °F.	110.9	112.3	107.0	96.2	88.4	75.3	71.0	88.0	87.0	100.0	106.0	110.0	112.3
Lowest min., °F.	41.0	37.9	35.0	33.0	30.0	28.3	25.0	28.1	29.8	31.0	35.0	37.6	25.0
Number of days 90° and over	12.3	7.5	5.3	1.1	0.0	0.0	0.0	0.0	0.0	0.3	2.0	5.9	34.4
Number of days 100° and over	2.6	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.2
Number of days 36° and under	0.0	0.0	0.0	0.2	1.8	3.6	4.4	4.5	2.8	1.1	0.2	0.0	18.6
OTHER INLAND													
Halls Creek—													
Temperature :													
Mean max., °F.	97.6	97.0	95.6	92.3	85.7	80.6	80.1	85.9	92.7	98.3	100.5	99.5	92.2
Mean min., °F.	75.4	74.2	71.2	63.0	56.0	50.5	47.6	52.1	59.0	69.5	74.2	75.5	64.0
Highest max., °F.	111.8	110.8	107.6	103.8	99.0	95.0	93.2	100.0	104.3	110.8	110.8	111.6	111.8
Lowest min., °F.	60.0	54.0	51.8	45.0	36.4	32.4	30.0	32.8	37.4	48.0	53.0	53.8	30.0
Number of days 90° and over	28.5	24.8	29.1	22.7	9.5	0.8	1.3	7.3	23.2	29.2	29.7	29.0	235.1
Number of days 100° and over	17.8	8.5	9.6	1.6	0.0	0.0	0.0	0.0	0.7	12.7	17.6	19.2	87.7
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.0	0.0	0.0	1.1

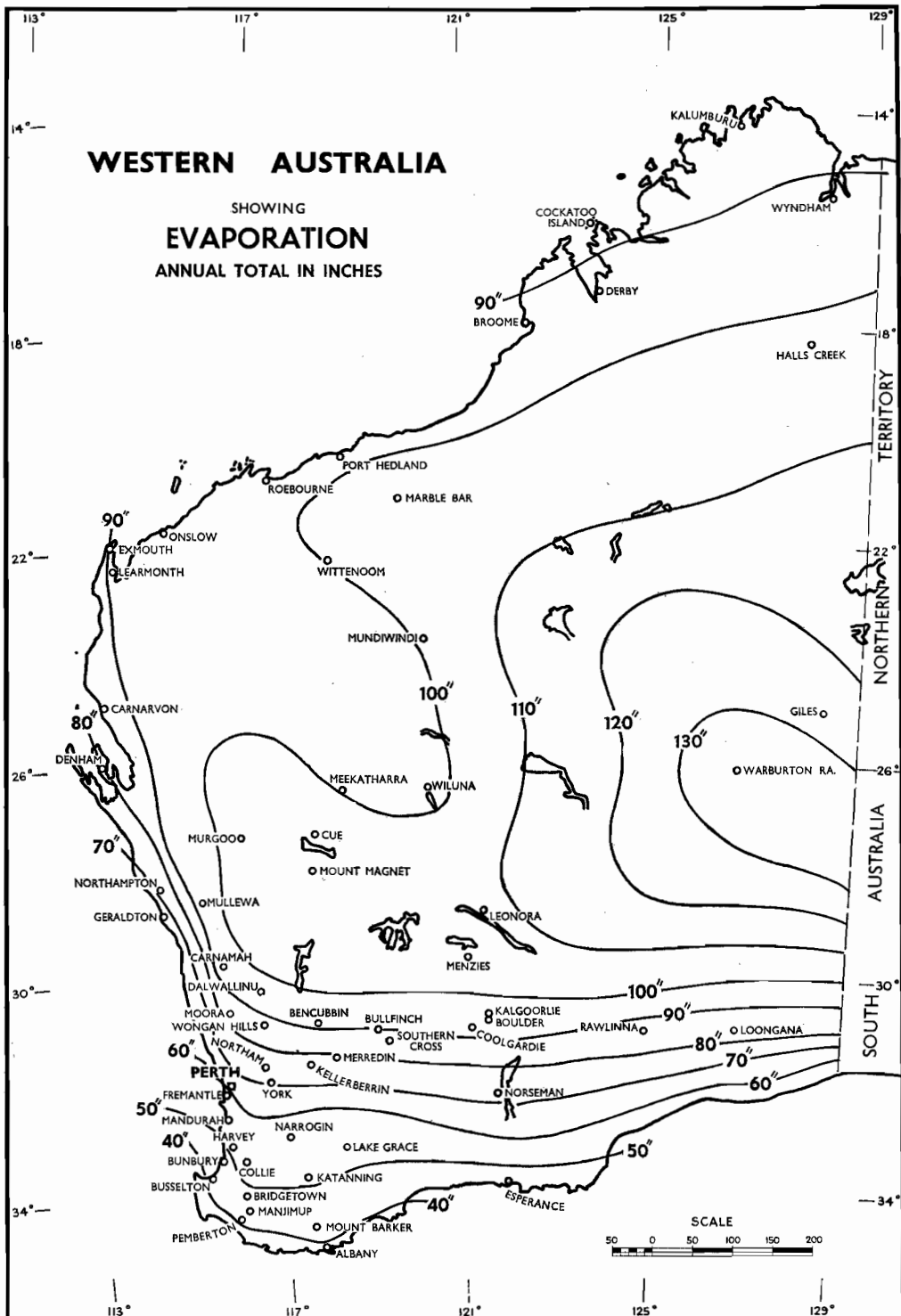
TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—continued

Reporting Station and Characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
OTHER INLAND—continued													
Marble Bar—													
Temperature :													
Mean max., °F.	106.2	105.5	102.9	97.0	88.0	80.9	80.6	85.8	93.8	100.1	105.9	107.5	96.2
Mean min., °F.	78.9	78.6	76.8	69.5	61.3	54.7	52.4	55.7	61.7	68.7	75.2	78.1	67.6
Highest max., °F.	120.5	119.0	116.0	113.0	103.0	93.0	95.0	99.0	108.7	114.0	117.0	119.0	120.5
Lowest min., °F.	66.0	57.0	59.6	52.0	42.0	34.0	36.0	39.0	42.0	50.0	58.0	63.0	34.0
Number of days 90° and over	30.3	26.5	28.8	26.0	10.1	0.5	0.8	7.3	22.6	26.3	30.0	30.5	239.7
Number of days 100° and over	27.9	22.1	18.9	8.8	0.2	0.0	0.0	0.0	2.0	12.6	24.2	28.7	145.4
Number of days 36° and under	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.0	0.0	0.0	0.0	1.0
Mundivindi—													
Temperature :													
Mean max., °F.	100.5	98.7	94.0	86.7	77.7	70.4	70.0	74.6	83.2	89.4	96.2	99.8	86.8
Mean min., °F.	73.6	72.7	69.0	60.3	51.2	43.4	41.4	45.0	51.3	58.6	66.7	71.2	58.7
Highest max., °F.	112.2	112.0	108.2	105.0	97.6	85.7	87.0	99.0	106.5	110.0	112.0	112.2	112.2
Lowest min., °F.	57.0	55.0	49.0	39.0	28.9	24.0	22.4	25.5	29.0	37.9	46.0	53.0	22.4
Number of days 90° and over	29.3	25.3	25.4	11.6	0.6	0.0	0.0	0.4	5.6	15.9	25.3	29.1	168.5
Number of days 100° and over	20.3	15.7	10.2	0.2	0.0	0.0	0.0	0.0	1.3	9.8	19.9	77.4	77.4
Number of days 36° and under	0.0	0.0	0.0	0.0	0.6	5.6	7.3	3.7	0.2	0.0	0.0	0.0	17.4
Meekatharra—													
Temperature :													
Mean max., °F.	100.4	99.7	93.9	85.7	76.0	68.6	67.5	71.2	78.6	84.8	92.9	98.2	84.8
Mean min., °F.	73.1	73.1	69.4	61.0	52.5	40.3	41.4	46.5	51.0	56.9	64.7	70.0	59.0
Highest max., °F.	113.0	114.1	110.4	104.2	94.4	85.0	81.7	90.7	97.0	103.0	109.1	110.6	114.1
Lowest min., °F.	54.0	54.1	52.2	42.4	33.0	26.4	31.6	34.0	34.0	40.2	43.0	51.9	26.4
Number of days 90° and over	28.8	24.3	21.7	9.8	0.3	0.0	0.0	0.1	1.8	8.3	17.9	25.6	138.6
Number of days 100° and over	18.6	13.7	6.2	0.3	0.0	0.0	0.0	0.0	0.4	3.5	10.6	53.3	53.3
Number of days 36° and under	0.0	0.0	0.0	0.0	0.2	0.9	1.3	0.1	0.0	0.0	0.0	0.0	2.5
Kalgoorlie—													
Temperature :													
Mean max., °F.	93.2	93.0	86.3	78.4	70.1	63.6	62.5	66.0	73.6	79.0	86.3	91.1	78.6
Mean min., °F.	64.2	64.4	61.3	55.2	48.9	44.0	42.9	43.9	48.2	52.7	58.3	62.3	53.9
Highest max., °F.	114.4	115.0	111.0	102.5	92.0	81.8	81.0	87.0	96.0	105.2	110.6	113.0	115.0
Lowest min., °F.	47.1	48.0	41.6	35.0	28.8	27.4	26.0	27.7	30.9	30.2	38.2	45.5	26.0
Number of days 90° and over	18.8	12.9	10.8	2.9	0.1	0.0	0.0	0.0	0.4	2.9	7.4	14.8	71.0
Number of days 100° and over	7.5	4.3	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.3	3.9	20.1
Number of days 36° and under	0.0	0.0	0.0	0.1	0.3	1.8	3.9	3.6	0.3	0.0	0.0	0.0	10.0
Rashtinna—													
Temperature :													
Mean max., °F.	90.0	89.8	84.4	78.0	71.2	65.3	64.2	67.3	74.4	79.0	84.4	88.8	78.1
Mean min., °F.	58.9	59.2	57.8	52.2	46.4	41.6	39.3	41.1	45.8	49.4	54.2	57.6	50.2
Highest max., °F.	118.0	115.5	112.0	104.0	95.0	88.3	85.0	93.0	102.7	107.0	112.2	114.3	118.0
Lowest min., °F.	42.0	41.0	42.9	35.0	32.0	29.2	27.8	26.2	31.6	33.2	36.4	41.2	26.2
Number of days 90° and over	14.8	10.8	10.3	2.8	0.5	0.0	0.0	0.0	1.7	3.6	7.9	13.3	65.7
Number of days 100° and over	6.8	3.5	3.2	0.2	0.0	0.0	0.0	0.0	0.1	0.8	2.5	5.7	22.8
Number of days 36° and under	0.0	0.0	0.0	0.0	1.2	3.5	5.3	4.4	0.8	0.2	0.0	0.0	15.4
Collie—													
Temperature :													
Mean max., °F.	86.4	85.7	80.4	74.3	65.9	61.3	59.8	61.0	64.8	68.8	77.2	83.0	72.4
Mean min., °F.	55.6	54.9	52.5	47.1	42.9	40.4	39.1	39.8	42.5	45.3	49.7	53.1	46.9
Highest max., °F.	112.0	110.2	105.4	98.0	86.8	76.0	73.0	79.0	86.6	97.4	101.8	106.2	112.0
Lowest min., °F.	37.7	35.2	32.3	29.6	28.0	24.8	25.0	26.2	28.0	31.0	32.6	35.0	24.8
Number of days 90° and over	13.0	11.3	8.0	1.2	0.0	0.0	0.0	0.0	0.0	0.3	2.1	5.7	41.6
Number of days 100° and over	2.2	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	5.5
Number of days 36° and under	0.0	0.0	0.1	0.8	5.3	7.8	7.9	6.6	5.9	1.8	0.3	0.1	36.6
Manjimup—													
Temperature :													
Mean max., °F.	78.3	79.4	74.8	69.5	62.8	59.3	57.4	58.7	61.4	64.7	71.0	75.3	67.7
Mean min., °F.	53.7	54.0	53.0	50.5	46.5	44.5	42.5	43.0	45.7	46.2	49.3	51.8	48.2
Highest max., °F.	107.0	105.0	102.0	92.0	81.0	72.0	71.0	76.4	82.5	92.0	99.3	100.0	107.0
Lowest min., °F.	42.0	40.0	38.0	35.0	34.0	33.0	27.0	30.0	31.0	33.0	35.0	40.0	27.0
Number of days 90° and over	5.7	4.3	3.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.0	16.1
Number of days 100° and over	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
Number of days 36° and under	0.0	0.0	0.0	0.1	0.5	1.3	2.3	3.2	2.1	0.1	0.0	0.0	9.6

THUNDERSTORMS

Thunderstorms are most frequent along the Kimberley coast, where they occur during the "Wet" season but are practically unknown in the "Dry". In the remainder of the tropics they occur over roughly the same period, but the season is a little shorter and the storms less frequent.

In most of the State south from the tropics thunderstorms are most frequent in the summer months but in the south-west they are more uniformly distributed, and in many places in coastal districts they are most frequent in winter.



The winter storms are often accompanied by hail which, however, is usually not heavy enough to cause any damage. Hail accompanying summer storms can be much heavier, and occasionally damages ripening crops in the wheat belt. Both winter and summer thunderstorms may be accompanied by tornadic squalls, but these are infrequent.

EVAPORATION

Except in the lower south-west, evaporation from a free water surface exceeds the annual rainfall, and in a large proportion of the State it is more than ten times greater than the rainfall.

It is least in the winter months, amounting in July to less than 1 inch in the far south-west, and to about 8 inches in the northern tropics. In January, when evaporation is highest, it totals about 5 inches on the far south coast and reaches 14 inches in the East Gascoyne and North-Eastern Meteorological Districts. Further north, evaporation is reduced by the moister air over the tropics at this time of the year.

The map on page 36 shows total annual evaporation throughout the State.

GROWING SEASON

Less moisture is required to sustain plant life when evaporation is low than when it is high, and the minimum amount required can be related to evaporation from a free water surface.

That part of the year during which rainfall is greater than this minimum amount (the "effective rainfall"), may be taken as the *growing season*. The map on page 38 shows the length of this season in the agricultural area of the State. It is based on average monthly rainfall and effective rainfall, the latter being calculated from the formula $P = 0.54 \times E^{0.7}$ (after Prescott), where P is effective rainfall and E is evaporation (both in inches per month).

SNOW

Snow has been known to fall as far north as Wongan Hills, but it is only in the southern districts that it occasionally lies on the ground. It is seen on the top of the Stirling Range for a short time nearly every winter, but elsewhere is very infrequent and of negligible importance.

METROPOLITAN CLIMATE

Perth has more sunshine and a greater number of clear days during the year than any other State capital city. It also has the wettest winter, the driest summer, and is the windiest of the capital cities. Details of its climate are shown in the second table on page 45.

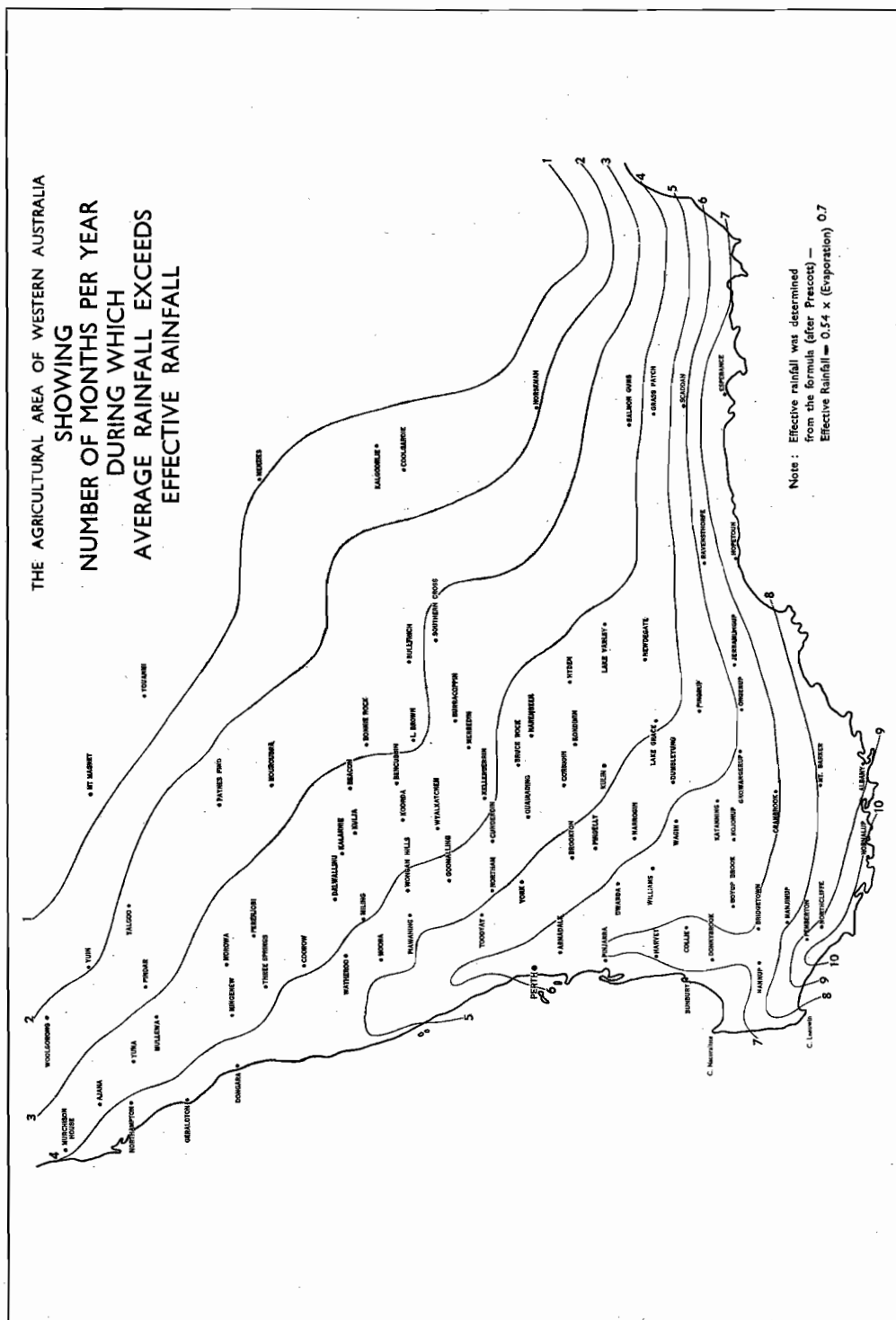
TROPICAL CYCLONES

One of the most devastating of natural phenomena is the low pressure system which develops in the tropical areas of the world, and is named the tropical cyclone from its circular form and area of genesis.

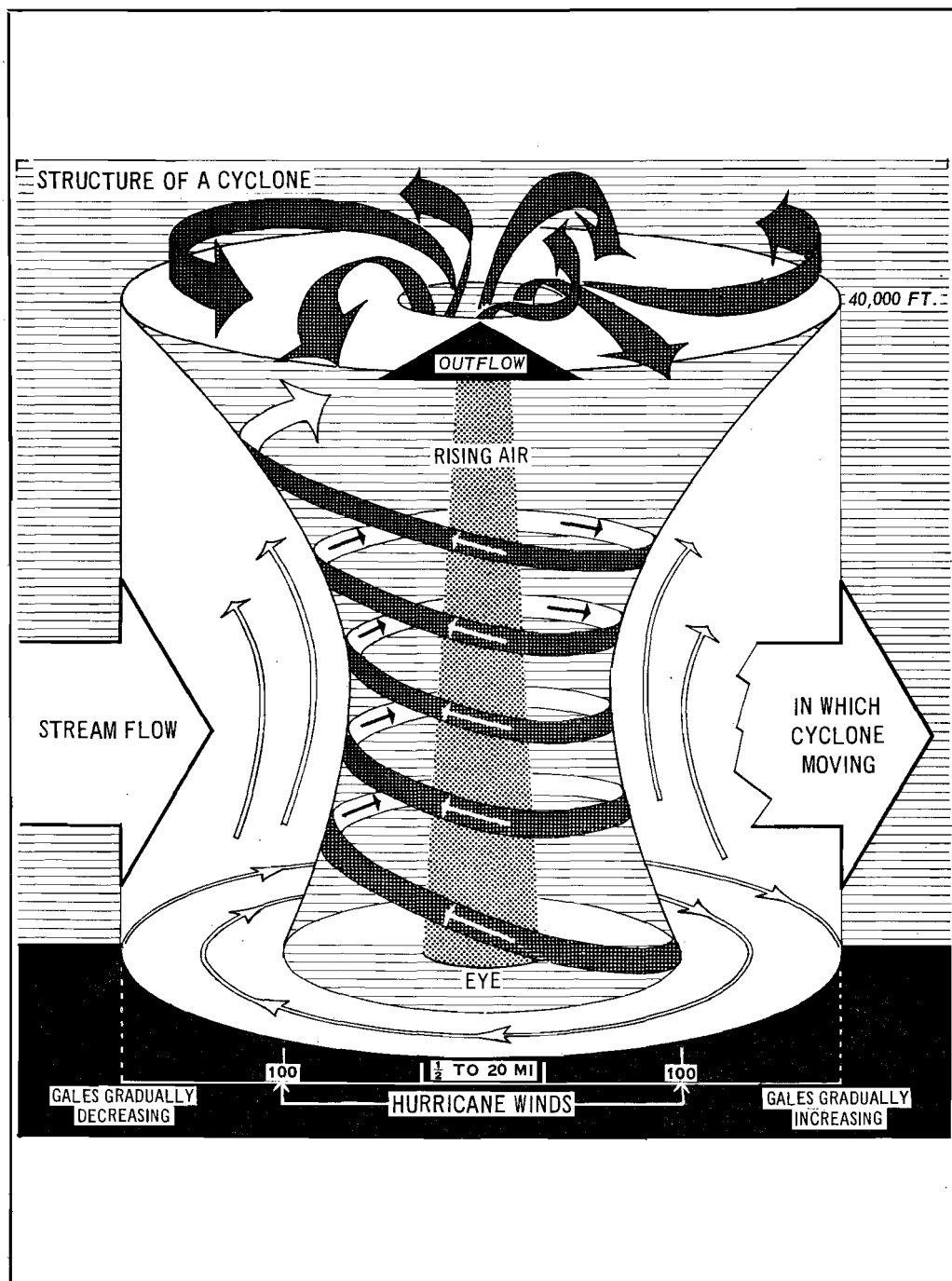
These systems occur in many places over the sea areas of the world, and are known by different names depending on the area in which they occur. In the West Indies they are called hurricanes from a word meaning "big wind". In the Western North Pacific the name typhoon is used which again is derived from words meaning "strong wind". Local names such as "Baguio" in the Philippines or "Willy Willy" (believed to be derived from a native word for water) in the north-west of Western Australia are also used.

By whatever name these systems are known, however, there is no essential difference between them as they occur in various parts of the world. All have the same characteristics, being approximately circular in shape with a small central area of calm or relatively light winds where the lowest pressures are recorded, in which cloud tends to decrease and may clear entirely. This central area is surrounded by a region of variable extent in which there is much cloud and rain and often, in the formative stage, considerable thunderstorm activity. The pressure gradient because of the extremely low central pressures is very steep and, away from the centre, winds of extreme speeds occur.

In the low levels of the atmosphere the wind in the Southern Hemisphere blows in a clockwise direction spiralling inwards to the centre. Over the oceans where unlimited moisture is available this gives rise to very rapid vertical motion of the air and development of a deep cloud structure usually



with heavy rain. The cloud form follows the inward spiralling of the wind as is clearly shown in the satellite photograph facing page 32, of a cyclone on the 30th March, 1966 about 400 miles north-west of Port Hedland. The structure of a cyclone is illustrated in the diagrammatic sketch below.



One of the areas in which these tropical cyclones occur is the Arafura and Timor Seas and the eastern part of the Indian Ocean. They are not limited to the waters immediately adjacent to the continent but may occur well out in the Indian Ocean and still affect Western Australia. The earliest record of cyclones in this region refers to one which occurred in April, 1778 at Banda Island about 450 miles north of Darwin. The next was reported by the ship "Abercrombie" in January, 1812 about 500 miles north of Onslow. The settlement at Port Essington in the Northern Territory was wrecked by a cyclone in November, 1839. Since that date the expansion of settlement in the north of the continent, the increased movement of ships in adjacent waters and better communications have resulted in a steadily increasing volume of records on these systems near Western Australia and over the ocean and to the westward.

Area of Formation

The cyclones form over the tropical oceans mainly within about 10° of the equator. Those affecting Western Australia may even develop as far west as the Cocos-Keeling Islands. Occasionally a system which has developed in the Coral Sea will cross the north of the continent and descend with renewed vigour on Western Australia. A large number of cyclones also form further westward in the Indian Ocean, but these will only affect Western Australia indirectly.

Extent

The size of tropical cyclones varies very considerably. Some are only about 50 miles in diameter while others may be 500 to 600 miles wide. Their vertical development also varies; in some it may not reach above 20,000 feet and in others it may be much deeper.

Frequency

The first record of a cyclone actually crossing the coast of Western Australia was in March, 1839 when one occurred at Shark Bay, but due to the lack of settlement and any organized system of meteorological observations it is likely that a number of cyclones which developed in the early years were never reported.

The incidence of these systems has steadily increased as settlement extended northward and as the population increased. The average number of cyclones per annum which cross the coast of Western Australia is slightly in excess of two but the number affecting this State exceeds three, since some remain over the sea for the whole of their lifetime.

Movement

Contrary to common belief cyclones follow no regular track. Because they usually move to the westward in tropical areas, and if they go far enough south will ultimately move to the eastward under the influence of westerly winds of the temperate zone, the idea has grown that these systems move in a parabolic path but such is not the case. Their movement is largely governed by conditions in the upper atmosphere and while some will recurve and move south-eastward very quickly, others never do so but continue the westward movement; on occasions they may even move in a complete circle in their track before continuing in the original direction. In February, 1956 one such system moved south-west down the Timor Sea, crossing the coast near Broome, moved inland to the western border of the Northern Territory, then recurved moving north and west to cross the Kimberley Division and moved sea-ward again near Derby, finally following the coastline south-west and south, crossing into the Southern Ocean slightly south of Perth.

The most frequent track is one along which the cyclone, after first forming, moves south-westward from the Arafura or Timor Sea area, continuing this movement for a time but gradually changing direction until it moves south-east.

Cyclones have been known to originate in the Coral Sea, cross Cape York Peninsular into the Gulf of Carpentaria, move across the Northern Territory into the Indian Ocean and after following the Western Australian coastline, recurve south-eastward near Geraldton and cross the south-west of the State into the Southern Ocean.

As with direction, the speed and movement is very varied but it is of the order of 5 to 10 knots becoming much faster as the system moves out of the tropics.

Time of Occurrence

Cyclones develop mainly in the months of January, February and March, and to a lesser degree in November, December and April. Only rarely do they occur outside these months near the continent and no authenticated storms are recorded in June, August or October. They do occur, however, over the ocean areas to the west of the continent and, if these are included, the month of June alone is cyclone free.

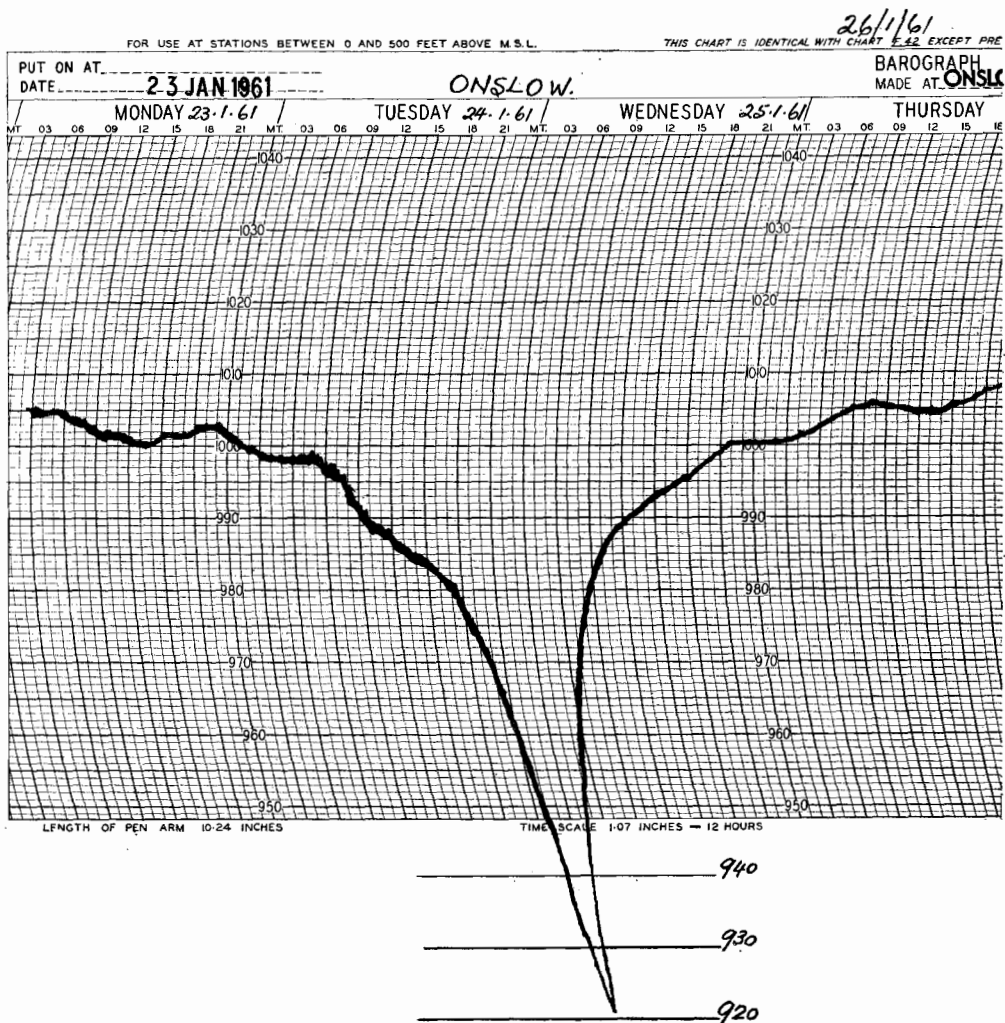
Pressures

Tropical cyclones originate in areas of relatively low pressure. As they develop, the air pressure decreases rapidly so that readings below 982 millibars (29.00 inches) are not unusual, while reports of 914 millibars (27.00 inches) are on record.

The pressure decreases as the storm advances and a sudden very rapid reduction to the lowest value occurs as the centre approaches and passes over the station, followed by an equally rapid rise after that passage.

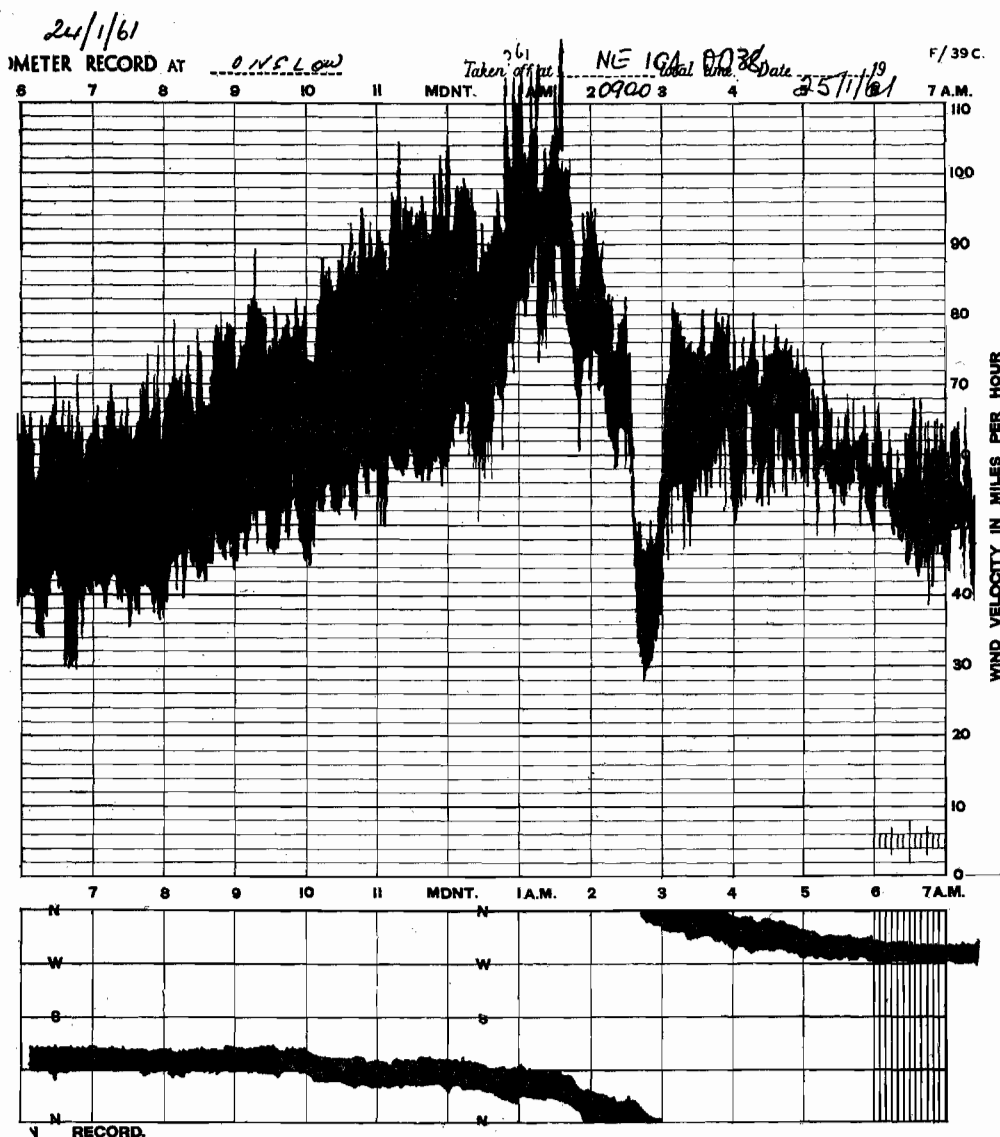
The pressure fall is by no means a steady one throughout. Rhythmic oscillations, the causes of which are unknown, and violent fluctuations are frequently recorded.

The sudden reduction in pressure is strikingly illustrated in the following reproduction of portion of an actual barograph chart recorded at Onslow on the north-west coast in January, 1961.



Winds

Normally the wind speed increases rapidly as the centre is approached, while the clockwise motion and inward spiralling cause rapid direction changes round the system. Strong winds may blow for several hours as the cyclone approaches or recedes from the station, and extreme gusts in excess of 120 knots may be experienced. The strongest gust yet measured on the north-west coast occurred at Onslow in February, 1963 when 125 knots were recorded, and it is possible there were gusts of greater speed in



Reproduction of portion of an actual anemometer chart recorded at Onslow in January, 1961. The maximum wind speed shown corresponds with the reduction in pressure traced on the chart on the previous page.

that storm. Due to the sparse network of recording anemometers and the fact that none at all were installed before 1939, it is quite likely that this extreme gust has been exceeded at other places also. Winds of 90 to 100 knots are not uncommon.

The area of strongest winds is generally within about 30 miles of the centre and the highest speeds usually in the front left hand quadrant of the storm. As the centre or eye of the cyclone passes over a place there is a lull, and calm or nearly calm conditions prevail. After a short period, which may range from a few minutes to an hour or more, depending on the width of the eye and the forward speed of the cyclone, the wind suddenly strikes from the opposite direction with a speed nearly equal to that before the lull. It is this sudden onset of extreme wind which frequently causes great damage.

Gustiness is extreme, the variation between the maximum and minimum speeds being of the order of half the mean wind speed ; thus with a mean wind of 100 knots, extremes can range between 75 knots and 125 knots or thereabouts.

The area of extreme winds is usually relatively small.

Eye of the Cyclone

This central portion of the cyclone has been remarked on by observers throughout the world since records were first available. It is the part of the system in which the pressure reaches its lowest value, where the wind lulls to calm or relatively light conditions, the rain ceases and the cloud decreases or wholly clears. The width of the eye is very variable ; it may be very small, perhaps a mile or two in diameter in young or miniature systems, or perhaps 40 miles in mature ones.

The sudden decrease in wind and rain and the relative quiet in the centre is an awesome experience which has given rise to descriptions such as suffocating. But apart from the calm and the cessation of the rain there is little change in the temperature or humidity.

Sea Swell

Because of the extreme winds very high seas are built up ; towards the centre of the cyclone these become quite confused as wave trains moving in different directions meet. Also, these seas which leave the area of generation and swell provide a precursor of the cyclone even at considerable distances from it.

In some parts of the world waves generated in cyclones have been reported up to 45 feet in height. On the Western Australian coast waves of 35 feet have been recorded on several occasions.

The interaction of the several wave trains in the cyclone moving in different directions near the centre of the system gives rise to the development of very confused and dangerous pyramidal seas.

Outside the actual area of the storm these wave trains travel away as a swell gradually decreasing in height. Thus they often provide indications of a cyclone which has developed undetected. Also, the direction from which the train is moving points to the area in which the waves were generated and hence the location at the time of generation of the cyclone. Finally, changes in direction of the swell will give a clue to the movement of the system.

Sea swells from these cyclones travel great distances. A cyclone in the vicinity of Mauritius caused a swell which reached Fremantle as waves of about two feet.

Storm Waves and Storm Tides

Because of the very low pressures, the sea surface in the area of influence of the cyclone will be higher than usual, while the strong winds blowing for long periods pile up water along the coastline when the direction and movement of the system favours it (that is, when a storm is approaching the coast). These increases in the water level are superimposed on the ordinary gravitational tides so that abnormally high tides may occur and flood extensive areas. These high tides have the further serious effect of allowing the ocean swells to move and break inland from the normal coastline.

More serious is the so-called "storm wave," which is a sudden rise of the sea level generally near the centre of intense storms. As this happens so quickly that there is no possibility of escape, in some parts of the world whole towns have been inundated. Due to the difficulty of observations we are without any clear appreciation of this phenomenon and consequently the cause is unknown. It seems likely that it may result in some way from rapid pressure fall near the centre or the interaction of the wind and sea in that region of the storm. These sea effects are most notable in areas where the water mass is surrounded, or partially so, by land, as a configuration of the coastline appears to intensify the effects. On the north-west coast of Western Australia only limited small areas are so enclosed and in many cases these are sheltered by off-shore reefs and islands ; at the same time the cyclones are operating in the open sea and there is no restriction on the water movement. For these reasons incursions by the sea onto the

north-west coast are rare ; however, they can, and have, occurred. Thus in January, 1939 Port Hedland was badly flooded and in March, 1956, also at Port Hedland, a storm tide four feet above the normal tide was recorded when the cyclone was about 150 miles to seaward.

Life of a Cyclone

The life of these storms is by no means uniform. Some will develop rapidly and die just as fast ; others mature slowly and can be identified for many days, while yet others may weaken and re-intensify in a passage over a long period. In 1956 one cyclone was tracked and retained its identity from the 16th February to the 4th March. Yet another in March-April, 1923 was first identified in the Coral Sea east of New Guinea on the 21st March, was tracked across Northern Australia, over the north-west coast and finally lost on the 9th April in the Bight south of Eucla.

Rainfall

The rainfall in such storms is usually, but not always, widespread and heavy. Rain gauge measurements are at best only an approximation to the actual amount of rain which has fallen. This is due to the extreme wind which drives the rain drops horizontally so that they are moving almost parallel to the surface and therefore are not collected in the gauge ; this effect results in a recorded fall less than the true amount.

While rain will occur near the outer edge of the cyclone, the heaviest falls are concentrated in the inner part near the eye where the pressure decrease is greatest. It follows that if the system moves slowly over a station and is in one place for some time, that area will be deluged ; on the other hand if the storm is moving rapidly, falls will be lighter.

The rainfall is largely concentrated in the front of the storm and in the direction of motion. Outside that area the falls decrease in amount and tend to become less widespread. Even in the area of most intensive rainfall there is some variation in amounts from place to place and this becomes more marked as the outside edge is approached.

Many falls of 10 inches or more in 24 hours have been recorded in Western Australia. The greatest amount measured in one day occurred at Whim Creek on the 3rd April, 1898 when 29.41 inches were received, and an amount of 36.49 inches in 48 hours. The rate of fall also varies and can be extremely high. Exact measurements are not available as few continuous recording instruments are installed and even these have only been operating in recent years. A report from Bulla Bulla on a storm in March, 1900 stated that three inches fell in 25 minutes, and in the same storm 10.32 inches were recorded, most of which, it was claimed, fell in 10 hours.

Damage

While the periodic cyclone probably makes possible the pastoral industry in the north-west of this State because of the invaluable rains which are associated with them, they also do considerable damage.

The heavy seas generated and the associated winds are always a menace to ships at sea, many of which have been lost. Notable instances of these are firstly, the cyclone of the 22nd April, 1887 when, on the Eighty Mile Beach near Wallal, 22 vessels were lost and 140 men drowned ; and secondly, a few years later in December, 1893 when 20 men lost their lives and 10 luggers foundered near Onslow. The worst disaster was the loss of the S.S. "Koombana" which sank near Port Hedland on the 21st March, 1912 with 74 crew and 76 passengers. Great damage to port installations, such as occurred on the 24th January, 1961 when 700 feet of Onslow jetty was destroyed, is caused by the pounding of the heavy seas. This was a repetition of damage which had previously occurred in March, 1953 and March, 1935 at the same port. In 1925 the Point Samson jetty was destroyed and this loss was repeated on the 31st December, 1954. On the latter occasion the damage done was estimated at \$100,000. In addition to damage to installations, the seas may also cause changes in the coastline, eroding the beaches in places and building up shoals in others.

Structural or crop damage often results from the extreme winds in cyclones. It was estimated after a cyclone at Cockatoo Island in December, 1960 that \$200,000 worth of damage was done, while after a visitation in Carnarvon in March, 1963 the toll taken of the plantations was estimated at \$500,000.

Following the heavy rains which usually accompany the tropical cyclones, the inland rivers, which are for a large portion of the year dry, flood and become raging torrents while water spreads over wide areas of the countryside away from the river beds, extensively damaging roads and bridges. As the cyclone moves inland taking with it the heavy rain, such floods may extend to areas where they would not normally be expected ; thus in January, 1939 the cyclone which damaged Port Hedland caused extensive flooding and damage estimated at \$400,000 in Kalgoorlie.

INTERSTATE COMPARISONS—RAINFALL, HUMIDITY, TEMPERATURE

Reporting Station	Height above mean sea-level	Average Rainfall		Relative Humidity (a)		Average Daily Mean Temperature	
		May to October	November to April	May to October	November to April	May to October	November to April
	feet	inches	inches	%	%	°F.	°F.
Bunbury	17	29.96	5.01	77	70	57.0	67.5
Sydney, New South Wales	138	21.53	23.27	66	69	58.2	69.3
Perth	197	30.24	4.80	69	55	58.2	70.8
Newcastle, New South Wales	112	20.56	20.80	70	74	58.7	69.7
Kalgoorlie	1,247	5.16	4.53	58	48	58.0	74.5
Cobar, New South Wales	822	5.88	6.73	59	46	56.8	75.2
Geraldton	13	16.04	2.39	67	62	62.3	73.0
Brisbane, Queensland	137	12.01	28.08	66	69	63.3	74.7
Wiluna	1,700	3.21	6.59	50	35	60.4	80.9
Charleville, Queensland	965	6.19	11.78	55	46	61.1	79.5
Carnarvon	15	6.48	2.60	63	63	65.5	77.4
Bundaberg, Queensland	45	10.86	31.51	73	74	64.5	75.7
Mundibindi	1,840	2.74	8.28	39	30	63.0	82.4
Longreach, Queensland	612	3.92	11.62	50	50	65.7	82.3
Onslow	14	4.45	4.88	55	56	69.3	82.9
Mackay, Queensland	35	11.49	51.67	78	80	66.8	77.7
Port Hedland	25	3.33	9.23	50	59	72.6	85.3
Townsville, Queensland	73	5.49	37.57	66	73	71.7	80.3
Derby	53	1.67	23.78	51	65	76.9	86.5
Innisfail, Queensland	22	35.88	103.27	85	85	69.7	78.1
Wyndham	23	1.13	25.51	43	59	80.9	88.0
Cooktown, Queensland	17	8.08	59.79	76	78	75.1	81.1
Albany	41	28.75	8.87	76	73	55.8	64.3
Adelaide, South Australia	140	14.42	6.67	64	45	56.5	69.6
Swan Hill, Victoria	230	7.88	5.21	70	54	53.4	69.8
Canberra, Australian Capital Territory	1,837	11.85	11.45	72	61	47.5	64.0

(a) Saturation = 100%.

CLIMATOLOGICAL DATA—PERTH OBSERVATORY
(For other data relating to Temperature and Rainfall see preceding tables)

Month.	Wind				Temperature		Relative Humidity (Saturation = 100%)		Sun-shine	Cloud (Proportion of Sky Covered)	Evaporation		
	Prevailing Direction		Speed		Highest in Sun	Lowest Terrestrial	Mean	At 3 p.m.	Mean Daily Amount	Mean of readings at 9 a.m., 3 p.m. and 9 p.m.	Mean Amount		
	9 a.m.	3 p.m.	Average	High-est									
Number of years of observations	30 (a)		30 (a)	52	62	66	30 (a)	30 (a)	30 (a)	30 (a)			
January	E.	S.S.W.	m.p.h. 10.9	m.p.h. 50	°F. 177.3	date 22/1914	°F. 39.5	date 20/1925	% 53	% 43	hours 10.4	% 29	inches 10.37
February	E.N.E.	S.S.W.	10.7	54	173.7	4/1934	39.8	1/1913	52	43	9.8	31	8.63
March	E.	S.S.W.	10.1	70	167.0	19/1918	36.7	8/1903	57	46	8.8	35	7.52
April	E.N.E.	S.S.W.	8.5	63	157.0	8/1916	30.8	26/1960	60	48	7.5	42	4.62
May	N.E.	W.S.W.	8.4	74	146.0	4/1925	25.0	31/1904	68	58	5.7	54	2.80
June	N.	N.W.	8.4	80	135.5	9/1914	25.9	27/1946	72	63	4.8	59	1.82
July	N.N.E.	W.	8.8	85	133.2	13/1915	25.1	30/1920	73	63	5.4	56	1.76
August	N.	W.N.W.	9.4	97	145.1	29/1921	26.6	18/1966	71	60	6.0	56	2.37
September	E.N.E.	S.S.W.	9.4	68	153.6	29/1916	27.2	(b)	64	57	7.2	49	3.44
October	S.E.	S.W.	10.0	65	161.2	19/1954	29.8	16/1931	64	54	8.1	48	5.38
November	E.	S.W.	10.7	63	167.0	30/1925	35.0	3/1947	57	47	9.6	39	7.65
December	E.	S.S.W.	11.0	64	168.8	11/1927	38.0	29/1957	54	46	10.4	32	9.69
Year—													
Average	E.	S.S.W.	9.7	.....	.....	.....	.....	.....	62	52	7.8	44	.....
Extremes .....	.....	.....	.....	97	177.3	22/1/14	25.0	31/5/64	.....	.....	.....	.....	.....
Total .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66.05

(a) Standard 30 years' normal (1911-1940).

(b) Recorded on 8th September, 1952 and 6th September, 1956.

INTERSTATE COMPARISONS

In general, humidity and rainfall are lower in Western Australia than in corresponding places in eastern Australia. The first table on page 45 shows rainfall, mean humidity and temperature for groups of reporting stations at approximately the same latitude. The stations have been selected in such a way that, in each pair, one is on the west coast and the other on the east coast or, where a pair relates to inland stations, each station is situated at about the same distance from the coast. The group appearing last in the table has been included to provide a comparison between observations at Albany, the most southerly town in Western Australia, and those at places elsewhere in Australia at about the same latitude. The height above mean sea-level is also given for each station.

CHAPTER II—continued

PART 3 – THE VEGETATION OF WESTERN AUSTRALIA

WITH SPECIAL REFERENCE TO ORCHIDS

(Contributed by R. D. Royce and A. S. George,
Western Australian Herbarium, Department of Agriculture)

The flora of Western Australia comprises over 6,500 Angiosperms, some fifty ferns and over four hundred marine algae, as well as many mosses, lichens and liverworts which have never been completely listed.

It is one of the most interesting floras of the world, due very largely to its high degree of endemism, *i.e.*, the large number of species which are entirely restricted to the region. This is especially noticeable in the South-West Vegetation Province, which extends from Shark Bay at its northern extremity to Israelite Bay on the south coast and has an eastern boundary approximating closely to the 10 in. isohyet.

This area has been aptly described as the cradle of the Western Australian flora since it comprises that part of the State which has been for the longest period exposed above the level of the sea, and where the flora has thus had the longest period in which to develop. The area has for an immeasurably long time been isolated by expanses of ocean to the north, west and south and by a desert area to the east which stretches from the Eighty Mile Beach in the north-west to the Great Australian Bight in the south-east. Protected thus from continued invasion of elements from alien floras, the indigenous plants have been able to evolve in a peaceful environment such as few present-day continental areas have probably ever experienced. This has resulted in a flora which has been produced by a long period of natural selection, and is now highly specialized to suit its own peculiar environment.

It has been estimated that the endemism of the South-West flora is as high as 75 per cent. When compared with island floras, this may not, of course, appear to be a very impressive total. The Hawaiian Islands for instance record an endemism of 90 per cent. and more, but the number of species and the actual area of land involved are not very great. When considered as a portion of a continent, however, the figure for the South-West flora is a particularly high one and is possibly exceeded only by the Cape Province of South Africa and some areas of the South American continent.

Despite this high percentage of endemism among its species, and the consequent great interest centred around the Western Australian flora, it is not to be regarded as being completely different or highly individual when considered from the standpoint of its larger groups. At the generic level, the western flora is remarkably similar to that of eastern Australia, while the plant families in Australia as a whole are, with only two exceptions, well represented in other countries.

Speaking of the Australian flora as a whole in his *Introduction to the Flora of Tasmania* (1859), J. D. Hooker states: "It contains more genera and species peculiar to its own areas, and fewer plants belonging to other parts of the world, than any country of equal extent. About two-fifths of its genera, and upwards of seven-eighths of its species, are entirely confined to Australia. On the other hand, if, disregarding the peculiarities of the flora, I compare its elements with those of the floras of similarly situated large areas of land, or with that of the whole globe, I find that there is so great an agreement between these that it is impossible to regard the Australian vegetation in any other light than as forming a peculiar but not an aberrant or anomalous botanical province of the existing Vegetable Kingdom; that with only two small exceptions, the Australian families are also found in other countries; that most of those most widely diffused in Australia are such as are also the most widely distributed over the globe; and that Australia wants no known family of general vegetation. Turning again to other countries which are remarkable for the peculiarity of their vegetation, I find that South America contains many more peculiar families than Australia, and South Africa about as many".

In Western Australia there is only one truly endemic family, the Cephalotaceae, a family which consists of only one species, the Albany Pitcher Plant, *Cephalotus follicularis*. This remarkable plant, with leaves closely resembling those of the insect-trapping *Nepenthes* of tropical Asia, is found in sandy soils in and around low-lying swampy areas along the south coast as far east as Mount Manypeaks and extending northwards to the Blackwood and Margaret Rivers.

The other families in Western Australia are represented either in eastern Australia or in countries overseas. In a great many of these families, however, the degree of speciation is very much greater in the South-West than in other areas of their occurrence. This raises an interesting point connected with the origin of the State's flora, since this large number of species could have arisen under two very different

circumstances. Either the ancestors of the present flora evolved on the ancient land mass of the south and, after centuries of intense speciation, gradually spread into other countries thus developing their present distribution patterns or, on the other hand, the ancestral plants may have originated outside of the present Australian continent, and the development of species may then have followed the migration of primitive forms into Australia where conditions were suited to a vigorous speciation. The large number of species in individual families may therefore denote either an ancient and truly ancestral group, or it may indicate a very successful but younger migrant family.

One of the most interesting families in the Western Australian flora is the Orchidaceae. This family is world wide in distribution, but in south-western Australia its 140 species are principally small-flowered terrestrial plants very unlike the large-flowered epiphytes, native to the tropical rain-forests, which are so popular with horticulturists.

The high degree of endemism so characteristic of the flora as a whole is evident in this family also, as 70 per cent. of the species occur only in this State. However, at the generic level, only four out of twenty-four genera are endemic—viz. *Drakaea*, *Elythranthera*, *Epiblema* and *Rhizanthella*. Only four species have so far been recorded from the Kimberleys, and none of these is endemic. The Ereman Province is also devoid of orchids apart from a few along its southern fringes. The following account concerns only those from the South-West Province, several of which extend a short distance into the Ereman where they find refuge mainly around granite outcrops.

The South-Western orchids are all terrestrial, though a few may occasionally be seen on dead logs or the lower trunks of trees in humid situations. The dry summer accounts principally for the lack of epiphytic species. It is also the reason for the paucity of summer-flowering species. As with the South-Western flora in general, the majority flower during the spring. Only a few—usually swamp inhabitants—extend into January and one (*Cryptostylis ovata* R.Br.) into February and March. The arrival of the autumn rains then brings the appearance of several autumn-flowering and winter-flowering species.

In general, there are few species with the spectacular flowers often associated with this family. However, there is a variety of delicate forms and a wide range of colour. The genus *Caladenia* (Spider Orchids) is probably the most beautiful, some species having flowers up to 20 cm. across with slender petals and sepals and a prominent labellum. The Butterfly Orchid, *Caladenia lobata* Fitzg. has a labellum about 2 cm. across, of a maroon and lemon-yellow colour and with elegantly fringed margins. This is balanced on a hinge and trembles, like a butterfly hovering, in the slightest breeze.

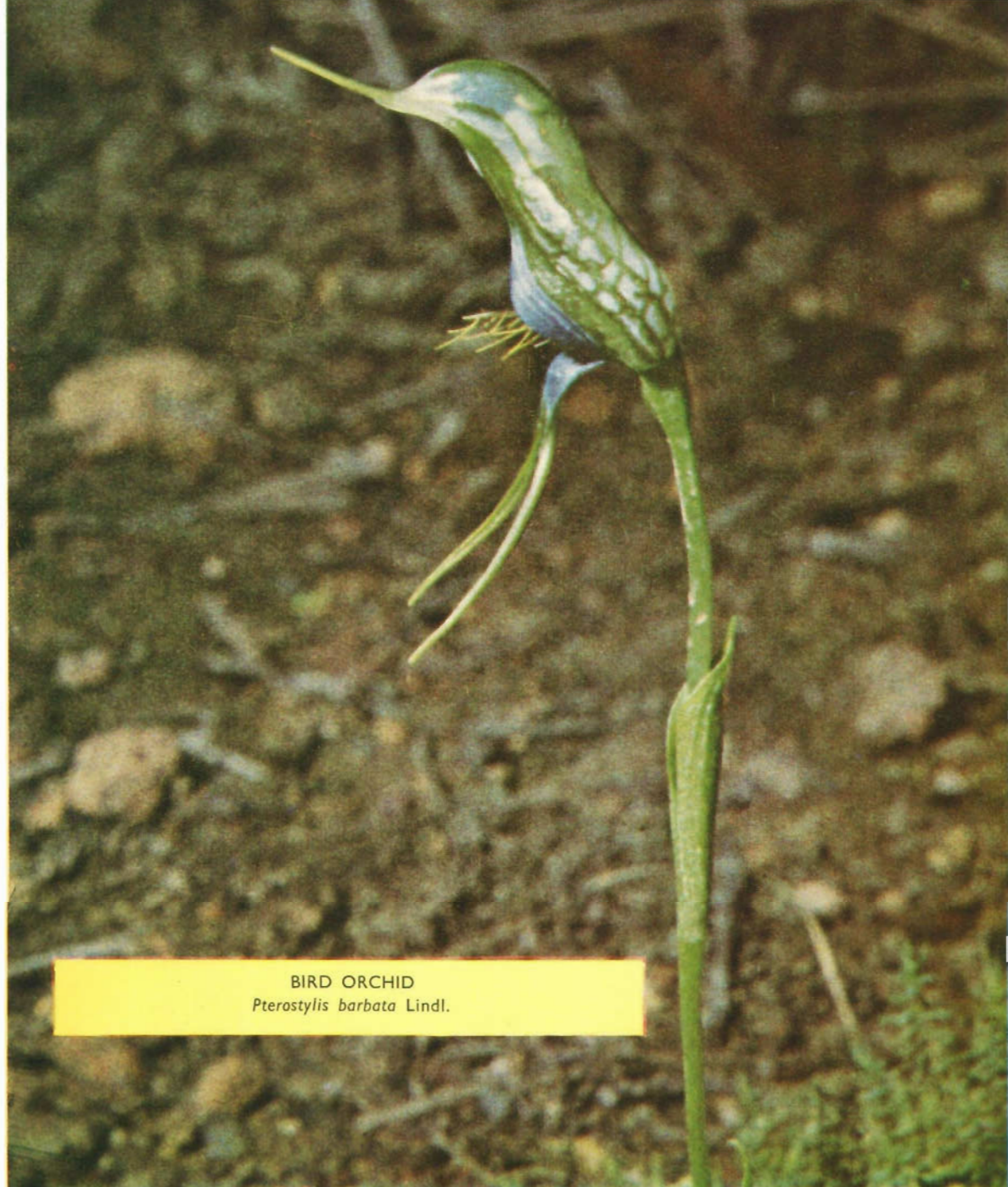
In the same genus are smaller but brightly coloured species such as the yellow *C. flava* R.Br., the blue *C. gemmata* Lindl., and the pink *C. reptans* Endl. Others assume unique forms, reflected in their vernacular names, such as the Lazy Spider Orchid, *C. multiclavia* Reichb., the Goat Orchid, *C. menziesii* R.Br., and the Dragon Orchid, *C. barbarossae* Reichb.

The genus *Thelymitra* is well represented in this State. Known as Sun Orchids, their flowers open only in sunlight and are often self-pollinated. They differ from other orchids here in having an almost regular perianth, the labellum being similar to the petals in structure. Closely allied to *Thelymitra* is *Epiblema grandiflorum* R.Br., a monotypic genus endemic in Western Australia. Its large mauve flowers with purple markings adorn a few swamps in the early summer. Among Australian terrestrial orchids, the Enamel Orchids, *Elythranthera* spp., are unique in having a glossy inner surface to the perianth, one species being deep purple, the other bright pink.

Many of the less prominent orchids are intriguing for their unusual flowers. The Beard Orchid, *Calochilus robertsonii* Benth., has a densely fringed labellum giving it the appearance of a bushy beard. The common name of the Hammer Orchids (*Drakaea* spp.) likewise stems from the floral structure. The labellum moves up and down on a slender hinge resembling the movement of a hammer. The Slipper Orchid (*Cryptostylis ovata* R.Br.) also has a prominent labellum, with insignificant petals and sepals. This is the only South-Western orchid with perennial leaves, the aboveground parts of all the others being of seasonal appearance.

The tallest of our orchids are some species of Leek Orchid (*Prasophyllum* spp.) which occasionally reach 2 metres in height. They bear spikes of small, often drab-coloured flowers, which however, have an elegant structure and are reversed on the stem. Of similar habit, though smaller, are the Mignonette Orchids (*Microtis* spp.) in which the tiny green or white flowers are borne erect in a dense spike.

Sensitivity is a feature of the Greenhoods (*Pterostylis*) and the Flying Duck Orchid (*Caleana nigrita* Lindl.). The labellum is set on a sensitive hinge and is triggered off by an insect crawling past it. As a result the insect is trapped within the flower, and can only escape by crawling out past the stigma and the anther, thus collecting pollen which is deposited on the stigma of the next flower similarly visited.



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Photograph by F. A. Sharr

Referred to popularly as the Bird Orchid, this plant is widely distributed in the south-west corner of Western Australia. It is characterised by the possession of an elongated thread-like labellum, and is the only one of the species of Greenhoods to possess this feature. The plants are leafy, 10–15 inches tall and produce a single flower. They occur on many soil types, ranging from low swampy depressions to stony hillsides.

For many years this plant was known as *Pterostylis turfosa*, but recent researches have shown that there is such variation in the specimens from Western Australia that there is no valid difference between this and the eastern *P. barbata*. As this latter species was actually described from a specimen collected in the vicinity of the Swan River, it has become necessary to suppress the name *P. turfosa* and use only *P. barbata*.



A SELECTION OF WESTERN AUSTRALIAN ORCHIDS

- A *Epiblema grandiflorum* R. Br. (Babe in a Cradle)—half size.
 B *Pterostylis barbata* Lindl. (Bird Orchid)—natural size
 C *Caladenia multiclavia* Reichb. f. (Lazy Spider Orchid)—natural size
 D *Cryptostylis ovata* R. Br. (Slipper Orchid)—half size
 E *Lyperanthus forrestii* F. Muell. (rare Potato Orchid)—natural size
 F *Drakaea glyptodon* Fitzg. (Hammer Orchid)—natural size

In this way, cross-pollination is achieved. A widespread species of *Pterostylis*, *P. nana* R.Br., is one of the few orchids which extend into the Ereman Province; another is *Diuris longifolia* R.Br., one of the wallflower-coloured Donkey Orchids.

Another fascinating method of pollination is found in the Slipper Orchid. Here the agent is an ichneumon fly, and chiefly the males visit the flowers. It has been shown that the insects attempt to mate with the flower under the impression that it is a female. In doing so, pollen is collected from the anther and transferred to the stigma of the next flower visited. Though scentless to man, the orchid, apparently emits a powerful lure which can attract insects over long distances.

Scent is not prominent among Western Australian orchids. However, several species of *Caladenia*, *Thelymitra*, *Prasophyllum*, and *Eriochilus* produce a sweet though often light perfume. The most strongly and heavily scented is *Lyperanthus forrestii* F. Muell. though strangely, the other two species of this genus in the south-west have no scent at all.

The small Elbow Orchid, *Spiculaea ciliata* Lindl., is noteworthy for its adaptation to an extremely exposed habitat. It grows in shallow soil pockets on open granite outcrops which are subject to very high temperatures during the summer, when they also dry out. During the spring, the plant develops a fleshy floral scape which dies at the base as flowering commences. All the requirements for the development of the flowers and fruits are stored in the stem. Even when pressed, the flowers attempt to continue developing but become distorted by the pressure of the papers. The plant survives the summer through the dormant corms, as do all our orchids except *Cryptostylis*.

A different form of adaptation is seen in the two saprophytic species *Gastrodia sesamoides* R.Br. and *Rhizanthella gardneri* Rogers. These plants lack chlorophyll, and hence cannot produce their own organic requirements. This is obtained instead through the medium of a fungus which grows in association with the orchids' rhizomes. *Rhizanthella* is almost unique in the orchid world, as it is entirely subterranean. It has only been found four times, in each case accidentally, by farmers clearing virgin land. Nothing is known about the development and pollination of this extraordinary plant, which is paralleled only by one of similar habit in New South Wales.

It remains only to mention another species which also is almost unique in the orchid world, since it has been introduced here from South Africa, its native country. This is *Monadenia micrantha* Lindl., which was first discovered near Albany in 1944 and has since spread along roadsides in the hinterland, and as far as Collie, over 100 miles to the north-west of the original finding.

A summary of the orchid genera found in Western Australia is given in the following table.

TABLE OF ORCHID GENERA IN WESTERN AUSTRALIA

A. Genera Indigenous in the South-West Province

	Total spp. in W.A.	Endemic spp.
1. <i>Acianthus</i>	2	1
2. <i>Caladenia</i>	40	34
3. <i>Caleana</i>	1	1
4. <i>Calochilus</i>	1	....
5. <i>Corybas</i>	2	....
6. <i>Cryptostylis</i>	1	1
7. <i>Diuris</i>	8	7
8. <i>Drakaea</i>	4	4
9. <i>Elythranthera</i>	2	2
10. <i>Epiblema</i>	1	1
11. <i>Eriochilus</i>	3	3
12. <i>Gastrodia</i>	1	....
13. <i>Leptoceras</i>	1	....
14. <i>Lyperanthus</i>	3	3
15. <i>Microtis</i>	8	3
16. <i>Prasophyllum</i>	18	16
17. <i>Pterostylis</i>	15	5
18. <i>Rhizanthella</i>	1	1
19. <i>Spiculaea</i>	1	1
20. <i>Thelymitra</i>	22	12

B. Genus Introduced in the South-West Province

Monadenia Native to South Africa

C. Genera Indigenous in the Kimberley District

1. <i>Cymbidium</i>	} One species of each recorded, none endemic.
2. <i>Dendrobium</i>	
3. <i>Eulophia</i>	
4. <i>Nervilia</i>	

VEGETATION PROVINCES

It has been said that of all the factors which determine and control the vegetation of the earth, the climatic factor is the most important, and rainfall and temperature are the most important of the climatic elements. In Western Australia there are three distinct climatic regions. These are the tropical north with a short hot rainy period, the temperate south with a rainy period occurring in the coldest months, and the arid interior which has no regular rainfall pattern. The flora is remarkably different within these three areas which for this reason have been used as natural divisions of the flora. Diels referred to them as the Northern, the South-West and the Eremean Provinces.

The description of the climatic and vegetative characteristics of these Provinces contained in the following sections is by C. A. Gardner, formerly Government Botanist of Western Australia.

Climatic Characteristics

The *Northern Province* extends over the Kimberley Division to some few miles southward from the Fitzroy River, thence contracting into a narrow coastal isthmus in the vicinity of the Eighty Mile Beach, and expanding southward to include the De Grey River and the greater part of the Fortescue system. It is the area which, lying north of the Tropic of Capricorn, receives its rain entirely in the summer months, with a seasonal rainfall during the four wettest months ranging from about seven inches in its southern portions to over forty inches in parts of the Kimberley Division, and has an annual mean maximum temperature of 90° F. or over, although during the growing season temperatures may be even higher. The season from the commencement of April until the end of October is relatively rainless.

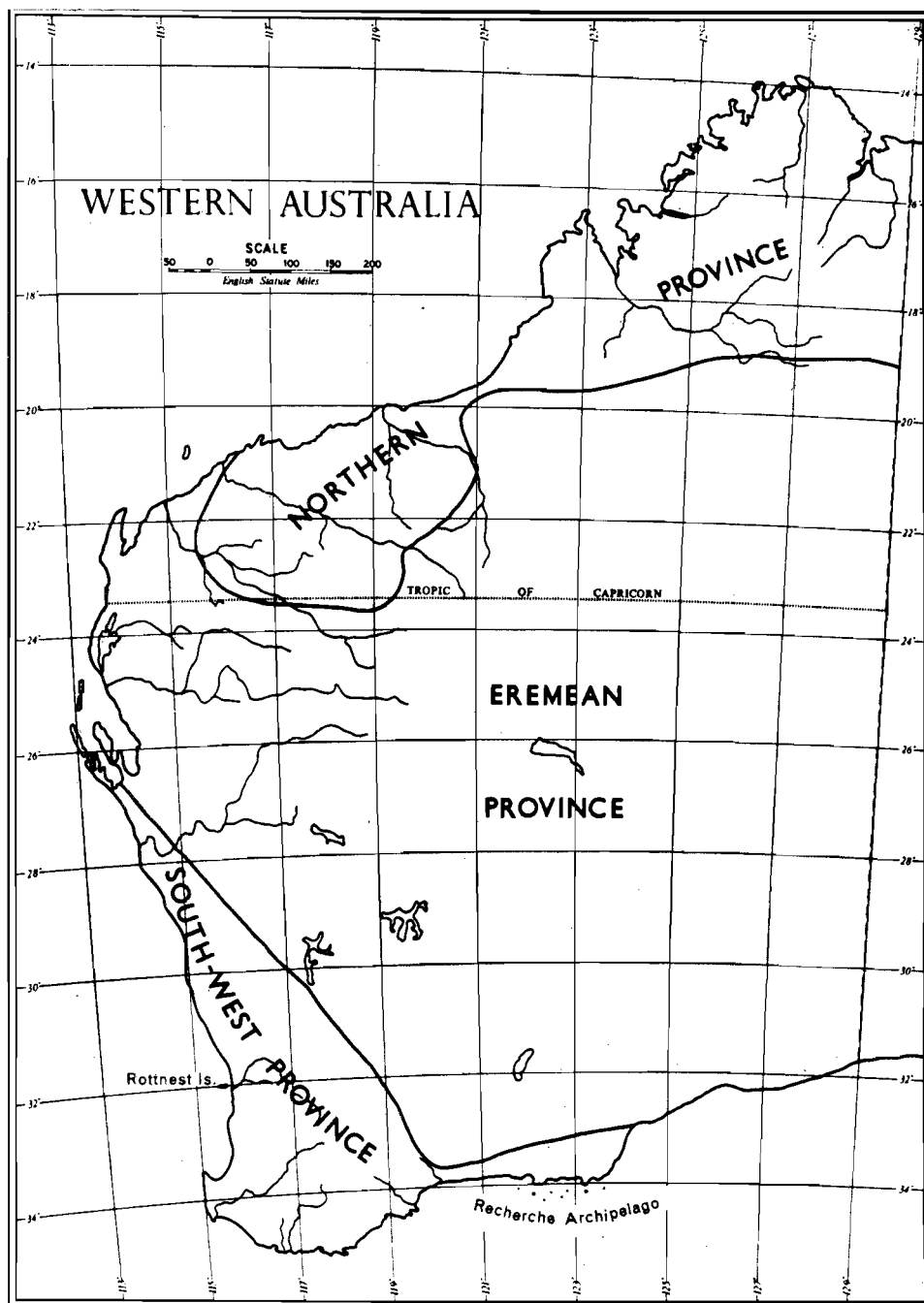
The *South-West Province* extends from the southern end of Shark Bay in the north to Israelite Bay in the south. On the west and southern sides it is bounded by the ocean, while its inland boundary passes close to Mullewa, Morawa, Koorda, Bencubbin, Burracoppin, Hyden, Ravensthorpe and Grass Patch. It is pre-eminently the winter rainfall province which receives its maximum rainfall from May to August inclusive and, with the exception of the southern portion, experiences a seasonal drought extending from November to March or April. The average maximum temperature is less than 80°F. with much lower temperatures during the growing season.

The *Eremean Province* lies between the Northern and the South-West Provinces, and occupies approximately two-thirds of the total area of the State of Western Australia. It is intermediate in character between the other two; its rainfall is received either from extensions of summer rainfall southward (and this makes up the greater portion, especially such rainfall as is received from tropical hurricanes during the late summer months), or in the south from extensions of the winter systems, while rarely a general rainfall may occur throughout.

Vegetative Characteristics

The *Northern Province* is essentially the savannah-steppe Province in that a herbaceous ground-covering mainly composed of grasses occurs. This varies from the rich grasslands of Kimberley to the harsh spinifex "steppe" of the country southward from the Fitzroy, broken only by the alluvial grassland plains of the De Grey and Fortescue districts, especially the Roebourne Plains. Scrubland as such is unknown, except to a very limited extent in the rough sandstone range country of north-west Kimberley. Forests as such do not occur and mulga too is absent. Floristically the Province is characterized by the part played by the "Indo-Melanesian Element" in its constitution. In places this element may predominate to the extent that amongst the trees *Eucalyptus* plays a secondary role, and deciduous trees are prominent. The grotesque Baobab is common, together with various soft-wooded trees, while the herbaceous growth is rich in members of the *Hibiscus* family and several others. With the exception of the river bank and swamp formations, most herbaceous growth is either dead or resting during the winter months.

The *South-West Province*, on the other hand, is characterized by a total absence of the Indo-Melanesian influence, and its flora bears a distinct southern or "Antarctic" impress. Trees and shrubs predominate with a marked diminution of grasses, and there is no true grassland. The herbaceous species are of winter growth, and the plants remain dormant during the dry summer months, especially the species of *Acacia* and *Casuarinaceae*. The *Proteaceae*, which assume a minor role in the North, here hold sway, as do the *Myrtaceae* and *Leguminosae*. The principal formations are forest woodland and scrubland, with extensive tracts of sand heath. Mulga and spinifex are absent and the various salt bushes either exist as inhabitants of the physiologically dry salt pans, or occur only marginally. There is a distinctive plant architecture among the woody plants in which the effect of the dry season is apparent.



VEGETATION PROVINCES OF WESTERN AUSTRALIA

(The map is after C. A. Gardner, 1942. Reproduced by courtesy of the University of Western Australia Press.)

The *Ereman Province* is again intermediate. Floristically it is characterized by the "Australian Element," recruited from northern and southern influences, and those hardy species which have arisen in response to an adverse environment. Notably there is an increase in the spacing of plants due to root competition between neighbours. The result is a series of "open formations"; Mulga bush, consisting of leafless species of *Acacia* with resinous or stiff leaf-like phyllodes; a predominance among the shrubs of species of *Acacia*, *Cassia* and the attractive species of *Eremophila*, notable for the size and colour of their blossoms. The Northern influence is expressed most strongly by the Spinifex (*Triodia*) which is the dominant tussocky grass of the lighter and stony soils, while the Mulga occupies the more closely-grained soils, the true mulga (*Acacia aneura*) being restricted to hard-pan soils. The Southern Element is most strongly asserted in the loose red sand and around granite rocks, the former carrying those sand-loving species for which the South-West is famous (even the Blackboy extends into the heart of the Ereman) while the species of the granite rocks owe their existence to an improvement in the water content of the soil in addition to the shelter and shade provided by declivities. In the northern portions of the Province we find, where watercourses provide permanent pools and moister conditions than elsewhere, an intrusion of the Northern Element, especially in the grasses and the herbaceous flora generally. Savannah and steppe occur in the north, Mulga and spinifex steppe occupy the middle areas, while in the south we have woodland formations, with some degree of heath development. The salt soils carry distinctive associations of salt-tolerant plants in which salt bushes are predominant, and this same formation occurs on the limestone soils of the Nullarbor Plain. Forests are absent.

VEGETATION FORMATIONS

Within the three large Vegetation Provinces plant species are grouped into associations which are basically dependent on soil type. The soil, within the limits of each rainfall zone, governs the amount of water available to the plants and influences the habit and character of the plant cover. Thus there are Forest Formations, Woodland Formations, Shrub Formations and many others.

The Forest Formations of the South-West

The Jarrah Forest—The most important of the forest formations of the South-West is that dominated by the Jarrah (*Eucalyptus marginata*), which reaches its greatest development in the lateritic soils from the Darling Scarp eastward to the 20 in. isohyet, although it does occur also on the sandy coastal soils. Within the forest area Jarrah forms an almost pure stand, but along watercourses Blackbutt (*Eucalyptus patens*) is common, while Marri (*Eucalyptus calophylla*) is almost always present where sandy soils occur. In the richer soils of the valleys, Wandoo (*Eucalyptus redunca* var. *elata*) and Powder Bark Wandoo (*Eucalyptus accedens*) commonly occur, the latter being usually associated with granite outcrops. The understorey of the Jarrah forest consists principally of *Banksia* and the related *Persoonia*, *Hakea* and *Dryandra*, together with the Christmas Tree (*Nuytsia floribunda*), Sheoak (*Casuarina fraseriana*), Blackboy (*Xanthorrhoea preissii*) and *Zamia* (*Macrozamia riedlei*) in varying associations.

The Karri Forest—To the south of the Jarrah forest, in an area where the rainfall is heavier and more evenly distributed throughout the year, the Karri (*Eucalyptus diversicolor*) forms almost pure stands in certain light types of soil, mainly on the hillsides. Associated with it in the valleys is Bullich (*Eucalyptus megacarpa*), a tree which closely resembles Karri, while Jarrah and Marri occur where there are gravelly or sandy soils. The understorey consists of the Karri Sheoak (*Casuarina decussata*), Peppermint (*Agonis flexuosa*), Warren River Cedar (*Agonis juniperina*), Bull Banksia (*Banksia grandis*) and River Banksia (*Banksia verticillata*). The shrubby components are Karri Wattle (*Acacia pentadenia*) and Hazel (*Trymalium spathulatum*) with *Hovea*, *Crowea* and *Boronia* providing masses of colour in the flowering season.

The Tingle Forest—Around the lower reaches of the Frankland River, the Karri trees are largely replaced by Red Tingle (*Eucalyptus jacksonii*) occurring mainly on the slopes and tops of hills, and Yellow Tingle (*Eucalyptus guilfoylei*) found mainly in the valleys and low situations generally. The associated vegetation is almost identical with that of the Karri forest.

The Wandoo Forest—There are few large areas of true Wandoo forest in the South-West, although the tree is widely distributed in the country to the north and east of the Jarrah belt. Where the Wandoo penetrates into the Jarrah forest it is associated with an understorey which, though closely resembling that of the Jarrah forest, lacks *Persoonia*, Sheoak and Christmas Tree. In the more open stands to the east, however, it is associated with a much reduced shrubby undergrowth, and frequently with Jam (*Acacia acuminata*). Within the Wandoo forest, the Mallet species *Eucalyptus astrigens* and *E. gardneri*

form dense associations on stony hillsides, while in the southern portion of the forest the Swamp Yate (*Eucalyptus occidentalis*) occurs freely on the low-lying country.

The Tuart Forest—The Tuart (*Eucalyptus gomphocephala*) occurs in a typical forest formation between Ludlow and Busselton where it is associated with Peppermint, species of *Banksia* and a large number of herbaceous species. The formation extends northward as far as the Hill River and throughout its occurrence is restricted to limestone soils. To the north of Ludlow the forest gradually merges into a sparse woodland formation with an abundance of shrubby undergrowth and relatively few herbaceous species.

Woodland Formations

The Woodland formations differ from the forests of the South-West in being less uniform. Whereas the forest is invariably dominated by a single species, the woodland on the other hand consists of a series of co-dominant species which occupy relatively small areas in the intricate pattern which makes up the mosaic of the Woodland formation. The principal trees are the Salmon Gum (*Eucalyptus salmonophloia*), Gimlet (*Eucalyptus salubris*), Morrel (*Eucalyptus oleosa* var. *longicornis*) and Yorrel (*Eucalyptus gracilis*). Many other species are locally dominant and the undergrowth consists of species of *Acacia*, *Grevillea*, *Hakea* and mallee forms of *Eucalyptus*. This formation is chiefly South-Western, but it extends also into the Ereman Province where, although the tree species remain fairly constant, the undergrowth changes in character with an increasing number of the species of Poverty Bush (*Eremophila*), Saltbushes (*Atriplex*) and Bluebushes (*Kochia*).

Shrub Formations

The Mallee Eucalypts—The mallee form of *Eucalyptus* is found in many districts from the west coast to the South Australian border, and it is absent only from the forest areas of the South-West. Mallee thickets reach their greatest development in the alluvial soils, but they occur in almost any type of soil. In the lighter soils they frequently occur in association with other shrubs, particularly tea tree which at times actually dominates in a sandy habitat.

The Mulga Bush—The Mulga bush occupies a large part of the Ereman Province. This formation extends almost without interruption from the west coast between Onslow and the Wooramel River eastward as far as New South Wales and, although its species may change, it maintains its character and identity throughout. The species of *Acacia* referred to as Mulga have a greyish resinous foliage and it is the dominance of these species, more than anything else, which gives the Mulga bush its character. Component shrubs are rather widely spaced. Another characteristic of the formation is its differential response to rain, a winter precipitation producing an immediate germination of vast numbers of annual and perennial herbs and shrubs, while summer rains promote a vigorous growth of grasses.

The Sand Heath—It is in the sand heath formation that the flora of the State displays the greatest number and diversity of its species, as well as the greatest development of colourful and interesting endemic forms. The most extensive sandplains are found at the northern and eastern extremities of the South-West Province, between Northampton and the Murchison River and from Ravensthorpe to Israelite Bay. They occur also on the eastern fringes of the South-West Province, and in the Ereman Province where important areas occur at Comet Vale and to the east and south of Southern Cross.

Savannah and Steppe Formations

Except for a weak development in Jam and York Gum (*Eucalyptus loxophleba*) country in the South-West, savannah and steppe formations are restricted to the Northern and Ereman Provinces where there are the necessary climatic conditions of summer rains alternating with a dry cool winter. On river flats the dominant species is the Coolabah (*Eucalyptus microtheca*) with a grass element consisting of species of *Sorghum* and Citronella Grass (*Cymbopogon* spp.) In the sandier soils Spinifex (*Triodia* spp.) is the dominant grass, while the tree layer consists of a number of bloodwoods and the Micum tree (*Eucalyptus brevifolia*). On the basalt soils the Grey Box (*Eucalyptus tectifica*) is associated with certain cabbage gums and Kangaroo grass (*Themeda australis*). An interesting type of open savannah occurs in coastal country between the De Grey and Fitzroy Rivers and is referred to as Pindan. In this formation, several species of *Acacia* are associated with a large number of grasses both annual and perennial although in recent years the introduced Buffel Grass (*Cenchrus ciliaris*) is dominating the grass cover.

Southward from the Fitzroy River is the large area of Spinifex steppe dominated by *Triodia*, where very few trees occur. The shrubs are mainly species of *Acacia* and *Cassia*. This formation gradually merges into the more open desert country of the interior, which is almost unknown botanically.

THE ECONOMIC VALUE OF THE FLORA

Although the flora of Western Australia is so large and diversified, relatively little industrial use has been made of many of its species, due principally to the fact that not enough is known about the chemical and other properties of the native plants. Species of obvious value are the timber trees, many of which are abundant in the South-West Province. Pre-eminent are the hardwoods jarrah and karri, large quantities of which are felled each year, with smaller amounts of many other species also being milled.

There is an established plywood industry, using local timbers. Among the cabinet woods are *Banksia*, *Casuarina* and Jarrah, the so-called "curly" jarrah in particular producing attractively-figured surfaces. In the tropical north of the State there are many excellent cabinet woods which have not yet been exploited. Principal among these are the ebony (*Maba humilis*), the Leichhardt tree (*Nauclea coadunata*) and the Red Ash (*Alphitonia excelsa*). In contrast to the hardwoods of the South-West a number of the Northern trees are soft-wooded, notable among them being the Yeelbar (*Erythrina vespertillio*) which is reputed to produce a timber almost as light and soft as balsa wood. This species has not yet been exploited and neither has the Kimberley Cypress Pine (*Callitris intratropica*) which is perhaps our most termite-resistant timber, due doubtless to its sandarac content. Large trees of the Kimberley Cypress Pine still exist in certain localities but they suffer severely from the effects of fire and whole forests of pine are sometimes destroyed by bush fires.

The early settlers in the south-west of the State used the bark of certain wattles, as well as the kino of the Marri (*Eucalyptus calophylla*), for tanning purposes but these generally ceased to be used when the bark of Brown Mallet (*Eucalyptus astringens*) was discovered to possess a greatly superior tannin. Even today mallet bark is still used to a certain extent for the production of hard leather, while wattle bark is used for the softer types. One of the best barks for tannin content and quality is that of the Micum tree (*Eucalyptus brevifolia*) which is found on the Hamersley Range, and also in the East Kimberley extending from the upper reaches of the Margaret River almost to Wyndham. Tanning materials are also extracted on a commercial scale from the timber and bark of the Wandoo tree. Several other chemical products are recovered from Wandoo in the wood-distillation plant associated with the charcoal-iron industry at Wundowie. The several species of Mangrove are also possible sources of tannin.

The Manna Wattle (*Acacia microbotrya*) yields a gum which has all the properties of gum arabic, but the yield per tree is very low and the gum "tears" are frequently stained by the tannins from the bark. The gum is nevertheless of commercial value. Attempts have also been made to exploit the common species of Blackboy (*Xanthorrhoea preissii*) and, although it yields large quantities of gum as well as drying oils, a turpentine substitute and acetic acid, there has been little interest in the exploitation of the large though rapidly diminishing supplies of this species.

Among the drug plants of the flora, special mention should be made of the many species of *Eucalyptus* which are rich in oils. No industry exists in Western Australia at present, despite the fact that in *Eucalyptus oleosa* var. *plenissima* this State has a variety which gives the highest yield of any known species. However, it would now be difficult to secure adequate areas of this valuable species, much of it having been destroyed in the expansion of agriculture. Several species of Citronella Grass (*Cymbopogon* spp.) occur freely in the Kimberley, but the quality of the oil has not been investigated. Sandalwood oil is obtained from two species, *Santalum spicatum* and *Santalum lanceolatum*. The collection of sandalwood, formerly a profitable industry, has declined because the more readily accessible supplies have been virtually exhausted and natural regeneration is slow.

One of the strychnine trees (*Strychnos lucida*) is widely distributed in the tropical regions, and this species could have a potential value for the production of both strychnine and brucine. The small shrub *Grewia polygama*, known for its remarkable value as a remedy for dysentery, is also found there. Inquiries from foreign manufacturing firms have been received in the past for supplies of this plant. The Pituri (*Duboisia hopwoodii*) contains nicotine in very appreciable quantities and could be used for the production of insecticides. The species of *Tephrosia* and many other plants used by the aboriginal population as fish poisons are a relatively unknown group and await chemical investigation. The toxic principle of the many species of *Gastrolobium* and *Oxylobium* is also still unknown, although an intensive investigation is being carried out under the auspices of the Phytochemical and Toxic Plant Committee of the Western Australian Department of Agriculture. This Committee is also investigating the alkaloid content of the flora in an attempt to locate and identify all the potentially toxic as well as the potentially useful plants in the flora of the State.

The wildflowers of Western Australia are widely recognized as an important tourist attraction. Flowers for commercial purposes are taken mostly from the wild, and it is probable that as more and more land is cleared an increasingly profitable trade will become available to those who have them under cultivation. Large quantities of fresh wildflowers are sent to other States and overseas.

Among the wildflowers there is one, the Brown Boronia (*Boronia megastigma*) native to the forest areas of the South-West, which deserves special mention on account of its commercial and industrial use. A considerable acreage of this plant is cultivated in Victoria for the cut-flower trade and for the manufacture of scent. In Western Australia, however, it is the uncultivated land which provides the supply for both purposes and large areas are systematically stripped of the blossom each year.

CONSERVATION OF THE FLORA

Agricultural expansion in Western Australia since the end of the second World War has been considerable. With increased knowledge of trace elements in relation to plant nutrition, large areas of formerly unused land have been opened up for farming and, since this is of great significance in the economy of the State, it is likely that a steady increase in the use of land, particularly for agriculture, will continue for some time. In the face of this development the flora and fauna must give way. Many plant communities could become extinct and thus be lost to scientists and the general public for all time. The flora of the State is widely recognized, both in Australia and overseas, as being unique and deserving of preservation. Because of the growing need for land for agricultural and pastoral use, conservation of the flora on land not yet cleared is a matter of urgency. It is principally by the creation of vested Flora Reserves that this conservation can be brought about.

Already much has been accomplished but, if sufficient really representative reserves are to be established, there is still a lot to be done. A considerable number of reserves both small and large have already been set aside. Some of the smaller reserves have been established for the protection of a particular species or plant community, while others have been created for purposes, such as water catchment, which although not specifically directed to the protection of the flora do nevertheless assist in the preservation of the plant cover. Among the larger reserves are some which are specifically designed to preserve the whole of the environment and biological structure of important areas such as the Stirling Range, or of flora associations such as sandplain, woodland, and so on. These reserves are as large as they can be made, having due regard to the requirements of agriculture, forestry and other activities in the district. It is the large size and the diverse conditions in these reserves which permit the plants and animals within them to live in equilibrium, without affecting any of the species involved and thus preserving the biological balance.

Many of these reserves are not vested in any authority, but the most valuable are vested either in a Government Department, a special authority or the local governing body. Some of them are legally established as Class "A" Reserves. The National Parks Board administers the largest of the reserved areas which have been set aside specifically for the preservation of flora. The principal National Parks are those of the Stirling Range, Porongorups and Nornalup. The Stirling Range in particular is a most valuable botanical area, and is also of value as a fauna reserve. Nornalup National Park contains some magnificent stands of timber and some excellent examples of coastal swamp formations, as well as a most picturesque estuary and river mouth.

A number of the most important nature reserves in the State are vested in the Fauna Protection Advisory Committee. The main concern of this Committee is the conservation of fauna, but it is obvious that the preservation of the flora within the reserves is of vital importance to the success of its work in protecting the fauna. Among the reserves administered by the Fauna Protection Advisory Committee are Bernier and Dorre Islands at the entrance to Shark Bay, Lake Magenta Reserve south of Newdegate, and the Pingelly Reserve.

The reserves described in the following paragraphs have been selected as being representative of the types of reserves already discussed. Reference to other such areas is made under the heading "Public Parks and Reserves" in Part I of Chapter VII.

The *Murchison River Reserve* is situated near the mouth of the Murchison River and includes the greater part of the gorge of the southern loop of the river, extending almost to the edge of the Ajana agricultural area. It is a large reserve, approximately 358,000 acres in area, and consists mainly of gently undulating sandplain which is underlain by a gravelly soil resting on Cretaceous sediments or in some areas on the Tumblagooda Sandstones of Silurian-Ordovician age. The gorge is one of the most remark-

able physiographic features of Western Australia and must in time become one of the foremost tourist attractions the State has to offer. It is extremely rugged and picturesque and its sheer walls drop five hundred feet from the level of the sandplain. Permanent pools of brackish water occur along the gorge.

Three distinct types of flora are recognized in the area. They are the predominant sand heath, the lateritic association along the eastern boundary, and the coastal heath vegetation on the limestone soils. The area is one of the most valuable flora reserves in the State. Its importance is due largely to its location at the northern end of the South-West Province, where it comes under the influence of the Desert or Ereman Province. This overlap of two flora types has resulted in the development of a unique flora, containing an exceptionally large proportion of plants which are entirely restricted to the area. In this connexion the species of *Banksia* are of particular significance, while many other related plants in the *Banksia* family as well as a number of *Myrtles* found here occur nowhere else in the world. The gorge of the Murchison River contains many very fine examples of the picturesque River Gum (*Eucalyptus camaldulensis*), as well as a number of endemic species some of which are entirely restricted to this environment. However, it is the heath vegetation of the sandplain for which the area is particularly notable. This formation covers the greater part of the reserve, its flora being extremely rich both in species and in variety of colour and form. It undoubtedly constitutes the richest botanical area of the reserve, and during the spring and early summer it is a blaze of colour. Not only has vigorous speciation taken place here in past ages to produce a number of unique plants, but the reserve also contains the northernmost representatives of several typical South-West plants. Species such as the Firewood *Banksia*, Blueboy, Tree Smokebush and Mangles Kangaroo Paw extend northwards as far as this reserve, but are not known to occur much further to the north. It is important scientifically that these plants occur within the borders of the reserve, since they will be preserved for all time as evidence of the wide distribution of these and co-existing species.

The Stirling Range National Park of 284,540 acres is situated to the east of Tenterden and encloses the entire mountain system of the Stirling Range, which consists of Proterozoic sandstones, shales and slates. The Range reaches to a height of over 3,500 feet and is the dominant landmark of the country to the north of King George Sound. The reserve consists of the mountain range surrounded by a broad undulating plain carrying a low heath vegetation with a predominance of species of *Myrtles* and of *Proteaceae*. Stirling Range Poison (*Gastrolobium velutinum*) is common, and many other species of the *Pea* family also occur. A striking component of this heath is the Red Kangaroo Paw (*Anigosanthos rufa*). Around the base of the mountain peaks are forests consisting principally of stunted Jarrah. Springs and damp areas occur in the forests due to seepage from the higher land and there are several lakes both within the reserve and outside its boundaries. Because of the height of several of the peaks, snow is sometimes recorded, while a cloud blanket frequently covers all but the lowest peaks. Due to these phenomena the reserve contains a highly interesting and scientifically important endemic flora which makes it one of the outstanding botanical reserves in Australia. Altogether there are over a hundred species which occur within the reserve and are not known elsewhere in the world. A large proportion of the plants are outstandingly attractive, prominent among them being the Mountain Bells (*Darwinia* spp.), nine species of which are restricted to the Range while some are entirely confined to a single peak. *Isopogon latifolius* is the most spectacular member of a group which is restricted to Western Australia. It occurs on the upper levels of Bluff Knoll, the highest point in the Range. Several species of *Banksia* and of *Hypocalymma* are endemic in the Range. The high degree of endemism and the spectacular character of the flora, some unique features of the fauna, and the rugged grandeur of the Range itself make the Stirling Range National Park one of the most valuable of the nature reserves of the State.

Bernier and Dorre Island Reserves—Bernier and Dorre Islands, which together comprise an area of about 26,000 acres, constitute portion of the western boundary of Shark Bay. They are some 16 and 19 miles in length respectively and are very narrow. They are in fact elongated dunes running in a north and south direction and consist largely of quaternary aeolianite with some loose sand. The islands are chiefly of value as fauna sanctuaries, since they contain vigorous populations of six native mammals some of which are rare on the mainland. They are situated at the northern extremity of the South-West Province where they come under the influence of both the South-West and the Ereman Provinces. The vegetation includes typical South-West plants such as *Phyllanthus*, *Triglochin* and several species of *Myrtles*, while a number of plants from coastal dunes such as *Spinifex* and some of the *Daisy* family are common on both islands. The Desert or Ereman flora is represented by the Poverty Bushes, Wattles, *Solanum*, and species of the *Pea*-Flowered and the *Hibiscus* families. The *Triodia* (*Spinifex*) which occurs over a great part of the interior of the State is also present on Bernier Island and is well represented on Dorre Island. The

Northern elements have also penetrated to the islands and occur chiefly among the grasses, of which there are several species. Other plants demonstrating Northern affinities are the native Fig, the Caper, *Jasminum*, and the Euphorbiaceae. Several species in the island floras are endemic in the Shark Bay area, and a few were originally collected on the islands. These reserves are of extreme importance biologically both as yardsticks to measure the effects of sheep-grazing on the neighbouring Dirk Hartogs Island and as natural laboratories in which to study and understand the processes of ecological interaction within our native plant and animal communities.

The Pingelly Reserve is situated to the east of Pingelly and is an outstanding example of extreme diversity of habitat types in a small area. It is no more than 3,000 acres in extent and consists of lateritic highlands in the northern and southern areas, between which erosion has uncovered masses of the country granite and produced extensive granitic soils. It is particularly rich in native animals while the plant assemblage covers some seven well-marked associations ranging from sandplain to a White Gum forest. This latter type is found in the more fertile loams in the valleys, where it is associated with Box Poison and Jam. Two different associations of *Acacia* are evident, the more important being that dominated by Jam, occurring on the better-class soils and merging into the White Gum area, the other being a Black Wattle association occurring along the bottoms of the valleys and along the watercourses. Sheoak forms almost pure stands in the granitic soils while thickets of Mallet clothe the steep rocky slopes below the gravelly tops of the hills. Few plants regularly grow in association with Mallet but, in this reserve, Bullock Poison (*Gastrolobium trilobum*) forms a constant understorey. York Gum dominates the flora in certain places, while in the lateritic soils on the tops of the scarps there has developed a mixed association dominated by *Dryandra* and containing several other members of the Proteaceae, together with representatives of the Myrtaceae and other families. It is the sandplain association, however, for which the area is most noteworthy. This vegetation type occurs in seven localities scattered throughout the reserve, each of them being distinctive in one or more respects. For example, one of these localities is distinguished by the Christmas Tree, another by the Narrow-leaved Banksia, a third by a deep yellow sand development, and another by heavily leached white sand where Jarrah is found. Despite its limited area, this reserve contains a remarkable diversity of flora and fauna, making it one of the most valuable of the nature reserves of Western Australia.

CHAPTER II — *continued*

PART 4 — THE FAUNA OF WESTERN AUSTRALIA

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ZOOGEOGRAPHY

Terrestrial Vertebrates

An analysis of most of the Western Australian groups of vertebrate animals shows that they can be referred to one or other of the three great faunal assemblages which zoogeographers recognize in Australia, namely the Bassian, Eyrean and Torresian faunas. Most members of these faunas are characteristic, respectively, of the following regions, the South-West (Bassian) with its regular winter rainfall, the arid and semi-arid interior and North-West (Eyrean) with intermittent and unreliable rainfall and the Kimberley Division (Torresian) with regular summer rainfall. Several elements of these faunas are sufficiently wide in their requirements for them to occur as "foreigners" in neighbouring regions, such as Torresian species which are found in the otherwise Eyrean Pilbara district of the North-West, and Eyrean species which occur in the Bassian South-West. Otherwise, the regions, as indicated above, have tolerably distinctive faunas.

The sharpest faunal break is between the Torresian fauna of the Kimberley Division and the Eyrean fauna of the Pilbara. The Kimberley is the headquarters in Western Australia of the Fruit Bats (*Pteropus*), various marsupials such as the Flying Possum (*Petaurus breviceps*), the Little Rock Wallaby (*Peradorcas concinna*), the Jungle or River Wallaby (*Protemnodon agilis*), and among the birds the Scrub-Fowl (*Megapodius freycinet*), the Fruit Pigeons (Ptilinopinae), Lorikeets (*Trichoglossus* and *Psittuteles*), White Cockatoo (*Kakatoe galerita*) and most of the grass-finches.

The Torresian species which penetrate further south include the Northern Native Cat *Dasyurus hallucatus* (to the Fortescue River), the Brolga (normally only to Onslow), White-breasted Wood-swallow (to Shark Bay), and the Brown Honeyeater (right through to the South-West).

The boundary between the majority of the Eyrean species and the bulk of the Bassian species is less well-defined as there is a good deal of overlapping. For example, the line which separates the woodland eucalypts and the mulga, the so-called "mulga-eucalypt line," is the extreme limit of most Bassian species, though many do not range inland beyond a line connecting Geraldton, Moora, Northam and the Stirling Range. The mulga-eucalypt line separates, to quote an example, the main distributions of the Grey Kangaroo (Bassian) and the Red Kangaroo (Eyrean). This line is also the northern limit of such well-known Bassian species as the Red Wattle-bird. It is also the northern boundary of many Eyrean species which are restricted to the south; such as the Rufous Tree-creeper, Purple-crowned Lorikeet, Smoker Parrot and the Squeaker.

The South-West of the State has representatives of many well-known Bassian species also found in south-eastern Australia. These include among birds, the Brush Bronzewing, White-tailed Black Cockatoo, Western Rosella, Scarlet Robin, Yellow Robin, Southern Emu-Wren, Silveryeye, White-naped Honeyeater, Western Spinebill, New Holland Honeyeater and Red-eared Firetail. Among mammals there are the Pigmy Possum, the Wambenger, the Grey Kangaroo, the Tammar Wallaby, the Brush Possum and various dunnarts (marsupial mice, *Sminthopsis*). Among frogs there are various *Crinia* and *Heleioporus inornatus* and *australiacus*; and fishes such as *Galaxias* and *Nannoperca*. However, there has been an extensive intermingling of Eyrean and Bassian elements in the South-West on a scale not paralleled in south-eastern Australia. In the South-West we have a blend of faunas in the sclerophyll forests which, though essentially Bassian in character, contain such Eyrean intrusives as the Purple-crowned Lorikeet, the Twentyeight Parrot, the Rufous Tree-creeper, the Western Warbler, the Banded Blue Wren and the Red-tipped Diamond-bird.

It should not be thought, however, that the distribution of animals is in any way permanent or static. The distribution of various species is very sensitively adjusted to climate, the main factors being temperature and rainfall and the time at which the rain falls. From the long-term point of view there have

been very drastic climatic changes in Western Australia during the Pleistocene Ice Ages, and the discovery of fossil remains in local caves has shown that there has been a dramatic change in both faunal composition and distribution in the South-West. There has been an ebb and flow, as it were, of faunal elements out of and into the South-West. During the times when suitable conditions reigned, various mammals occurred which are now extinct in this State but still persist in south-eastern Australia. These included the Koala, the Tasmanian Wolf (*Thylacinus*) and the Tasmanian Devil (*Sarcophilus*). In other times, creatures which are now living only in the desert country of the northern interior ranged as close to Perth as Jurien Bay. Among these were the Crest-tailed Marsupial Mice (*Dasycercus*) and the desert dunnarts (*Sminthopsis hirtipes*). The Ghost Bat (*Macroderma gigas*) once ranged as far south as the Margaret River; it is now known no nearer than Wiluna, the Warburton Range country, and the Barlee Range.

Climatic alterations, on a minor scale, are constantly going on. In the past half-century, or longer, there has been a considerable change in northern Europe, Asia and America, an amelioration in some parts and a drying-up in others, with widespread effects on the distribution of animals. Something similar appears to have been taking place in Western Australia. Many dry-country bird species, of the Eyrean faunal assemblage, have made notable extensions of range into the south-west corner. These include the Galah, Little Corella, Budgerygah, Smoker Parrot, Crested Pigeon, Black-faced Woodswallow, Crested Bell-bird, Blue-and-white Wren, Black-throated Butcher-bird and Little Crow. The records of local naturalists, who keep district lists of local birds and mammals over a period of years, are very useful sources of data for plotting these changes. Frequent Museum surveys will provide more positive information.

In some cases distribution changes due to natural causes may be masked or modified through the alterations of habitat due to settlement. These habitat changes act to the detriment of woodland birds but favour open-country species (like pipits and plovers).

Coastal Marine Fauna (1)

The long Western Australian coastline (4,350 miles) extends from tropical to warm temperate waters, from Cape Londonderry at 14°S with a mean water temperature of 81°F to Albany at 35°S with a mean water temperature of 63°F. As is to be expected, the marine fauna is very different at the extremes. Two principal elements in this fauna have been recognized; a northern tropical and a southern temperate fauna. The northern fauna is found right around northern Australia and many of the animals have a much wider distribution through the tropical Indian and west Pacific Oceans. For example the Serpent's Head Cowrie (*Ravitriona caputserpentis*) and the sea urchin *Echinometra mathaei* are found from the east coast of Africa through the Pacific islands; both are abundant as far south as Rottnest Island. The southern fauna extends along the southern coastlines of Western and South Australia, with some species being common also on the New South Wales coast, though absent from Victoria. The boundary between these faunas has been drawn at different points along the west coast, according to the specialities of particular authors. However, there is in fact a broad area of overlap between North West Cape and Cape Leeuwin. Some southern species, such as the periwinkle *Melaraphe unifasciata*, are common as far north as Shark Bay and even to North West Cape. On the other hand some northern species are common on the rocky shores between Cape Naturaliste and Cape Leeuwin, for example the cowrie mentioned above, and may even extend east to Albany or Hopetoun. There are extensive colonies of the coral *Turbinaria* in Geographe Bay and smaller colonies of *Pocillopora* on Rottnest Island. *Turbinaria* occurs also in the Archipelago of the Recherche.

In addition to these northern and southern faunal elements there is a considerable number of endemic species, found only in the south-western part of the State. Both among the molluscs and less well-known animals such as the sea squirts there are many species which have not been found outside this region. Two examples are the Slate Pencil Urchin (*Phyllacanthus magnificus*) and the cone shell *Dyrapsis dorreensis*.

The islands of this part of the coast are of particular interest. At the Abrolhos Islands there are extensive coral reefs and other northern marine animals are much more numerous than on the adjacent mainland coast. At Rottnest also there are a dozen or more reef-building corals, although most species occur only as scattered colonies so far south, and again there are more northern species than along the adjacent mainland.

(1) Written in collaboration with Dr. E. P. Hodgkin and Mrs. L. Marsh.

Fauna of Inland Waters ⁽²⁾

The inland waters are of many types and possess very varied faunas. They may be divided into four main ecological groupings: (1) the rivers of the Kimberley Division; (2) the river system of the North-West from the De Grey to the Murchison; (3) the streams, swamps, and lakes of the south-west corner; and (4) the temporary waters of the dry inland represented by two widely different habitats, (i) freshwater claypans and soaks (including man-made dams) and (ii) the salt lakes.

The rivers of the North-West from the De Grey to the Murchison flow only intermittently, and between times of flood the fauna must survive in widely separated spring-fed pools in river beds. These pools, like those at Millstream Station on the Fortescue River, are often of striking beauty. Their fauna is relatively sparse as compared with the richer assemblages in the Kimberley rivers, the most conspicuous element being a few fish species and a freshwater tortoise (*Chelodina steindachneri*) which is confined to the region.

The permanent hill streams of the South-West have a diverse arthropod fauna. Most of these are insects but, in addition, there are several species of freshwater crayfish and freshwater mussels in slower-running parts—Marron (*Cherax tenuimanus*) occur in permanent streams of deep water; Jilgie (*C. quinquecarinatus*) in shallow permanent water; Koonac (*C. preissi*) make burrows in the mud of swamps. A species of a closely related group, the so-called "land-crabs" (*Engaeus*), has been recently discovered in the swamps of the South-West. Most rivers stagnate and may become saline in summer; they are reduced to chains of large or small pools to which the fauna is restricted. The small transparent prawn *Palaemonetes* is often abundant in these pools. Shallow permanent lakes and swamps near the coast also have a fairly varied insect fauna, among which certain species of dragonflies are particularly abundant; at times there are enormous numbers of *Daphnia* and related small crustaceans.

The inland freshwater claypans are characterized by an interesting ephemeral fauna, mainly of phyllopod Crustacea. The most conspicuous is the large shield shrimp (*Triops australiensis*) but a variety of fairy shrimps (Anostraca and Conchostraca) occur also. The eggs of these creatures survive for years in the dried mud and development is rapid when the claypans fill after occasional rains.

The most conspicuous animals in the waters of the salt lakes are the brine shrimps (*Artemia* and *Parartemia*), which at times build up to such high population densities as to attract large flocks of Banded Stilts, which breed only in certain of the inland salt lakes.

The fishes of the inland waters are described in a subsequent section.

THE COMPOSITION OF THE FAUNA

The fauna of Western Australia includes representatives of all major phyla of the Animal Kingdom and individuals range in size from the Blue Whales (*Balaenoptera musculus*), the largest mammals that have ever lived, to minute single-celled protozoa which cannot be seen without a microscope. No estimate can be made of the number of species, and probably the number of species of insects alone outnumber all the rest by a comfortable margin. Here we have not attempted to describe all phyla. The vertebrates are given fairly full treatment because they are obvious and familiar animals to most of us. The insects (mostly those of economic importance) are dealt with in Part 5 of this Chapter, and the remaining phyla are treated in a few paragraphs which confine themselves to groups of interest.

THE VERTEBRATE FAUNA

Mammals

Unlike the birds and reptiles, wild mammals are not frequently seen in most parts of Western Australia. This is because most of the species are small and secretive and appear only at night. However, there are exceptions and, as any traveller in inland and northern parts of the State can attest, kangaroos of one species or another can often be seen in large numbers during daylight hours.

Most species of mammals have distinct ecological preferences which allow them to be categorized into one or other of the three main faunal groups which are described earlier in this Part under the heading *Zoogeography*. For example, in the kangaroo family, the Tammar Wallaby (*Protemnodon eugenii*), the Quokka (*Setonix brachyurus*), and the Brush Wallaby (*Protemnodon irma*) are found only in the South-West or on certain isolated islands off the coast. These species may be said to be Bassian and, of these, the Brush Wallaby is closely related to the South Australian Tolache Wallaby (*Protemnodon greyi*) and the Tammar to the Flinders Island Wallaby and the now extinct St. Peter Island Wallaby of South

⁽²⁾ Written in collaboration with Dr. E. P. Hodgkin.

Australia. The most familiar kangaroo of the dry country with unreliable rainfall occupied by the Eyrean fauna is the Red Kangaroo or Marloo (*Megaleia rufa*), while in the Torresian fauna which occurs in the summer-rainfall country of the Kimberley Division we find such species as the Jungle or River Wallaby (*Protemnodon agilis*), the Little Rock Wallaby (*Peradorcas concinna*) and the Organ-grinder Wallaby or Karrabul (*Onychogale unguifer*). In addition to the species which sort out in this convenient way, there are others which are widely distributed and in fact occur as members of all three faunal assemblages. The most familiar members of the family which do this are the Euro or Biggada (*Macropus robustus*), the Boodie (*Bettongia lesueuri*), and the Rock Wallaby (*Petrogale lateralis*). Of these, the Euro may still be found anywhere in suitable local habitats from the Kimberley to the South-West and inland to the South Australian border. At one time this was true also of the Boodie and the Rock Wallaby which, however, are today unfortunately absent from much of their former range.

So far, only the kangaroos have been mentioned but, in fact, representatives of all three major divisions of the mammals (*i.e.*, monotremes, marsupials and placentals) occur in the State.

The egg-laying monotremes are represented by the Echidna (*Tachyglossus aculeata*), sometimes called Spiny Anteater or Porcupine. This curious and completely inoffensive animal is not uncommon in the country around Perth and it even appears on occasions in densely-settled suburban areas. In drier districts, its diggings, made in its search for insects, are familiar around rocky hills and breakaways.

Marsupials, or pouched mammals, occur in great variety in Western Australia. The kangaroos and wallabies, already mentioned, are the herbivorous members of the group. These animals are the Australian evolutionary equivalent of the antelopes, deer, and horses of the other continents and there is often an extraordinary similarity in structure between members of the kangaroo family and these other herbivores. These similarities extend even to such details as the physiology and shape of the stomach and other organs of digestion. The reproductive systems of marsupials and their physiology have also long been of great interest to biologists because they differ from those of other animals. For example, it is now known that in the Quokka, and some other wallabies, the adults mate again immediately after the birth of the "joey." The embryo which is the product of this second mating does not develop immediately but is held in a dormant state in the female system. However, if the first young joey is lost from the pouch, this dormant embryo immediately begins to develop and a second joey is produced after a minimum period of time.

In Western Australia the kangaroos and wallabies are all terrestrial (there are no tree kangaroos), and even their arboreal relatives, the phalangerids, are few in number as compared with other parts of Australia. The Brush Possums, the Pigmy Possums and the Ring-tails have Western Australian representatives, but the Koalas and the striped Possums are absent, and of the four species of flying possums of eastern Australia only one (*Petaurus breviceps*) occurs in Western Australia and that only in the Kimberley Division. Although the species of possums in Western Australia are few in number, there are some unique forms which are of great interest. One of these is the rare Scaly-tailed Possum (*Wyulda*) of the Kimberley; unlike other Australian possums this animal has a hairless scaly tail and only three specimens of it are known. There is also the curious and rarely-seen Honey Possum (*Tarsipes*) of the South-West. Wombats are known to have occurred in Western Australia around the turn of the century but have not been reported since that time.

Although the large carnivorous marsupials no longer live in the State, the smaller representatives of this group are still fairly common. There are two separate species of native-cats, a southern species (*Dasyurus geoffroyi*) and a northern one (*Dasyurus hallucatus*) as well as many species of smaller carnivorous and insectivorous forms. One of the smaller members of this family, the Dibbler (*Antechinus apicalis*), one of our least-known marsupials and last recorded in 1884, was rediscovered during 1967 at Cheyne Beach near Mount Manypeaks on the south coast. Studies are being made at La Trobe University on its biology.

The remaining group of marsupials is that commonly called the bandicoot family. One of these, the Pig-footed Bandicoot (*Chaeropus ecaudatus*) is probably the State's rarest mammal, but it once occurred in the Nullarbor region where its remains have recently been discovered in caves and two living specimens of it were collected by John Gilbert in 1841 some miles to the north-east of Northam. No confirmed record has been made of the species in Western Australia since then. On the other hand another species of bandicoot, the Quenda, or Short-nosed Bandicoot (*Isodon obesulus*), is one of the commonest of marsupials. Its scratchings are common in country gardens and the little animal is often run over and found dead on roads. It lives largely on insects, and being nocturnal it is seldom seen but it is nevertheless very common in many areas in the South-West.

The third main group of mammals is that of the higher mammals or placentals. Animals of this group occur in Western Australia in addition to the marsupials and the monotremes, and it always comes as something of a surprise to visitors (who generally have a strong preconception of Australia as a land in which all but introduced mammals and the Dingo are pouched mammals and monotremes) to learn that there are many species of Western Australian native placental mammals. In fact, if the seals, whales, and Dugong which occur around our coasts be counted, the species of native placental mammals outnumber the marsupial and monotreme species.

The composition of the mammal fauna is shown in the following table.

Kinds of Wild Mammals	Number of Species occurring in Western Australia (a)	Kinds of Wild Mammals	Number of Species occurring in Western Australia (a)
Monotremes	1	Introduced Placentals—	
Marsupials	56	Rodents	5
Native Placentals—		Land Carnivores	2
Bats	22	Ungulates (Horses, Deer, Camels, etc.)	9
Rodents	21	Rabbits	1
Marine Mammals :			17
Seals (b)	2		
Dugong	1		
Whales	22		
Land Carnivores—Dingo....	1	TOTAL, ALL SPECIES	143
	69		

(a) Total numbers of species are from a forthcoming Classification of Western Australian Mammals by W. D. L. Ride—in preparation. (b) Only resident seals are counted. Antarctic seals are occasionally "shipwrecked" on southern coasts but these are clearly stragglers into the area.

Within Western Australia the best-established groups of native placental mammals, *i.e.*, the bats and rodents, are distributed in much the same ecological manner as are the marsupials; some are Eyrean forms like *Leggadina hermannsburgensis*, the small mouse which builds mounds of pebbles on stony ridges⁽³⁾, others are Torresian like the majority of the Fruit-bats or Flying Foxes (*Pteropus* and *Macrogllossus*), while yet others are typical Bassian species and are confined to the country of reliable winter rainfall in the South-West, *e.g.*, the Southern bush-rat (*Rattus fuscipes*). These native placental mammals are of great zoological interest because some of them, and in particular the native rats and mice, have been here for many millions of years and closely parallel (in adaptation to our stringent ecological conditions) their relatives in similar places in other lands. Thus, we have tiny hopping-mice (*Notomys*), like miniature kangaroos, which are very similar in appearance and habits to the jumping-mice (Zapodidae) of the American and Eurasian dry-lands, and the jerboas (Dipodidae) of Africa; but it must be emphasized that the jumping specializations of our own hopping-mice have evolved quite independently within Australia.

Some of our native placental mammals are economically important. Until recently a shore-based Western Australian fishery at Carnarvon depended upon the migrating groups of Hump-back Whales (*Megaptera novaeangliae*) which move along the western coast between their feeding grounds in Antarctic waters and their breeding places in the tropics. Unfortunately, immoderate exploitation of the stocks (principally in Antarctic waters) has so reduced the population that it is in danger of extermination and the shore-based fishery has now collapsed. Another whale fishery, at Albany, is dependent upon Sperm Whales (*Physeter macrocephalus*). The catching of Southern Fur-seals (*Arctocephalus doriferus*), formerly lucrative, is now no longer permitted. The Dugong (*Dugong dugon*) was once an important source of food for the natives of the coastline from Shark Bay to the Northern Territory. The Dingo (*Canis familiaris dingo*) has probably not been in Australia for as long as the other native mammals, and may well have entered with the first of the Australoid people who were ancestral to our present Aborigines. In some parts of the State the Dingo is a major problem to the pastoral industry because of its attacks on livestock.

The preceding table also shows that there is a large number of introduced species as well as native mammals. These are now a part of the wild mammal fauna of Western Australia and all are placentals.

(3) It is suspected that these may be dew-traps.

Some of these species are also agricultural and pastoral pests and they have become so well entrenched in the environment that there is no doubt that any discussion of the mammalian fauna of the State must take them into account and mention should be made of some of them here. Red Deer (*Cervus elephus*) occur spasmodically in the South-West around Pinjarra, Waroona and Harvey. Camels (*Camelus dromedarius*) occur in large numbers and are distributed through the Eastern Goldfields up through the Pilbara and into the Kimberley. They have been declared vermin around Laverton, Nullagine, Port Hedland, and Halls Creek. Donkeys (*Equus asinus*) have a distribution very much like that of the camel and also occur generally throughout the Kimberley. Wild goats (*Capra hircus*) are ubiquitous in dry country but are mainly concentrated in the Murchison and the North-West. A small herd of Black-buck (*Antilope cervicapra*) occurs near Geraldton. Rabbits (*Oryctolagus cuniculus*) are widespread in Western Australia but are only of economic significance south of the Murchison. They are by no means the problem that they used to be, due largely to programmes of intensive rabbit extermination. Foxes (*Vulpes vulpes*), declared vermin, are also widespread but do not commonly occur north of the De Grey River, having only been reported spasmodically from the Kimberley Division. The domestic cat run wild (*Felis catus*) occurs commonly in the bush and is an efficient predator on native fauna. It became feral in the early days of settlement and soon spread throughout the Colony. The naturalist Keartland, while a member of the Calvert Scientific Exploring Expedition in 1896, recorded that "in the desert of North-West Australia" he saw a tabby cat at least four hundred miles from the nearest house. Earlier still the ornithologist Tom Carter writing in 1887 from the Carnarvon district spoke of "the domestic cat, which is found quite wild and of a large size all through the colony".

Examination of the composition of the older mammal fauna of Western Australia, i.e., monotremes, marsupials, bats and native rodents, as set out in the next table, reveals that one-quarter of all species recorded from the State today appear to be confined to Western Australia. In fact, it is probable that the number of species shown as indigenous to Western Australia is actually too high, because some of them are known only from very few specimens and occur in environments which extend out of Western Australia into the adjacent Northern Territory and South Australia. Examples of these are a small carnivorous marsupial *Antechinus rosamondae* from the Pilbara and a native mouse *Pseudomys rawlinnae* from Rawlinna on the Trans-Australian Railway. The South-West contains by far the greatest number of endemic species. Some of these, e.g., native rats like *Pseudomys shortridgei*, *P. occidentalis* and the Ringtail Possum *Pseudocheirus occidentalis*, may later prove to be local subspecies of South Australian forms, but others like the Honey Possum (*Tarsipes spenserae*) and the Quokka (*Setonix brachyurus*) belong to distinctive genera which are not found elsewhere and are true Western Australians.

ENDEMISM OF NATIVE MAMMALS

(excluding marine mammals)

Group	All Endemic and Non- endemic Species	Number of Endemic Species—			
		Total Endemics	Endemics north of Fitzroy River	Endemics of South-West Land Division	Endemics of remainder of State
Monotremes	1	...	...	...	...
Native Cats	20	4	1	2	1
Marsupial Moles	1	...	...	...	...
Bandicoots	6	...	...	...	...
Possums	6	3	1	2	...
Wombats	1	...	...	...	...
Kangaroos and Wallabies	22	6	...	4	2
Rats	21	11	3	5	3
Bats	22	1	...	1	...
Dingo	1	...	...	...	...
Totals	101	25	5	14	6

Birds

The bird fauna of Western Australia consists of a selection of the species occurring in eastern Australia, with only a very minor development of endemic forms. All of these latter, except one (the Western Australian King Parrot, *Purpureicephalus spurius*), have a close and obvious affinity to other Australian forms. The quantitative relationship of the Western Australian bird fauna to that of Australia as a whole is indicated in the following table, which has been prepared on an ecological basis.

	Number of Breeding Species		Number of Non-breeding Visiting Migratory Species	
	Western Australia	Australia	Western Australia	Australia
Land birds	307	499	6	8
Inland water birds	51	52	33	42
Sea birds	25	38	33	55
Total	383	589	72	105

Representatives of most of the families and genera of Australian birds occur in this State. Notable absentees include the Cassowary (*Casuarius casuarius*), Brush Turkey (*Alectura lathami*), several of the fruit-pigeons, the Crimson Rosella (*Platycercus elegans*), Lyre-bird (*Menura novae-hollandiae*), several honeyeaters including the Regent (*Zanthomiza phrygia*), Apostle-bird (*Struthidea cinerea*), Cat-birds (*Ailuroedus*), Satin Bower-bird (*Ptilonorhynchus violaceus*) and Rifle-birds (*Ptiloris*).

Space is insufficient to detail all the forms occurring in Western Australia. Mention may be made of some distinctive species and groups which are common and widely distributed.

The Emu (*Dromaius novae-hollandiae*) is still numerous all over the State and is occasionally encountered in the Darling Range near Perth. Australia's only breeding species of penguin, the Fairy Penguin (*Eudyptula minor*) nests on islands off the southern and south-western coasts as far north as Carnac near Fremantle. The Mallee-fowl or Gnow (*Leipoa ocellata*) is still plentiful and, after a period of decline during which its disappearance was feared, it is now increasing in abundance. All of the widespread species of Australian quails occur but owing probably to the scarcity of natural grasses in the south are not individually very numerous. Among the pigeons two species have shown notable recoveries in population strength. After a long period of scarcity the Common Bronzewing (*Phaps chalcoptera*) began a cycle of increase about 1936 and is still very abundant. The rare Flock Pigeon (*Histiophaps histrionica*) of the more arid country of the North-West and the far North has declined all over Australia and had not been recorded in this State since 1927 until 1958 when considerable flocks were observed in the Hamersley Range and the Fortescue River country. It has also reappeared in parts of the Kimberley Division.

A very distinctive member of the rail family is the Black-tailed Native Hen or Gallinule (*Tribonyx ventralis*). It is a creature of the drier country but is subject to violent fluctuations in numbers, when it is liable to invade the South-West in great strength. A famous occasion was in May, 1833 when it overran the settlers' fields and gardens around Perth and did considerable damage to the crops. Similar irruptions took place in 1853, 1886, 1897 and 1919. Later invasions, such as those in 1952 and 1964, have been on a much more modest scale. Of the three Australian grebes the most plentiful is the Hoary-headed Grebe (*Podiceps poliocephalus*) which assembles in the winter in big flocks on the southern estuaries, including that of the Swan River.

In the petrel group there are five breeding species in local waters. The most numerous is one of the mutton-birds, the Wedge-tailed Shearwater (*Puffinus pacificus*) which nests on most islands between Carnac in the south and Sable Island, in the Dampier Archipelago, in the north. A second mutton-bird, the Fleshy-footed Shearwater (*P. carneipes*) nests between Cape Leeuwin and the Archipelago of the Recherche; it is a migratory species and in the winter months migrates to the north-western sector of the Indian Ocean. A similar trans-equatorial migrant is the White-faced Storm-petrel (*Pelagodroma marina*), a diminutive form rarely observed at sea. It nests often in vast aggregations on islands off the south coast and as far north as the Abrolhos. All of these species nest in the spring and summer months. The remaining two breed in the winter. The Great-winged Petrel (*Pterodroma macroptera*) shares the



RED-EARED FIRETAIL FINCH

Zonaeginthus oculus

Rarest of the Australian finches, the Red-eared Firetail is found only in the humid coastal areas of the south-west of Western Australia, south of Armadale, in the dense undergrowth of streams and swamps. The nest, containing five or six pinkish eggs, is usually situated in the tree-tops, a favourite position being a clump of Marri nuts. Almost destroyed a few decades ago by trapping and clearing, the finches are now rigorously protected.

Blocks by courtesy of BP

RED-COLLARED LORIKEET

Trichoglossus haematodus

Most gaudy of the Australian parrots, the Red-collared Lorikeet is the Western Australian representative of the Rainbow Lorikeet of eastern Australia. The nest is merely a hollow in a Ghost Gum tree, and the white eggs are laid in the rubble at the bottom. The chicks, which are fed entirely on nectar collected from blossoms with the brush-like tongue of the adult birds, remain in the nest for almost two months.

nesting islands off the south coast with the Flesh-footed Shearwater in a sort of "Box and Cox" relationship. The black and white Little Shearwater (*Puffinus assimilis*) has a wider nesting range, from the Recherche to as far north as the Abrolhos; in former times it nested at Parrakeet Island off Rottnest Island. In the winter months some 22 species of southern-breeding petrels visit local seas. They vary in size from the little Wilson Storm-petrel (*Oceanites oceanicus*), barely larger than a swallow, to the great Wandering Albatross (*Diomedea exulans*). The Wilson Storm-petrel "winters" all along the Western Australian coast to the tropics and is a familiar sight around fishing boats in Shark Bay. The most common of the albatrosses is the Yellow-nosed Albatross (*Diomedea chlororhynchos*) and may be seen as far north as Point Cloates. The most familiar of these visitors is the dusky Giant Petrel (*Macronectes giganteus*). Ringing experiments have demonstrated that the birds seen here are first-year individuals making circumpolar flights round the Southern Hemisphere; marked birds found in the South-West had been ringed a few months previously in their nests at Heard Island, Macquarie Island, and islands in the South Orkneys in the South Atlantic.

All of the five species of Australian cormorants or shags occur locally. Despite complaints of their depredations on commercially important fish, investigations have cleared the birds of blame, though one species, the Black Cormorant (*Phalacrocorax carbo*), specifically identical with the Cormorant of Europe, does occasionally include edible fish in its diet. One marine species, the Pied Cormorant (*P. varius*), which enters the Swan River estuary and Peel Inlet, is mainly responsible for the guano deposits on the coastal islands. Deposits at Shark Bay were commercially exploited in the last century and at one stage, in 1850, a detachment of troops was stationed at The Quoin Bluff, Dirk Hartogs Island, to ensure the collection of royalties. Pelicans in Western Australia, unlike those in eastern Australia, breed only on coastal islands and not on inland waters. Until recently the nearest breeding place to Perth, and presumably the origin of most of the Swan River Pelicans, was Pelican Island, Shark Bay. However, since 1962 a breeding colony has become established at Peel Inlet, Mandurah.

Fourteen species of terns are recorded for the southern parts of the State and three more for the Kimberley Division. Three of the seventeen are migrants from the Northern Hemisphere and ringed individuals of the European Common Tern (*Sterna hirundo*) and the Arctic Tern (*S. macrura*), marked in northern Europe, have been recovered near Fremantle. These birds must have reached our coast via the Cape of Good Hope. The Silver Gull (*Larus novae-hollandiae*) is noteworthy for having two breeding seasons in the southern part of the State. On the islands at Safety Bay, for example, there is an egg-laying peak in the autumn and another in the spring.

The numerous Order of wading or shore-birds (sandpipers, dotterels, and plovers) includes a few locally-breeding species but the majority are migrants from the Northern Hemisphere, where they breed in the tundra zone of northern Asia. Though they frequent ocean beaches and estuaries, as well as swamps and lakes, they are listed in the category of "inland water birds" in the table on page 64. Some 25 species of these birds, commonly called "snipe" (though the true Snipe of eastern Australia, *Gallinago hardwickii*, does not occur in this State) migrate to Western Australia. In addition there are 16 species of this Order which breed in Australia. One of them, the Red-capped Dotterel (*Charadrius alexandrinus*), is virtually identical with the rare Kentish Plover of England. Here it is very common and nests at Pelican Point on the Swan River. Another local breeder is the remarkable Banded Stilt or Rottnest Snipe (*Cladorhynchus leucocephalus*), which is an attractive inhabitant of the salt lakes of Rottnest Island. However, it nests only on the inland salt lakes. The nesting habits remained long unknown until colonies were discovered at Lake Grace and Lake King in 1930.

The Australian Bustard ("Wild Turkey", *Eupodotis australis*) is a magnificent bird which has been largely exterminated by shooters over much of south-eastern Australia and in the developed South-West of this State. It is not uncommon in sparsely-settled areas and individuals occasionally appear on the open coastal country quite near Perth. It has recently been demonstrated by ringing that the Straw-necked Ibis ranges between south-western Australia and northern and eastern Australia. Fledglings marked in the nests at Muchea have later been taken in the North-West, the Kimberley Division, Arnhem Land and near Orange (New South Wales).

The Brolga (*Grus rubicunda*) is a northern bird normally found as far south as Onslow, but some individuals may wander into the outer parts of the South-West as occurred in 1952. In the heron family a new bird has been added to the State list—the Cattle Egret (*Bubulcus ibis*), which appears to have colonized northern Australia from Indonesia and has now spread over much of eastern and Western Australia.

There are 18 species of swans and ducks occurring in the State, one of the most remarkable, perhaps, being the Cape Barren Goose, which is now restricted to the islands of the Recherche Archipelago. Recent leg-ringing experiments have shown that the common and widespread Grey Teal (*Anas gibberifrons*) wanders indiscriminately all over Australia, its movements being influenced by availability of surface waters.

The State is also well provided with hawks and eagles, 24 species being found within its limits. Most are harmless economically and the few that do take chickens and lambs are not serious depredators, though there is controversy on the role of the Wedge-tailed Eagle (*Aquila audax*) which is, however, classified as vermin for the destruction of which a bonus is payable under the provisions of the Agriculture Protection Board Act.

There are not as many species of the parrot group in Western Australia as there are in eastern Australia but one species, the Western Australian King Parrot or Red-capped Parrot (*Purpureicephalus spurius*), is restricted to the South-West and has no near relatives elsewhere. The Twentyeight Parrot is a form of the Port Lincoln Parrot (*Barnardius zonarius*) and is common almost everywhere, being regularly present in King's Park, a natural reserve adjacent to the City of Perth.

The Kookaburra (*Dacelo gigas*), so common in the forests of the South-West, is not a Western Australian native, but was introduced from eastern Australia by the Acclimatisation Board during January, 1897. A similar species, however, the Blue-winged Kookaburra (*D. leachii*) occurs in the north, as far south as the Wooramel River. The Rainbow-bird (*Merops ornatus*) in the south is a strict migrant, arriving regularly in the first week in October. Local birds migrate to the north of the State, the wintering area being from the Gascoyne River northward, but some individuals cross the Timor Sea to the Indonesian islands. There are eleven cuckoo species in our area, the commonest being the Pallid Cuckoo (*Cuculus pallidus*) whose plaintive insistent note is heard soon after the winter rains set in.

In the great group of passerines, or song-birds, (Order Passeriformes) the most celebrated is the Noisy Scrub-bird (*Atrichornis clamosus*), a primitive almost-flightless bird which until recently was believed to be the only Australian bird which had become extinct since white settlement. The last specimen was collected by the ornithologist A. J. Campbell at Torbay in 1889, but late in 1961 a surviving population was discovered at Two Peoples Bay east of Albany. Space is insufficient to deal in any detail with other members of this large Order. Throughout the State there are 172 species, of which 95 occur in the southern, settled parts and at least 33 are found in King's Park. A distinctive robin, the White-breasted Robin (*Eopsaltria georgiana*), occurs in the South-West. It is a relative of the yellow robins and is found in the dense coastal and forest thickets from Geraldton southward and east to Albany and the Porongorups. The Western Warbler (*Gerygone fusca*) is a sweet-voiced songster which may be heard in the street trees of Perth, the only Australian capital city in which it lives; in the other States the bird is an inland species. Another distinction of the Perth metropolitan area is that four species of blue-wren, a greater number of species than in the environs of any other capital city, have been noted there. One species, the Red-winged Wren (*Malurus elegans*), which used to live near the city, disappeared when Herdsman Lake was drained. The remaining species are the Splendid Wren (*Malurus splendens*), occasionally still seen in the University grounds; the Blue-and-white Wren (*Malurus leuconotus*) in the coastal dune scrubs, and the Causeway and Pelican Point samphire flats; and the Variegated Wren (*Malurus lamberti*) in the dune thickets. Honeyeaters are numerous, the largest, the Red Wattle-bird (*Anthochaera carunculata*), being a familiar bird in metropolitan streets and gardens. Most of the grassfinches are restricted to the Kimberley Division, where ten species are found. However, one of them, the widespread Zebra Finch (*Taeniopygia castanotis*), nests as near to Perth as Northam and York. Two bower-birds occur in the State. The Great Bower-bird (*Chlamydera nuchalis*) is confined to the Kimberley Division, but the Spotted Bower-bird (*C. maculata*) is found in the North-West and ranges south to the East Murchison country and Malcolm in the Eastern Goldfields.

In contrast with all other Australian States there are very few species of exotic birds established in Western Australia. (The same is true of the Northern Territory.) In the towns of the South-West two turtledoves are plentiful, the Indian (*Streptopelia chinensis*) and the Senegal (*S. senegalensis*). The Goldfinch (*Carduelis carduelis*), an escapee from aviaries, breeds freely in the Perth metropolitan area and around Albany. Recently another cage-bird escapee, the Red-browed Finch (*Aegintha temporalis*), an eastern Australian species, has established itself east of Kalamunda in the Darling Range near Perth. The Indian or Ceylon Crow (*Corvus splendens*) repeatedly arrives at Fremantle on ships from the Orient but the vigilance of officers of the Department of Agriculture and port officials has led to the successful

eradication of the unwanted immigrants. The House Sparrow (*Passer domesticus*) has been similarly kept at bay at Fremantle. This species did, however, make a temporary colonization, from South Australia, in the vicinity of Eucla and Mundrabilla in 1917-18 but it failed to make any headway and disappeared from that sector.

Reptiles

In Western Australia the reptiles are represented by three major zoological groups or Orders. These are the Chelonia (four marine species of turtles and six of freshwater tortoises), Crocodilia (two of crocodiles) and the Squamata (62 species of snakes and 159 of lizards).

The freshwater tortoises of Western Australia, like those of the rest of the continent, belong to the ancient group of side-necked tortoises. In most other parts of the world tortoises retract their heads straight backwards bending their necks in a vertical S-shaped curve. Australian tortoises, and certain others from South America, bend their necks sideways; this is believed to be an ancient character. Although the species of Western Australian tortoises are few, they are of great interest and their distributions are far from well understood. This is especially true of the species inhabiting the Kimberley. Freshwater tortoises do not seem to fall into simple faunal zone classifications. The common species of the South-West, *Chelodina oblonga*, also occurs in the Kimberley but not in between. The common species of eastern and central Australia, *Emydura macquarii*, occurs in the Kimberley Division in a slightly more globose form which has been called *Emydura australis*. The river systems from the Irwin, in the Northern Agricultural Division to the De Grey in the northern Pilbara, have their own tortoise (*Chelodina steindachneri*), while a highly specialized short-necked tortoise (*Pseudemydura umbrina*) is apparently confined to a few square miles of winter swamps between Upper Swan and Bullsbrook to the north of Perth. Because of its vulnerability to extinction this last species is rigidly protected.

Marine chelonians also occur in large numbers around the coasts. The Green Turtle (*Chelonia mydas*), the species which is used for soup making, comes ashore to lay its eggs on the northern beaches. Attempts are made from time to time to exploit this species commercially, but no permanent industry has been successfully established.

There are two species of crocodiles in Western Australia. One is the harmless fish-eating Freshwater Crocodile (*Crocodylus johnstoni*) and the other the dangerous Salt-water, or Estuarine Crocodile (*C. porosus*). The former is protected by law, while the latter forms the basis of a lucrative trade in hides. Both species are confined to northern parts of the State.

Snakes and lizards are common and widespread throughout the State, and in numbers of obvious individuals they are probably surpassed among the vertebrates only by the birds. In the South-West, Bobtails (*Trachysaurus rugosus*) can often be seen crossing the roads at most times of the year, while the walker among coastal sand dunes on warm days cannot avoid noticing innumerable small dragon-lizards which move away from in front of him. In the southern part of the State the largest lizard which is at all common is the Goanna (*Varanus gouldi*). These are frequently between three and four feet in length. In northern areas the Bungarra (*Varanus giganteus*) exceeds it in size. A few species are confined to the South-West and of these the most interesting are Mueller's Snake (*Rhinophlocephalus bicolor*), the Little Brown Snake (*Elapognathus minor*), the Black Striped Snake (*Vermicella calanota*) and the Slender Snake Lizard (*Pletholax gracilis*) which is also one of our rarest species of lizard. An Eyrean species which never ceases to surprise the visitor is the terrible-looking Mountain Devil (*Moloch horridus*). This lizard is actually one of the most gentle and harmless of animals and lives exclusively on ants.

The snake fauna of the State is diverse and, like that of other parts of Australia, contains many venomous species, the best known being the Tiger Snake (*Notechis scutatus*), the Dugite (*Demansia affinis*), the Gwardar (*D. nuchalis*), the Death Adders (*Acanthophis antarcticus* and *A. pyrrhus*) and the Mulga Snake (*Pseudechis australis*).

The snakes and lizards are well described in Glauert's *Handbook of the Snakes of Western Australia and Handbook of the Lizards of Western Australia* (see bibliography at the end of this Part).

Because of the great distance of the Kimberley Division from centres of scientific research, insufficient is known of its snakes and lizards. As in the case of some of the smaller mammals, some endemic species of lizards have been described, but until much more scientific collecting and research has been done it will not be possible to evaluate such apparently-unique species. Some Kimberley species of

lizard, e.g., the Frilled Lizard (*Chlamydosaurus kingi*), through being commonly illustrated in journals because of their bizarre appearance, have become familiar to the public.

Amphibia⁽⁴⁾

Unlike the other continents Australia has no newts or salamanders (Urodela) or worm-like gymnophionans (Apoda). However, frogs (Anura) are abundant.

The frogs of Western Australia fall into the same grouping (Bassian, Eyrean and Torresian) which was mentioned in the section on mammals. However, they lack the diversity of genera and species shown by other groups and only ten genera with about thirty species are known from south of the Tropic of Capricorn. Of these, two genera, *Metacrinia* and *Myobatrachus*, each with one species, are restricted to the South-West. Most of the other kinds of frogs are distinct from, but related to, species found elsewhere in Australia.

Since most of Western Australia is exceedingly dry it is of interest to note that frogs are common in these arid regions. Those species of *Heleioporus* which occupy marginal-desert habitats overcome drought conditions by burrowing into the damp sub-soil. However, the arid-country species of *Neobatrachus* frequent clay soil where deep burrows are impossible and water can be lost. These species show no special capacity to endure greater water loss than *Heleioporus* species, but they do display an exceptional capacity for rapid replacement of water when water is present, as for example after thunderstorms. The water-holding frog, *Cyclorana platycephalus*, is found in inland and northern parts of the State. All "desert" species retain an aquatic larval life, but this is much shorter than that of species in the well-watered parts of the State. The only species lacking aquatic larval development occur in the wetter South-West; these are *Myobatrachus gouldii*, *Metacrinia nicholli* and *Crinia rosea*. *Myobatrachus gouldii* is the only species which exhibits any strong dietary preference and eats only termites (Isoptera).

Freshwater Fishes

The truly freshwater fish fauna of the southern part of the State is, by eastern Australian standards, an impoverished one and the species, with the exception of the freshwater catfish ("cobbler"), are diminutive in size. Most of the species are representatives of eastern Australian genera, such as the Pygmy Perch (*Nannoperca vittata*), Mountain Trout (*Galaxias truttaceus*), Black-striped Minnow (*G. pusillus*), and the Native Minnow (*G. occidentalis*). Others are more distinctive, with no near relatives in eastern Australia, such as the Nightfish (*Bostockia porosa*), the King River Perchlet (*Nannatherina balstoni*) and the newly-described scaled galaxiid (*Lepidogalaxias salamandroides*). There are several gobies (*Glossogobius suppositus* and *Lizagobius olorum*) and Hardyheads (including *Atherinosoma edelensis*, *A. rockinghamensis*, *A. elongata* and *Craterocephalus cuneiceps*). A lamprey (*Geotria australis*) ascends the rivers to breed and has been recorded north to the Swan River system, but is more abundant in the streams emptying on the south coast. An eel (*Anguilla australis*) has been recorded from the South-West but it is not known whether it is native to the area or has been introduced.

The north-western rivers have a richer fish fauna. The most widespread is the Spangled Perch (*Therapon unicolor*), a useful food fish which occurs in all rivers south to the Murchison. A large catfish (*Arius australis*) reaching 5 lb. in weight, occurs in the systems south to the Fortescue. The Rainbow Fish (*Melanotaenia*), popular with aquarists, occurs in the river systems of the Pilbara and the Kimberley. The remarkable Blind Gudgeon (*Milyeringa veritas*) and blind eel (*Anommatophasma candidum*) occur in wells and subterranean channels in the North West Cape area. The Kimberley Division has an even larger series of freshwater fishes. These include a catfish (*Neosilurus brevadorsalis*), various Bony Bream (*Fluvialosa*), various perch-like fishes (*Therapon*, *Acanthopercra*), Gudgeons (*Carrasiops*) and two freshwater saw-fishes (*Pristis clavata* and *Pristiopsis leichhardti*). There is also a freshwater eel (*Anquilla bicolor*) in these far northern waters.

Marine Fishes⁽⁵⁾

The marine fish fauna of Western Australia is probably richer in species than that of any other Australian State. This is because the fish of the northern part of the State's very long coastline belong to the rich tropical Indo-Pacific fauna, while its southern fauna is a temperate one which includes many elements peculiar to Australian waters. The most up-to-date list of the species of Western Australian

(4) Written in collaboration with Dr. A. R. Main.

(5) Contributed by Dr. G. F. Mees.

fish, published in 1948, enumerates 740 species, but since that time collecting has revealed about 120 more. Even so, this figure is still far short of the total number which, it is suspected, will eventually be found to be in the neighbourhood of two thousand.

From this it can be seen that there is much to be learnt about the fish of Western Australia but it is probable that only a few of these species are confined to Western Australian waters. At present it seems that most of the fish occurring in the tropical part of the State are widely distributed, and species often range throughout the whole of the tropical Indian and Pacific Oceans, while the species which are found along the south coast usually occur also in the waters of South Australia, Victoria, Tasmania and southern New South Wales.

Between Cape Leeuwin and Shark Bay both northern and southern elements are found, the tropical element dominating as far south as the Houtman Abrolhos.

In addition to the widely-distributed tropical and southern elements, there are a number of species, between thirty and forty, which seem to be peculiar to Western Australia. It is necessary to be cautious here for two reasons. Firstly because the Indo-Pacific fish fauna is, as a whole, poorly known and some fish, at present only recorded from Western Australia, may actually have wider ranges. Secondly, our classification of fishes is still imperfect so that fishes which we regard as endemic to Western Australia may be known from some other region, but under different names. On the other hand there can be no doubt that at least a proportion of these species which we now believe to be endemic will prove to be confined to Western Australian waters.

In the following very incomplete review, a number of the more important and interesting families and species are listed.

Of the major groups, the Elasmobranchii (sharks and rays) are richly represented, with nearly eighty species, of which the most familiar are the Port Jackson Shark (*Heterodontus portusjacksoni*), the Carpet Shark or Wobbegong (*Orectolobus maculatus*) and the shark known locally as the Swan River Whaler (*Carcharhinus*), which can be caught in the Swan River as far upstream as the Causeway. Its specific identity has not yet been established beyond doubt, but it is probably widely distributed. The foregoing species are regarded as harmless to man; of the dangerous species, the Grey Nurse (*Carcharias arenae*) is perhaps the best known. Four fatalities from shark attack have been recorded for Western Australia (in 1803, 1923, 1925 and 1967) and a few people are known to have been maimed. It may be said, however, that in Western Australia the danger of shark attack is low.

Most major families of bony fishes are represented, but only a number of the more interesting or familiar species can be mentioned here.

There are about ten species of true herring (Clupeidae), one of which, the Pilchard (*Sardinops neopilchardus*) will in future probably become of economic importance. The rather similar-looking *Amblygaster postera* seems to be confined to Western Australia. The State is particularly rich in sea-horses and pipe fishes, there being some 25 species. The most familiar of these is perhaps the leafy sea-horse (*Phyllopteryx foliatus*) which is often found on the beaches after storms. The so-called Sand Shark or Rat Fish (*Gomorhynchus greyi*), a peculiar fish and the sole representative of its family, deserves mention; it is fairly common off sandy coasts of the South-West. Though eels are represented by several families and over twenty species, only three are common in the South-West: the Snake Eel (*Ophisurus serpens*), a slender golden brown eel inhabiting sandy estuaries, which is often taken for a snake and referred to as the water snake; Woodward's Eel (*Gymnothorax woodwardi*), found on rocky shores, yellowish green with a network of grey lines; and the Conger Eel (*Conger wilsoni*), which normally is dark brown in colour.

Garfishes (Hemiramphidae) are common. Of their relatives the Long Toms (Belonidae), only *Belone ciconia* is common in the South-West the others being more tropical in distribution, though one of the northern species, *Belone hians*, has been found as far south as Rottnest Island.

Silversides and hardyheads (Atherinidae) are well represented and so are mullets (Mugilidae). Some representatives of these groups have been mentioned in the preceding section, which deals with fresh-water fishes.

The family Serranidae, known as groper, rock cod, etc., are well represented by nearly thirty species. The best known is the North-west Groper (*Epinephelus tauvina*) which attains a length of more than seven feet. Most species have a very wide, mainly tropical, distribution, but *Epinephelus rankini* is only known from a restricted area round Onslow and must be looked upon as endemic to Western Australia. In temperate waters the preceding family is more or less replaced by the related Hypoplectrididae.

Some small families, like the Australian Salmon (Arripidae), Whiting (Sillaginidae) and Snappers (Sparidae) are of great economic importance, though there are only a few species. On the other hand the Skipjacks (Carangidae) are the largest family of the State and comprise some thirty species. Another group which are also called Snappers (Lutjanidae) is prominent in the tropical part of the State. These are often referred to as North-west Snappers and should not be confused with the southern Snapper (*Chrysophrys unicolor*) which belongs to the Sparidae.

Coral fishes (Chaetodontidae) are richly represented, mainly along reefs in the tropics, but a number of species come down to the Abrolhos Islands, and some even near to Perth. Most species have a very wide distribution in the Indo-Pacific, but one, *Chaetodon assarius*, has not been found outside Western Australia.

The Mackerel family (Scombridae), which includes mackerel, Spanish mackerel, tuna, bonito and albacore, is important both in tropical and temperate waters. The related marlins and swordfishes, well known to sporting fishermen, also occur in these waters.

Flatfishes (Heterosomata) occur in a great variety of species, and the same can be said of Parrotfishes and Wrasses (Scaridae and Labridae). All these groups are as yet very insufficiently known.

The stargazers and stonelifters are sluggish bottom fishes that deserve mention because of their unusual shape. One, *Ichthyoscopus barbatus*, occurs off the south-west coast and also in South Australia, and is regularly caught by anglers. Another species, *Ichthyoscopus insperatus*, a common fish of the north-west coast from Broome to Shark Bay, seems to be confined to Western Australia. The dragonets (Callionymidae), of which nine species have been recorded, are smaller, but their pretty appearance attracts attention, and one species, *Dactylopus dactylopus*, widely distributed in the Indo-Pacific, is regularly found off sandy beaches as far south as Rockingham.

Blennies (Blenniidae), weedfish (Clinidae), and gobies (Gobiidae) are small fishes of which there are many species; blennies are most plentiful in rockpools and on reefs in the tropics, while gobies are also found on sandy bottoms.

There are some twenty species of scorpion fishes known from the State, the most familiar of which are *Scorpaena sumptuosa* in the south, and the small *Scorpaena bynoensis* in the north; the first-mentioned species is also interesting in that, though it has been known for almost a century, it has never been recorded from outside Western Australia. Of the closely-related Synancejidae, the feared stone fish, three species are known from the State, one of which, *Erosa daruma*, is apparently restricted to the North-West and is known from but two specimens. A related species occurs in Queensland and Japan.

Flatheads (Platycephalidae) are common in the temperate part of the State.

An interesting family is that of the angler fishes or toad fishes (Antennariidae). Their curious shape with the leg-like pectoral fins does not fail to raise interest. There are about a dozen species, two of which are endemic to the State. One of these is *Echinophryne glauerti* which is occasionally found washed up on City Beach.

Leatherjackets (Monacanthidae) are a large group distinguished by the rough leathery skin and a single large erectile spine on the nape. Some species, like *Chaetoderma penicilligera*, are common and of attractive appearance.

Of the blowfish family, the common Blowie (*Tetraodon (Spheroideus) pleurogramma*) needs special mention; it is extremely plentiful off the coast at Fremantle and in the Swan River Estuary. It is poisonous to eat and is greatly disliked by anglers who find that it greedily takes their bait. Fishes of this family contain a poisonous substance called Tetraodon toxin and the celebrated navigator Captain James Cook was very ill after eating a blowfish in the course of a voyage in the Pacific in 1774. Boxfishes (Ostraciontidae) and porcupine fishes (Diodontidae) are related groups, each represented by a number of species.

Further information about the commercial fishes in Western Australian waters is given in the Fisheries section of Chapter VIII, Part I—*Primary Production*.

THE INVERTEBRATE FAUNA

The invertebrate fauna of Western Australia is large and varied, as one would expect in a third of a continent which extends from temperate to tropical zones and includes both coastal and desert areas.

Rather than spread our descriptions too thinly over this enormous field we have restricted ourselves to a brief summary of the position in relation to a few selected groups in which work is being actively carried out.

Several invertebrate species are commercially exploited here, the most important being the marine crayfish (*Panulirus cygnus*) which supports an extensive export fishery. Others commercially important include several species of octopus and squid, the Blue Swimming Crab ("Blue Manna", *Portunus pelagicus*) and several species of prawns. Pearl-shell is fairly extensively fished along the north-west coast.

A summary of the terrestrial and freshwater invertebrate fauna and their ecology is given in Main's *Guide for Naturalists* (1954).

Echinodermata ⁽⁶⁾

The echinoderms of Western Australia have been shown by Clark (1946) to be derived from the Indo-Malayan fauna. Most species of northern Australia are widely distributed in the Indian Ocean and Malayan archipelago, while as one passes southward these decrease in proportion to the endemic species until on the south-western coast nearly nine-tenths of the echinoderms are endemic to the region.

All five groups of echinoderms, feather stars (Crinoidea), sea stars (Asteroidea), brittle stars (Ophiuroidea), sea urchins (Echinoidea), and sea cucumbers (Holothuroidea) are well represented. Eighty-five species of sea stars and fifty-five species of sea urchins are recorded from Western Australia including the continental shelf. The other groups have smaller numbers of species.

On the rocky and sandy shores of the South-West about twenty species of sea stars are common in shallow water. One of the most abundant is *Coscinasterias calamaria* which is widely distributed in the Southern Hemisphere. Sea urchins are represented by about twelve common species; on rocky shores the most abundant of these is *Heliocidaris erythrogramma* which has a southern Australian distribution.

In Cockburn Sound, between Garden Island and the mainland south of Fremantle, an abundant but specialized echinoderm fauna exists. This consists mainly of the small sea urchin (*Temnopleurus michaelsoni*), the biscuit urchin (*Peronella lesueurii*), the heart urchin (*Echinocardium cordatum*) and the sea star (*Stellaster inspinatus*). On the south coast, King George Sound has long been known as a rich collecting ground for echinoderms, but the fauna of other bays and inlets is much less well known.

Little is known of the echinoderm fauna of the northern coasts, and almost all that we do know comes from the publications of H. L. Clark (see bibliography at the end of this Part) who collected extensively in the Broome area and made smaller collections in other places. Near Broome, a wide variety of echinoderms was collected in his dredges and along the shore.

Mollusca ⁽⁶⁾

The molluscan fauna of the Western Australian coastline has not been recently catalogued, but from the area within 35 miles of Fremantle 270 species of bivalves (Pelecypoda), and univalves (Gastropoda) are recorded. The smaller groups, chitons (Amphineura), octopus and cuttlefish (Cephalopoda) and tusk shells (Scaphopoda), are also represented.

Molluscs dominate the intertidal rocks of the west coast, especially chitons, periwinkles, and limpets; the limpets range from the very large *Patellanax laticostata* to the small *Notoacmea onychitis*. On the north-western coast, rock oysters (*Crassostrea tuberculata*) and barnacles take the place of limpets intertidally. The oysters are fished commercially for food on a small scale in places where extensive beds are uncovered at low tide.

Bivalves occur mainly on sandy and muddy bottoms such as those of Cockburn Sound and King George Sound, and along the north-western coast. They are less plentiful on the unstable sandy shores of the open western coast. The pearl-shell fishery of north-west Australia is based on several species, mainly the Black-lipped Pearl-shell (*Pinctada margaritifera*) and the Silver-lip (*P. maxima*). The Shark Bay Pearl-shell (*P. carchariarium*) is abundant in Shark Bay and has been fished there commercially.

Many species of cowrie shells occur on the rocky shores of the north-west coast while a few species such as *Zoila friendii* and *Austrocyprea reevei* are confined to the south-western corner of the State.

Two kinds of gastropods without visible shells are conspicuous members of the marine fauna off Fremantle. One is the large sea-hare (*Aplysia gigantea*) with a small internal shell; it may be cast up on the beaches in large numbers after winter storms. The other is a nudibranch, with no shell at all, the colourful *Glossodoris westraliensis*, well known to visitors to Rottnest Island.

(⁶) Written in collaboration with Dr. E. P. Hodgkin and Mrs. L. Marsh.

Coelenterata (6)

This group includes the corals (Anthozoa), the hydroids (Hydrozoa) and jellyfish (Scyphozoa).

Reef-building corals occur on the north-western coast in abundance and form reefs as far south as the Abrolhos Islands (29°S.), and Port Gregory (28°S.) on the mainland. Further south, reef-building corals are few in number and occur as small reefs and as scattered colonies on islands off the coast, but not on the coast itself. The staghorn coral *Acropora* is plentiful around the Abrolhos Islands and at Port Gregory but it has not been found further south except in Pleistocene fossil beds on Rottnest Island. Two or three species of corals extend east of Albany, and one, *Plesiastrea urvillei*, occurs right along the south coast of Australia.

Soft-corals are abundant on the muddy reefs of much of the north-west coast but few species occur on the west coast. The brightly-coloured fan coral *Mopsella* is common on rocky reefs of the west and south coasts.

Jellyfish of a few species, such as the white *Aurelia aurita* and the brown *Phyllorhiza punctata*, are common in the Swan River in summer. *Carybdea*, the small "sea-wasp", occurs on the open coast.

Crustacea (7)

The most important commercial species of crustacean in Western Australian marine waters is the "Cray", *Panulirus cygnus*. It occurs from North West Cape in the north to Hamelin Bay in the south. In the tropics five additional species of *Panulirus* occur; these are collectively referred to as "Green Crays" (*Panulirus versicolor*, *P. ornatus*, *P. homarus*, *P. penicillatus* and *P. polyphagus*). On the southern coast occurs *Jasus lalandii*, which is the commercial species of crayfish in south-eastern Australia, but it is not of economic importance in this State.

The Swan River Prawn or School Prawn (*Metapenaeus dalli*) occurs on the west coast of this State and extends into Indonesian waters. In Exmouth Gulf and in Shark Bay two species of tropical prawns are caught commercially. These are the Tiger Prawn (*Penaeus esculentus*) and the Banana Prawn (*Penaeus merguensis*). The Western King Prawn of the south is *P. latissulcatus*.

The Blue Swimming Crab (*Portunus pelagicus*), plentiful in the summer in the estuaries of the Swan River and at Mandurah, is one of the common commercial crabs of Australia.

Two common species of crab are the Rock Crab (*Leptograpsus variegatus*) and the Ghost Crab (*Ocypode pygoides*). The Rock Crab scrambles among rocks and jetty piles of the west and south coasts, whereas the Ghost Crab digs near-vertical burrows at the edge of the beach and is endemic to the west coast.

Of the many other species of non-commercial crustaceans some groups have been recently monographed by scientific workers. These are the swimming crabs, mantis shrimps and pebble crabs.

Crustacea are also common in inland waters (see *Fauna of Inland Waters* earlier in this Part).

Spiders (8)

Like most other invertebrate groups, the spiders are represented by a large number of genera and species and it is not possible at this stage to give an accurate picture of the relationships of the Western Australian fauna to the rest of Australia. Early work on the Western Australian spiders was restricted to the description and naming of species. Research now is centred on investigations of the biology of various species and the special adaptations of endemic forms to the particular conditions of the Western Australian environment. The most interesting of the spiders, when viewed from this aspect, are the burrowing groups, including primarily the Mygalomorphae ("trapdoor" spiders) and the Lycosidae (Wolf spiders). Some of these forms show special adaptations to semi-arid environments, to reduced food supply, and to flash-flooding, such adaptations being paralleled in many taxonomically unrelated genera. It is also of interest that some families, which in other parts of the world and in the wet forests of Australia are primarily web weavers and litter dwellers, are burrowers in the arid parts of Western Australia (and also in other dry parts of Australia). Such forms are essentially nocturnal and escape the unfavourable conditions of the day by remaining in their burrows and some species seal their burrows during the summer period.

(6) Written in collaboration with Dr. E. P. Hodgkin and Mrs. L. Marsh.

(7) Written in collaboration with Dr. R. W. George

(8) Written in collaboration with Dr. B. Y. Main.

Insects

The more important insect species occurring in Western Australia (particularly those of economic significance) are dealt with in Part 5 of this Chapter.

CONSERVATION OF THE FAUNA

In recent years the need to conserve the Western Australian fauna has received considerable publicity—this need has certainly never been greater than it is at present. In this State where new land is being brought into production for agriculture and the pastoral industry at a rate of approximately one million acres a year, and where the ever-increasing tempo of industrialization and mining activity is obvious to all through its effect in increased population, the position of the native fauna is serious. This is because human introductions such as sheep and cattle, as well as the more direct effect of the plough and the scrub roller, is radically changing the environment, but also because an increase in human population has meant a higher level of utilization of wild stocks such as ducks (which form a basis for sport), kangaroos (which form a basis for a lucrative trade in pet meat and hides), and crayfish (which support the most valuable single Australian fishery).

From the early days of settlement in Western Australia, legal provisions were in existence under which land could be reserved but, in early years it was not realized that the preservation of habitat is basic to conservation and that protection of individuals against killing is of insignificant value except in specialized cases (see below). In the early days, protection was afforded to some game animals, such as kangaroos, to prevent them from being shot out, but it was not until land development became widespread in the South-West that the first real attempt was made to set aside a large permanent native fauna and flora reserve. This was in 1894 when 160,000 acres were gazetted between Pinjarra, North Dandalup and the Bannister. Unfortunately, this reserve later became alienated.

From this early attempt at habitat conservation has grown a very conscious need for extensive reserves carefully sited and selected in order to provide security for a representative sample of all the major habitats throughout the State. In 1959, a committee of the Australian Academy of Science produced such a plan for Western Australia and this plan has provided in subsequent years the basis for a policy of land acquisition for this purpose by the two major bodies who control land for conservation, *i.e.*, the National Parks Board and the Fauna Protection Advisory Committee.

Outside the reserves, fauna gains its protection through the Fauna Protection Act. This Act replaced an earlier Game Act of 1912-1913 which had the rather different primary purpose of providing some measure of protection for those species of native fauna shot or hunted for sport. Under the Fauna Protection Act, all native vertebrate terrestrial fauna, except those species declared vermin or declared otherwise unprotected, are protected against being taken, hunted, or confined. Owing to the very complex relationship between many species and their environment, this Act has only a very limited long-term conservative effect in areas of closer settlement or intensive agriculture. On the other hand, in pastoral and forest areas, and in unalienated crown land not in fauna reserves, the legislation is much more valuable. The most important achievement of such protective legislation, however, is that it makes people conscious of the need to protect our native fauna and it is very likely that this educational function is its main justification except:

- (i) Where animals occur on small islands or restricted places on the mainland in such numbers or in massed concentrations that they are vulnerable to destruction by man. Local examples are the Noisy Scrub-bird at Two Peoples Bay near Albany, sea birds in nesting concentrations on small islands, and island populations of mammals such as the Quokka on Rottnest or the various wallabies on Bernier and Dorre Islands in Shark Bay.
- (ii) Where they are killed in the mass for commercial purposes, *e.g.*, Humpback Whales, Fur Seals, Kangaroos.
- (iii) Where they are killed for sport, *e.g.*, the Bustard (Plains Turkey), ducks.
- (iv) Where they are taken in very large numbers for zoos, circuses, or aviculture, *e.g.*, finches and parrots.

In Western Australia today the only terrestrial native fauna subject to any marked degree of human predacity are ducks, eagles, emus, kangaroos of three species (the Grey, the Red, and the Euro) and the dingo. Excepting for certain vermin species on which a bonus is payable, figures for the total annual number killed are not available (for the 12 months ended 30th June, 1967 bonuses were paid on 3,206

dingoes, 11,032 emus, and 1,462 Wedge-tailed Eagles) and until they are, and details of population size and rate of stock recruitment are known, it will not be possible to say whether these species are in serious danger. At present, only the crudest methods of observing abundance and subjectively comparing these with previous experience can be used to say whether it is necessary to apply protection to prevent a serious decline in numbers.

By contrast, the position of the marine fauna is very different. There, intensive work has been done on both fish and invertebrate stocks in past years and, although there has been some cause for alarm in connexion with an apparently depleting crayfish stock, conservative measures have been developed, and there are very good grounds for belief that these have been successful. The great reduction of the population of Humpback Whales due to over-predacity is a matter of considerable shame—it illustrates well the dilemma of an industry which is faced with the alternative of a low level of fishing over an indefinite period, or a highly lucrative but short period of exploitation as though the stock were not capable of regeneration (a procedure akin to a mining operation). In the case of the whaling industry in Western Australia the position was complicated by the fact that the stock was hunted both by the shore-based Western Australian fishery and by the international pelagic fleets operating in the Antarctic.

At present, our greatest need is information upon which to base proper conservative measures. Protective legislation, no matter how effective it is in protecting individuals, must not be regarded as effective in conservation unless measures to protect the environment are also taken. As a result, the authors believe that the stages of work most urgent at present to conserve the Western Australian fauna are :

- (i) To complete the reservation of lands designated in the report of the Western Australian Sub-committee of the Australian Academy of Science.
- (ii) Recognizing that these areas are designated upon the best available information as to habitat type, but not upon actual surveys of the fauna, the authors believe that the areas must now be given thorough biological surveys to ensure that populations of all Western Australian species of animals and plants are contained within them; and also to estimate, as far as possible, the sizes of the populations which they contain.
- (iii) To get under way an increased amount of long-term work on the biology of species which are suspected to be vulnerable. Through this work their particular requirements will be discovered and an endeavour can then be made to ensure that the reserves contain these requirements.
- (iv) To insist on proper monitoring for any annual crop taken from vermin or other species subject to human predacity so that these populations can be maintained at the level consistent with the State's particular requirements, and yet to avoid their extermination.

In Western Australia, land development has not yet gone too far for the State to preserve a representative section of its fauna and flora for all time. The keys to this are habitat conservation, reserve management, and education in conservative thinking. Through these means, it will also be able to ensure that as much wild life as possible remains in altered environments as well. Indeed, if roadside verges, small township reserves and timber lots on farms are preserved, a surprisingly large number of native creatures will survive. The importance of these minor habitats, often regarded condescendingly by professional biologists who focus their attention on big reservations, cannot be sufficiently stressed. It is in these areas that the ordinary people and tourists gain an acquaintance with the native fauna and flora. Here man and animals will contrive to co-exist in intimate association with each other and so help to reinforce a popular sentiment for conservation.

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CHAPTER II — *continued*

PART 5 — ENTOMOLOGY IN WESTERN AUSTRALIA

WITH PARTICULAR REFERENCE TO AGRICULTURE

Contributed by

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The entomological field in Western Australia is so vast and the number of active workers on the subject so few that much still remains to be learned about the insects found in this State. A wide range of environmental conditions exists, from the tropical north to the temperate south, and the geographical isolation of the State has allowed the development of numerous endemic forms. As may be expected, the insect fauna of the Kimberley Division shows closer affinities with that of North Queensland than with the lower half of the State. The central desert, which reaches the coast to the south along the Great Australian Bight and to the north along the Eighty Mile Beach, forms an effective barrier discernible in the distribution of flora, mammals, insects and birds.

Owing to the limitations of space no attempt has been made to cover all the various insect orders which occur in the State, but the economic importance of various groups and their influence on major agricultural industries have been outlined, and some of the more outstanding forms of general interest have been mentioned. A brief description of some effects of the use of pesticides in the metropolitan area in recent years is also given.

CLASS INSECTA (Insects)

Order Collembola (Springtails)

The Springtails include the Lucerne Flea (*Sminthurus viridis*) which was introduced into this State from eastern Australia in about 1910. It has spread to almost all the clover-growing areas in the South-West and is a very serious pasture pest. Partial control is exercised by a predatory mite, *Biscirus lapidarius*.

Order Odonata (Dragon flies and Damsel flies)

These insects are predatory in both the immature and adult stages and are usually regarded as beneficial creatures. However, they sometimes injure vegetable seedlings by ovipositing into furrow-irrigated crops. This has occurred mainly at Carnarvon where surface water is scarce and where irrigated plants are presumably mistaken for aquatic vegetation.

In order to survive in the diverse climatic conditions which exist in Western Australia, some members of the dragon fly group have developed the ability to breed in highly saline waters and to take advantage of ephemeral inland pools.

Order Orthoptera (Grasshoppers, Locusts, Mantids, Cockroaches, etc.)

The grasshoppers and locusts are represented by a large number of different species. The most important pest form is the Small Plague Grasshopper (*Austroicetes cruciata*). The normal habitat of this species lies roughly between the 10 in. and the 15 in. isohyets. For breeding it favours hard bare soil and as extensive areas once utilized for wheat growing have now reverted to grazing, these uncultivated tracts periodically give rise to serious grasshopper swarms, which menace the adjacent wheat lands. The Australian Plague Locust (*Chortoicetes terminifera*) so troublesome in other States occurs in Western Australia but rarely as a plague species. In the Kimberley the Yellow-winged Locust (*Gastrimargus musicus*), the Migratory Locust (*Locusta migratoria*) and the Spur-throated Locust (*Austracris guttulosa*) assume plague proportions, but in the southern agricultural districts they occur in the solitary phase only. The Praying Mantids (*Mantidae*) are represented by many different species. Their well-developed fore-limbs are admirably adapted for catching prey and, like their foliage-feeding relatives the Phasmids or leaf insects (*Phasmatidae*), their colouring harmonizes remarkably with the sticks and leaves on which they rest. The cockroach fauna includes a large number of native species as well as several introduced forms. The commonest pest species is the cosmopolitan American Cockroach (*Periplaneta americana*). Some large and quite colourful forms occur in the inland regions with the genus *Polyzosteria* well represented.

Order Isoptera (Termites)

The so-called White Ant is a serious pest in all parts of the State. Earth-dwelling types occur mainly, and among the most important species may be cited the large *Mastotermes darwiniensis* of the north and the widely distributed *Coptotermes acinaciformis*. The large mounds of the grass-eating *Nasutitermes triodiae* are characteristic of certain landscapes in the pastoral areas. Heavy annual losses are caused by termite damage and the use of such chemicals as Dieldrin, Aldrin, Chlordane and Creosote is recommended for the protection of timber structures.

Order Anoplura (Lice)

Indigenous species occur on birds and native mammals, and various introduced forms infest domestic poultry, horses, cattle and sheep.

Order Thysanoptera (Thrips)

This order is represented locally by a large number of native species as well as several introduced forms. The most serious native species is *Thrips imuginis* which may swarm in apple blossoms and seriously affect the crop setting.

Thrips tabaci, often called the Tobacco or Onion Thrips, is a carrier for the plant disease Spotted Wilt. Severe damage to tomato plants may result from this virus.

Order Hemiptera (Bugs, Aphis, Scale Insects)

This group contains a large number of pest species, many of them introduced. A serious vegetable pest is the Green Vegetable Bug (*Nezara viridula*) which is partially controlled by an introduced wasp parasite, *Microphanurus basalis*. The native Rutherglen Bug (*Nysius vinitor*) may at times swarm on vegetables and fruit trees, but seems less serious in this State than on the other side of the continent. The Crusader Bug (*Mictis profana*), so named because of the light-coloured St. Andrew's cross on the back of the adult, feeds normally on Acacias and other native plants, but it frequently invades cultivated areas and it may be troublesome to young citrus. The Apple Dimple Bug (*Campylomma livida*) is a native species which sometimes causes severe malformation of apples by feeding upon the very small developing fruit.

One native aphid (*Anomalaphis comperei*) has been recorded. The only two districts from which it has so far been collected are Albany and Karridale where it has been found infesting native peppermint (*Agonis flexuosa*). A point of interest about these occurrences is that the aphid were associated with a heavy Argentine Ant infestation in the area. Since the removal of the Ants, following Dieldrin spraying, no further aphid have been discovered.

Numerous introduced species occur as pests on vegetables, garden plants and fruit trees, e.g., *Myzus persicae* (peaches, potatoes, etc.), *Toxoptera aurantii* (citrus), *Brevicoryne brassicae* (cabbages, cauliflower, etc.), *Eriosoma lanigerum* (Woolly Aphis of apples). A recent record which may prove of some importance is *Aphis craccivora*. This insect carries a virus disease of subterranean clover known as "stunt."

Of the native coccids the gall-forming members of the genus *Apiomorpha* are among the most remarkable. The woody galls in which the female insects pass their days vary from small structures a fraction of an inch across to woody knobs the size of an apple. From an economic point of view, however, the various introduced scale insects demand most attention. Included in the list of pest species are the following:

San Jose Scale (*Quadraspidiotus perniciosus*), which is a serious pest of apples.

Citrus Red Scale (*Aonidiella aurantii*), found mainly on citrus but with a wide host range.

Olive Scale (*Saissetia oleae*), found attacking citrus, stone fruits and garden shrubs.

White Wax Scale (*Ceroplastes destructor*), which is mainly a pest of citrus but which attacks many cultivated shrubs.

Soft Brown Scale (*Coccus hesperidum*), which has a wide host range but is of greatest importance on citrus.

The Couch Mealy Bug (*Antonina graminis*), a widespread and troublesome pest causing damage to lawns particularly in the warmer parts of the State.

Order Coleoptera (Beetles)

This order is the dominant one among existing insects and is represented in Western Australia by many and varied forms. The carnivorous ground beetles or Carabidae are widely distributed, one of the best-known species being the bright green Stink Beetle (*Calosoma schayeri*).

The Tiger Beetles (Cicindelidae) are of interest not only because of the metallic colouration seen in many forms but because of their association with the inland salt-lakes. The larvae are subterranean and may be collected by digging on the lake margins.

The Ladybirds (Coccinellidae) comprise a group of considerable economic importance and in addition to native species the State contains a number specially introduced to combat various scale insects and aphides. Among the best known of the introduced species are *Cryptolaemus montrouzieri* and *Leis conformis*. The larvae of *Cryptolaemus* are covered with a whitish material which makes the insect superficially resemble the Mealy Bugs upon which it feeds. *Leis conformis* in conjunction with the wasp parasite *Aphelinus mali* plays an important role in combating the Woolly Aphis of apple trees. Destructive leaf-eating Ladybirds belonging to the genus *Epilachna* were once found only in the northern parts of the State where they attack vegetables, especially pumpkins and melons. In 1956, specimens of *Epilachna* were collected in Perth. Since then they have become established in several suburban areas, but how the introduction occurred is not known.

The Jewel Beetles (Buprestidae) contain some of the most colourful beetles to be found anywhere in the world. Western Australia is particularly rich in species and at times the beetles may be found in large numbers on flowering mallee and sand plain flora. One of the commonest is the metallic green *Stigmodera gratioiosa*, and one of the largest is *Julodimorpha bakewelli*, measuring almost three inches in length. Although the beetle larvae are wood borers, closely resembling the "bardee" in appearance and habits, they are of little economic importance.

The Cockchafers or Scarabs (Scarabaeidae) are represented by a great diversity of forms. Several species may swarm on to flowering fruit trees and roses in the early summer and are popularly known as Spring Beetles. The bronze-coloured *Colymbomorpha lineata* is a common pest of apple trees during the blooming period and the Saddle-backed Beetle (*Phyllotocus ustulatus*) sometimes visits citrus blossoms in large numbers. An introduced species commonly known as the Black Beetle (*Heteronychus sanctaehelenae*) has gained a firm footing in the State and is a troublesome pest of lawns and turf. It is also growing in importance as a pest of vegetables in some areas. A native species *Colpochilodes sp.* has caused damage to cereal crops and clover pastures and is apparently increasing in certain clover districts in the southern portions of the State.

The Longicorn Beetles (Cerambycidae) are a group of wood-boring insects represented by a number of different species. They are often blamed for the death of forest eucalypts, although investigations have shown that heavy beetle infestations are usually secondary and that healthy trees are seldom seriously affected by the beetles. The larval stage of this group is the so-called "bardee", one time prized by the Aborigines as food. They are not a pest of structural timber as they do not attack seasoned material.

The Leaf Beetles (Chrysomelidae) may superficially resemble Ladybirds in general appearance as some of them are rounded and quite brightly coloured. Two species have been introduced into the State for the purpose of combating St. John's Wort, a troublesome weed in some districts. *Chrysomela gemellata* and *C. hyperici* were originally introduced into Australia from the South of France and liberated in Victoria with very satisfactory results. The local colonies were obtained from the latter source and have become established in several districts. In some situations a reduction in St. John's Wort can be attributed definitely to beetle activity, but in many areas the picture is obscure due to the extensive use of chemical sprays.

Common pest species in eastern Australia are the Pumpkin Beetles (*Aulacophora hilaris* and *A. abdominalis*). These beetles are found in the north of the State but do not extend into the cooler latitudes.

The Weevils (Curculionidae) are a very specialized group characterized by the presence of a rostrum or "snout" which bears the mouth and antennae. The genus *Leptopius* contains a number of large greyish weevils, many of which breed in association with Acacias. One of the best known members of the family is *Catasarcus rufipes* which feeds on eucalypt foliage and may disfigure young street trees. The almost world-wide Rice Weevil (*Sitophilus oryzae*) is our principal pest of stored grain, but the Granary Weevil (*S. granaria*) also occurs. Two common orchard pests are the introduced Apple Weevil (*Otiorynchus cribricollis*) and Fuller's Rose Weevil (*Pantomorus cervinus*).

Order Neuroptera (Lacewings)

This order contains a number of useful insects, for many of the Neuropterous larvae feed upon scale insects and other pests. The family Myrmeleontidae has a number of large, rather Dragonfly-like species, the larval stages of which build conical sand pits and are commonly known as Ant Lions. Amongst the most remarkable of the local Lacewings are two members of the family Nemopteridae in which the hind wings are greatly modified. In the genus *Croce* they are long and thread-like and in the Spoon-winged Lacewing (*Chasmoptera hutti*) they are spoon-shaped or paddle-shaped.

Order Diptera (Flies)

This group contains a vast number of species, many of which are of major economic importance.

The Mosquitoes are well represented, the commonest species being the Domestic Mosquito (*Culex fatigans*) and the Yellow-fever Mosquito (*Aedes aegypti*). The latter species is the carrier for Dengue fever in the northern portion of the State. The Anophelines are represented by the widely distributed *Anopheles annulipes* and several much rarer forms. *A. annulipes*, together with *Aedes alboannulatus*, have played an important part in the spread of the rabbit virus *Myxomatosis*.

Of the introduced flies, those causing most trouble are the Australian Sheep Blowfly (*Lucilia cuprina*) and the Mediterranean Fruit Fly (*Ceratitis capitata*). The Buffalo Fly (*Siphona exigua*) is a serious stock pest in the Kimberley Division of the State, but so far has not become established in the cattle areas of the south. It is believed to have originally reached Australia on buffaloes introduced from Asia.

The common House Fly (*Musca domestica*) is widespread as is also the native Bush Fly (*Musca vetustissima*). Despite its common occurrence and extremely wide range, the natural breeding habits of the latter fly are not fully known.

Modern insecticides such as DDT, Dieldrin and the various organic phosphates gave outstanding control of various fly pests for several years. The widespread development of resistance in both housefly and blowfly populations has greatly complicated the matter, however, and drawn attention to the importance of preventive measures, such as sanitation in the case of houseflies, and the Mules operation and crutching in the case of the sheep blowfly.

The March flies (*Tabanidae*) are well represented but, although their blood-sucking habits render them annoying, both to livestock and humans, they are not a serious pest.

Of the many useful flies may be mentioned the Blowfly-like Tachinids which parasitize caterpillars, grasshoppers and other pests and the Bee Flies (*Bombyliidae*) which parasitize the eggs of other insects. The maggots of the Bombylid Fly (*Cyrtomorphia flaviscutellaris*) are commonly found in the egg pods of the Small Plague Grasshopper (*Austroicetes cruciata*).

Order Siphonaptera (Fleas)

A number of introduced as well as native fleas occur in this State. *Echidnophaga myrmecobii*, found originally on native mammals, is a very common parasite of rabbits in the drier parts of the State. The Fowl Stickfast Flea (*E. gallinacea*) closely resembles the former species but is mainly a pest of poultry and domestic animals. The Rat Flea (*Xenopsylla cheopis*), the Human Flea (*Pulex irritans*) and the Cat and Dog Fleas (*Ctenocephalides felis* and *C. canis*) are among the most important introduced species.

Order Lepidoptera (Moths, Butterflies, etc.)

The primitive Swift Moths (Hepialidae) are represented locally by a number of very beautiful forms. The larvae are wood borers but do not occur in sufficient numbers to constitute a serious forestry pest. Several large and striking members of the genus *Charagia* occur in the lower South-West.

A group of small native moths belonging to the family Crambidae and commonly known as Webworm Moths (*Hednota pedionoma*, *H. crypsichroa*, etc.) is a serious pest of cereal crops (excepting oats) and grass pastures. Depredations are controlled by planting on clean fallow, but the recent trend towards ley farming has greatly favoured these pests.

A family of considerable interest to the orchardist is the Eucosmidae, for to this group belong the Codling Moth (*Cydia pomonella*) and the Oriental Fruit Moth (*C. molesta*). Outbreaks of Codling Moth have occurred on a number of occasions, but drastic eradication measures have so far prevented this major apple pest from becoming permanently established and have given Western Australia the distinction of being the only large apple-producing country where the moth is not a major problem.

One of the best-represented families is the Noctuidae (Cutworms) which contains several important pests. Included under this heading are the Climbing Cutworm (*Heliothis punctigera*), the Tobacco Cluster Grub (*Prodenia litura*), the Rough Bollworm (*Earias huegeli*), the Common Cutworm (*Agrotis munda*) and the Army Worm (*Persectania ewingii*). The first three species are serious pests in the cotton areas of the north. One of the most remarkable members of the group is the Whistling Moth (*Hecatesia fenestrata*). The male of this species is active just at sunset and makes a loud clicking noise during its fast circling flight. The Fruit Sucking Moth (*Othreis materna*) also belongs to this group and causes heavy losses in citrus fruit grown around pastoral homesteads in the Kimberley and the North-West. In almost all cases where moths and butterflies are regarded as pests it is only the caterpillar stage which is destructive. The Fruit Sucking Moth, however, has a rasp-like proboscis capable of piercing orange and citrus skins and then sucking up the juice. Fortunately the creatures do not normally range to the citrus areas of the South-West.

Other common moth pests are the Cabbage Moth (*Plutella maculipennis*), the Potato Moth (*Phthorimaea operculella*) and the Apple Looper (*Chloroclystis laticostata*).

The beautiful *Carthaea saturnioides* with its large eye spots on the wings superficially resembles the Emperor Moths. Its range is restricted to south-west Australia and the creature is much prized by collectors.

The butterfly fauna of the State lacks many large and showy forms. Some of the northern species such as *Hypolimnas bolina nerina* are quite colourful but the State has nothing to compare with the conspicuous and beautiful species found in the tropics of eastern Australia.

The Blues (Lycaenidae) are well represented and the association of many larvae with ant nests renders the group a particularly interesting one.

The Skippers (Hesperiidae) are relatively drab-coloured butterflies with strong powers of flight. Over 20 species are recorded from the State and some forms are endemic to the South-West.

Only one butterfly is of economic importance and that is the introduced Small Cabbage White (*Pieris rapae*) which reached this State in 1943. It attacks cabbages, cauliflowers and related plants as well as one or two other strong-tasting herbs such as watercress. The butterfly belongs to the whites, or Pieridae, which group contains a number of native species. Several members of this family, including the introduced Cabbage White, display extraordinary powers of flight and the native Caper White (*Anaphaeis java*) has been observed to carry out mass migrations of remarkable proportions on the eastern side of the continent.

Order Hymenoptera (Bees, Wasps, Ants)

The Wood Wasps and Sirex Wasps (Siricidae) include several pests which have been established in New Zealand and Tasmanian pine forests. Imported timber (including four million super. feet of pre-fabricated housing material) has been fumigated from time to time following the location of infested material.

The Saw Flies (Tenthredinidae) are represented locally by a number of native forms. The larvae of the genus *Perga* may often be seen in caterpillar-like clusters amongst the foliage of eucalypts. An introduced Saw Fly (*Caliroa limacina*) is a common pest on pear and plum trees. The smaller parasitic wasps (Ichneumonids and Chalcids and their allies) are well represented and play an important role in combating many insect pests. Some attack caterpillars, some aphids and scale insects and others insect eggs, so that without their aid the problem of pest control would be even more difficult than at present.

The ant fauna (Formicidae) of the State is extremely varied. One of the best-known native species is the Meat Ant or Mound Ant (*Iridomyrmex detectus*) which often nests on gravel paths and road-sides. Among the most remarkable of the local ants may be listed *Camponotus inflatus*, the Honey-pot Ant of the interior, and *Myrmecia regularis* of the karri forest area which has the frog *Metacrinia nichollsi* as a tolerated guest in its nest. The Honey-pot Ant derives its name from the fact that certain individuals in the nest store honey until their abdomens become inflated to the size of grapes. This honey is then regurgitated to other ants as required. These ants were once prized by the natives as a food delicacy.

Two important introduced ant pests are the Argentine Ant (*Iridomyrmex humilis*) and the Singapore Ant (*Monomorium destructor*). The Argentine Ant was once widespread in the metropolitan area, Albany and Bunbury, with several other country outbreaks. The insect has been reduced in recent years, however, as a result of a large-scale control campaign. A five-year control scheme against the Ant, with provision for an annual expenditure of \$210,000 was inaugurated in 1954. The scheme involved the spraying with Dieldrin of all known infested areas, which were originally estimated to cover approximately 25,000 acres. During the course of the campaign further outbreaks were discovered, giving an estimated

total of 45,000 acres and, in consequence, a year's extension of the campaign was authorized by Parliament. As a result of this a total of over 44,000 acres was sprayed and the Ant menace was removed from the city and suburbs and most country districts. However, an area of almost impenetrable swamp country north of Perth still harbours the Ants. To prevent spread from this area and to deal with any survivals or later introductions, a "continuance scheme" financed from Consolidated Revenue was approved. Approximately 7,000 acres consisting of survivals and new infestations in metropolitan and country areas have been treated under this programme.

The Social Wasps (Vespidae) were once known only from the northern portion of the State. About 15 years ago, however, colonies of *Polistes variabilis* were located in various parts of the Perth suburban area and they have now extended to some of the orcharding districts in the Darling Range. How the introduction occurred is not known.

The Burrowing Wasps, including the Sand Wasps (Psammocharidae), the Flower Wasps (Thynnidae), the Hairy Flower Wasps (Scoliidae) and Solitary Ants (Mutillidae) are well represented. The latter are, of course, not true ants but the wingless females bear a superficial resemblance to ants which is further accentuated by their ability to inflict a painful sting. The Flower Wasps are particularly numerous and winged males carrying wingless females are common around flowering plants in the early summer. Of the "Solitary Ants" the black and white *Ephutomorpha cribricollis* is the best known. Most of the wasps mentioned are beneficial, for they store caterpillars and other insects in mud nests and underground burrows to serve as food for the wasp grubs.

The majority of native bees are solitary forms although some, like the Colletidae, often choose a common site for nest burrowing and hundreds of tunnels may be located close to one another.

The Leaf-cutting Bees (Megachilidae) often attract notice from their habit of cutting circular pieces from rose leaves and other foliage for use in nest construction.

The only native social bees belong to the genus *Trigona* which does not occur in the southern portions of the State.

CLASS ARACHNIDA (Spiders, Mites, Ticks, etc.)

Creatures grouped under the above heading are, of course, not true insects and will be dealt with only very briefly. Several forms are of considerable economic importance, as for example the Cattle Tick (*Boophilus microplus*) and the Fowl Tick (*Argas persicus*). The Cattle Tick is confined to the Kimberley Division and its range corresponds roughly with that of the Buffalo Fly. The Ornate Kangaroo Tick (*Amblyomma triguttatum*) is a common species. It is occasionally collected as an accidental parasite on domestic animals and man.

The most serious mite pest is the Red-legged Earth Mite (*Halotydeus destructor*) which is very destructive to young legumes and other seedlings. It may be particularly troublesome on subterranean clover pastures. Other mites of importance to orchardists and market gardeners are the spider mites (Tetranychidae) which include such cosmopolitan species as the Red Spider (*Tetranychus telarius*) and the Bryobia Mite (*Bryobia praetiosa*).

Spiders constitute a large group, most of which are useful on account of their insectivorous habits, although bites from some of the larger species may produce painful after-effects. The most dangerous local spider is the Red-backed Spider (*Latrodectus hasseltii*). This species, whose bite may even prove fatal, is easily recognized by the conspicuous red streak down the centre of the abdomen.

Scorpions of various kinds are widely distributed over the State and the larger ones may be able to inflict a painful sting. There is one record of a baby dying at Pemberton from the effects of scorpion venom but no other reports of serious after-effects are available and, generally speaking, the group is of little local importance.

THE EFFECT OF PESTICIDES ON BENEFICIAL FORMS OF LIFE

Nature lovers and conservationists in many parts of the world are concerned at the ever-increasing use of pesticides and the detrimental effects that many of these chemicals may have upon a wide range of wildlife. The indiscriminate use of pesticides can have serious effects upon many forms of wildlife and also present a grave hazard to public health. Unfortunately, however, these dangers have often been overstressed and many of the incidents recorded to support the banning of chemicals for pest destruction have either been based on false premises or taken out of context.

The largest single pest-control programme ever undertaken in Western Australia involved the Argentine Ant (see section *Order Hymenoptera* earlier in this Chapter). Thousands of gallons of Dieldrin have been used to treat infestations in many parts of south-west Australia. The view has been widely expressed that the removal of the Argentine Ant from large sections of the Perth metropolitan area has been responsible for a great increase in many household and garden pests, and particularly house flies. There is no doubt that, like most ants, the Argentine Ant is a scavenger and that consequently it would remove much material suitable for fly breeding and may devour some of the maggots themselves.

On the other hand, Dieldrin and Chlordane have been widely recommended for fly control and could be expected to reduce fly activity immediately after spraying. This actually occurred in many areas and although the house fly problem was quite intense during much of the main ant-spraying period, no evidence has been produced to actually link this fact with the campaign against the Argentine Ant.

As far as other pests are concerned, there is some evidence to suggest that certain caterpillars, spring-tails and perhaps cockroaches increased, possibly as a result of parasite destruction, but the picture was somewhat obscured by the fact that outbreaks were not always restricted to sprayed areas.

The reduction in certain insectivorous birds, particularly Willy Wagtails, was also alleged following the ant spraying but, although some deaths did occur where birds were noted to fly into the spray mist, the general bird population was not seriously affected.

Where heavy spraying was carried out in swamp country some water birds were unfortunately killed, and dead foxes, rats and snakes were also noted. Frogs suffered heavily, in both swamps and home gardens. The Burrowing Frog or Whoop Frog (*Heliophorus eyrei*), once common in metropolitan gardens, diminished greatly in numbers, probably due to Argentine Ant spraying.

It was anticipated that some temporary upsets in the natural balance might follow large-scale spraying of Dieldrin and Chlordane and indeed this matter was investigated during and after a preliminary experimental treatment at South Perth. Although, in some cases, the immediate results were quite spectacular there was nothing to suggest that such upsets would be permanent. In fact, conditions in most areas have apparently returned to normal, perhaps with the exception of the frog population, although the Whoop Frog can now be heard in most of its former haunts.

In order to minimize the chance of future trouble from the use of dangerous chemicals, all pesticides must be registered under the Health Act. It is provided that very dangerous chemicals may be banned entirely, while others may be limited in concentration and made available to skilled operators only. Residue checks on foodstuffs and other sources of contamination are also undertaken.

FURTHER SOURCES OF INFORMATION

The difficulties confronting anyone trying to review in a few pages the entomological fauna of such a large State as Western Australia will be better appreciated if it is remembered that in the *Western Australian Year-Book* for 1898-99 the late A. M. Lea expressed the opinion that there were about 30,000 species of insects indigenous to this State. Many additions have been made in the last sixty years and one is faced with the problem of deciding which creatures warrant special mention and which must be excluded for lack of space. The general reader interested in consulting other short reviews of the local insect fauna is referred to A. M. Lea's article in the 1898-99 Year Book under the title of "The Insects of Western Australia"; in the Year Book for 1900-01 the late H. M. Giles wrote "A Glimpse of Western Australian Entomology."

Two short summaries have also appeared in conjunction with science conferences in this State. The Handbook and Review published for the 1926 meeting of the Australasian Association for the Advancement of Science contained an article by L. J. Newman and the Handbook for the 1947 meeting of the Australian and New Zealand Association for the Advancement of Science printed a short summary of the local insects by L. Glauret.

Readers interested in more technical summaries are referred to Professor G. E. Nicholl's "The Composition and Biographical Relation of the Fauna of Western Australia" (*A.N.Z.A.A.S.*, Vol. XXI, 1933, p. 93), the relevant volumes of *Die Fauna Südwest-Australiens* by Michaelsen and Hartmeyer, 1907-1930, and the report of the Swedish expedition under Dr. E. Mjöberg.

More detailed information relating to the forms of economic importance will be found in the publications of the Western Australian Department of Agriculture.

Books covering the general aspects of Australian Entomology include:

BARRETT, C. and BURNS, A. N. (1951)—*Butterflies of Australia and New Guinea*. N. H. Seward Pty. Ltd., Melbourne. 187 pp.

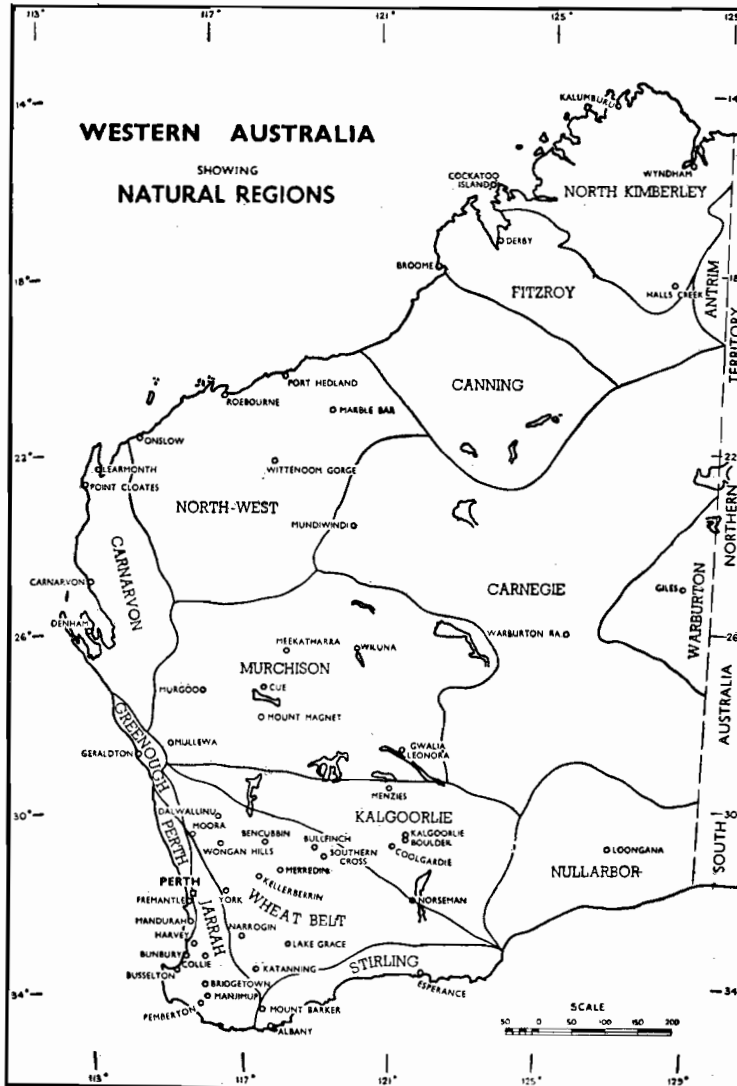
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- McKEOWN, K. C. (1945)—*Australian Insects*. An Introductory Handbook. Published by R.Z.S. of N.S.W., Sydney. 303 pp.
- MAIN, Barbara York (1964)—*Spiders of Australia*. Jacaranda Press, Brisbane. 124 pp.
- RIEK, Edgar (1963)—*Insects of Australia*. Jacaranda Press, Brisbane. 128 pp.
- TILLYARD, R. J. (1926)—*The Insects of Australia and New Zealand*. Angus and Robertson Ltd., Sydney. 560 pp.
- WATERHOUSE, G. A. (1932)—*What Butterfly is That*. A Guide to the Butterflies of Australia. Angus and Robertson Ltd., Sydney. 291 pp.
- WATSON, J. A. L. (1962)—*The Dragonflies (Odonata) of South-Western Australia*. Western Australian Naturalists' Club, Perth. 72 pp.

PART 6—NATURAL REGIONS

Contributed by

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The physical features, geology, climate, flora and fauna of Western Australia have been outlined earlier in this Chapter and the subdivision of the State into "natural regions" may now be considered. A Natural Region is one clearly marked off from neighbouring regions by topographical, geological, climatic, or biological conditions, or by combinations of these, so that, as far as Man's activities are concerned, they have different economic possibilities. The subdivision of Western Australia into Natural Regions (see map below) has been described by E. de C. Clarke (*Jour. Roy. Soc. West. Aust.*, vol. XII, pp. 117-132) and a summary of the characteristics of these different Natural Regions (reprinted by courtesy of the University of Western Australia Press from Clarke, Prider, and Teichert: *Elements of Geology for Western Australian Students*) is given in the accompanying table.



NATURAL REGIONS OF WESTERN AUSTRALIA

(after E. de C. Clarke, *Jour. Roy. Soc. of West. Aust.* vol. XXII)

CHARACTERISTICS OF THE NATURAL REGIONS OF WESTERN AUSTRALIA

NATURAL REGION	TOPOGRAPHY	GEOLOGY	RAINFALL	WATER SUPPLY (a)	VEGETATION, ETC.
ANTRIM (geographic)	Tableland	Cambrian sediments and lavas	Summer, monsoonal, 20 in. to 40 in.	Catchments, wells and artesian	Grassland and savannah
NORTH KIMBERLEY (geographic)	Dissected stony tableland	Younger Precambrian	Summer, monsoonal, 30 in. or more	Streams, springs, catchments	Luxuriant in valleys, sparse on tableland
FITZROY (chief river)	Very wide valleys and low hills	Palaeozoic (largely Permian)	Summer, monsoonal, 20 in. to 30 in.	Catchments and artesian	Grassland and savannah
CANNING (A. W. Canning, surveyor and explorer)	Sand ridges and table-top hills	Palaeozoic and Mesozoic	Summer, 15 in. or less	Springs, pools, artesian water? (undeveloped)	"Spinifex" (species of <i>Triodia</i>) and desert shrubs
CARNEGIE (David Carnegie, explorer)	Sand ridges and table-top hills	? Tertiary (sandy) and ? Younger Precambrian	Variable and unreliable, probably about 5 in.	Catchments	"Spinifex" and desert shrubs
WARBURTON (Warburton Range)	Hills (some over 3,000 feet) separated by sandy country	Older Precambrian	Variable and unreliable, perhaps about 5 in. Probably better than Carnegie Region owing to high hills	Catchments, some springs	"Mulga" (species of <i>Acacia</i>) and "Spinifex"
NORTH-WEST (common usage)	Rugged hills; rivers in well-defined valleys	Younger and Older Precambrian. Many economic minerals	Variable, unreliable, 15 in. or less	Wells, catchments, pools	"Spinifex," few shrubs and trees
MURCHISON (common usage)	Ridge hills and breakaways. Rivers in shallow beds. Salt "lakes"	Older Precambrian. Economic minerals especially gold	Summer or winter, unreliable, 10 in. or less	Wells (potable ground-water)	"Mulga." Eucalypts scarce except along rivers

KALGOORLIE (chief town)	Less hilly than Murchison. Salt "lakes." No defined water-courses except salt lake system	Like Murchison Region	Mainly winter, unreliable, 10 in. or less	Catchments. Ground water too salt for use	Eucalypt forest, especially Salmon Gum (<i>E. salmonophloia</i>), Gimlet (<i>E. salubris</i>) and Red Morrel (<i>E. longicornis</i>)
WHEAT BELT (common usage)	Same as Kalgoorlie Region	Older Precambrian, but few "greenstones"	Winter, reliable, 10 in. to 20 in.	Similar to Kalgoorlie Region, but ground water potable in many places; therefore wells frequent	Eucalypt forest — Salmon Gum, Gimlet, and Morrel
JARRAH (chief timber)	More dissected than Wheat Belt Region, especially near Darling Scarp	Like Wheat Belt Region but there is an extensive cuirass of laterite	Winter, reliable, 25 in. to 40 in.	Streams and springs	Forest of Jarrah (<i>E. marginata</i>), Wandoo (<i>E. retanica</i>), Karri (<i>E. diversicolor</i>) and Marri (<i>E. calophylla</i>)
CARNARVON (chief town)	Elevated plain with table-top hills	Palaeozoic, Mesozoic, Tertiary and later	Summer or winter, very unreliable, about 10 in.	Artesian in many places. Catchments, pools	Sparse scrub in north, denser in south
GREENOUGH (river)	Sandstone tableland	Mesozoic and older	Winter, 15 in. to 20 in.	Springs, wells and catchments	Scrub
PERTH (chief town)	Coastal plain	Mesozoic and later	Winter, reliable, 20 in. to 35 in.	Springs, wells, artesian	Scrub, swamp and forest
STIRLING (prominent range)	Undulating tableland with abrupt ranges	Siliceous Tertiary sediments with inliers of younger and older Precambrian	Winter, 15 in. or less	Catchments, stream water generally too salt for use	Heath and swamp
NULLARBOR (geographic)	Tableland, no hills	Calcareous Tertiary sediments	Winter, 10 in. or less	Catchments. Sub-artesian	Poor grassland

(a) "Wells" refers to those that draw on ground water, but are not artesian. "Catchments" refers to water collected on the surface—naturally in gnammas holes, artificially by conserving the run-off. "Pools" refers to pools in watercourses and includes rock holes.

CHAPTER III—CONSTITUTION AND GOVERNMENT

Western Australia is one of the six federated sovereign States which, together with the Northern Territory and the Australian Capital Territory, constitute the Commonwealth of Australia. Thus, in addition to having its own Parliament and executive government, it is represented in the federal legislature. As well as government at the Federal and State levels, there is a third system, that of local government, which functions through City Councils, Town Councils and Shire Councils.

OUTLINE OF CONSTITUTIONAL DEVELOPMENT

A Legislative Council was established in Western Australia shortly after its foundation as a Crown Colony and sat for the first time in February, 1832. The Council was non-elective and consisted of the Governor and four senior officials. In 1839, membership was increased to nine when the Governor nominated four unofficial members. Additional appointments were made from time to time until the dissolution of the nominee Legislative Council in 1870 with the inauguration of representative government as provided for in the Australian Colonies Government Act of 1850. This Act, which enabled the establishment of representative governments in other Australian Colonies, withheld the privilege from Western Australia until such time as the Colony should be able to defray all costs of government from its own revenues, and it was not until 1870 that it was felt that Western Australia was able to satisfy this condition. The new Legislative Council, elections for which took place in October of that year, consisted of twelve elected members, three nominees and three officials. The number of members of the Council was increased in 1874 to 21, of whom 14 were elected, in 1882 to 24, of whom 16 were elected and in 1886 to 26, comprising 17 elected members, five nominees and four officials.

Following the passage by the Legislative Council of a Constitution Act in 1889 and subsequent representations made in London by delegates sent from the Colony, responsible government was granted to Western Australia by an Imperial Act assented to on the 15th August, 1890. Provision was made for the establishment of a Parliament of two Houses, to be known as the "Legislative Council" and the "Legislative Assembly," to replace the old Council. Proclamation of responsible government was made in Perth on the 21st October, 1890 and election of the thirty members of the Legislative Assembly took place in November and December. The fifteen members of the Legislative Council were nominated by the Governor, as provided in the Constitution Act, and the Parliament was officially opened on the 30th December, 1890. The Constitution Act of 1889, while prescribing a Council which was originally nominative, contained a provision that, after the expiration of six years or on the population of the Colony reaching 60,000, the Council should become fully elective. The required population was attained in 1893 and an amendment to the Act in that year enabled the election of 21 members to the Legislative Council, and at the same time increased the Legislative Assembly to 33 members. By an amendment of 1899, membership of the Legislative Council was raised to 30 and of the Legislative Assembly to 50. Provision was made for the Legislative Assembly to be increased to 51 members by the Constitution Acts Amendment Act (No. 2), which came into operation by proclamation on the 12th November, 1965. The increase in numbers, however, did not become effective until the State general election in 1968.

On the 1st January, 1901, Western Australia and the five other Australian Colonies were federated under the name of the "Commonwealth of Australia," authority for the union having been given by the Commonwealth of Australia Constitution Act which was passed by the British Parliament in 1900. By a provision of the Constitution Act the constituent parts of the Commonwealth previously designated "Colonies" became known as "States." Under the Constitution, powers are divided between the Parliaments of the Commonwealth and of the States by conferring power in respect of specific subjects on the Commonwealth either exclusively or jointly with the States, leaving the remaining powers to the States.

Procedure in both Commonwealth and State Parliaments is based on British practice. The legislatures consist of the Sovereign, represented by the Governor-General of Australia or the Governor of the State, and the elected members. In the field of executive government the British "Cabinet" system has also been adopted. The members of the Cabinets must hold seats in the legislature as elected members. The Cabinet is responsible to the Parliament and continues in office only while holding the confidence of the Parliament. All Cabinet Ministers are members of the Executive Council, the supreme group of advisers to the Crown, and the Cabinet thus provides the executive government of the Commonwealth or the State. The Executive Council is presided over by the Governor-General of Australia or the Governor of the State and at its meetings, which are formal and official in character, the decisions

of the Cabinet are given legal form, appointments are made, resignations accepted, proclamations issued and regulations approved.

VICE-REGAL REPRESENTATION

The Governor-General of Australia

Under the Commonwealth Constitution, ultimate executive power is vested in the Crown and is exercised by the Governor-General as the direct representative of the Sovereign. Appointment to the office is made by the Crown after consultation with the Prime Minister of the Commonwealth. The present Governor-General is His Excellency the Right Honourable Baron Casey, P.C., G.C.M.G., C.H., D.S.O., M.C., K.St.J., who was sworn in on the 22nd September, 1965. During the absence from Australia of the Governor-General it is usual for the senior among the State Governors to be appointed Administrator.

The Governor of Western Australia

The Governor of Western Australia is the personal representative of the Sovereign in the State and exercises the powers of the Crown in State matters. He is the titular head of the Government and performs the official and ceremonial functions attaching to the Crown. The present Governor of Western Australia is His Excellency Major-General Sir Douglas Kendrew, K.C.M.G., C.B., C.B.E., D.S.O. In the event of the Governor's absence from Western Australia the Lieutenant-Governor of the State is appointed Administrator. If there is no Lieutenant-Governor it is customary for the Chief Justice of Western Australia to be appointed Administrator.

The last Governor of Western Australia as a Colony was Lieutenant-Colonel Sir Gerard Smith, K.C.M.G., whose term of office expired on the 29th June, 1900 and the first Governor of the State was Captain Sir Arthur Lawley, K.C.M.G., who was sworn in on the 1st May, 1901. The names and dates of assumption of office of Governors, Lieutenant-Governors and Administrators from that time are shown in the following list. The Honourable Sir John Dwyer, K.C.M.G. was commissioned as Lieutenant-Governor on the 8th April, 1952 and, from that date until his death on the 25th August, 1966, performed the functions of Administrator of the State during absences of the Governor.

GOVERNORS, LIEUTENANT-GOVERNORS AND ADMINISTRATORS FROM 1901 (a)

Name and Office	Date of Assumption of Office
Captain Sir Arthur Lawley, K.C.M.G., Governor	1901—1st May
Sir Edward Stone, Administrator	1902—14th August
Admiral Sir Frederick Bedford, G.C.B., Governor	1903—24th March
Sir Edward Stone, Administrator	1909—23rd April
Sir Gerald Strickland, K.C.M.G., Governor	1909—31st May
Sir Edward Stone, Administrator	1913—4th March
Major-General Sir Harry Barron, K.C.M.G., C.V.O., Governor	1913—17th March
Sir Edward Stone, K.C.M.G., Administrator	1917—27th February
Rt. Hon. Sir William Ellison-Macartney, P.C., K.C.M.G., Governor	1917—9th April
Sir Francis Newdigate-Newdegate, K.C.M.G., Governor	1920—9th April
Sir Robert McMillan, Administrator	1924—17th June
Colonel Sir William Campion, K.C.M.G., D.S.O., Governor	1924—28th October
Sir Robert McMillan, K.C.M.G., Lieutenant-Governor and Administrator	1929—7th January
Colonel Sir William Campion, K.C.M.G., D.S.O., Governor	1929—7th May
Sir John Northmore, K.C.M.G., Administrator	1931—9th June
Sir John Northmore, K.C.M.G., Lieutenant-Governor and Administrator	1932—30th June
Hon. Sir James Mitchell, K.C.M.G., Lieutenant-Governor	1933—11th July
Hon. Sir James Mitchell, G.C.M.G., Governor	1948—5th October
Hon. Sir John Dwyer, K.C.M.G., Administrator	1951—1st July
Hon. Albert Asher Wolff, Administrator	1951—7th August
Hon. Sir John Dwyer, K.C.M.G., Administrator	1951—28th August
Lieutenant-General Sir Charles Gairdner, K.C.M.G., K.C.V.O., K.B.E., C.B., Governor	1951—6th November
Hon. Sir John Dwyer, K.C.M.G., Lieutenant-Governor and Administrator	1963—27th June
Major-General Sir Douglas Kendrew, K.C.M.G., C.B., C.B.E., D.S.O., Governor	1963—25th October

(a) The names of the successive holders of these offices from the foundation of the Colony are shown on page 65 of the *Official Year Book of Western Australia, No. 1—1957 (New Series)*.

THE FEDERAL PARLIAMENT

The legislative power of the Commonwealth is vested in a Federal Parliament which consists of Her Majesty the Queen (represented by the Governor-General), a Senate and a House of Representatives. Subject to the Constitution, the Commonwealth Parliament is empowered to make laws concerning, among other things, defence, external affairs, customs and excise, trade and commerce with other countries and among the States, taxation, borrowing of money on public credit, currency and coinage, banking, insurance, navigation, fisheries, quarantine, posts and telegraphs, census and statistics, immigration, naturalization and aliens, copyrights and trade marks, bankruptcy, marriage, divorce and matrimonial causes, social services, and conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State. The Constitution provides that, when a law of a State is inconsistent with a law of the Commonwealth, the Commonwealth law shall prevail and the State law shall, to the extent of the inconsistency, be invalid.

The qualifications necessary for membership of the Commonwealth Parliament and for voting at federal elections are described in the *Official Year Book of the Commonwealth of Australia*.

The payment of allowances to Senators and Members of the House of Representatives is provided for in the Constitution and a superannuation scheme is established under the provisions of the Parliamentary Retiring Allowances Act 1948-1966.

The Senate

The Senate consisted originally of 36 members, six Senators being returned from each State. The Parliament is authorized by the Constitution to increase or decrease the number of members. The growth of the population since Federation having been such as to warrant a considerable enlargement of the Parliament, a Representation Act was passed in 1948 to provide for increased membership by raising from six to ten the number of Senators from each State. At the same time the preferential system of counting of votes in elections for the Senate was altered by the Commonwealth Electoral Act to one of proportional representation, a summarized description of which is given in the *Official Year Book of the Commonwealth of Australia*, No. 38, pages 82-83.

Members are elected on the basis of adult suffrage by the people of the State which they represent. As provided by the Commonwealth Electoral Act 1918-1966, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aboriginal natives, although entitled to enrol, are not required to do so. Voting is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on the 14th November, 1925. The term of office of a Senator is normally six years. One-half of the members retire at the end of every third year and are eligible for re-election.

The Western Australian membership of the Senate at the 31st December, 1967, is shown in the following table.

WESTERN AUSTRALIAN MEMBERS OF THE SENATE (a)

Due to Retire on 30th June, 1968		Due to Retire on 30th June, 1971	
Name	Political Party	Name	Political Party
Prowse, E. W.	C.P.	Branson, G. H.	Lib.
Sim, J. P.	Lib.	Cant, H. G. J.	A.L.P.
Tangney, Dorothy M.	A.L.P.	Drake-Brockman, T. C., D.F.C.	C.P.
Wilkinson, L. D.	A.L.P.	Scott, M. F.	Lib.
Willesee, D. R.	A.L.P.	Wheeldon, J. M.	A.L.P.

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = Liberal Party.

(a) See *Appendix*.

The House of Representatives

State membership of the House of Representatives is on a population basis with the proviso that each State shall have at least five members. The Constitution provides further that the number of members of the House of Representatives shall be, as nearly as practicable, double the number of Senators. With the enlargement of the Senate from 36 to 60 members, the membership of the House of Representatives was increased, from the date of the 1949 elections, from 74 to 121, not including a member for the Australian Capital Territory, which achieved representation for the first time at this election, and a member for the Northern Territory, which had been represented since 1922. Western Australia's population growth had been such as to necessitate an increase in representation from five to eight, and this number was raised to nine in 1955 as a result of a redistribution following the Census of the 30th June, 1954. At the same time, the total number of members of the House of Representatives was increased to 122, excluding the two members for the Territories.

Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years, by the people of the electorate which they represent. As provided by the Commonwealth Electoral Act 1918-1966, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aboriginal natives, although entitled to enrol, are not required to do so. Voting is on the preferential system and is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on the 14th November, 1925.

Elections for the House of Representatives were held on the 26th November, 1966. All Western Australian electorates were contested, but the sitting member was returned in each case. The following table shows the Western Australian membership of the House at the 31st December, 1967.

WESTERN AUSTRALIAN MEMBERS OF THE HOUSE OF REPRESENTATIVES

Electorate	At 31st December, 1967	
	Name	Political Party
Canning	Hallett, J. M.	C.P.
Curtin	Hasluck, Rt. Hon. P. M. C.	Lib.
Forrest	Freeth, Hon. Gordon	Lib.
Fremantle	Beazley, K. E.	A.L.P.
Kalgoorlie	Collard, F. W.	A.L.P.
Moore	Maisey, D. W.	C.P.
Perth	Chaney, Hon. F. C., A.F.C.	Lib.
Stirling	Webb, C. H.	A.L.P.
Swan	Cleaver, Richard	Lib.

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = Liberal Party.

THE STATE PARLIAMENT

The Crown, represented by the Governor, and the Parliament, comprising a Legislative Council and a Legislative Assembly, constitute the legislature of Western Australia.

Executive government is based, as in the case of the Commonwealth and in other States, on the system which evolved in Great Britain in the eighteenth century and which is generally known as the "Cabinet" system. The Cabinet consists of Ministers of the Crown chosen for the Ministry from members of Parliament belonging to the political party, or coalition of parties, which is in the majority in the Legislative Assembly. The Constitution requires that at least one of the Ministers be selected from members of the Legislative Council. In Western Australia, as in the other Australian States, the office of principal Minister is designated "Premier."

Since 1890, when responsible government was granted to Western Australia, there have been 23 separate Ministries as shown in the following table. No organized political party existed in the Colony until the formation of a Labour party in the 1890s. A Labour Ministry assumed office in 1904. As no previous Ministry had a specific party designation, the table has been annotated accordingly.

MINISTRIES FROM 1890

Name of Premier	Political Party	Date of Assumption of Office	Duration		
			Years	Months	Days
Forrest	(a)	1890—29th December	10	1	17
Throssell		1901—15th February	—	3	12
Leake		27th May	—	5	25
Morgans		21st November	—	1	2
Leake		23rd December	—	6	8
James	Labour	1902—1st July	2	1	9
Daglish		1904—10th August	1	—	15
Rason	Liberal	1905—25th August	—	8	12
Moore	"	1906—7th May	4	4	9
Wilson	"	1910—16th September	1	—	21
Scaddan	Labour	1911—7th October	4	9	20
Wilson	Liberal	1916—27th July	—	11	1
Lefroy	"	1917—28th June	1	9	20
Colebatch	"	1919—17th April	—	1	—
Mitchell	Nat. and C.P. (coalition)	17th May	4	10	30
Collier	Labour	1924—16th April	6	—	8
Mitchell	Nat. and C.P. (coalition)	1930—24th April	3	—	—
Collier	Labour	1933—24th April	3	3	27
Willcock	"	1936—20th August	8	11	11
Wise	"	1945—31st July	1	8	1
McLarty	L.C.L. and C.P. (coalition)	1947—1st April	5	10	22
Hawke	Labour	1953—23rd February	6	1	10
Brand	L.C.L. and C.P. (coalition)	1959—2nd April	Still in office (b)		

C.P. = Country Party. L.C.L. = Liberal and Country League. Nat. = Nationalist.

(a) No specific party designation. (b) As at 31st December, 1967.

The Constitution Act of 1889 provided for a Ministry of five members. This number was increased to six by an amendment to the Act in 1896, to eight by another amendment in 1927, and to ten by the Acts Amendment (Increase in Number of Ministers of the Crown) Act, 1950. The present Ministry consists of twelve members, as authorized by the Constitution Acts Amendment Act, 1965. The names of the Ministers and the portfolios held by them are shown in the following list.

THE MINISTRY AT 31st DECEMBER, 1967

Name of Minister	Title of Office
Hon. David Brand, M.L.A.	Premier, Treasurer and Minister for Tourists
Hon. Crawford David Nalder, M.L.A.	Deputy Premier and Minister for Agriculture and Electricity
Hon. Charles Walter Michael Court, O.B.E., M.L.A.	Minister for Industrial Development and the North-West
Hon. Edgar Henry Mead Lewis, M.L.A.	Minister for Education and Native Welfare
Hon. Arthur Frederick Griffith, M.L.C.	Minister for Mines and Justice, and Leader of the Government in the Legislative Council
Hon. William Stewart Bovell, M.L.A.	Minister for Lands, Forests and Immigration
Hon. Ross Hutchinson, D.F.C., M.L.A.	Minister for Works and Water Supplies
Hon. Leslie Arthur Logan, M.L.C.	Minister for Local Government, Town Planning and Child Welfare
Hon. James Frederick Craig, M.L.A.	Chief Secretary and Minister for Police and Traffic
Hon. Desmond Henry O'Neil, M.L.A.	Minister for Housing and Labour
Hon. Raymond James O'Connor, M.L.A.	Minister for Transport and Railways
Hon. Graham Charles MacKinnon, M.L.C.	Minister for Health and Fisheries and Fauna

The right to vote at parliamentary elections was extended to women by the Constitution Acts Amendment Act of 1899 and membership of either House was provided for by the Parliament (Qualification of Women) Act, 1920. The first woman member of any Australian Parliament was Mrs. Edith Dircksey Cowan, O.B.E., who was elected to the Legislative Assembly in March, 1921 as member for West Perth. Mrs. A. F. G. (later Dame Florence) Cardell-Oliver, M.L.A. for Subiaco, became the first woman Cabinet Minister in Australia when she joined the McLarty Ministry in 1947.

Payment of members was introduced in 1900 by a Payment of Members Act and a superannuation fund is established under the Parliamentary Superannuation Act, 1948-1964, which came into operation on the 1st January, 1949.

The Legislative Council

The Legislative Council consists of thirty members.

The Constitution Acts Amendment Act (No. 2), 1963 provides for the division of the State into fifteen Electoral Provinces each returning two Members instead of, as formerly, ten Provinces each returning three Members. The term of office of a Member continues to be six years, and one-half of the Members will retire every three years. The term of the ten Members who were due to retire in 1964 was extended to 1965. Of the ten Members who were due to retire in 1966, five were required to retire in 1965, and the term of the remaining five was extended to 1968. The fifteen members elected in 1965 will hold office until 1971, and the fifteen to be elected in 1968, until 1974.

The Act provides further for amendments to the qualifications necessary for election as a Member of the Legislative Council. The minimum requirement relating to length of residence in Western Australia is reduced from two years to one year, and the minimum age, from 30 years to 21 years. As a result, the qualifications of a candidate for election to the Legislative Council are that he or she shall be at least 21 years of age, shall have resided in Western Australia for a minimum of one year, be a natural-born or naturalized British subject, and be enrolled, or qualified for enrolment, as an elector. No person may hold office as a Member of the Legislative Council and a Member of the Legislative Assembly at the same time. A Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or a person who has been attainted or convicted of treason or felony may not be elected to the Legislative Council. The qualifications for election as a Member of the Legislative Council thus become identical with those necessary for election as a Member of the Legislative Assembly. By another provision of the Act, "the qualification of electors of members of the Legislative Council is that which is prescribed . . . as the qualification for electors of members of the Legislative Assembly". The possession of certain property qualifications is thus no longer required for enrolment as an elector of the Legislative Council.

The Electoral Act, 1907-1967 requires that to qualify for enrolment as an elector a person shall be at least 21 years of age, be a natural-born or naturalized British subject, shall have lived in the Commonwealth of Australia for six months continuously, and shall have lived in Western Australia for three months continuously and in the district for which he claims enrolment for a continuous period of one month immediately preceding the date of his claim. A person is disqualified from enrolment if he is of unsound mind, has been attainted of treason, has been convicted and is serving sentence for any offence punishable by imprisonment for one year or longer, is the holder of a temporary entry permit for the purposes of the Migration Act 1958-1966 (Commonwealth) or is a prohibited immigrant under that Act. Enrolment is compulsory under the Electoral Act Amendment Act, 1964 for all qualified persons except those who are aboriginal natives of Australia. Aboriginal natives, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and, as provided by the foregoing Act, is compulsory for all enrolled persons.

The Electoral Districts Act Amendment Act, 1963 provided for the appointment of Electoral Commissioners to make a redistribution of the State into fifteen Electoral Provinces, instead of ten Provinces as formerly. The Act required that the division be made on the basis of a Metropolitan Area; an Agricultural, Mining and Pastoral Area; and a North-West Area.

The Electoral Districts Act, 1947-1963 provided for the Electoral Commissioners to be the Chief Justice of Western Australia as Chairman, the Surveyor-General, and the Chief Electoral Officer. The Commissioners were appointed in terms of a Commission issued on the 5th March, 1964 and their report, together with maps showing the tentative proposals and the final determinations of the Commissioners, was published in an issue of the *Government Gazette of Western Australia* dated the 29th May, 1964.

The Electoral Districts Act, 1947-1963 was amended by the Electoral Districts Act Amendment Act, 1965. The amending Act, which came into operation on the 12th November, 1965 requires the Commission-

ers to adjust the boundaries of the fifteen Electoral Provinces having regard to their proposed division of the State into fifty-one Electoral Districts instead of fifty Districts as formerly. The Act requires that the division be made on a basis of a Metropolitan Area; an Agricultural, Mining and Pastoral Area; and a North-West-Murchison-Eyre Area.

It is provided that each Electoral Province shall consist, as far as possible, of complete and contiguous Electoral Districts as delineated for the purpose of representation in the Legislative Assembly. The fifty-one Electoral Districts in the State must be allocated among the several Areas, and Provinces within each Area, in the following way. The Metropolitan Area shall comprise five Provinces each containing at least four and not more than five Districts; the Agricultural, Mining and Pastoral Area, eight Provinces each containing three Districts; and the North-West-Murchison-Eyre Area, two Provinces each containing two Districts.

On the 11th March, 1966, the Commissioners published their proposals for the redivision of the State, at the same time inviting objections to the proposals. After considering the objections submitted, the Commissioners made their final report on the 1st July, 1966. This report, together with maps showing the final determinations of the Commissioners for the redivision and for the adjustment of the boundaries of the Electoral Provinces, was published in the *Government Gazette of Western Australia* dated the 21st July, 1966. The following list gives the names of the Electoral Provinces and the Electoral Districts, as finally determined, contained within each Province.

ELECTORAL PROVINCES AND ELECTORAL DISTRICTS

Electoral Province	Component Electoral Districts	Electoral Province	Component Electoral Districts
METROPOLITAN AREA			
Metropolitan	Cottesloe Floreat Nedlands Perth Subiaco	South Metropolitan	Cockburn East Melville Fremantle Melville
North Metropolitan	Balcatta Karrinyup Mount Hawthorn Mount Lawley Wembley	South-East Metropolitan	Canning Clontarf South Perth Victoria Park
North-East Metropolitan	Ascot Belmont Maylands Mirrabooka Swan		
AGRICULTURAL, MINING AND PASTORAL AREA			
Central	Avon Mount Marshall Northam	South-East	Boulder-Dundas Kalgoorlie Merredin-Yilgarn
Lower Central	Collie Katanning Narrogin	South-West	Blackwood Vasse Warren
Lower West	Bunbury Murray Wellington	Upper West	Geraldton Greenough Moore
South	Albany Roe Stirling	West	Dale Darling Range Toodyay
NORTH-WEST-MURCHISON-EYRE AREA			
Lower North	Gascoyne Murchison-Eyre	North	Kimberley Pilbara

A conjoint election for the Legislative Council and the Legislative Assembly took place on the 20th February, 1965. The Legislative Council election was held for the purpose of filling fifteen vacancies, ten of which were caused by the expiration of the extended term of office of Members normally due to retire in 1964, the remainder being due to the curtailment of the term of five of the ten Members normally due to retire in 1966. The following table shows the composition of the Legislative Council at the 31st December, 1967.

MEMBERS OF THE LEGISLATIVE COUNCIL AT 31st DECEMBER, 1967

Name	Political Party	Electoral Province
DUE TO RETIRE IN 1968 (a)		
Diver, Hon. L. C.	C.P.	Central
Dolan, Hon. John	A.L.P.	South-East Metropolitan
Heenan, Hon. E. M.	A.L.P.	Lower North
Logan, Hon. L. A.	C.P.	Upper West
MacKinnon, Hon. G. C.	L.C.L.	Lower West
Robinson, Hon. H. R.	L.C.L.	North Metropolitan
Strickland, Hon. H. C.	A.L.P.	North
Stubbs, Hon. R. H. C.	A.L.P.	South-East
Thompson, Hon. Ronald	A.L.P.	South Metropolitan
Thompson, Hon. S. T. J.	C.P.	Lower Central
Thomson, Hon. J. M.	C.P.	South
Watson, Hon. Sir Keith, K.B.	L.C.L.	Metropolitan
White, Hon. F. R. (b)	C.P.	West
Willesee, Hon. W. F.	A.L.P.	North-East Metropolitan
Willmott, Hon. F. D.	L.C.L.	South-West
DUE TO RETIRE IN 1971 (a)		
Abbey, Hon. C. R.	L.C.L.	West
Baxter, Hon. N. E.	C.P.	Central
Brand, Hon. G. E. D.	L.C.L.	Lower North
Ferry, Hon. V. J., D.F.C.	L.C.L.	South-West
Garrigan, Hon. J. J.	A.L.P.	South-East
Griffith, Hon. A. F.	L.C.L.	North Metropolitan
Griffiths, Hon. C. E.	L.C.L.	South-East Metropolitan
Heitman, Hon. Jack	L.C.L.	Upper West
Hislop, Hon. J. G., M.B., Ch.B., F.R.C.P., F.R.A.C.P.	L.C.L.	Metropolitan
House, Hon. E. C., D.F.C., D.F.M.	C.P.	South
Hutchison, Hon. Ruby F.	A.L.P.	North-East Metropolitan
Lavery, Hon. F. R. H.	A.L.P.	South Metropolitan
McNeill, Hon. Neil, B.Sc. (Agric.)	L.C.L.	Lower West
Perry, Hon. T. O.	C.P.	Lower Central
Wise, Hon. F. J. S.	A.L.P.	North

SUMMARY

Australian Labor Party (A.L.P.)	10
Country Party (C.P.)	8
Liberal and Country League (L.C.L.)	12

(a) Section 8 of the Constitution Acts Amendment Act, 1899-1965 provides that a retiring member shall vacate his seat on the 21st May in the year of retirement. (b) Elected at by-election held 21st October, 1967 to fill vacancy caused by death of Hon. A. R. Jones on 3rd September, 1967.

The Legislative Assembly

At the 31st December, 1967 there were 50 members of the Legislative Assembly, each member representing one of the 50 Electoral Districts into which the State was divided for the purpose. Members are elected for the duration of the Parliament, which is limited to three years.

A candidate for election must have resided in Western Australia for twelve months, be at least 21 years of age, be a natural-born or naturalized British subject, and be enrolled, or qualified for enrolment, as an elector at Legislative Assembly elections. No person is qualified to be a Member of the Legislative Assembly if he is a Member of the Legislative Council, a Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or has been attainted or convicted of treason or felony.

The qualifications and disqualifications applying to enrolment as an elector of the Legislative Assembly are the same as those prescribed for electors of the Legislative Council and enumerated in the preceding section *The Legislative Council*. As provided by the Electoral Amendment Act, 1919 enrolment is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aboriginal natives, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and is compulsory for all enrolled persons as provided by the Electoral Act Amendment Act, 1936.

The following table shows the membership of the Legislative Assembly before the elections held on the 20th February, 1965, and at the 31st December, 1967.

MEMBERS OF THE LEGISLATIVE ASSEMBLY

Electoral District	Before Election of 20th February, 1965		At 31st December, 1967	
	Name	Political Party	Name	Political Party
Albany	Hall, Jack	A.L.P.	Hall, Jack	A.L.P.
Avon	Gayfer, H. W.	C.P.	Gayfer, H. W.	C.P.
Balcatta	Graham, Hon. H. E.	A.L.P.	Graham, Hon. H. E.	A.L.P.
Bayswater	Toms, J. M.	A.L.P.	Toms, J. M.	A.L.P.
Beeloo	Jamieson, C. J.	A.L.P.	Jamieson, C. J.	A.L.P.
Belmont	Hegney, James	A.L.P.	Hegney, James	A.L.P.
Blackwood	Hearman, Hon. J. M.	L.C.L.	Hearman, Hon. J. M.	L.C.L.
Boulder-Eyre	Moir, A. M.	A.L.P.	Moir, A. M.	A.L.P.
Bunbury	Williams, M. C.	L.C.L.	Williams, M. C.	L.C.L.
Canning	May, D. G.	A.L.P.	Elliott, R. M.	L.C.L.
Claremont	Crommelin, H. W.	L.C.L.	Crommelin, H. W.	L.C.L.
Cockburn	Curran, Henry	A.L.P.	Curran, Henry	A.L.P.
Collie	May, Harry	A.L.P.	May, Harry	A.L.P.
Cottesloe	Hutchinson, Hon. Ross, D.F.C.	L.C.L.	Hutchinson, Hon. Ross, D.F.C.	L.C.L.
Dale	Wild, Hon. G. P., M.B.E.	L.C.L.	Rushton, E. C.	L.C.L.
Darling Range	Dunn, K. W.	L.C.L.	Dunn, K. W.	L.C.L.
East Melville	O'Neil, D. H.	L.C.L.	O'Neil, Hon. D. H.	L.C.L.
Fremantle	Fletcher, H. A.	A.L.P.	Fletcher, H. A.	A.L.P.
Gascoyne	Norton, Daniel	A.L.P.	Norton, Daniel	A.L.P.
Geraldton	Sewell, W. H.	A.L.P.	Sewell, W. H.	A.L.P.
Greenough	Brand, Hon. David	L.C.L.	Brand, Hon. David	L.C.L.
Kalgoorlie	Evans, T. D.	A.L.P.	Evans, T. D.	A.L.P.
Karrinyup	Nimmo, L. C.	L.C.L.	Nimmo, L. C.	L.C.L.
Katanning	Nalder, Hon. C. D.	C.P.	Nalder, Hon. C. D.	C.P.
Kimberley	Rhatigan, J. J.	A.L.P.	Rhatigan, J. J.	A.L.P.
Maylands	Oldfield, E. P.	A.L.P.	Marshall, R. J. P.	L.C.L.
Melville	Tonkin, Hon. J. T.	A.L.P.	Tonkin, Hon. J. T.	A.L.P.
Merredin-Yilgarn	Kelly, Hon. L. F.	A.L.P.	Kelly, Hon. L. F.	A.L.P.
Moore	Lewis, Hon. E. H. M.	C.P.	Lewis, Hon. E. H. M.	C.P.
Mount Hawthorn	Hegney, Hon. William, A.A.S.A.	A.L.P.	Hegney, Hon. William, A.A.S.A.	A.L.P.
Mount Lawley	O'Connor, R. J.	L.C.L.	O'Connor, Hon. R. J.	L.C.L.
Mount Marshall	Cornell, G. M.	C.P.	McPharlin, W. R. (a)	C.P.
Murchison	Burt, R. P. S.	L.C.L.	Burt, R. P. S.	L.C.L.
Murray	Runciman, Ewart	L.C.L.	Runciman, Ewart	L.C.L.
Narrogin	Manning, W. A., A.A.S.A., A.C.I.S.	C.P.	Manning, W. A., A.A.S.A., A.C.I.S.	C.P.
Nedlands	Court, Hon. C. W. M., O.B.E.	L.C.L.	Court, Hon. C. W. M., O.B.E.	L.C.L.
Northam	Hawke, Hon. A. R. G.	A.L.P.	Hawke, Hon. A. R. G.	A.L.P.
Perth	Heal, Stanley	A.L.P.	Durack, P. D., LL.B., B.C.L. (Oxon.)	L.C.L.
Pilbara	Bickerton, A. W.	A.L.P.	Bickerton, A. W.	A.L.P.
Roe	Hart, T. G.	C.P.	Young, W. G. (b)	C.P.
South Perth	Grayden, W. L.	L.C.L.	Grayden, W. L.	L.C.L.
Stirling	Mitchell, C. C. B.	C.P.	Mitchell, C. C. B.	C.P.
Subiaco	Guthrie, H. N.	L.C.L.	Guthrie, H. N.	L.C.L.
Swan	Brady, J. J.	A.L.P.	Brady, J. J.	A.L.P.
Toodyay	Craig, Hon. J. F.	C.P.	Craig, Hon. J. F.	C.P.
Vasse	Bovell, Hon. W. S.	L.C.L.	Bovell, Hon. W. S.	L.C.L.
Victoria Park	Davies, Ronald	A.L.P.	Davies, Ronald	A.L.P.
Warren	Rowberry, J. N.	A.L.P.	Rowberry, J. N.	A.L.P.
Wellington	Manning, I. W.	L.C.L.	Manning, I. W.	L.C.L.
Wembley	Henn, G. G., M.R.C.S., L.R.C.P.	L.C.L.	Henn, G. G., M.R.C.S., L.R.C.P.	L.C.L.
SUMMARY	Australian Labor Party (A.L.P.)	24	Australian Labor Party (A.L.P.)	21
	Country Party (C.P.)	8	Country Party (C.P.)	8
	Liberal and Country League (L.C.L.)	18	Liberal and Country League (L.C.L.)	21
	TOTAL	50	TOTAL	50

(a) Elected at by-election held 2nd September, 1967 to fill vacancy caused by death of Mr. G. M. Cornell on 6th July, 1967.
 (b) Elected at by-election held 2nd September, 1967 to fill vacancy caused by resignation of Mr. T. G. Hart as from 30th June, 1967.

ELECTIONS, ELECTORS ON ROLL AND VOTES RECORDED

The Federal Parliament

General elections for the House of Representatives were held on the 26th November, 1966. The Liberal-Country Party Government, led by the Right Honourable H. E. Holt, M.P., was returned to office with a majority of 40 seats.

Elections for the Senate took place on the 5th December, 1964. As a result, Government representation in the Senate from the 1st July, 1965 was reduced from 31 to 30. The Government's representation was reduced to 29 from the 26th November, 1966 following elections held on that date to fill a number of casual vacancies in the Senate.

FEDERAL PARLIAMENT—ELECTORS ON ROLL AND VOTES RECORDED (a)

Electoral Division	Number of Electors Enrolled			Number of Electors who Voted			Percentage of Enrolled Electors who Voted			Number of Informal Ballot Papers
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	
HOUSE OF REPRESENTATIVES—GENERAL ELECTIONS OF 26th NOVEMBER, 1966										
Canning	23,426	21,845	45,271	22,291	20,825	43,116	95.15	95.33	95.24	1,951
Curtin	19,914	24,339	44,253	18,949	22,917	41,866	95.15	94.16	94.61	1,580
Forrest	22,716	21,294	44,010	21,831	20,486	42,317	96.10	96.21	96.15	1,524
Fremantle	27,815	29,318	57,133	26,201	28,296	54,497	94.20	96.51	95.39	2,135
Kalgoorlie	19,586	16,055	35,641	17,114	14,826	31,940	87.38	92.35	89.62	1,020
Moore	23,391	21,652	45,043	22,210	20,674	42,884	94.95	95.48	95.21	1,502
Perth	14,607	16,179	30,786	13,743	15,009	28,752	94.09	92.77	93.39	2,046
Stirling	35,205	37,264	72,469	33,276	35,849	69,125	94.52	96.20	95.39	2,797
Swan	27,774	30,717	58,491	26,140	28,933	55,073	94.12	94.19	94.16	1,963
Total— Western Australia	214,434	218,663	433,097	201,755	207,815	409,570	94.09	95.04	94.57	16,518

SENATE—ELECTION OF 5th DECEMBER, 1964 (a)

Canning	22,212	20,503	42,715	21,013	19,347	40,360	94.60	94.36	94.49	2,636
Curtin	19,552	23,353	42,905	18,460	21,959	40,419	94.41	94.03	94.21	2,080
Forrest	22,061	20,587	42,648	21,100	19,803	40,903	95.64	96.19	95.91	2,536
Fremantle	26,031	27,428	53,459	24,480	26,192	50,672	94.04	95.49	94.79	2,508
Kalgoorlie	19,515	14,970	34,485	17,453	13,548	31,001	89.43	90.50	89.90	2,169
Moore	21,451	19,763	41,214	20,459	18,604	39,063	95.38	94.14	94.78	1,843
Perth	14,008	16,490	31,098	13,483	15,281	28,764	92.30	92.67	92.49	2,394
Stirling	32,039	33,658	65,697	29,986	31,966	61,952	93.59	94.97	94.30	3,843
Swan	25,880	28,448	54,328	24,120	26,628	50,748	93.20	93.60	93.41	2,901
Total— Western Australia	203,349	205,200	408,549	190,554	193,328	383,882	93.71	94.21	93.96	22,910

(a) See Appendix for results of 1967 Senate election.

The State Parliament

At the conjoint election for the Legislative Council and the Legislative Assembly which was held on the 20th February, 1965 the Liberal-Country Party Government, led by the Honourable David Brand, was returned to office, its majority in the Legislative Assembly being increased from two seats to eight seats. Government representation in the Legislative Council was increased from 17 to 20.

The Legislative Council election was the first to be held in accordance with the revised provisions contained in the Constitution Acts Amendment Act (No. 2), 1963, the Electoral Districts Act Amendment Act, 1963, and the Electoral Act Amendment Acts of 1964. It was thus the first election for the Legislative Council to which the compulsory enrolment and compulsory voting conditions applied. Fourteen Provinces were contested, the retiring Member for the Central Province being returned unopposed.

At the election for the Legislative Assembly, 11 of the retiring Members were returned unopposed, 36 were re-elected and three were defeated.

The table on the next page shows the number of electors enrolled in each Province and in each District. The numbers of effective and informal votes recorded throughout the State at the election are also shown.

It will be seen from the table that the number of electors enrolled in each District in the Metropolitan Area was approximately twice the number in each District in the Agricultural, Mining and Pastoral Area. This is accounted for by a requirement of the Electoral Districts Act, 1947–1963 that the Electoral Commissioners, in determining the quota of electors for each District, should reckon every two electors in the Metropolitan Area as one elector, at the same time giving full representation to each elector in the Agricultural, Mining and Pastoral Area. The number of Districts in the North-West Area was fixed by the Act at three.

**LEGISLATIVE COUNCIL AND LEGISLATIVE ASSEMBLY
CONJOINT ELECTION OF 20th FEBRUARY, 1965**

LEGISLATIVE COUNCIL

Electoral Area (a) and Province	Electors on Roll			Electoral Area (a) and Province	Electors on Roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and Pastoral Area (continued)—			
Metropolitan	24,652	29,592	54,244	South-East	8,931	7,635	16,566
North Metropolitan	24,569	26,622	51,191	South-West	8,251	7,416	15,667
North-East Metro- politan	29,009	30,859	59,868	Upper West	9,105	7,870	16,975
South Metropolitan	23,825	24,316	48,141	West	9,692	9,541	19,233
South-East Metro- politan	21,869	24,482	46,351	Total	71,164	65,323	136,487
Total	123,924	135,871	259,795	North-West Area—			
Agricultural, Mining and Pastoral Area—				Lower North	4,041	3,285	7,326
Central (b)	8,073	7,793	15,866	North	2,977	1,877	4,854
Lower Central	8,357	7,775	16,132	Total	7,018	5,162	12,180
Lower West	9,224	8,690	17,914	WHOLE STATE	202,106	206,356	408,462
South	9,531	8,603	18,134				
Electors on Roll in Contested Provinces					194,033	198,563	392,596
Electors on Roll in Uncontested Provinces					8,073	7,793	15,866
Total Number of Electors on Roll					202,106	206,356	408,462
Total Number of Votes Recorded					(c)	(c)	(d) 361,752
Percentage of Votes Recorded to Electors on Roll in Contested Provinces					(c)	(c)	92.14

LEGISLATIVE ASSEMBLY

Electoral Area (a) and District	Electors on Roll			Electoral Area (a) and District	Electors on Roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and Pastoral Area (continued)—			
Balcatta	6,798	6,995	13,793	Collie	2,770	2,539	5,309
Bayswater	6,850	6,862	13,712	Dale	3,359	3,270	6,629
Beeloo	5,890	6,223	12,113	Darling Range	3,387	3,572	6,959
Belmont	6,001	6,291	12,292	Geraldton	3,181	2,993	6,174
Canning	5,219	6,216	11,435	Greenough (e)	2,842	2,367	5,209
Claremont	4,801	5,707	10,508	Kalgoorlie (e)	3,083	2,644	5,727
Cockburn (e)	6,104	5,832	11,936	Katanning (e)	2,741	2,616	5,357
Cottesloe	4,869	5,848	10,717	Merredin-Yilgarn	2,616	2,169	4,785
East Melville	6,194	6,673	12,867	Moore	3,082	2,510	5,592
Fremantle	5,677	5,672	11,349	Mount Marshall (e)	2,734	2,373	5,107
Karrinyup	6,320	6,948	13,268	Murchison	2,852	2,426	5,278
Maylands	5,130	5,840	10,970	Murray	2,850	2,675	5,525
Melville	5,850	6,139	11,989	Narrogin	2,846	2,620	5,466
Mount Hawthorn	5,243	5,856	11,099	Northam	2,991	2,793	5,784
Mount Lawley	5,137	6,060	11,197	Roe (e)	3,413	2,706	6,119
Nedlands	4,936	5,894	10,830	Stirling (e)	2,865	2,514	5,379
Perth	5,306	5,815	11,121	Toodyay	2,946	2,699	5,645
South Perth (e)	5,574	6,301	11,875	Vasse	2,718	2,690	5,408
Subiaco	4,740	6,328	11,068	Warren	2,823	2,345	5,168
Swan	5,891	5,806	11,697	Wellington	3,252	2,951	6,203
Victoria Park	5,186	5,742	10,928	Total	74,016	67,749	141,765
Wembley	6,208	6,823	13,031	North-West Area—			
Total	123,924	135,871	259,795	Gascoyne	1,189	859	2,048
Agricultural, Mining and Pastoral Area—				Kimberley	1,776	1,166	2,942
Albany	3,253	3,383	6,636	Pilbara	1,201	711	1,912
Avon (e)	2,348	2,627	4,975	Total	4,166	2,736	6,902
Blackwood (e)	2,710	2,381	5,091	WHOLE STATE	202,106	206,356	408,462
Boulder-Eyre (e)	2,232	2,822	6,054				
Bunbury	3,122	3,064	6,186				
Electors on Roll in Contested Districts					164,460	171,173	335,633
Electors on Roll in Uncontested Districts					37,646	35,183	72,829
Total Number of Electors on Roll					202,106	206,356	408,462
Total Number of Votes Recorded					(c)	(c)	(f) 309,893
Percentage of Votes Recorded to Electors on Roll in Contested Districts					(c)	(c)	92.33

(a) As defined in the Electoral Districts Act, 1947-1963.
(d) Includes 15,433 informal votes.

(b) Uncontested Province.

(c) Not available.

(e) Uncontested District.

(f) Includes 9,634 informal votes.

LEGISLATION DURING 1966

The Federal Parliament

The legislative enactments of the Commonwealth Parliament in 1966 are listed in summarized form on pages 69–72 of the *Official Year Book of the Commonwealth of Australia*, No. 53—1967.

The State Parliament

During the second session of the twenty-fifth Parliament, which lasted from the 28th July to the 29th November, 1966, the Western Australian legislature enacted 97 Public Statutes and two Private Acts and, in addition, dealt with eleven Bills which were introduced but not passed.

The full text of the legislation enacted is contained in the volumes of *The Acts of the Parliament of Western Australia*, to which reference should be made if complete details are required. To provide a brief review of the Statutes of 1966, a short summary of the main provisions is given in this section. Provisions relating to the changeover to Decimal Currency are excluded from the summary, and Supply, Appropriation and Loan Acts are listed without further detail.

Acts Passed during 1966

Administration Act Amendment Act—Provides that personal property located outside the State shall form part of the estate, for purposes of duty, of a person domiciled at the time of his death in Western Australia. Extends from one year to three years the period prior to death during which gifts made to other persons are subsequently included in the dutiable estate of the deceased person. Makes other miscellaneous provisions.

Aerial Spraying Control Act—Prohibits aerial spraying unless the pilot in command of the aircraft is the holder of a certificate issued by the Director of Agriculture. Provides that the Minister may declare any district to be a hazardous area, within which aerial spraying may be restricted or prohibited.

Agricultural Products Act Amendment Act—Extends the functions of the Apple Sales Advisory Committee to include control of the marketing of pears. Constitutes the Citrus Sales Advisory Committee and provides for the control measures relating to apples, pears and citrus fruit to remain in force until the 31st December, 1968.

Alumina Refinery Agreement Act Amendment Act—Provides that the Minister may grant to Western Aluminium No Liability a separate mineral lease for bauxite in respect of any portion or portions of the leased area held by the Company in terms of the Alumina Refinery Agreement Act, 1961–1963. Makes other miscellaneous amendments to the Agreement.

Amendments Incorporation Act Amendment Act—Provides for the omission of the words of enactment, or the substitution of a specified shorter form, in Acts reprinted by the Government Printer.

Appropriation Act

Audit Act Amendment Act—Provides for the Auditor General to receive a salary not less than \$11,650, nor more than such salary and adjustments as the Governor determines.

Betting Investment Tax Act Amendment Act—Prescribes that the betting investment tax of three cents on each bet made in registered premises by a bookmaker, as imposed by the 1965 Act, shall also apply to each bet made through or with the Totalisator Agency Board.

Bills of Sale Act Amendment Act—Empowers the Registrar, under prescribed circumstances, to extend the time for registration or renewal of registration of a Bill of Sale. Provides that application may be made to a Judge of the Supreme Court if the Registrar refuses to grant an extension. Makes other miscellaneous provisions.

Brands Act Amendment Act—Stipulates minimum overall measurements for every woolbrand. Requires that all sheep and lambs, other than those specifically excepted, be woolbranded immediately after shearing.

Bread Act Amendment Act—Amends the hours specified for the sale or delivery of bread for sale.

Builders' Registration Act Amendment Act—Provides additional conditions under which a builder who is not registered under the Act may be issued with a permit by the local authority to build a house or other specified dwelling for his own use. Makes other miscellaneous provisions.

Cemeteries Act Amendment Act—Authorizes the trustees of a public cemetery to set apart a lawn or park section in the cemetery and to make by-laws relating to burials in such area.

Commonwealth and State Housing Agreement Act—Ratifies amendments to the 1956-1961 Agreement and extends to the 30th June, 1971 the period of operation of the Agreement as amended.

Companies Act Amendment Act—Amends the provisions relating to official management and provides for a transitional period for a company which was under official management on the date of the coming into operation of this amending Act. Empowers the Registrar to refuse to register a copy of a prospectus if he is of the opinion that the prospectus contains any statement or matter that, in the form or context in which it is included, is misleading. Makes other miscellaneous provisions.

Corneal and Tissue Grafting Act Amendment Act—Permits eyes, or other tissues removed from the body of a deceased person under the provisions of the Act, to be used for the purpose of producing therapeutic substances. Makes other miscellaneous provisions.

Country High School Hostels Authority Act Amendment Act—Clarifies the powers of the Country High School Hostels Authority in relation to the general management of hostels.

Criminal Code Amendment Act—Varies the provisions of the Criminal Code relating to assaults. Makes other miscellaneous amendments to the Code.

Death Duties (Taxing) Act Amendment Act—Establishes new rates of probate duty on estates of persons dying after the coming into operation of the Administration Act Amendment Act, 1966.

Debt Collectors Licensing Act Amendment Act—Dispenses with the provision, unless the Court so requires, that an application for the renewal of a licence shall be accompanied by testimonials as to the character of the applicant signed by not less than three reputable persons. Clarifies the position in respect of appeal procedures.

Eastern Goldfields Transport Board Act Amendment Act—Provides for the fiscal year for the Board's operations to terminate on the 30th June instead of the 30th November, as formerly. Makes other miscellaneous provisions.

Eastern Goldfields Transport Board Act Amendment Act (No. 2)—Makes the Board subject to the Minister, for the purposes of the State Transport Co-ordination Act, 1966.

Education Act Amendment Act—Provides that the Minister for Education may, under specified conditions, exempt a child who has attained the age of fourteen years from further attendance at school. Empowers the Minister to declare, by a notice published in the *Government Gazette*, that any child ordinarily resident within the area described in the notice may be refused admission to any Government school other than that specified in the notice. Makes other miscellaneous provisions.

Evidence Act Amendment Act—Extends the provisions relating to the admission in evidence of photographic copies of documents.

Explosives and Dangerous Goods Act Amendment Act—Provides for the issue, by the Chief Inspector of Explosives, of permits to purchase manufactured fireworks for the purpose of holding a display of fireworks for public entertainment. Prohibits the sale of fireworks to a person other than the holder of the prescribed permit.

Farmers' Debts Adjustment Act Amendment Act—Extends the operation of the Act for a further period of five years until the 31st March, 1972.

Financial Agreement (Amendment) Act—Ratifies an agreement between the Commonwealth and the State amending the Financial Agreement, as set forth in the Schedule to the Financial Agreement Act, 1928 and as subsequently amended, to permit it to operate in decimal currency.

Firearms and Guns Act Amendment Act—Provides for the Act to apply throughout the State and extends the definition of "firearm" to include "any thing manufactured specifically as a component of ammunition". Makes other miscellaneous provisions.

Fire Brigades Act Amendment Act—Continues the existing scale of contributions to the Western Australian Fire Brigades Board by insurance companies, local authorities and the Treasurer. Provides for the financial year of the Board to end on the 30th June instead of the 30th September, as formerly, and makes other miscellaneous provisions.

Fisheries Act Amendment Act—Extends the provisions of the Act to cover marine algal life in addition to fish. Makes other miscellaneous provisions.

Fluoridation of Public Water Supplies Act—Establishes a Fluoridation of Public Water Supplies Advisory Committee. Empowers the Minister to direct a water supply authority to add fluorine to a public water supply under its control.

Foot and Mouth Disease Eradication Fund Act Amendment Act—Provides a definition of "foot and mouth disease" to include the two diseases vesicular exanthema and vesicular stomatitis.

Fruit Cases Act Amendment Act—Extends the provisions of the Act to include pears and citrus fruit in addition to apples, and continues the measures relating to direct buyers for a further period of two years until the 31st December, 1968.

Government Employees (Promotions Appeal Board) Act Amendment Act—Extends the right of appeal, against the promotion of a person to a vacancy or a new office in a Department, to an applicant who is not a member of an industrial union which is a party to the award or industrial agreement, provided the applicant is employed in the department concerned and none of the applicants for the position is a member of the industrial union. Makes other miscellaneous provisions.

Grain Pool Act Amendment Act—Extends the interpretation of "growers" to include growers of cereal grain, linseed or other seed in addition to wheat or oats, and extends the special powers of The Grain Pool of W.A. accordingly. Empowers the Governor to declare any grain or seed other than wheat, oats and linseed to which the Act expressly applies to be cereal grain or seed for the purposes of the Act.

Health Act Amendment Act—Makes it an offence to manufacture, sell or offer for sale an article designed for use in the construction or operation of any sewer, drain, sanitary convenience or receptacle for drainage, if the article is not of the prescribed standard and construction. Increases the maximum pecuniary penalty for an offence against the Act and makes other miscellaneous provisions.

Industrial Arbitration Act Amendment Act—Provides that the State basic wage rates which were current immediately prior to the date of commencement of this amending Act shall remain unaltered until exceeded by the basic wage for the six capital cities as declared by the Commonwealth Conciliation and Arbitration Commission, and that subsequent alterations shall be made in accordance with variations of that wage. Makes other miscellaneous provisions.

Industrial Arbitration Act Amendment Act (No.2)—Defines "Government officer" for the purposes of the Act and provides for the registration of the Civil Service Association of Western Australia Incorporated as an industrial union. Removes Government officers from the jurisdiction of The Western Australian Industrial Commission in relation to the regulation of rates of salary or wages or conditions of employment. Makes other miscellaneous provisions.

Industrial Lands (Kwinana) Railway Act—Authorizes the construction and maintenance of a branch line from the Kenwick-Kwinana Railway to the CSBP & Farmers Ltd fertilizer works at Kwinana.

Judges Salaries and Pensions Act Amendment Act—Increases, as from the 1st July, 1966, the rate of annual salary payable to the Chief Justice of Western Australia, the Senior Puisne Judge and other Puisne Judges.

Kewdale Lands Development Act—Establishes the Kewdale Development Authority to acquire land specified in the Act, and, at its discretion, to develop and sell the land.

Land Agents Act Amendment Act—Simplifies the provisions relating to the application for a licence under the Act, or for the transfer of a licence, where the application is made on behalf of a statutory trustee company, a pastoral company or a company declared by the Minister to be a company to which this amendment applies.

Legal Practitioners Act Amendment Act—Sets out the qualifications required of a person for admission to practise in Western Australia as a legal practitioner.

Leslie Solar Salt Industry Agreement Act—Ratifies an Agreement between the State and Leslie Salt Co. for the establishment at Port Hedland of a solar salt industry.

Loan Act

Local Government Act Amendment Act—Authorizes the council of a municipality to order the owner or occupier of land used for the storage or sale of wood, used building materials or scrap metals, or as a place for the wrecking and sale of used motor vehicles or parts to erect a suitable fence on the land. Provides for the demolition and removal of uncompleted buildings under specified circumstances, and makes other miscellaneous provisions.

Local Government Act Amendment Act (No. 2)—Provides that amendments to the City of Perth Superannuation Fund Scheme may be made by the Council of the City of Perth, subject to prior approval of the Minister and compliance with the relevant sections of the City of Perth Superannuation Fund Act of 1934. Makes other miscellaneous provisions.

Lotteries (Control) Act Amendment Act—Provides for the payment, to the special account established at the Treasury by the Hospital Fund Act of 1930, of a percentage of all moneys received during the year by the Lotteries Commission from its conduct of lotteries. For 1967, the proportion is to be 10 per cent., increasing to 15 per cent. in 1968, and to 20 per cent. in 1969 and each year thereafter.

Main Roads Act Amendment Act—Permits the Main Roads Department to employ cadets in various professional fields in addition to civil engineering. Confirms the authority of the Commissioner of Main Roads to carry out roadworks on any road in the metropolitan area provided such works are financed by specified funds. Prohibits the placing of any structure, etc., on, over or under a controlled access road or land intended for a controlled access road, without the prior consent in writing of the Commissioner.

Main Roads Act Amendment Act (No. 2)—Confers on the Commissioner of Main Roads power to grant a lease or licence to occupy any land acquired by him under the Act, and any interest in that land, to any person from whom the land was resumed. Makes other miscellaneous provisions.

Marketable Securities Transfer Act—Introduces a new system in relation to the transfer of any share, stock or debenture of a company or prescribed corporation.

Marketing of Potatoes Act Amendment Act—Increases the penalties for offences against the Act. Empowers the Western Australian Potato Marketing Board to deduct from the proceeds of the sale of potatoes, or progress or final payments to each person by or for whom the potatoes were delivered to the Board, a portion not exceeding one and one-half per cent. Provides for the amounts so deducted to be paid to a reserve fund for the purpose of making fair returns to growers when unusual market conditions prevail.

Medical Act Amendment Act—Varies the powers of the Medical Board in relation to offences committed by registered medical practitioners.

Metropolitan (Perth) Passenger Transport Trust Act Amendment Act—Makes the Trust subject to the Minister, for the purposes of the State Transport Co-ordination Act, 1966. Exempts the Trust from the provisions of the Road and Air Transport Commission Act, 1966.

Metropolitan Region Improvement Tax Act Amendment Act—Increases the rate of tax to be imposed after the assessment year ended 30th June, 1967 to $\frac{1}{4}$ c in the \$ on the unimproved value of all land chargeable with the tax as assessed under the Metropolitan Region Town Planning Scheme Act, 1959 and the Land Tax Assessment Act, 1907.

Metropolitan Region Town Planning Scheme Act Amendment Act—Increases the membership of the Metropolitan Region Planning Authority from 11 to 12 by the inclusion, *ex officio*, of the Director General of Transport constituted under the State Transport Co-ordination Act, 1966. Establishes a Board of Valuers, and makes other miscellaneous provisions.

Motor Vehicle (Third Party Insurance) Act Amendment Act—Removes the limitation of the liability of The Motor Vehicle Insurance Trust relating to claims made by or in respect of passengers. Provides that a spouse may sue a spouse for injuries caused by the latter's negligent use of a motor vehicle. Establishes the Third Party Claims Tribunal and gives it exclusive jurisdiction to hear and determine all claims made under the Act in respect of the death of or bodily injury to any person caused by or arising out of the use of a motor vehicle. Makes other miscellaneous provisions.

Optical Dispensers Act—Provides for the licensing of persons carrying out optical dispensing.

Optometrists Act Amendment Act—Repeals the Optometrists Act Amendment Act, 1965 and defines "optical dispensing".

Painters' Registration Act Amendment Act—Makes it an offence for a person not registered under the Act to assume the title of, or hold himself out to be, a registered painter.

Pensioners (Rates Exemption) Act—Repeals the Pensioners (Rates Exemption) Act, 1922-1943. Provides that pensioners may be granted deferment of the payment of specified rates until the sale or transfer of the land by the pensioner, or the death of the pensioner, or until the pensioner ceases to be entitled to the deferment. Makes other miscellaneous provisions.

Perth Medical Centre Act—Creates the Perth Medical Centre reserve. Constitutes the Perth Medical Trust to undertake the development, control and management of the reserve before and after the establishment on the reserve of a medical centre.

Petroleum Act Amendment Act—Empowers the Governor to declare, by proclamation, that any reserved land which does not come within the meaning of "Crown land" as defined in the Petroleum Act, is Crown land for the purposes of this Act. Declares the Barrow Island reserve to be Crown land, and makes other miscellaneous provisions.

Plant Diseases Act Amendment Act—Validates the acts, proceedings or determinations of a fruit-fly Committee appointed under the Act, notwithstanding stipulated irregularities. Extends fruit-fly control measures administered by such Committees to include spraying in addition to baiting, and empowers the Minister to amalgamate fruit-fly foliage baiting schemes in adjacent districts within the same municipality.

Poisons Act Amendment Act—Prohibits a person from engaging in the cultivation, sale, distribution or supply of any prohibited plant, or plant from which a drug of addiction may be obtained, without a licence granted by the Commissioner of Public Health. Clarifies the position relating to the sale of poisons to a person apparently under the age of eighteen years, and makes other miscellaneous provisions.

Potato Growing Industry Trust Fund Act Amendment Act—Increases the maximum contribution by growers to the Trust Fund from twopence (1.666c) per hundredweight of potatoes to two cents per hundredweight.

Private Railways (Level Crossings) Act—Provides, in respect of private railways, similar conditions for the public right of way at level crossings as those relating to Government railways. Makes other miscellaneous provisions.

Public Service Act Amendment Act—Provides for the appointment by the Governor of one or two Deputy Commissioners to assist the Public Service Commissioner. Creates a new division of the Public Service, the Special Division, and makes other miscellaneous provisions.

Public Service Appeal Board Act Amendment Act—Complements the Public Service Arbitration Act of 1966. Reduces the jurisdiction of the Public Service Appeal Board in relation to the class of appeal which may be determined by the Board, and makes other miscellaneous provisions.

Public Service Arbitration Act—Provides for the appointment of a Public Service Arbitrator and empowers him to determine specified matters relating to the salaries or allowances of Government officers. Makes other miscellaneous provisions.

Public Works Act Amendment Act—Exempts the Minister, under specified circumstances, from the obligation to grant to a former owner the option to repurchase resumed land which is not required for the work for which it was acquired or any other public work. Clarifies the provisions relating to advance payments of compensation for land resumed under the Act, and makes other miscellaneous provisions.

Reserves Act—Excises portions of various reserves and specifies the purpose for which each portion so excised is to be used. Makes other miscellaneous amendments to certain reserves and creates a new reserve.

Road and Air Transport Commission Act—Replaces the State Transport Co-ordination Act, 1933-1961 which was repealed by the State Transport Co-ordination Act, 1966. Constitutes a Commissioner of Transport to control and license the transport of passengers and goods by road and by air.

Rural and Industries Bank Act Amendment Act—Empowers the Commissioners of the bank, subject to the approval of the Minister and the Treasurer, to purchase land and enter into contracts for the construction of houses or flats for the purpose of sale or rental.

Stamp Act Amendment Act—Amends the rate and method of payment of stamp duty on receipts. Introduces a new scale of stamp duty on documents transferring property by way of a Deed of Settlement or a Deed of Gift, and makes other miscellaneous provisions.

Stamp Act Amendment Act (No.2)—Amends the definition of "vehicle licence" for the purposes of the Act.

Stamp Act Amendment Act (No.3)—Complements the Marketable Securities Transfer Act of 1966. Provides a new rate of stamp duty on marketable securities and repeals the provisions relating to contract notes. Makes other miscellaneous provisions.

State Electricity Commission Act Amendment Act—Amends the provisions relating to the extension of the supply of electricity to a place which is beyond a point from which the Commission is prepared to supply electricity under any other provision of the Act. Permits the Commission to open and maintain an account with a bank approved by the Treasurer. Makes other miscellaneous provisions.

State Housing Act Amendment Act—Extends the definition of "worker" for the purposes of the Act; empowers the State Housing Commission to administer the Commonwealth and State Housing Agreement of 1961 and 1966, and makes other miscellaneous provisions.

State Transport Co-ordination Act—Repeals the State Transport Co-ordination Act, 1933-1961 and various other Acts. Constitutes a Director General of Transport, a Transport Advisory Council and a Transport Users' Board and makes other miscellaneous provisions.

Statute Law Revision Act—Repeals a number of unnecessary or superseded Acts. Re-enacts three Acts dealing with the marketing of wheat which were repealed by the Statute Law Revision Act of 1965.

Statute Law Revision Act (No. 2)—Repeals nine unnecessary Acts comprising the Vaccination Act of 1878 and eight Acts relating to railway construction.

Statute Law Revision (Short Titles) Act—Confers short titles on a number of Acts which previously could be cited only by the long titles of each Act.

Stock Diseases Act Amendment Act—Extends the definition of "poultry" under the Stock Diseases Act to cover "any poultry, poultry products, the carcase or any portion of the carcase of any poultry, newly hatched chickens, or the eggs of any poultry for hatching purposes or for food purposes."

Strata Titles Act—Provides that on registration of a strata plan in the manner specified in the Act, land may be subdivided into lots which may then be transferred, leased, mortgaged or otherwise dealt with in the same manner and form as land held under the provisions of the Transfer of Land Act, 1893. Sets out the manner in which the building and common property in each strata plan is to be shared, managed and administered.

Supply (Act No. 1); *Supply* (Act No. 32).

Swan River Conservation Act Amendment Act—Reduces from ten acres to two acres the maximum area of the Swan River normally covered by water which may be resumed, filled in or reclaimed without the consent of both Houses of Parliament. Makes other miscellaneous provisions and repeals the Melville Water and Freshwater Bay Road Act, 1912 and the Swan River Improvement Act, 1925-1960.

Totalisator Agency Board Betting Act Amendment Act—Permits, under specified circumstances, the establishment of a totalisator agency on a racecourse for the purpose of accepting bets on horse races conducted outside the State. Increases the penalties for unlawful betting and makes other miscellaneous provisions.

Totalisator Agency Board Betting Tax Act Amendment Act—Increases from 5 to 5½ per cent. the rate of tax payable on all amounts of money received by the Board in respect of bets made in accordance with the Totalisator Agency Board Betting Act, 1960-1966.

Traffic Act Amendment Act—Provides that one-half of the fees received for the issue and the renewal of a driver's licence, other than for a passenger vehicle, shall be paid into the Consolidated Revenue Fund instead of into the Central Road Trust Fund.

Traffic Act Amendment Act (No. 2)—Repeals the provisions relating to carriers' licences. Amends the provisions in respect of the licensing of tractors and establishes the Railway Crossing Protection Fund Account to operate throughout the State and to replace The Metropolitan Area Railway Crossing Fund Account. Makes other miscellaneous provisions.

Western Australian Institute of Technology Act—Establishes The Western Australian Institute of Technology to provide facilities for higher specialized instruction and, among other functions, to advance training in the various branches of technology and science; and to aid the advancement, development and practical application to industry of science or any techniques.

Western Australian Marine Act Amendment Act—Requires certain ships to be equipped with a radio-telephony installation. Creates, for the purposes of the Act, a new class of vessel to be called a "limited coast-trade vessel". Makes other miscellaneous provisions.

Wood Distillation and Charcoal Iron and Steel Industry Act Amendment Act—Gives effect to the Agreement contained in the Wundowie Works Management and Foundry Agreement Act, 1966. Permits diversification of production of any related products in addition to iron and steel. Reconstitutes the Board of Management; amends the name of the industry to Wundowie Charcoal Iron Industry, and makes other miscellaneous provisions.

Workers' Compensation Act Amendment Act—Varies the scale of payment of compensation to an injured worker and increases the minimum amount of compensation payable where death results from an injury.

Wundowie Works Management and Foundry Agreement Act—Ratifies an Agreement between the State and A.N.I. Australia Pty. Limited whereby the Company accepts responsibility for the management of the works under specified terms and conditions.

THE JUDICATURE

Commonwealth Courts

Under the provisions of section 71 of the Commonwealth Constitution the judicial power of the Commonwealth is vested in a Federal Supreme Court called the High Court of Australia and in such other courts as the Parliament creates or invests with federal jurisdiction.

The *High Court of Australia* is the principal Commonwealth Court and has both original and appellate jurisdiction. The Court is constituted by the Judiciary Act 1903-1966 and consists of a Chief Justice and six other Justices. The Principal Registry is at Melbourne, Victoria and there is a District Registry in each of the other State capital cities, where sittings of the Court are held from time to time as required. A Full Court may consist of any two or more Justices sitting together, but the Act specifies cases where a Full Court shall be comprised of not less than three Justices and, in some circumstances, a greater number. The High Court is the ultimate court of appeal in Australian jurisdiction except where leave is given for an appeal to the Judicial Committee of the Privy Council in London.

The *Commonwealth Industrial Court* was established by an amendment of 1956 to the Conciliation and Arbitration Act which gives the Court power to deal with judicial matters, as distinct from the functions of conciliation and arbitration performed by the Commonwealth Conciliation and Arbitration Commission. The Commonwealth Industrial Court comprises a Chief Judge and not more than six other Judges, in terms of the Conciliation and Arbitration Act 1904-1967. The Act provides that, except in certain specified circumstances, the jurisdiction of the Court shall be exercised by not less than two Judges. Although, in general, decisions of the Industrial Court are final, appeal may be made to the High Court, subject to a grant of leave by the High Court.

The *Federal Court of Bankruptcy* is constituted under the Bankruptcy Act 1966 which provides that the Court shall consist of a Judge or two Judges. The Act also extends jurisdiction in bankruptcy to certain Courts of the States, and in Western Australia it is exercised by the Supreme Court of the State.

State Courts of Western Australia

The *Supreme Court of Western Australia*, as constituted under the Supreme Court Act, 1935-1964, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court is exercised by a single Judge unless it is provided that an action must be brought before a Full Court. Any two or more Judges together comprise a Full Court except at a sitting as a court of criminal appeal, when there must be an uneven number of Judges. In addition to appeals in criminal cases, matters within the jurisdiction of the Full Court include applications for a new trial or to set aside a judgment, cases referred by a Judge for the consideration of the Full Court and special cases where all parties agree that a hearing should be before the Full Court. The Act provides for sittings of the Court as a circuit court in proclaimed districts and enables the appointment of days in each year for hearings in these districts. Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the Judiciary Act 1903-1966 (Commonwealth), and may also be made direct to the Privy Council.

At the 31st December, 1967 the composition of the Supreme Court was as shown below.

Chief Justice—

The Honourable Sir Albert Wolff, K.C.M.G.

Senior Puisne Judge—

The Honourable Sir Lawrence Jackson

Puisne Judges—

The Honourable J. E. Virtue
The Honourable R. V. Neville
The Honourable G. B. D'Arcy
The Honourable John Hale
The Honourable O. J. Negus

The *Western Australian Industrial Appeal Court* is constituted under the provisions of the Industrial Arbitration Act Amendment Act (No. 2), 1963, which came into operation on the 1st February, 1964. The Act abolishes the former Court of Arbitration. The Western Australian Industrial Appeal Court consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of The Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction. (Reference to the constitution, powers and functions of The Western Australian Industrial Commission is made in Chapter X, Part 2.)

STATE REPRESENTATION OVERSEAS AND IN OTHER STATES

Western Australia has been represented in the United Kingdom by an Agent-General since 1892, the first appointment to the post being that of Sir Malcolm Fraser. An Office is maintained at Western Australia House, 115 Strand, London, W.C.2. Its functions include the representation of all government departments which have business in Britain and Europe, the purchase of government stores and equipment, the attraction of migrants, the encouragement of oversea private investment in Western Australia, and the provision of various types of assistance to visitors from Western Australia. In addition, the Office acts as agent for the State Treasury and as a receiving agency for The Rural and Industries Bank of Western Australia. Western Australia's European Public Relations Office also operates from Western Australia House. The Agent-General for Western Australia, the Honourable G. P. Wild, M.B.E., is the personal representative in Britain of the State Premier.

Branches of the Tourist Bureau have been established in New South Wales at 22 Martin Place, Sydney, in Victoria at 2 Royal Arcade, Melbourne, C.1, in South Australia at 34 King William Street, Adelaide, and in the Northern Territory at Western Australia House, Cavenagh Street, Darwin.

THE LOCAL GOVERNMENT SYSTEM

The function of local government in Western Australia is performed by a number of Councils exercising powers conferred by the Parliament of the State. Each of these authorities consists of members elected by a local community and is responsible for the provision of many of the services necessary for the organization and welfare of the community which it represents.

As early as 1838 an Act providing a measure of local government was passed and under its provisions the management and control of the town of Perth was vested in a body of trustees. The first elected Town Trust was constituted at Perth in 1842 under an Act of 1841 for the "Improvement of Towns in Western Australia". The Trust was dissolved in 1858 and replaced by a City Council, the town of Perth having been constituted a city when it became the seat of a Bishop in 1856.

Legislation was enacted in 1871 establishing Municipalities and Road Boards throughout the Colony. The existing Statute regulating the operations of the local authorities is the Local Government Act, 1960-1967, which is administered through a Department of Local Government by the Minister for Local Government. This Act consolidates the law relating to local government in Western Australia, and by its provisions the Municipal Corporations Act, the Road Districts Act and a number of other, less important, Acts were repealed. The legislation came into operation on the 1st July, 1961 and from that date new designations were applied to many local government districts, bodies and offices. Former Municipalities, other than cities, became known as "Towns" and Road Districts were renamed "Shires". Municipalities which already had city status remained "Cities". The executive body in each local government district became a "Council", City Councils and Town Councils being presided over by a Mayor, and Shire Councils by a President. The chief non-elective executive office of a City or a Town is that of "Town Clerk" and of a Shire, that of "Shire Clerk".

At the 31st December, 1967 there were five Cities, 13 Towns and 126 Shires in Western Australia.

Local Government Districts

The only unincorporated area in Western Australia is King's Park, a public reserve of almost one thousand acres in Perth, all other land being incorporated within the district of a City, Town or Shire.

On presentation of a petition signed by a prescribed minimum number of ratepayers, the number varying with the subject matter, the Governor may by Order constitute any part of the State as a Town; constitute any unincorporated area as a Shire; constitute as a new Shire any part of an existing Shire;

divide a Shire into two or more Shires ; sever portion of a district and annex the portion to an adjoining district, or constitute the portion as a new Town or Shire ; annex to a district any adjacent unincorporated areas ; divide a district into wards ; or abolish a district and dissolve the local governing authority.

The Act establishes a Local Government Boundaries Commission of three members, one being an officer of the Department of Local Government, who is Chairman of the Commission. The other members must be persons having experience in local government and nominated by associations of local government authorities. The Minister may refer to the Commission any question concerning the constitution or alteration of the constitution of local government districts. Every case where authorities are unable to agree on a matter of amalgamation or severance of territory must be referred to the Commission.

On the petition of the local authority concerned, the Governor may by Order declare to be a City any district which satisfies certain specified requirements. These requirements are that, during the three years immediately preceding the declaration, it shall have maintained a population of not less than 30,000 persons if situated in the metropolitan area as declared for the purposes of the Act, or not less than 20,000 persons if situated outside that area ; and have maintained a gross revenue of \$200,000 for each of the three years. In addition the district must be clearly distinguishable as a centre of population having a distinct civic centre with adequate halls and cultural facilities, and must have sufficient residential, commercial and industrial centres to justify its declaration as a separate city. The five Cities in Western Australia are all situated in the Perth Statistical Division and each of them had been granted city status before the requirements imposed by the present legislation became operative. The Cities are Perth (proclaimed in 1856), Fremantle (1929), Subiaco (1952), Nedlands (1959), and South Perth (1959).

The boundaries of local government districts as they existed at the 1st January, 1966 are delineated on the map of the State at the back of the Year Book and the names and designations as at that date are listed on the pages immediately preceding the Index.

Constitution and Electoral Provisions

The provisions of the Local Government Act relating to the composition of a City Council or a Town Council require that, in addition to the Mayor, there shall be, where the population is less than 1,000, six councillors ; where the population is between 1,000 and 5,000, nine councillors ; and if the population exceeds 5,000, twelve councillors if the district is not divided into wards but, where the district is divided into wards, three councillors for each ward. It is provided that a Shire Council shall consist of not less than five nor more than thirteen members, including the President.

Two methods of election to the office of Mayor or of President are prescribed. In the case of a City or Town, election is usually by a poll of the electors enrolled for the district. The President of a Shire is usually elected by the councillors from among their own number. It is provided, however, that a City or Town may adopt the system of election of the Mayor by the councillors, and that a Shire may conduct a poll of its electors for election to the office of President. The question of the adoption of the alternative system must, in all cases, be determined by submission to a poll of the electors, after delivery to the Mayor or the President of a resolution of a majority of the councillors or a petition signed by one-tenth of the electors, or by fifty electors, whichever is the greater. If not less than 15 per cent. of eligible electors vote at the poll and a majority of the valid votes cast are in favour of the proposed alteration, the Governor may order its adoption.

The Act constitutes the office of Deputy Mayor, in the case of a City or a Town, and of Deputy President in the case of a Shire, and requires that the Council shall elect one of the councillors to the office.

Provision is made for local government elections to be held on the fourth Saturday in May of each year, but in specified circumstances the Governor may, by proclamation, appoint a Saturday in May, earlier than the fourth Saturday, to be the election date. Membership of a Council is elective in all cases, the qualified electors being adult natural-born or naturalized British subjects who own or occupy rateable land in the district. The preferential system of voting is used and representation is generally on the basis of wards into which the district may be divided. Plural voting applies, an elector being entitled, in accordance with the rateable value of the property owned or occupied by him, to a number of votes which may not, however, exceed four in elections for Mayor or President, or two in elections for councillor. The Act contains provisions enabling nominees of corporations owning land in a district to vote at local government elections and to be elected to membership of the Council. Subject to disqualification on certain specified grounds, all adult persons who are natural-born or naturalized British subjects owning or occupying rateable land within the district are eligible for election to the Council of the district whether as Mayor, President or councillor.

The term of office of a Mayor or a President is two years if elected by the electors of the district, or one year if elected by the Council. Councillors are elected for a term of three years, some of their number, varying with the total membership of the Council, retiring each year. On the expiration of their term of office, all members, including the Mayor and the President, are eligible for re-election if not subject to any of the disqualifications contained in the Act.

It is provided that, if in a particular district there should at any time be no Council or not sufficient councillors to form a quorum, a Commissioner may be appointed to exercise all the powers of the local authority.

Functions of Local Authorities

The functions and powers of local authorities are extremely diverse in character. They are prescribed in detail in the Local Government Act and some of the more important of them are referred to in later Chapters of the Year Book. For example, reference to local government activity in the fields of road construction and maintenance will be found in Chapter VI Part 1 and Chapter IX Part 2, the provision of parks, gardens and recreation grounds in Chapter VII Part 1, libraries in Chapter V Part 2, public transport facilities in Chapter IX Part 2, water supplies in Chapter VII Part 2, town planning and building control in Chapter V Part 4, and the licensing of vehicles and road traffic control in Chapter IX Part 2. Among the many other powers of local authorities are those relating to hospitals and nursing services, kindergartens, hostels for school children, community centres, dental clinics, infant and maternal health centres, day nurseries, jetties, swimming baths, swimming pools, sanitation and disposal of refuse, fire prevention, eradication of noxious weeds and vermin, electricity generation, aerodromes, abattoirs, quarries, pounds and cemeteries. Under the provisions of the Health Act local authorities are responsible for certain aspects of health administration.

The operations of any local government authority may be subject to investigation by a person appointed by the Governor or the Minister and having, for the purposes of the inquiry, the powers of a Royal Commission.

Financial Provisions

Financial powers of local authorities, although derived mainly from the Local Government Act, are also provided by other statutes, including the Health Act, the Water Boards Act, the Vermin Act, the Fire Brigades Act, the Cemeteries Act, the Library Board of Western Australia Act, the Argentine Ant Act and the Noxious Weeds Act. Revenue from vehicle licence fees payable under the provisions of the Traffic Act is another important item in local government finance.

Before the commencement of the Local Government Act on the 1st July, 1961, a number of rates, in addition to those authorized by local government legislation, were imposed as separate levies. These included health, sanitary and sewerage rates, water rates and vermin rates, as well as rates relating to fire brigades, cemeteries, libraries and the control of Argentine Ants and noxious weeds. Under the provisions of the Local Government Act, the local authorities may include these separate levies in the general rate provided for in the Act.

The general rate for any year is determined, subject to certain statutory limits, by dividing the anticipated total financial requirement for that year by the total value of rateable property in the district. In assessing this value, every local authority must adopt valuations made by the Taxation Department, by the water supply authority for the district, or by a qualified valuer (or valuers) appointed by the Council. The Act provides for the constitution of Valuation Appeal Courts, to which appeals may be made on matters concerning valuations of property and liability for rates as assessed by the Council.

Valuations may be on the basis of either "unimproved capital value" or "annual value". The unimproved value generally represents the price which the rated land might be expected to realize if sold on the open market and, as the term implies, excludes any improvements. The annual value is an estimate of the annual rental value of the property including improvements, but with a prescribed deduction to cover rates, repairs, insurance and other related expenditure. Generally, City Councils and Town Councils are required to assess the general rate on the basis of annual value, and Shire Councils on unimproved value. It is provided, however, that any Council may, under certain specified conditions, adopt the alternative basis. Although in general a Council is required to levy a rate which is uniform throughout its district, it may differentiate in rating by charging a higher rate in a specified area where expenditure, including loan interest and repayments, is incurred in providing special services for the benefit of that area.

Local authorities are authorized to raise loans for works and undertakings and for the liquidation of existing loan debts. Borrowing by means of a special bank overdraft is permissible, with the consent of the Minister, for the installation of sewerage connexions or septic tanks and, with the approval of the Governor, for other works or undertakings. Money may also be borrowed by the sale of debentures, repayment being either by the system of reducible principal or by means of a sinking fund. Payments to debenture holders are made at prescribed intervals. Under the system of reducible principal, the local authority undertakes to pay both principal and interest by fixed instalments. Where redemption is by means of a sinking fund, the local authority is required to establish and maintain the necessary fund at the State Treasury. Interest on the loan is normally paid half-yearly and the full amount of the loan is repaid at maturity.

The extent of loan raisings for works and undertakings is controlled by a provision which, except with the specific approval of the Governor, imposes a limit on the borrowings of an authority. This limit is determined by deducting the net total debt on existing loans from a sum equal to ten times the amount obtained by subtracting from the average of the ordinary revenue of the authority during the preceding two years the average, for the same period, of its annual expenditure on the servicing of loans. The legislation allows that balances standing to the credit of sinking funds for loan repayment, as well as amounts actually repaid, may be deemed to be repayments for the purpose of calculating net total debt. In the case of borrowings to liquidate existing loans, it is provided that the money raised shall not exceed the outstanding balance of the loan.

Before a loan may be raised by the issue of debentures, approval of the borrowing must be obtained from the State Treasury and the local authority must then publish in a newspaper and in the *Government Gazette* a notification of its intention to borrow money, including a statement of the amount of the proposed loan, its purpose and other relevant matters. Except in the case of a loan to liquidate an existing loan debt, the ratepayers of the district may demand that the proposition be submitted to a poll. If less than 15 per cent. of the ratepayers vote at the poll, the raising of the loan is approved. Where not less than 15 per cent. of ratepayers vote and the majority are against the loan, or the number of votes against the loan is equal to the number of those in favour, the raising of the loan is forbidden.

Certain of the works and undertakings for which loan moneys may be used are specified in the Local Government Act. They include the construction of streets, roads and bridges, sewers, drains and water-works; the erection or purchase of electric lighting plant, gas works and stone quarries; the provision of hostels for school children, libraries and other recreational facilities; the construction of civic and other buildings; and the purchase of land, materials and equipment. Where a particular work or undertaking is not specified in the Act the Governor may approve of it as a project for which money may be borrowed.

The financial transactions of local government authorities are subject to annual audit either by an auditor (or auditors) appointed by the Council or by a government inspector appointed by the Minister. To qualify for the office of auditor, a person must be a member of a specified institute or society of accountants and be registered as an auditor under the Companies Act. Appointment is for a term not exceeding two years, at the end of which time the holder of the office is eligible for reappointment.

The financial year for all Councils ends on the 30th June.

Details of the revenue and expenditure of local authorities during the five-year period ending with the financial year 1965-66 are given in the section *Local Government Finance* in Chapter VI, Part 1.

SPECIAL NOTE

Figures shown in Chapter IV, Part 1 relating to the Census of 30th June, 1966 are preliminary and subject to revision. Some *final* results of the census appear in the *Appendix*, which also contains a new series of population estimates that *includes* all Aborigines in the State. The new population estimates supersede all estimates previously published.

CHAPTER IV—POPULATION AND VITAL STATISTICS

NOTE—Reference is made in the final section of Part 1 of this Chapter to the aboriginal population. In accordance with the requirements of the Commonwealth of Australia Constitution Act (as provided by section 127, now repealed in terms of the Constitution Alteration (Aboriginals) Act of 1967, operative from 10th August, 1967), particulars of full-blood Aborigines are excluded from all population and vital statistics appearing elsewhere in this Chapter.

PART 1—POPULATION

The State of Western Australia, although comprising almost one-third of the total area of Australia, contains little more than seven per cent. of the population.

At the end of 1829, the year of establishment of the Colony, there were 1,003 persons in Western Australia. Progress in the early years was slow, and in 1849 the population was still less than 5,000. Transportation of convicts, begun in the following year, resulted in some acceleration, but it was not until the discovery of gold in the Kimberley in 1885 and the rich finds at Coolgardie in 1892 and at Kalgoorlie in 1893 that any marked increase took place. This development was so rapid that, in the last decade of the century, the population was almost quadrupled, from 48,502 at the end of 1890 to 179,967 in 1900. The rate of growth in those years has never been approached in the present century, as will be seen from the table below, but the average annual rate of increase of Western Australia's population from the beginning of the century to the end of 1966, 2·38 per cent., has been higher than that of any other State and of the Commonwealth as a whole, 1·73 per cent.

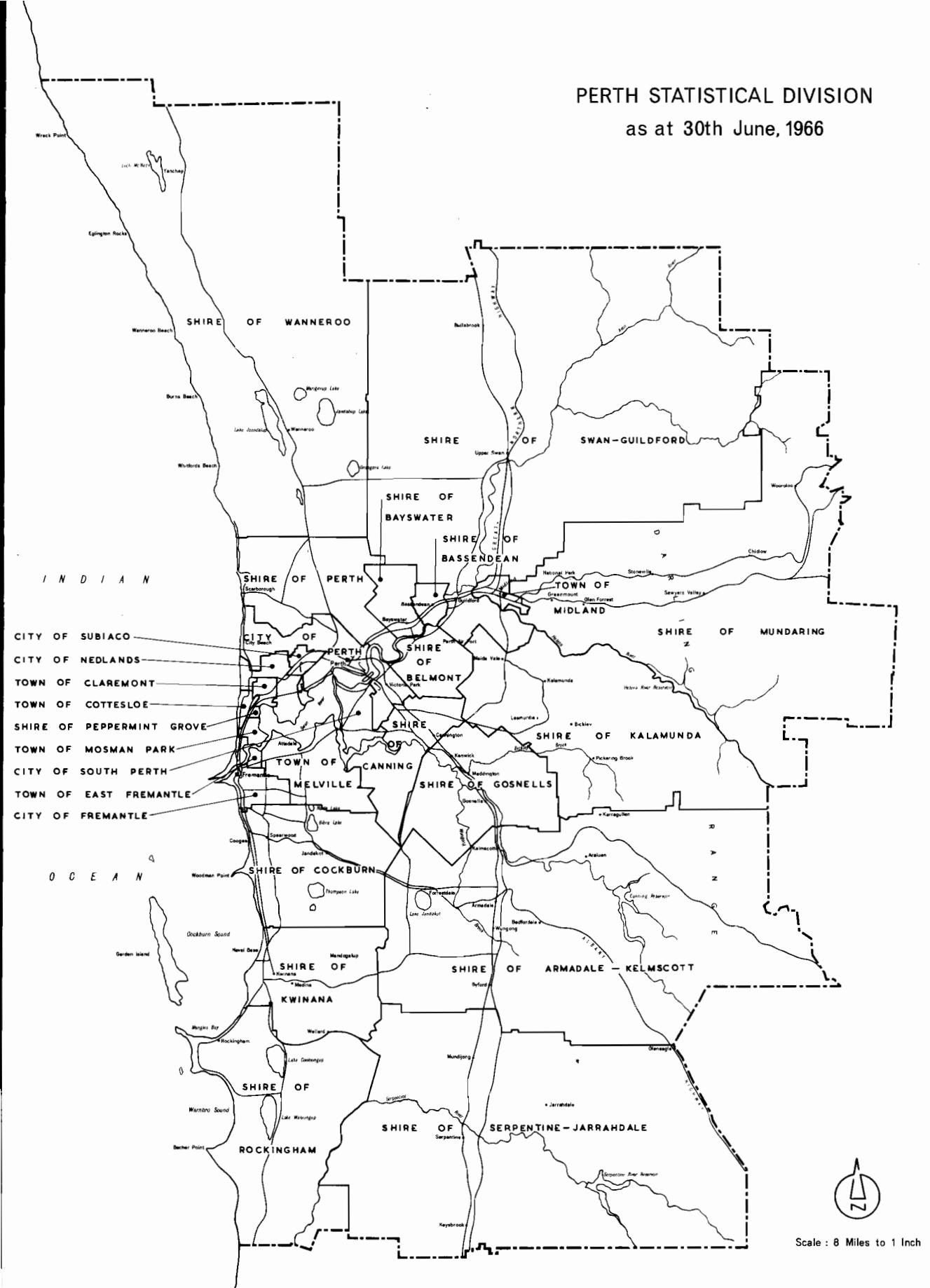
The table shows the population at ten-yearly intervals from 1830, the numerical and percentage increase during each decade and the corresponding average annual rate. The population at the end of each year from 1957 to 1966 is also shown, together with the increase in each year and during the ten-year period ended 31st December, 1966.

ESTIMATED POPULATION(a)—1830-1966

At 31st December—	Males	Females	Persons	Increase		
				Number	Per cent.	Average Annual Rate (per cent.)
1830	877	295	1,172	....	....	....
1840	1,434	877	2,311	1,139	97·18	7·03
1850	3,576	2,310	5,886	3,575	154·69	9·80
1860	9,529	5,698	15,227	9,341	158·70	9·97
1870	15,474	9,610	25,084	9,857	64·73	5·12
1880	18,559	12,460	29,019	3,935	15·69	1·47
1890	28,854	19,648	48,502	19,483	67·14	5·27
1900	110,088	69,879	179,967	131,465	271·05	14·01
1910	157,971	118,861	276,832	96,865	53·82	4·40
1920	176,895	154,428	331,323	54,491	19·68	1·81
1930	232,868	198,742	431,610	100,287	30·27	2·68
1940	248,734	225,342	474,076	42,466	9·84	0·94
1950	294,758	277,891	572,649	98,573	20·79	1·91
1960	372,665	358,368	731,033	158,384	27·66	2·47
1957	356,195	339,039	695,234	13,966	2·05	....
1958	361,441	345,755	707,196	11,962	1·72	....
1959	366,253	352,438	718,691	11,495	1·63	....
1960	372,665	358,368	731,033	12,342	1·72	....
1961	379,332	365,513	744,845	13,812	1·89	....
1962	390,176	378,209	766,385	21,540	2·89	....
1963	401,023	388,531	787,554	21,169	2·76	....
1964	410,738	395,562	806,300	18,746	2·38	....
1965	420,772	405,173	825,945	19,645	2·44	....
1966	432,939	417,161	850,100	24,155	2·92	....
Ten years ended 31st December, 1966				168,832	24·78	2·24

(a) See letterpress *Estimates of Population* on page 118. Figures from 1961 have been adjusted in accordance with the preliminary results of the 1966 Census.

PERTH STATISTICAL DIVISION
as at 30th June, 1966



CENSUSES

The first systematic census of the Colony was taken on the 10th October, 1848. Since then, there have been 13 enumerations, the latest at the 30th June, 1966.

The population disclosed at each census taken up to 1966, its relation to the Australian total, and the masculinity are shown in the next table.

POPULATION AT EACH CENSUS DATE—WESTERN AUSTRALIA AND AUSTRALIA
1848-1966

Date of Census	Western Australia			Australia	Western Australia	
	Males	Females	Persons	Persons	Proportion of Australia (per cent.)	Masculinity (a)
1848—10th October	2,818	1,804	4,622	326,445	1.42	156.21
1854—30th September	7,779	3,964	11,743	671,436	1.75	196.24
1859—31st December	9,522	5,315	14,837	1,097,305	1.35	179.15
1870—31st March	15,375	9,410	24,785	1,606,057	1.54	163.39
1881—3rd April	17,062	12,646	29,708	2,250,194	1.32	134.92
1891—5th April	29,807	19,975	49,782	3,177,823	1.57	149.22
1901—31st March	112,875	71,249	184,124	3,773,801	4.88	158.42
1911—3rd April	161,565	120,549	282,114	4,455,005	6.33	134.02
1921—4th April	177,278	155,454	332,732	5,435,734	6.12	114.04
1933—30th June	233,937	204,915	438,852	6,629,839	6.62	114.16
1947—30th June	258,076	244,404	502,480	7,579,358	6.63	105.59
1954—30th June	330,358	309,413	639,771	8,986,530	7.12	106.77
1961—30th June	375,452	361,177	736,629	10,508,186	7.01	103.95
1966—30th June (b)	425,872	409,698	835,570	11,540,764	7.24	103.95

(a) Number of males to each 100 females. (b) Preliminary figures.

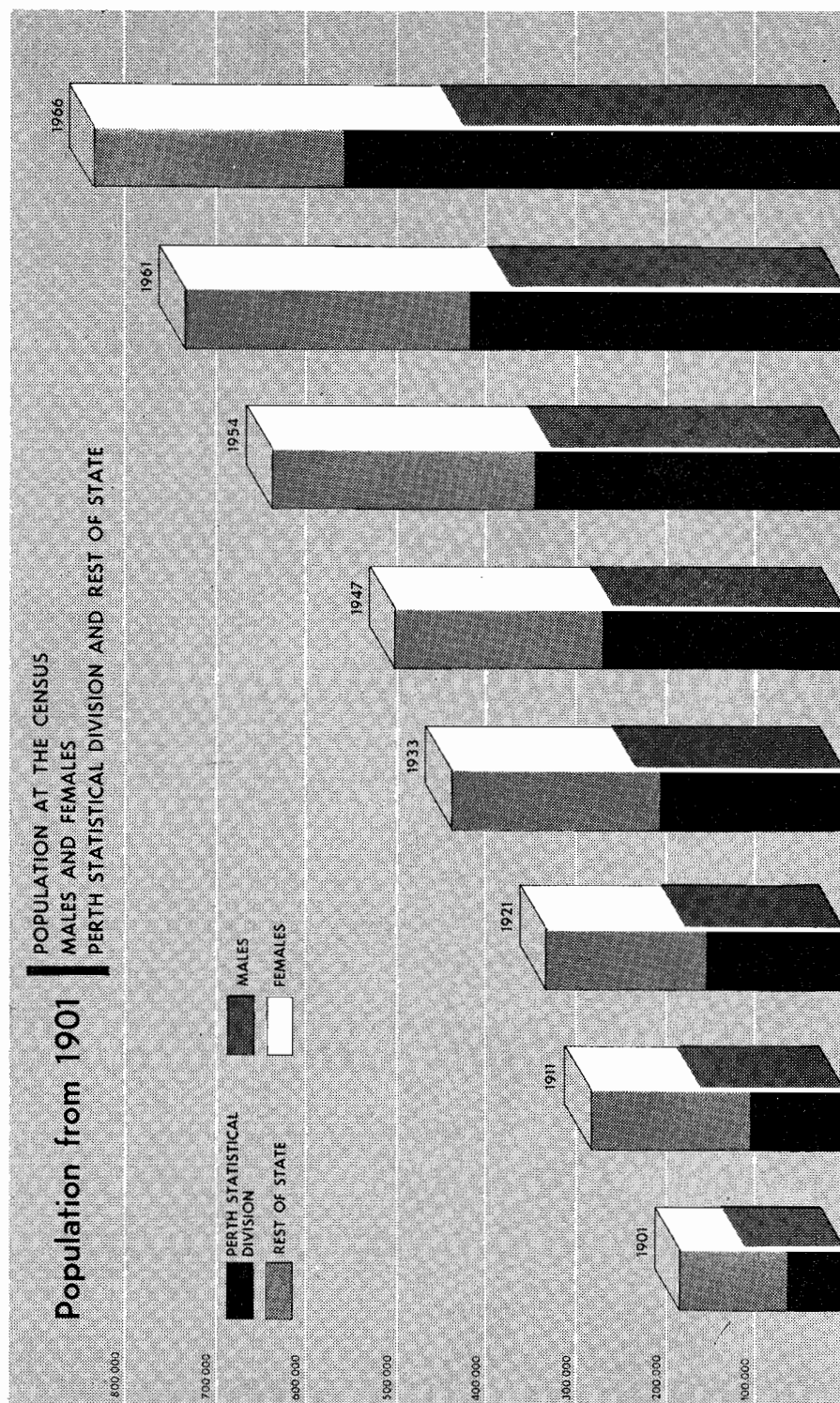
The Census of 1881 was the first taken simultaneously in all the Australian Colonies. For the dates shown in the years 1848, 1854 and 1870, the Australian population totals have been estimated from other sources. However, it is thought that the figures showing the proportion which Western Australian population bore to the Australian total at those dates are not seriously affected on that account.

Masculinity—The sharp rise in masculinity between the Census of 1848 and the three succeeding enumerations was doubtless a result of the transportation of convicts which began in 1850 and continued until 1868. During this period a total of 9,668 convicts, all of whom were males, were brought to the Colony. The high levels of masculinity disclosed by the Censuses of 1891 and 1901 may be attributed to the influx of a predominantly male population following the gold discoveries of 1885 and later years.

The masculinity of Western Australia's population has continued to be high. At the 30th June, 1966, it stood at 103.95 and was higher than in any other State and significantly higher than the Commonwealth figure of 101.39.

Age Composition—The following table shows a division of the population into the proportions of those aged under 15 years, from 15 to 64 years, and 65 years and over at each census from 1881 to 1961. These divisions have been chosen as being broadly representative of the child population, persons of working age, and those beyond normal working age. The proportions of minors in the population are also shown.

Of particular significance are the decrease between 1921 and 1947 in the proportion of children in the population, due mainly to the fall in the birth rate during the late 1920's and the 1930's, and the high level shown by the 1961 figure, resulting from the improvement in the birth rate and the introduction of large numbers of migrant children during the post-war period. The decline, to 60.0 per cent., in the proportion of those of working age is another important feature.



PERCENTAGE OF POPULATION IN CERTAIN AGE GROUPS—CENSUSES, 1881-1961

Census Year (a)	Under 15 years	15 years and under 65	65 years and over	Under 21 years	21 years and over
MALES					
1881	33.7	63.0	3.3	44.3	55.7
1891	29.0	67.3	3.7	38.5	61.5
1901	23.8	74.2	2.0	31.8	68.2
1911	27.5	70.1	2.4	36.6	63.4
1921	30.7	65.8	3.5	40.9	59.1
1933	26.2	67.8	6.0	36.7	63.3
1947	26.7	65.4	7.9	35.9	64.1
1954	30.1	63.2	6.7	38.3	61.7
1961	32.7	60.8	6.5	41.9	58.1
FEMALES					
1881	44.8	53.7	1.5	59.3	40.7
1891	42.0	56.1	1.9	54.7	45.3
1901	37.1	61.4	1.5	47.1	52.9
1911	36.0	61.7	2.3	46.8	53.2
1921	34.1	62.0	3.0	45.4	54.6
1933	28.8	65.9	5.3	40.3	59.7
1947	27.3	64.4	8.3	37.0	63.0
1954	30.8	61.1	8.1	39.2	60.8
1961	32.4	59.2	8.4	41.6	58.4
PERSONS					
1881	38.4	59.1	2.5	50.7	49.3
1891	34.2	62.8	3.0	45.0	55.0
1901	28.9	69.3	1.8	37.7	62.3
1911	31.1	66.5	2.4	40.9	59.1
1921	32.3	64.5	3.2	43.0	57.0
1933	27.4	66.9	5.7	38.4	61.6
1947	27.0	64.9	8.1	36.5	63.5
1954	30.4	62.2	7.4	38.8	61.2
1961	32.5	60.0	7.5	41.7	58.3

(a) For Census dates, see table on page 113.

AGE DISTRIBUTION OF THE POPULATION—CENSUS, 30th JUNE, 1961

Age Last Birthday (years)	Number			Proportion of Total (per cent.)		
	Males	Females	Persons	Males	Females	Persons
0-4	41,965	39,951	81,916	11.18	11.06	11.12
5-9	41,225	39,529	80,754	10.98	10.94	10.96
10-14	39,421	37,620	77,041	10.50	10.42	10.46
15-19	29,609	28,129	57,738	7.89	7.79	7.84
20-24	24,565	23,312	47,877	6.54	6.45	6.50
25-29	22,693	21,628	44,321	6.04	5.99	6.02
30-34	25,748	23,899	49,647	6.86	6.62	6.74
35-39	26,238	24,396	50,634	6.99	6.75	6.87
40-44	21,973	21,692	43,665	5.85	6.01	5.93
45-49	23,098	22,177	45,275	6.15	6.14	6.14
50-54	21,342	19,034	40,376	5.68	5.27	5.48
55-59	18,883	15,950	34,833	5.03	4.42	4.73
60-64	14,099	13,356	27,455	3.76	3.70	3.73
65-69	9,445	10,795	20,240	2.51	2.99	2.75
70-74	7,194	8,548	15,742	1.92	2.37	2.14
75-79	4,381	5,684	10,065	1.17	1.57	1.37
80-84	2,402	3,409	5,811	0.64	0.94	0.79
85-89	913	1,561	2,474	0.24	0.43	0.33
90-94	227	424	651	0.06	0.12	0.09
95-99	30	77	107	0.01	0.02	0.01
100 and over	1	6	7	0.00	0.00	0.00
Total	375,452	361,177	736,629	100.00	100.00	100.00
0-4	41,965	39,951	81,916	11.18	11.06	11.12
5-14	80,646	77,149	157,795	21.48	21.36	21.42
15-20	34,734	33,028	67,762	9.25	9.15	9.20
Under 21	157,345	150,128	307,473	41.91	41.57	41.74
21-44	116,092	110,028	226,120	30.92	30.46	30.70
45-64	77,422	70,517	147,939	20.62	19.52	20.08
65 and over	24,593	30,504	55,097	6.55	8.45	7.48
Total	375,452	361,177	736,629	100.00	100.00	100.00

Birthplace—The following table gives a summary of population classified according to birthplace as shown by the 1961 Census. More than three-quarters (77·68 per cent.) of the population at the 30th June, 1961 gave Australia as their birthplace. A total of 657,460 persons, almost nine-tenths of the population, stated that they were born in Australia, New Zealand, the United Kingdom or the Republic of Ireland. Of the 66,418 persons born in continental Europe, more than one-half were born in Italy (25,249 persons) or the Netherlands (11,163 persons).

BIRTHPLACE OF THE POPULATION—CENSUS, 30th JUNE, 1961

Birthplace	Number			Proportion of Total (per cent.)		
	Males	Females	Persons	Males	Females	Persons
Australia	284,780	287,402	572,182	75·85	79·57	77·68
New Zealand	965	948	1,913	0·26	0·26	0·26
Europe—						
United Kingdom and Republic of Ireland	44,452	38,913	83,365	11·84	10·77	11·32
Italy	14,934	10,315	25,249	3·98	2·86	3·43
Netherlands	6,154	5,009	11,163	1·64	1·39	1·51
Yugoslavia	3,580	2,296	5,876	0·95	0·64	0·80
Germany	2,715	2,368	5,583	0·72	0·79	0·76
Poland	2,795	1,916	4,711	0·74	0·53	0·64
Greece	2,260	1,828	4,088	0·60	0·51	0·55
Other	5,721	4,027	9,748	1·53	1·11	1·32
Total—Europe	82,611	67,172	149,783	22·00	18·60	20·33
Other Birthplaces	7,096	5,655	12,751	1·89	1·57	1·73
Grand Total	375,452	361,177	736,629	100·00	100·00	100·00

Nationality—The population at the 1961 Census is classified in the next table according to nationality. Over 95 per cent. of the population (702,890 persons) were of British nationality. Of the 164,447 persons born outside Australia, 130,708 (79·48 per cent.) were of British nationality, 13,902 (8·45 per cent.) of Italian nationality, and 7,367 (4·48 per cent.) of Dutch nationality.

NATIONALITY OF THE POPULATION—CENSUS, 30th JUNE, 1961

Nationality	Number			Proportion of Total (per cent.)		
	Males	Females	Persons	Males	Females	Persons
British (a)—						
Born in Australia	284,780	287,402	572,182	75·85	79·57	77·68
Born outside Australia	71,811	58,997	130,708	19·13	16·31	17·74
Total—British	356,591	346,299	702,890	94·98	95·88	95·42
Foreign—						
Italian	7,632	6,270	13,902	2·03	1·74	1·89
Dutch	3,916	3,451	7,367	1·04	0·96	1·00
Yugoslav	1,267	910	2,177	0·34	0·25	0·29
German	1,021	876	1,897	0·27	0·24	0·26
Greek	905	977	1,882	0·24	0·27	0·26
Polish	1,033	750	1,783	0·28	0·21	0·24
American (U.S.)	322	142	464	0·08	0·04	0·06
Austrian	270	161	431	0·07	0·04	0·06
Ukrainian	176	120	296	0·05	0·03	0·04
Other (including Stateless)	2,319	1,221	3,540	0·62	0·34	0·48
Total—Foreign	18,861	14,878	33,739	5·02	4·12	4·58
Grand Total	375,452	361,177	736,629	100·00	100·00	100·00

(a) All persons of individual citizenship status who by virtue of the Nationality and Citizenship Act 1948 are deemed to be British subjects. For the purposes of this table Irish nationality is included with British.

Religion—The Census and Statistics Act 1905–1966 provides that “no person shall be liable to any penalty for omitting or refusing to state the religious denomination or sect to which he belongs or adheres”. At the 1961 Census the proportion of non-reply in the total population was 10·43 per cent., 76,796 persons refraining from answering the question. Non-reply occurred more frequently among the males than among the females, 11·13 per cent. of males failing to answer compared with 9·69 per cent. of females.

The following table shows the numbers of adherents of the principal religions and sects, as disclosed by the Census, together with their proportional relationship to total population and to the total number of replies.

RELIGION OF THE POPULATION—CENSUS, 30th JUNE, 1961

Religion	Number			Proportion (per cent.) of—	
	Males	Females	Persons	Total Population	Total Replies
Christian—					
Church of England	146,798	143,065	289,863	39.35	43.93
Catholic, Roman (a)	56,519	49,533	106,052	14.40	16.07
Catholic (a)	36,116	38,005	74,121	10.06	11.23
Methodist	37,455	39,010	76,465	10.38	11.59
Presbyterian	20,403	20,180	40,583	5.51	6.15
Churches of Christ	4,757	5,504	10,261	1.39	1.56
Greek Orthodox	4,955	4,102	9,057	1.23	1.37
Baptist	4,311	4,650	8,961	1.22	1.36
Congregational	3,826	4,200	8,026	1.09	1.22
Salvation Army	2,174	2,371	4,545	0.62	0.69
Lutheran	2,261	2,199	4,460	0.60	0.68
Seventh Day Adventist	1,691	2,099	3,790	0.51	0.57
Brethren	426	431	857	0.12	0.13
Protestant (undefined)	2,675	2,559	5,234	0.71	0.79
Other (including Christian undefined)	4,084	4,672	8,756	1.19	1.33
Total—Christian	328,451	322,580	651,031	88.38	98.67
Non-Christian—					
Hebrew	1,404	1,378	2,782	0.38	0.42
Other	649	187	836	0.11	0.13
Total—Non-Christian	2,053	1,565	3,618	0.49	0.55
Indefinite	1,106	922	2,028	0.27	0.30
No Religion	2,051	1,105	3,156	0.43	0.48
Total Replies	333,661	326,172	659,833	89.57	100.00
No Reply	41,791	35,005	76,796	10.43	....
Grand Total	375,452	361,177	736,629	100.00	....

(a) So described in individual census schedules.

Conjugal Condition—The following table shows the numbers of persons of each conjugal condition recorded at the 1961 Census, together with the proportions which these numbers bore to the total population and to the population aged 15 years and over.

CONJUGAL CONDITION OF THE POPULATION—CENSUS, 30th JUNE, 1961

Conjugal Condition	Population of All Ages			Population aged 15 years and over		
	Males	Females	Persons	Males	Females	Persons
NUMBER						
Never Married	197,553	165,971	363,524	74,942	48,871	123,813
Married	162,838	160,456	323,294	162,838	160,456	323,294
Married but Permanently Separated	4,629	5,201	9,830	4,629	5,201	9,830
Widowed	7,137	26,320	33,457	7,137	26,320	33,457
Divorced	3,295	3,229	6,524	3,295	3,229	6,524
Total	375,452	361,177	736,629	252,841	244,077	496,918
PROPORTION OF TOTAL (per cent.)						
Never Married	52.62	45.95	49.35	29.64	20.03	24.92
Married	43.37	44.43	43.89	64.41	65.74	65.06
Married but Permanently Separated	1.23	1.44	1.33	1.83	2.13	1.98
Widowed	1.90	7.29	4.54	2.82	10.78	6.73
Divorced	0.88	0.89	0.89	1.30	1.32	1.31
Total	100.00	100.00	100.00	100.00	100.00	100.00

An analysis of population according to conjugal condition in conjunction with age and occupational status as recorded at the Census of 30th June, 1966 is given in Chapter X—Part 1, *Employment*.

Industry—Classifications of the population according to industry at the Census of 30th June, 1966 will be found in Chapter X—*Employment, Wages and Prices*.

Occupational Status—An analysis of the population according to occupational status at the 1966 Census appears in Chapter X—*Employment, Wages and Prices*.

Occupation—A classification of the population according to occupation at the 1966 Census is given in Chapter X—*Employment, Wages and Prices*.

Dwellings—Certain particulars of dwellings at the Censuses of 1954 and 1961 are presented in Chapter V—*Social Condition*, and at the 1966 Census in the *Appendix*.

ESTIMATES OF POPULATION

For dates other than those of the periodic census of population, it is necessary to rely upon estimates based on records of births and deaths and of movements of population interstate and overseas. Estimates of the population of Australia and of each of the States and Territories are prepared by the Commonwealth Statistician as at 31st March, 30th June, 30th September and 31st December in each year. Because the available records of interstate movement are incomplete, these intercensal estimates as they apply to States and Territories are approximate and are revised when the results of the next succeeding census become known.

Until 1967, when a new method was introduced, the estimates were made by adding to the census figures the subsequent natural increase (the excess of births over deaths) and all net recorded overseas movement according to State of embarkation or disembarkation, as well as all net recorded movement by air, rail, sea and bus between States. The 1966 Census results confirmed that, despite very considerable efforts made to improve records of interstate movements, it is not possible to measure such movements with the desired accuracy. The new method, tested over the 1961–1966 intercensal period, appears to provide a more accurate result, and has therefore been adopted for intercensal revision of the population and will continue to be used until the Census of 1971.

In the new method the population in each State or Territory is estimated by adding to the population ascertained at the Census the natural increase and the recorded net gain from overseas migration for that State or Territory; gains and corresponding losses that result from movements between States and Territories are also taken into account in so far as they are recorded as transfers of residence under child endowment procedures or Commonwealth electoral procedures, supplemented by results of any special count or sample survey. Holiday, business or other similar short-term movements between States and Territories are omitted.

Population estimates for dates and periods between the Censuses of 30th June, 1961 and 30th June, 1966, as shown in the next two tables, have been recalculated using the new method. They are based on the preliminary results of the 1966 Census and are subject to further revision when the final results become available.

ESTIMATED POPULATION

Year	At 30th June			At 31st December		
	Males	Females	Persons	Males	Females	Persons
1957	352,424	335,181	687,605	356,195	339,039	695,234
1958	357,425	342,140	699,565	361,441	345,755	707,196
1959	363,019	349,051	712,070	366,253	352,438	718,691
1960	367,685	354,395	722,080	372,665	358,368	731,033
1961	(a) 375,452	(a) 361,177	(a) 736,629	379,332	365,513	744,845
1962	384,584	370,760	755,344	390,176	376,209	766,385
1963	395,888	381,361	777,249	401,023	386,531	787,554
1964	405,956	390,894	796,850	410,738	395,562	806,300
1965	414,588	398,859	813,447	420,772	405,173	825,945
1966	(a) 425,872	(a) 409,698	(a) 835,570	432,939	417,161	850,100

(a) Census figures.

It is often useful to relate a given characteristic to population in order to express it in *per capita* terms or as “per head of population”. In some cases it is appropriate to relate a characteristic to the population as at a specified date as, for example, savings bank balances per head of population at the 30th June, or motor vehicles per head of population at the 31st December.

Where events, as for instance births or deaths, are taking place continuously throughout a period, it is obviously not appropriate to relate these events to the population as at a specific date. It is necessary, therefore, to devise a measure which takes account of the change in population which occurs continuously throughout any period. This measure is known as the *mean population*.

As stated earlier, estimates of population are prepared as at the end of each quarter of the year. The mean population of a quarter might be taken to be the average, or arithmetic mean, of the populations at the beginning and the end of the quarter. If a represents the population at the beginning of a year and b, c, d and e the populations at the end of the first, second, third and fourth quarters respectively, these quarterly means would then be $\frac{1}{2}(a + b)$ for the first quarter, $\frac{1}{2}(b + c)$ for the second, $\frac{1}{2}(c + d)$ for the third and $\frac{1}{2}(d + e)$ for the fourth quarter. The mean population for the year might then be taken as the arithmetic mean of the four quarterly average populations, or

$$\frac{1}{4}\left\{\frac{1}{2}(a + b) + \frac{1}{2}(b + c) + \frac{1}{2}(c + d) + \frac{1}{2}(d + e)\right\}$$

which may be more simply expressed as $\frac{1}{12}(a + 2b + 2c + 2d + e)$. This method of deriving mean population had been in use in Western Australia prior to its general adoption by the 1903 Conference of Australian Statisticians. It was later superseded by the more precise measure

$$1/12(a + 4b + 2c + 4d + e)$$

which is now commonly used in Australian statistics. In order to establish uniformity with current practice, estimates of mean population for 1901 and later years have been revised, where necessary, by the application of this formula.

ESTIMATED MEAN POPULATION (a)

Year	Year ended 30th June			Year ended 31st December		
	Males	Females	Persons	Males	Females	Persons
1957	349,475	331,474	680,949	352,223	335,225	687,448
1958	354,799	338,769	693,568	357,575	342,340	699,915
1959	360,285	345,584	705,869	362,796	348,941	711,737
1960	365,252	352,064	717,316	368,112	354,788	722,900
1961	371,805	357,965	729,770	(b) 375,884	(b) 361,684	(b) 737,568
1962	379,683	365,717	745,400	(b) 384,733	(b) 370,850	(b) 755,583
1963	390,332	376,214	766,546	395,911	381,450	777,361
1964	401,120	386,365	787,485	405,884	390,833	796,717
1965	410,335	394,992	805,327	415,011	399,398	814,409
1966	420,439	404,545	824,984	426,192	410,153	836,345

(a) See letterpress preceding table on page 118. (b) There is a break in continuity between 1961 and 1962. The mean population for 1962 and later years is calculated from population estimates prepared by the new method and that for 1961 (and earlier years) on the basis of the method previously used; see letterpress *Estimates of Population* on page 118.

INTERCENSAL INCREASES

The following table shows the population of the State at each census from 1891 to 1966, and the intercensal gains or losses by natural increase and by migration. It also shows the average annual gains or losses in each intercensal period and in the whole period 1891-1966.

POPULATION—ANALYSIS OF INTERCENSAL INCREASES: 1891-1966

Period (a)	Population at Beginning of Period	Natural Increase (b)		Net Migration (c)		Total Increase		Population at End of Period
		Total	Annual Average	Total	Annual Average	Number	Annual Average	
1891-1901	49,782	15,901	1,590	118,441	11,844	134,342	13,434	184,124
1901-1911	184,124	44,246	4,425	53,744	5,374	97,990	9,799	282,114
1911-1921	282,114	51,850	5,185	-1,232	-123	50,618	5,062	332,732
1921-1933	332,732	60,127	4,908	45,993	3,755	106,120	8,663	438,852
1933-1947	438,852	69,439	4,960	-5,811	-415	63,628	4,545	502,480
1947-1954	502,480	65,576	9,368	71,715	10,245	137,291	19,613	639,771
1954-1961	639,771	79,432	11,348	17,426	2,489	96,858	13,837	736,629
1961-1966 (d)	736,629	53,122	10,624	45,819	9,164	98,941	19,788	835,570
1891-1966 (d)	49,782	439,693	5,843	346,095	4,599	785,788	10,442	835,570

(a) For Census dates, see table on page 113. (b) Excess of births over deaths. (c) Excess of arrivals over departures. Minus sign (—) indicates loss by migration. (d) Figures subject to revision.

The following table shows the increases in the populations of the several States and Territories and of Australia as a whole during each of the eight intercensal periods from 1891 to 1966. The table gives the numerical increases, the proportional increases and the average annual rates of increase.

POPULATION—INTERCENSAL INCREASES: STATES AND TERRITORIES
1891-1966

State or Territory	1891-1901 (10 years)	1901-1911 (10 years)	1911-1921 (10 years)	1921-1933 (12½ years)	1933-1947 (14 years)	1947-1954 (7 years)	1954-1961 (7 years)	1961-1966 (5 years) (a)
NUMERICAL INCREASE								
New South Wales (b)	227,709	293,602	453,637	500,476	383,991	438,691	493,484	314,090
Victoria	60,982	114,481	215,729	288,981	234,440	397,640	477,772	287,719
Queensland	104,411	107,684	150,159	191,562	158,881	211,844	200,569	142,412
South Australia	42,813	50,212	86,602	85,789	65,124	151,021	172,246	121,383
Western Australia	134,342	97,990	50,618	106,120	63,628	137,291	96,858	98,941
Tasmania	25,808	13,736	22,569	13,819	29,479	51,674	41,588	20,877
Northern Territory	—87	—1,501	557	983	6,018	5,601	10,626	10,071
Australian Capital Territory	(c)	(c)	858	6,375	7,958	13,410	28,513	37,085
AUSTRALIA	595,978	681,204	980,729	1,194,105	949,519	1,407,172	1,521,656	1,032,578
PROPORTIONAL INCREASE (per cent.)								
New South Wales (b)	20.20	21.67	27.55	23.83	14.76	14.70	14.41	8.02
Victoria	5.35	9.53	16.40	18.87	12.88	19.35	19.43	9.82
Queensland	26.52	21.62	24.79	25.34	16.77	19.15	15.21	9.38
South Australia	13.57	14.01	21.20	17.33	11.21	23.38	21.61	12.52
Western Australia	269.86	53.22	17.94	31.89	14.50	27.32	15.14	13.43
Tasmania	17.60	10.86	11.80	6.46	12.95	20.10	13.47	5.96
Northern Territory	—1.78	—31.20	16.83	25.42	124.08	51.54	64.52	38.17
Australian Capital Territory	(c)	(c)	50.06	247.86	88.95	79.33	94.06	63.04
AUSTRALIA	18.75	18.05	22.01	21.97	14.32	18.57	16.93	9.83
AVERAGE ANNUAL RATE OF INCREASE (per cent.)								
New South Wales (b)	1.86	1.97	2.46	1.76	0.99	1.98	1.94	1.55
Victoria	0.52	0.91	1.53	1.42	0.87	2.56	2.58	1.39
Queensland	2.38	1.98	2.24	1.86	1.11	2.53	2.04	1.81
South Australia	1.28	1.32	1.94	1.31	0.76	3.05	2.83	2.39
Western Australia	13.97	4.36	1.66	2.29	0.97	3.51	2.03	2.55
Tasmania	1.63	1.04	1.12	0.51	0.87	2.65	1.82	1.16
Northern Territory	—0.18	—3.67	1.57	1.87	5.93	6.12	7.37	6.53
Australian Capital Territory	(c)	(c)	4.14	10.71	4.65	8.70	9.93	10.27
AUSTRALIA	1.73	1.67	2.01	1.63	0.96	2.46	2.26	1.89

NOTE—Minus sign (—) denotes decrease.

(a) Figures subject to revision.
Wales prior to 1911.

(b) Includes Australian Capital Territory prior to 1911.

(c) Part of New South

GEOGRAPHICAL DISTRIBUTION

Urban and Rural Populations

For the purpose of presenting statistics obtained at the Census of 30th June, 1966, new methods were used in the delimitation of metropolitan areas and certain other urban centres. Briefly, these are as follows:

- (i) Around each capital city and each town with a population of 75,000 or more *two* boundaries were drawn.

The *outer* boundary, which is fixed, circumscribes the area in close economic and social contact with the main city or town. These areas are designated Statistical Divisions (for State capital cities) or Statistical Districts (for Canberra and some other cities). The *inner* boundary indicates the area within which, at the time of the Census, there was a density of at least 500 persons per square mile. This density is determined for each Census collector's district (the smallest geographical area available). From

Census to Census as urbanization proceeds this *inner* boundary will move outwards to encompass peripheral development. Some specified areas of lower density (*e.g.*, industrial areas) are classified as urban on other grounds.

- (ii) The principal urban centre within each Capital City Statistical Division is designated the "Metropolitan Area".
- (iii) Population clusters of 1,000 or more persons having a minimum density of 500 persons per square mile are designated "Urban Centres".

In determining the outer boundary of each Capital City Statistical Division the aim was to delimit, for at least two or three decades, the region expected to be in close contact with the inner urban area, after making allowances for further urban development, including satellite towns, improvements in transport, and other factors. The Perth Statistical Division comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions.

A detailed statement on the concepts and criteria adopted in the delimitation of metropolitan areas and other urban centres is contained in *Field Count Statement No. 4—Population: Principal Urban Centres of Australia* published November, 1966 by the Commonwealth Statistician, Canberra.

Comparable information for the 1961 Census has been prepared, using the new concepts. Because the 1961 Census collectors' districts were not always suitable for this purpose, some estimations have had to be made.

The following table shows, for 1961 and 1966, a division of the population of each State and Territory into *Urban* and *Rural* on the basis of the new concepts. *Metropolitan Urban* refers to Metropolitan Areas as defined above. *Other Urban* represents the aggregation of the populations of Urban Centres outside the Metropolitan Areas, as in the second table on page 122. *Rural* comprises the remaining portion of each State or Territory. The term *Migratory* refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES
CENSUSES, 1961 AND 1966
(Persons)

State or Territory	Urban			Rural	Migratory	Total Population
	Metropolitan	Other	Total			
CENSUS, 30th JUNE, 1961						
New South Wales	2,197,022	1,118,173	3,315,195	591,227	10,591	3,917,013
Victoria	1,858,534	579,936	2,438,470	487,034	4,609	2,930,113
Queensland	587,634	540,827	1,128,461	388,379	1,988	1,518,828
South Australia	580,449	178,227	758,676	206,726	3,938	969,340
Western Australia	423,930	124,427	548,357	185,255	3,017	736,629
Tasmania	110,217	125,925	236,142	113,319	879	350,340
Northern Territory	.....	19,056	19,056	7,775	264	27,095
Australian Capital Territory	55,746	.....	55,746	3,082	.....	58,828
AUSTRALIA	5,813,532	2,686,571	8,500,103	1,982,797	25,286	10,508,186
CENSUS, 30th JUNE, 1966 (b)						
New South Wales	2,444,735	1,210,791	3,655,526	568,109	7,468	4,231,103
Victoria	2,108,499	642,306	2,750,805	463,449	3,578	3,217,832
Queensland	719,140	557,207	1,276,347	384,052	841	1,661,240
South Australia	726,930	173,588	900,518	189,026	1,179	1,090,723
Western Australia	499,494	140,421	639,915	193,028	2,627	835,570
Tasmania	119,415	141,476	260,891	109,659	667	371,217
Northern Territory	.....	28,521	28,521	8,189	456	37,166
Australian Capital Territory	92,199	.....	92,199	3,714	.....	95,913
AUSTRALIA	6,710,412	2,894,310	9,604,722	1,919,226	16,816	11,540,764

(a) See letterpress preceding table for definitions of *Urban*, *Rural*, etc. (b) Preliminary figures.

The following table shows the percentage distribution of the population in each State and Territory, at the Censuses of 1961 and 1966, among the divisions *Metropolitan Urban*, *Other Urban* and *Rural*, according to the concepts applied at the 1966 Census (see letterpress preceding previous table).

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES
PERCENTAGE DISTRIBUTION : CENSUSES, 1961 AND 1966
(Per cent.)

State or Territory	Urban			Rural	Migratory	Total
	Metro- politan	Other	Total			
CENSUS, 30th JUNE, 1961						
New South Wales	56.09	28.55	84.64	15.09	0.27	100.00
Victoria	63.43	19.79	83.22	16.62	0.16	100.00
Queensland	38.69	35.61	74.30	25.57	0.13	100.00
South Australia	59.88	18.39	78.27	21.33	0.40	100.00
Western Australia	57.55	16.89	74.44	25.15	0.41	100.00
Tasmania	31.46	35.94	67.40	32.35	0.25	100.00
Northern Territory	....	70.33	70.33	28.70	0.97	100.00
Australian Capital Territory	94.76	....	94.76	5.24	....	100.00
AUSTRALIA	55.32	25.57	80.89	18.87	0.24	100.00
CENSUS, 30th JUNE, 1966 (b)						
New South Wales	57.78	28.62	86.40	13.43	0.17	100.00
Victoria	65.53	19.96	85.49	14.40	0.11	100.00
Queensland	43.29	33.54	76.83	23.12	0.05	100.00
South Australia	66.65	15.91	82.56	17.33	0.11	100.00
Western Australia	59.78	16.81	76.59	23.10	0.31	100.00
Tasmania	32.17	38.11	70.28	29.54	0.18	100.00
Northern Territory	....	76.74	76.74	22.03	1.23	100.00
Australian Capital Territory	96.13	....	96.13	3.87	....	100.00
AUSTRALIA	58.14	25.08	83.22	16.63	0.15	100.00

(a) See pages 120-1 for definitions of *Urban*, *Rural*, etc.

(b) Figures subject to revision.

The following table shows the population of urban centres in Western Australia at the Censuses of 1961 and 1966. For *Metropolitan* and *Other Urban* centres, which are delineated by moving boundaries (see letterpress on pages 120-1), boundaries for 1961 have been redrawn according to the new criteria. The urban populations (partly estimated) within these boundaries are shown in this table for comparison with the 1966 population. The intercensal increase or decrease between 1961 and 1966 may therefore reflect population change within the original 1961 boundary; urban growth beyond the original boundary; or the merging of *Other Urban* areas with the *Metropolitan Area*.

URBAN CENTRES (a)—POPULATION AT CENSUSES, 1961 AND 1966

Urban Centre (a)	Census 30th June, 1961	Census 30th June, 1966 (b)	Urban Centre (a)	Census 30th June, 1961	Census 30th June, 1966 (b)
Perth Metropolitan Area	423,930	499,494	Other Urban Centres		
Other Urban Centres—			(continued)—		
Kalgoorlie-Boulder	21,247	19,892	Fort Hedland	(c) 965	1,785
Bunbury	13,186	15,453	Wagin	1,608	1,748
Geraldton	10,894	12,118	Broome	1,222	1,701
Albany	10,526	11,417	Mount Barker	1,532	1,588
Collie	7,547	7,616	Bridgetown	1,565	1,567
Northam	7,200	7,392	Derby	(d) 994	1,439
Narrogin	4,620	4,864	York	1,524	1,435
Busselton	3,495	4,275	Kellerberrin	1,323	1,361
Medina-Calista	3,269	4,141	Kwinana Industrial	(e) 1,104	1,271
Rockingham-Safety Bay	1,726	3,759	Wyndham	(d) 958	1,206
Merredin	3,029	3,619	Moora	1,145	1,175
Katanning	3,360	3,505	Wundowie	1,102	1,040
Armadale	2,565	3,456	Dampier	(f) 1,024	1,024
Manjimup	2,914	3,186	Waroona	(c) 1,005	1,013
Kalamunda-Gooseberry Hill	2,488	3,069	Gnowangerup	740	1,003
Carnarvon	1,809	2,957	Donnybrook	1,011	(g)
Mandurah	2,121	2,732	Pemberton	1,201	(h)
Esperance	1,111	2,691			
Harvey	2,046	2,074			
Norseman	1,980	1,849			
			Total, Other Urban	(i) 122,475	140,421
			TOTAL, URBAN	(i) 546,405	639,915

(a) See letterpress on page 121. (b) Subject to revision on the basis of final figures from the 1966 Census. (c) Non-urban in 1961. (d) Classified as urban in 1961, as population inclusive of full-blood Aborigines exceeded 1,000. (e) Excludes Medina-Calista. (f) Non-urban in 1961; population not available. (g) Non-urban in 1966; population 981. (h) Non-urban in 1966; population 930. (i) Excludes populations marked (c).

Population in Statistical Divisions

Western Australia is divided into a number of municipal districts for the purposes of local government administration. At the 30th June, 1966 there were 144 such districts, which are used as the basis of presentation of data derived not only from the Population Census but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form. The Statistical Divisions and their component local government areas are shown on the map of the State appearing at the back of the Year Book.

In 1929, when statistics were first presented according to Statistical Divisions, Western Australia was divided into seven such areas. There are currently ten Statistical Divisions, and these have been used as the basis of compilation of the particulars in the following table. The figures shown refer to the areas contained within the several Divisions as they existed at the Census of 30th June, 1966.

The Perth Statistical Division, in common with similar Divisions for each of the other State capital cities, was used for the first time in census tabulations at the Census of 30th June, 1966 (see preceding section *Urban and Rural Populations*). The boundaries of the Perth Statistical Division and its component local government areas are shown on the map facing page 112.

STATISTICAL DIVISIONS (a)—POPULATION AT EACH CENSUS FROM 1911

Statistical Division (a)	Census Date						
	1911 3rd April	1921 4th April	1933 30th June	1947 30th June	1954 30th June	1961 30th June	1966(b) 30th June
POPULATION ('000)							
Perth (c)	116.2	170.2	230.3	303.0	395.0	475.4	558.3
South-West	27.0	34.4	50.4	52.0	68.6	71.6	73.0
Southern Agricultural	15.9	20.5	27.0	24.9	36.1	41.6	44.5
Central Agricultural	31.5	40.5	53.6	43.8	55.9	57.6	58.3
Northern Agricultural	13.4	17.7	26.6	24.7	32.1	35.8	38.1
Eastern Goldfields	55.0	33.7	33.2	37.7	34.6	34.1	33.8
Central	9.6	5.0	7.9	6.4	4.8	4.0	3.5
North-West	2.1	2.1	2.6	2.6	4.2	4.6	8.5
Pilbara	2.5	1.4	1.8	1.7	2.7	3.2	7.2
Kimberley (d)	2.0	2.2	2.1	2.8	3.5	5.7	7.8
Total, All Divisions (d)	275.1	327.5	435.7	499.5	637.5	733.6	832.9
Migratory (e)	7.0	5.2	3.2	3.0	2.3	3.0	2.6
WESTERN AUSTRALIA	282.1	332.7	438.9	502.5	639.8	736.6	835.6

PROPORTION OF STATE TOTAL (per cent.)

Perth (c)	41.18	51.16	52.49	60.30	61.75	64.54	66.82
South-West	9.57	10.33	11.49	10.34	10.72	9.72	8.74
Southern Agricultural	5.63	6.16	6.15	4.96	5.65	5.65	5.33
Central Agricultural	11.16	12.16	12.22	8.72	8.74	7.82	6.98
Northern Agricultural	4.75	5.32	6.06	4.91	5.01	4.86	4.56
Eastern Goldfields	19.51	10.13	7.57	7.51	5.41	4.63	4.05
Central	3.39	1.49	1.79	1.27	0.75	0.54	0.41
North-West	0.75	0.62	0.60	0.52	0.66	0.62	1.01
Pilbara	0.87	0.42	0.42	0.33	0.41	0.44	0.86
Kimberley (d)	0.70	0.65	0.48	0.55	0.55	0.77	0.93
Total, All Divisions (d)	97.51	98.44	99.27	99.41	99.65	99.59	99.69
Migratory (e)	2.49	1.56	0.73	0.59	0.35	0.41	0.31
WESTERN AUSTRALIA	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) The figures shown refer to the areas contained within the several Statistical Divisions as they existed at 30th June, 1966. (b) Subject to revision on the basis of final figures from the 1966 Census. (c) See letterpress immediately preceding table.

(d) At Censuses prior to 1954, the pearling fleet based on Broome was classified to *Migratory*; see note (e). The estimated population involved was 2,500 in 1911; 1,500 in 1921; 800 in 1933; and 200 in 1947. From 1954, pearling crews have been included in the population of Broome.

(e) Refers to persons (both passengers and crew) who, at mid-night on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

The following table gives details of the population and masculinity in each Statistical Division of the State at the Censuses of 1961 and 1966.

POPULATION IN STATISTICAL DIVISIONS—CENSUSES, 1961 AND 1966

Statistical Division	Census, 30th June, 1961 (a)				Census, 30th June, 1966 (b)			
	Males	Females	Persons	Masculinity (c)	Males	Females	Persons	Masculinity (c)
Perth (d)	233,584	241,814	475,398	96·60	274,525	283,772	558,297	96·74
South-West	37,314	34,323	71,637	108·71	37,579	35,451	73,030	106·00
Southern Agricultural	21,999	19,624	41,623	112·10	23,351	21,190	44,541	110·20
Central Agricultural	30,962	26,628	57,590	116·28	31,328	26,954	58,282	116·23
Northern Agricultural	19,569	16,199	35,768	120·80	20,720	17,337	38,057	119·51
Eastern Goldfields	18,430	15,712	34,142	117·30	18,347	15,480	33,827	118·52
Central	2,376	1,604	3,980	148·13	2,008	1,453	3,461	138·20
North-West	2,754	1,809	4,563	152·24	5,454	3,004	8,458	181·56
Pilbara	2,119	1,124	3,243	188·52	5,405	1,781	7,186	303·48
Kimberley	3,816	1,852	5,668	206·05	5,029	2,775	7,804	181·23
Total, All Divisions	372,923	360,689	733,612	103·39	423,746	409,197	832,943	103·56
Migratory (e)	2,529	488	3,017	518·24	2,126	501	2,627	424·35
WESTERN AUSTRALIA	375,452	361,177	736,629	103·95	425,872	409,698	835,570	103·95

(a) For the purpose of this table, the figures shown for 30th June, 1961 have been adjusted to conform to the boundaries of Statistical Divisions as they existed at the 1966 Census. (b) Figures subject to revision. (c) Number of males to each 100 females. (d) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions (see letterpress *Urban and Rural Populations* on pages 120-1). (e) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

The growing urbanization occurring in other States is also apparent in Western Australia. The population of the Perth Statistical Division at the Census of 30th June, 1966 was 558,297, or 66·8 per cent. of the State total, compared with 475,398 (64·5 per cent.) five years earlier, an increase of 82,899 persons, or 17·4 per cent. The State's natural increase between the Censuses was 53,122 of which the Perth Statistical Division contributed 28,079. In addition, this Division experienced a net gain by migration of 54,820. The larger towns of the Agricultural and South-West Statistical Divisions also showed substantial population increases, the greatest being those of Bunbury (2,267 persons; or 17·2 per cent.), Geraldton (1,224; 11·2 per cent.) and Albany (891; 8·5 per cent.).

The total population in the area outside the Perth Statistical Division rose by 16,432 or less than 6·4 per cent. The natural increase recorded in the area was 25,043, so that there was a loss of 8,611 persons by migration. Of the net increase of 16,432 persons, the Pilbara Division accounted for almost one quarter with a population gain of 3,943 and showed the greatest proportional increase, 121·6 per cent. Other Divisions showing an increase were North-West, 3,895 (85·4 per cent.); Southern Agricultural, 2,918 (7·0 per cent.); Northern Agricultural, 2,289 (6·4 per cent.); Kimberley, 2,136 (37·7 per cent.); South-West, 1,393 (1·9 per cent.) and Central Agricultural, 692 (1·2 per cent.). Divisions which experienced a decrease in population were Central which lost 519 persons (—13·0 per cent.) and Eastern Goldfields with a decline of 315 (—0·9 per cent.).

The Eastern Goldfields, Central and Pilbara Statistical Divisions together comprised an area of 638,508 square miles (or almost two-thirds of the State) and had a population of only 44,474 persons at the Census of the 30th June, 1966. A low rainfall renders much of it virtually uninhabitable and desert or near-desert conditions prevail over some 350,000 square miles which includes much of the eastern and northern parts of the area and extends into the southern portion of the Kimberley Statistical Division. Almost no part of this desert area has an annual rainfall greater than ten inches and a considerable proportion has much less. Of the total of 44,474 persons enumerated in the three Divisions at the Census, more than half were living in the towns of Kalgoorlie-Boulder (19,892), Esperance (2,691) and Norseman (1,849).

Population of South-West Land Division

The South-West Land Division, as defined in the Land Act, 1933-1967, often has particular importance in matters of legislation and administration. Its boundaries are almost coincident with those of the area formed by the aggregation of the Perth Statistical Division and the South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Statistical Divisions. It embraces an area of 98,305 square miles, a little more than one-tenth of the whole State (975,920 square miles), and had a population of 772,000 persons at the 1966 Census, equivalent to 92.4 per cent. of the State total, compared with 682,000 (92.6 per cent.) in 1961.

Population North of 26° S. Latitude

For administrative and other purposes, the portion of the State lying north of the 26th parallel of latitude frequently has special significance. This area, which embraces part of the Central Statistical Division, almost all of the North-West Statistical Division, and the whole of the Pilbara and Kimberley Statistical Divisions, is 529,486 square miles in extent and is therefore somewhat greater in area than half the entire State. It had a population of 13,657 persons at the 1961 Census and 23,525 in 1966. Of these, almost 15,000 were enumerated in the coastal towns of Carnarvon (2,957), Port Hedland (1,785), Broome (1,701), Derby (1,439), Wyndham (1,206), Dampier (1,024), Exmouth (877) and Denham (285); the mining centres of Wittenoom (876), Tom Price (780), Yampi (594) and Goldsworthy (380); and the Ord River agricultural settlement at Kununurra (998).

POPULATION DENSITY

The most densely populated part of the State is the Perth Metropolitan Area (see letterpress *Urban and Rural Populations* on pages 120-1). At the Census of 30th June, 1966 it had a population of 499,494 persons and an area of 164.1 square miles, representing a density of 3,044 persons per square mile. Among the Statistical Divisions, Perth with a population of 558,297 and 2,072 square miles in area showed the highest density, 269 persons per square mile. The boundaries of the Perth Statistical Division and its component local government areas are shown on the map facing page 112. The Central Statistical Division was the most sparsely populated with an area of 218,011 square miles (more than one-fifth of the entire State) and a Census population of only 3,461 persons, equivalent to an average of one person to every 63 square miles.

AREA, POPULATION AND DENSITY—STATISTICAL DIVISIONS
CENSUS, 30th JUNE, 1966

Statistical Division	Area		Population (a)				Persons per square mile (a)
	Square Miles	Proportion of State (per cent.)	Males	Females	Persons	Proportion of State (per cent.)	
Perth (b)	2,072	0.21	274,525	283,772	558,297	66.82	269.45
South-West	11,030	1.13	37,579	35,451	73,030	8.74	6.62
Southern Agricultural	22,025	2.26	23,551	21,190	44,541	5.33	2.02
Central Agricultural	30,270	3.10	31,323	26,954	58,282	6.98	1.93
Northern Agricultural	33,921	3.47	20,720	17,337	38,057	4.56	1.12
Eastern Goldfields	249,035	25.52	18,347	15,480	33,827	4.05	0.14
Central	218,011	22.34	2,008	1,453	3,461	0.41	0.02
North-West	75,731	7.76	5,454	3,004	8,458	1.01	0.11
Pilbara	171,462	17.57	5,405	1,781	7,186	0.86	0.04
Kimberley	162,363	16.64	5,029	2,775	7,804	0.93	0.05
Total, All Divisions	975,920	100.00	423,746	409,197	832,943	99.69	0.85
Migratory (c) .....	.....	.....	2,126	501	2,627	0.31	.....
WESTERN AUSTRALIA	975,920	100.00	425,872	409,698	835,570	100.00	0.86

(a) Figures subject to revision. (b) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions (see letterpress *Urban and Rural Populations* on pages 120-1). (c) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

Western Australia had a population density at the 1966 Census of only 0.86 persons per square mile, compared with an average of 3.89 for Australia as a whole. Victoria was the most densely populated State, having an average of 36.61 persons per square mile.

AREA, POPULATION AND DENSITY—STATES AND TERRITORIES
CENSUS, 30th JUNE, 1966

State or Territory	Area in square miles	Population (a)			Persons per square mile (a)
		Males	Females	Persons	
New South Wales	309,433	2,122,559	2,108,544	4,231,103	13·67
Victoria	87,884	1,613,286	1,604,546	3,217,832	36·61
Queensland	667,000	842,201	819,039	1,661,240	2·49
South Australia	380,070	547,802	542,921	1,090,723	2·87
Western Australia	975,920	425,872	409,698	835,570	0·86
Tasmania	26,383	187,267	183,950	371,217	14·07
Northern Territory	520,280	21,319	15,847	37,166	0·07
Australian Capital Territory	939	49,910	46,003	95,913	102·14
AUSTRALIA	2,967,909	5,810,216	5,730,548	11,540,764	3·89

(a) Figures subject to revision.

ABORIGINAL POPULATION

Before an amendment to the Constitution in 1967, it was provided by section 127 of the Commonwealth of Australia Constitution Act that "in reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted". This provision was deleted by the Constitution Alteration (Aboriginals) Act of 1967, following a referendum held on the 27th May, 1967 which resulted in a large majority of votes in favour of its repeal. The Act became operative on the 10th August, 1967.

With regard to the original provision, Commonwealth legal authorities were of the opinion that persons of the half-blood were not "aboriginal natives" within the meaning of the Constitution, and *a fortiori* that persons of less than half aboriginal blood were not aboriginal natives. Accordingly, only persons having aboriginal blood to a degree greater than one-half have been excluded from the main tabulations relating to the Population Census.

ABORIGINAL POPULATION (a)—STATES AND TERRITORIES OF AUSTRALIA CENSUSES, 1961 AND 1966

State or Territory	Census, 30th June, 1961			Census, 30th June, 1966		
	Males	Females	Persons	Males	Females	Persons
New South Wales	7,494	7,222	14,716	6,737	6,876	13,613
Victoria	899	897	1,796	856	934	1,790
Queensland	10,146	9,550	19,696	9,644	9,359	19,003
South Australia	2,607	2,277	4,884	2,914	2,591	5,505
Western Australia	8,351	7,925	(b) 16,276	9,505	8,934	18,439
Tasmania	24	14	38	29	26	55
Northern Territory	9,013	8,747	(b) 17,760	10,651	10,468	21,119
Australian Capital Territory	78	65	143	52	44	96
AUSTRALIA	38,612	36,697	(b) 75,309	40,388	39,232	79,620

(a) Full-blood Aborigines and half-blood Aborigines; see letterpress immediately following table. Enumerated population only; see also note (b). Figures for 1966 are not strictly comparable with those for 1961; see letterpress following table.

(b) It is estimated that, at the 1961 Census 2,000 full-blood Aborigines in Western Australia and 1,944 in the Northern Territory (3,944 in total) were not contacted by census collectors and hence not included in the Census.

For census purposes, a full-blood Aboriginal is defined as a person who describes himself as having more than one-half aboriginal blood. A half-blood Aboriginal is a person who describes himself as having one-half aboriginal blood and one-half European blood. The total numbers of full-blood Aborigines and half-blood Aborigines enumerated in each State and Territory at the Censuses of 1961 and 1966 are shown in the preceding table.

Aborigines have been enumerated in all Censuses of the Commonwealth. However, the degree of coverage and information obtained have varied substantially since 1911. Since the Census taken in 1933, the adequacy of the particulars obtained has improved progressively, as a result of an increasing number of Aborigines coming into contact with more populated areas.

At the 1966 Census extensive arrangements were made to obtain as full a coverage of full-blood Aborigines as possible and to enumerate fully those Aborigines "out of contact". Throughout Australia the assistance of Aboriginal welfare bodies, mission superintendents, sheep and cattle station owners, patrol officers and police was sought in an effort to include all Aborigines and to obtain complete information about them.

Prior to the 1966 Census, Aborigines "out of contact" were not enumerated and estimates of these were made by authorities responsible for native welfare. It is estimated that, at the 1961 Census, 2,000 full-blood Aborigines in Western Australia and 1,944 in the Northern Territory were not contacted by Census collectors and hence not included in the Census.

CHAPTER IV — continued

PART 2 — BIRTHS, DEATHS AND MARRIAGES

NOTE—In some of the tables in this Part, information for the Perth Statistical Division is presented for the first time (see letterpress *Urban and Rural Populations* on pages 120–1 and map facing page 112). Particulars of full-blood Aborigines are excluded from all tables (see NOTE on page 112).

THE REGISTRATION SYSTEM

Compulsory registration of births, deaths and marriages in Western Australia was originally provided for by legislation of the year 1841. The Statutes currently in force are the Registration of Births, Deaths and Marriages Act, 1961–1965 (State) and the Marriage Act 1961–1966 (Commonwealth). For administrative purposes, the State is divided into 27 Registry Districts, each having a District Registrar. Particulars of births, deaths and marriages reported to the District Registrars are sent to the Registrar-General at Perth, where a Central Registry Office has been maintained since 1841. Local registers are kept at each district office.

Births are required to be registered within sixty days of the event, and must be notified by the father, the mother or the occupier of the premises where the birth took place. Special provisions and penalties apply to notification and registration after the expiration of the sixty-day period.

In the case of the birth of a child of at least 28 weeks' gestation not born alive, registration is required both as a birth and a death.

Deaths are required to be registered within fourteen days. Notification must be given by the person who disposes of the body or by the occupier of the premises where the death occurred. As in the case of births, special provisions and penalties exist for the late registration of a death.

Marriages are celebrated according to the provisions of the Marriage Act 1961–1966 (Commonwealth) by ministers of religion registered under the Act, or by District Registrars. Ministers are required to lodge a marriage certificate with the District Registrar for registration within fourteen days of the celebration of a marriage. A penalty fee is provided for registrations after fourteen days from the date of marriage.

Statistics of births, deaths and marriages are prepared from the registration documents. These vital statistics are compiled according to date of registration and not date of occurrence, and according to place of usual residence and not place of occurrence.

BIRTHS

Statistics of births in each of the five years 1962 to 1966 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole are shown in the following table.

BIRTHS

Year	Births (a)			Ex-Nuptial Births (a)	Multiple Births (a)	Stillbirths
	Males	Females	Total			
PERTH STATISTICAL DIVISION (b)						
1962	5,237	4,906	10,143	527	189	127
1963	5,322	4,960	10,282	645	(c) 190	99
1964	5,167	4,858	10,025	717	180	97
1965	5,035	4,866	9,901	764	(c) 192	110
1966	5,383	5,080	10,463	867	207	113
REST OF STATE						
1962	3,587	3,334	6,921	478	(c) 112	76
1963	3,547	3,461	7,008	584	144	79
1964	3,403	3,257	6,660	594	133	73
1965	3,245	3,040	6,285	675	149	71
1966	3,417	3,127	6,544	740	132	55
WHOLE STATE						
1962	8,824	8,240	17,064	1,005	(c) 301	203
1963	8,869	8,421	17,290	1,229	(c) 334	178
1964	8,570	8,115	16,685	1,311	313	170
1965	8,280	7,906	16,186	1,439	(c) 341	181
1966	8,800	8,207	17,007	1,607	339	168

(a) Figures represent the number of children live-born. (b) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions; see letterpress *Urban and Rural Populations* on pages 120–1. (c) Includes one case of triplets.

The following table shows the number of nuptial confinements during 1966, classified according to age group of mother and number of previous issue.

NUPTIAL CONFINEMENTS—AGE OF MOTHER AND PREVIOUS ISSUE, 1966

Previous Issue (number)	Age of Mother (years)							Total Married Mothers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent.
0	1,187	2,613	1,050	262	98	25	5	5,240	34.37
1	242	1,890	1,537	431	151	36	....	4,287	28.12
2	24	607	1,319	610	201	42	....	2,803	18.38
3	1	150	602	472	242	38	4	1,509	9.90
4 .....	....	30	206	257	154	50	2	699	4.58
5 .....	....	8	81	112	97	29	2	329	2.16
6 .....	....	....	29	65	53	22	3	172	1.13
7 .....	....	....	10	31	33	17	1	92	0.60
8 .....	....	....	2	16	17	11	2	48	0.31
9 .....	....	....	....	12	14	7	....	33	0.22
10 or more .....	....	....	1	7	14	12	1	35	0.23
Total Married Mothers	1,454	5,298	4,837	2,275	1,074	289	20	15,247	100.00

The following table shows the number of nuptial confinements during 1966, classified according to the relative ages of parents.

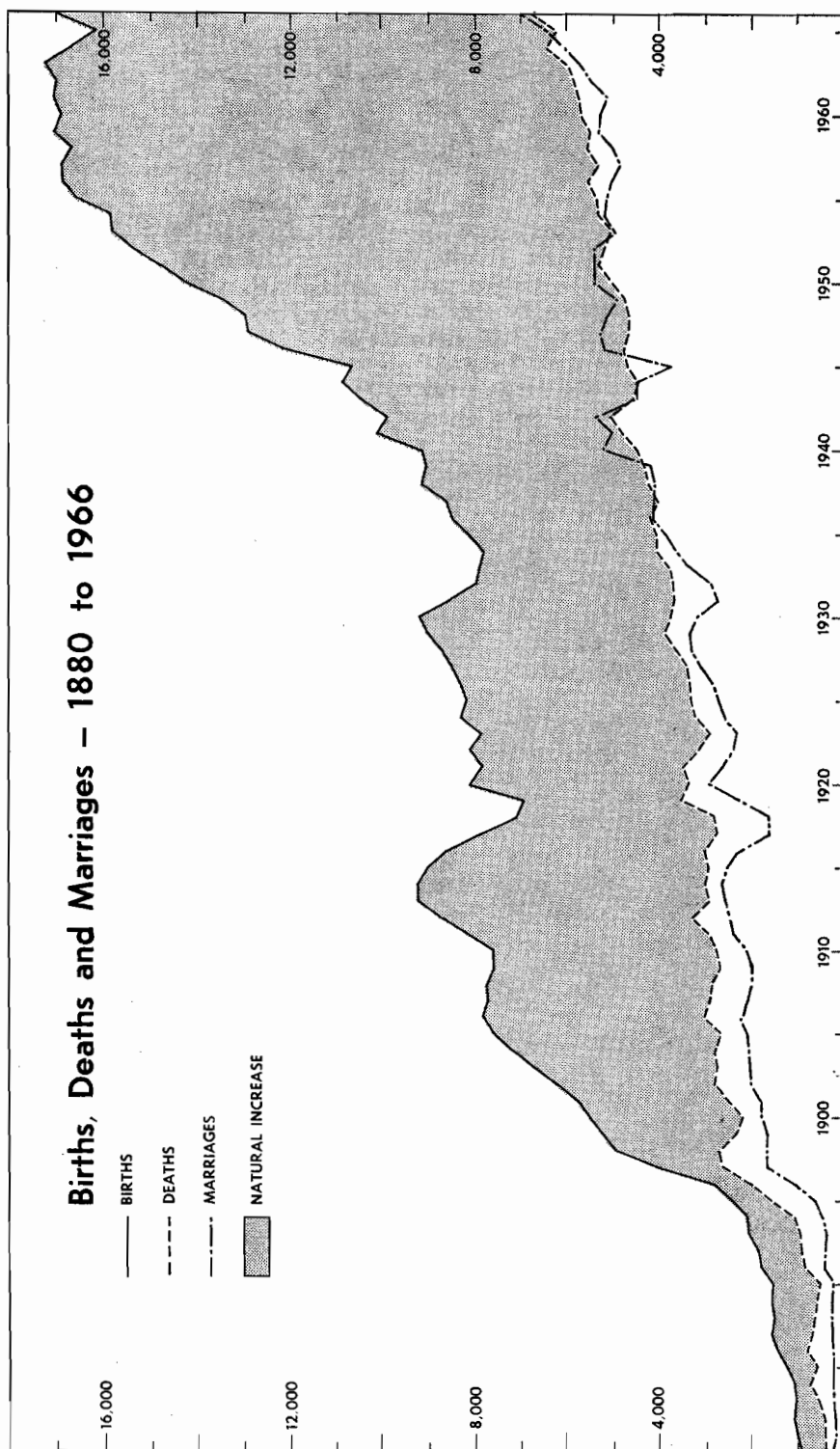
NUPTIAL CONFINEMENTS—RELATIVE AGES OF PARENTS, 1966

Age of Father (years)	Age of Mother (years)							Total Fathers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent.
Under 20....	238	45	1	....	....	....	....	284	1.86
20-24....	979	2,050	177	9	1	....	....	3,216	21.09
25-29....	193	2,487	2,246	167	16	2	....	5,111	33.52
30-34....	39	565	1,748	1,024	98	5	....	3,479	22.82
35-39....	4	113	520	775	470	33	1	1,916	12.57
40-44....	1	22	109	235	357	134	5	863	5.66
45-49....	....	8	24	34	84	76	8	234	1.53
50 and over .....	....	7	12	31	48	39	6	143	0.94
Not Stated .....	....	1	....	....	....	....	....	1	0.01
Total Married Mothers— Number	1,454	5,298	4,837	2,275	1,074	289	20	15,247	....
Per cent.	9.54	34.75	31.72	14.92	7.04	1.90	0.13	....	100.00

The ages of mothers of ex-nuptial children born during each of the years 1962 to 1966 are shown in the following table.

EX-NUPTIAL BIRTHS—AGES OF MOTHERS

Age of Mother (years)		1962	1963	1964	1965	1966
13 .....	....	1	2	1	2	2
14 .....	....	6	4	8	7	11
15 .....	....	16	29	30	30	34
16 .....	....	34	61	78	87	102
17 .....	....	51	90	119	131	141
18 .....	....	71	94	108	147	170
19 .....	....	83	98	124	129	157
20 .....	....	95	92	105	114	126
21-24 .....	....	219	296	277	296	348
25-29 .....	....	179	201	206	218	228
30-34 .....	....	134	129	156	147	140
35-39 .....	....	86	87	74	95	95
40-44 .....	....	26	44	24	34	41
45 and over .....	....	4	2	1	2	12
Total, Ex-nuptial Births .....	....	1,005	1,229	1,311	1,439	1,607



Birth Rates—The crude birth rate in any period may be defined as the number of live births occurring during the period for every thousand of the mean population.

The average annual rates for each five-year period in the fifty years from 1916 to 1965 and the rates for single years from 1957 to 1966, for Western Australia and Australia as a whole, are shown in the following table.

CRUDE BIRTH RATES—WESTERN AUSTRALIA AND AUSTRALIA

Period	Average Annual Rate (a)		Year	Annual Rate (a)	
	Western Australia	Australia		Western Australia	Australia
1916-1920	24.49	25.35	1957	24.62	22.86
1921-1925	22.85	23.86	1958	23.90	22.60
1926-1930	21.54	20.98	1959	24.04	22.57
1931-1935	18.36	16.94	1960	23.41	22.42
1936-1940	19.16	17.52	1961	23.15	22.85
1941-1945	21.72	20.28	1962	22.58	22.16
1946-1950	25.24	23.39	1963	22.24	21.62
1951-1955	25.37	22.86	1964	20.94	20.61
1956-1960	24.20	22.59	1965	19.87	19.66
1961-1965	21.72	21.35	1966	20.33	19.28

(a) Rates for the years 1961 to 1965 have been revised on the basis of the new estimates of mean population referred to on page 118, and are subject to further revision when the final results of the 1966 Census become available. Rates for 1966 are also subject to revision.

In each year of the period under review, Western Australia's crude birth rate has been higher than that of the Commonwealth with the exception of the latter part of the first World War and during the early 1920s.

In Western Australia, the rate showed a marked and almost continuous decrease from the beginning of the century to the depression of thirty years later when the unprecedentedly low rate of 17.64 was recorded in 1934 (*see Graph—Rates of Birth, Death and Marriage*). In the years since then a fairly well-sustained improvement was evident until 1952 when the rate reached 25.66, its highest level since 1917. Since 1952 there has been a decline and in 1965 the rate was 19.87, the lowest since 1942. The rate of 20.33 in 1966 was still below the 1942 level of 20.77.

Gross and Net Reproduction Rates—As a measure of fertility, the crude birth rate has the advantage of simplicity in calculation. The data necessary for its computation are usually readily available from published statistics, and it is therefore useful in comparing the fertility of the populations of States and countries for which no additional data are available. However, it is of limited use, since it does not take into account the important factors of age and sex composition of the population. Gross and net reproduction rates, which do have regard to these factors, are therefore generally to be preferred to the crude birth rate as measures of fertility.

The gross reproduction rate is derived from age-specific fertility rates, which represent the number of female births occurring to women of specified ages per thousand women of those particular ages. It thus takes cognizance of the considerable variations in fertility experienced by women at the successive stages of their child-bearing life. The gross reproduction rate is a measure of the number of female children who would be born, on the average, to every woman assuming that she lives through the whole of the child-bearing period and that the basic fertility rates remain unaltered throughout.

The gross reproduction rate assumes that all females survive to the end of their child-bearing capacity. A more accurate measure, which takes into account the effect of mortality among women during this period is the net reproduction rate. This rate represents the average number of female children who would be born to women during their lifetime if they were subject in each succeeding year of life to the fertility and mortality rates on which the calculation is based. The net reproduction rate is a measure of the number of women who, in the next generation, will replace the women of reproductive age in the current generation. It provides a useful indication of likely future population trends. A rate remaining stationary at unity indicates an ultimately static population. If a rate greater than unity is maintained, an ultimate increase of population will result, while a continuing rate less than unity will lead to an ultimate decline.

The gross reproduction rates for Western Australia and the Commonwealth in 1961, the latest Census year for which particulars are available, were 1·780 and 1·724, and the corresponding net rates 1·722 and 1·668.

The following table shows the age-specific fertility rates, in terms of female births only, the gross reproduction rates and the net reproduction rates for Western Australia and Australia in each of the Census years 1947, 1954 and 1961.

FERTILITY RATES AND REPRODUCTION RATES WESTERN AUSTRALIA AND AUSTRALIA

Rate	Western Australia			Australia		
	1947	1954	1961	1947	1954	1961
Age-Specific Fertility Rates (a)						
Age Group (years)						
15-19	16·87	20·58	22·82	15·36	19·12	22·87
20-24	89·45	116·12	119·85	80·68	96·24	110·02
25-29	99·75	106·22	109·40	90·08	94·49	107·72
30-34	72·12	65·07	63·18	63·76	59·91	63·63
35-39	42·87	34·72	30·13	36·48	31·17	30·53
40-44	14·44	11·02	9·96	11·44	9·85	9·36
45-49	1·17	0·76	0·68	0·80	0·71	0·70
Gross Reproduction Rate	1·683	1·772	1·780	1·493	1·558	1·724
Net Reproduction Rate	(b) 1·595	(c) 1·704	(d) 1·722	(b) 1·416	(c) 1·497	(d) 1·668

(a) Number of female births per 1,000 women in each age group. (b) Based on 1946-1948 mortality experience.
(c) Based on 1953-1955 mortality experience. (d) Based on 1960-1962 mortality experience.

DEATHS

Statistics of deaths in each of the five years 1962 to 1966 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole appear in the next table. Infant deaths (those which occur in the first year of life) are shown also.

DEATHS

Year	Deaths (a)			Infant Deaths (b)		
	Males	Females	Total	Males	Females	Total
PERTH STATISTICAL DIVISION (c)						
1962	2,356	1,810	4,166	116	80	196
1963	2,385	1,928	4,313	98	80	178
1964	2,648	2,054	4,702	97	63	160
1965	2,608	1,958	4,566	97	72	169
1966	2,689	2,194	4,883	99	72	171
REST OF STATE						
1962	1,041	603	1,644	110	74	184
1963	1,059	604	1,663	98	77	175
1964	1,090	637	1,727	83	85	168
1965	1,107	601	1,708	100	82	182
1966	1,232	657	1,889	85	73	158
WHOLE STATE						
1962	3,397	2,413	5,810	226	154	380
1963	3,444	2,532	5,976	196	157	353
1964	3,738	2,691	6,429	180	148	328
1965	3,715	2,559	6,274	197	154	351
1966	3,921	2,851	6,772	184	145	329

(a) Including Infant Deaths. (b) Deaths occurring in the first year of life. (c) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions; see letterpress *Urban and Rural Populations* on pages 120-1.

Death Rates—The crude death rate is perhaps the most common measure of mortality, and is derived by relating the deaths occurring in a period to the mean population for that period. It is usually expressed as number of deaths per thousand of mean population.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1966 are compared in the following table.

CRUDE DEATH RATES—WESTERN AUSTRALIA AND AUSTRALIA

Period	Average Annual Rate (a)		Year	Annual Rate (a)	
	Western Australia	Australia		Western Australia	Australia
1916-1920	9.93	10.78	1957	7.71	8.81
1921-1925	9.17	9.52	1958	7.94	8.50
1926-1930	8.91	9.26	1959	7.72	8.87
1931-1935	8.83	9.00	1960	7.88	8.61
1936-1940 (b)	9.22	9.63	1961	7.77	8.47
1941-1945 (b)	9.86	9.96	1962	7.69	8.71
1946-1950 (b)	9.23	9.74	1963	7.69	8.70
1951-1955	8.49	9.25	1964	8.07	9.05
1956-1960	7.90	8.78	1965	7.70	8.80
1961-1965	7.78	8.75	1966	8.10	9.00

(a) Rates for the years 1961 to 1965 have been revised on the basis of the new estimates of mean population referred to on page 118, and are subject to further revision when the final results of the 1966 Census become available. Rates for 1966 are also subject to revision. (b) Excludes deaths of members of defence forces from September, 1939 to June, 1947.

In the early years of the century, the Western Australian rate was higher than that for Australia as a whole, but fell below the Australian average in 1909. Since that time, the rate for Western Australia has, with very few exceptions, remained lower than that for the Commonwealth.

Western Australia's crude death rate for the year 1902 was 13.79 per thousand of the mean population but by 1931 it had fallen to 8.51 (see Graph—*Rates of Birth, Death and Marriage*). After that year, the rate increased until it reached 10.65 in 1942. Since then there was a general decline until 1962 when the rate was 7.69, the lowest ever recorded in Western Australia. The rate for 1966 was 8.10 per thousand of mean population.

Infant Mortality Rates—The infant mortality rate expresses the relationship between deaths of infants and the live births occurring in a period, and is stated in terms of number of deaths under one year of age per thousand live births.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1966 are shown in the following table.

INFANT MORTALITY RATES—WESTERN AUSTRALIA AND AUSTRALIA

Period	Average Annual Rate		Year	Annual Rate	
	Western Australia (a)	Australia		Western Australia (a)	Australia
1916-1920	61.7	64.67	1957	21.1	21.41
1921-1925	59.1	57.88	1958	21.5	20.49
1926-1930	49.3	51.99	1959	20.2	21.54
1931-1935	40.8	41.27	1960	21.6	20.16
1936-1940	39.7	38.81	1961	19.7	19.54
1941-1945	33.3	34.97	1962	22.3	20.41
1946-1950	28.1	26.98	1963	20.4	19.55
1951-1955	24.4	23.34	1964	19.7	19.06
1956-1960	21.4	21.05	1965	21.7	18.47
1961-1965	20.7	19.42	1966	19.3	18.17

(a) Rates for individual States are based on too few deaths to warrant calculation to the second place of decimals.

In the first decade of the century, the average annual rate (106.1) in Western Australia was considerably above the Commonwealth average of 86.83, and was the highest among the Australian States. Since then both the Western Australian and the Australian rates have shown a remarkable decrease. Despite the improvement in Western Australia, the experience of recent years reveals a less favourable

situation than for the Commonwealth as a whole. In the five years ended 1966, Western Australia's average annual rate was 20.7 compared with the Australian rate of 19.15 and was greater than that for any other State.

Causes of Infant Deaths—The causes of death in the first year of life, in certain broad groups, during the period 1901 to 1966 are set out in the following table. Changes in description and in method of classification make such a comparison somewhat difficult, but it is thought that the figures give a reasonably reliable indication of trends within the various groups.

INFANT DEATHS(a)—NUMBERS AND RATES (b)

Year	Cause of Death											
	Diseases of Early Infancy		Congenital Malformation		Diseases of Digestive System		Infective and Parasitic Diseases		All Other Causes		Total	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1901	249	43.5	6	1.0	277	48.4	51	8.9	154	26.9	737	128.9
1911	222	27.4	19	2.3	213	26.3	30	3.7	131	16.2	615	76.0
1921	195	25.0	28	3.6	197	25.2	(c)	(c)	(c)191	(c)24.5	611	78.3
1931	179	20.9	37	4.3	40	4.7	25	2.9	74	8.7	355	41.5
1941	180	17.8	43	4.2	54	5.3	9	0.9	71	7.0	357	35.3
1951	264	17.8	61	4.1	25	1.7	9	0.6	66	4.5	425	28.7
1961	177	10.4	55	3.2	27	1.6	10	0.6	67	3.9	336	19.7
1962	197	11.5	72	4.2	32	1.9	12	0.7	67	3.9	350	22.3
1963	215	12.4	54	3.1	22	1.3	5	0.3	57	3.2	353	20.4
1964	184	11.0	55	3.3	21	1.3	6	0.4	62	3.7	328	19.7
1965	204	12.6	57	3.5	31	1.9	2	0.1	57	3.5	351	21.7
1966	210	12.3	41	2.4	12	0.7	3	0.2	63	3.7	329	19.3

(a) Excluding stillbirths.
in "All Other Causes."

(b) Rate per 1,000 live births.

(c) "Infective and Parasitic Diseases" included

The greatest decrease has taken place in the group "Diseases of the Digestive System." The principal cause of death in this group is diarrhoea and enteritis, which in 1901 accounted for 223 of the 737 deaths under one year of age. This represented a mortality rate from this cause alone of 39.0 per thousand live births. The corresponding rate for 1966, when there were 4 infant deaths from diarrhoea and enteritis, was 0.2.

Stillbirths—The infant mortality rate discussed above is that most commonly used, and takes no account of stillbirths. It is informative, however, to examine these two factors in relation, as in the next table. The importance of stillbirths is evident from the fact that, in the period 1957 to 1966, the average annual number of stillbirths registered was 206, compared with an average of 350 deaths in the first year of life.

STILLBIRTHS AND INFANT DEATHS

Year	Stillbirths				Deaths under One Year of Age			
	Males	Females	Total	Masculinity (a)	Males	Females	Total	Masculinity (a)
1957	135	113	248	119.5	213	144	357	147.9
1958	136	89	225	152.8	197	163	360	120.9
1959	127	98	225	129.6	195	150	345	130.0
1960	121	105	226	115.2	194	172	366	112.8
1961	137	103	240	133.0	183	153	336	119.6
1962	108	95	203	113.7	226	154	380	146.8
1963	98	80	178	122.5	196	157	353	124.8
1964	92	78	170	117.9	180	148	328	121.6
1965	110	71	181	154.9	197	154	351	127.9
1966	96	72	168	133.3	184	145	329	126.9

(a) Number of males to each 100 females.

The relationship between stillbirths and infant deaths during the same period is further examined in the following table, which shows the numbers of stillbirths and of infant deaths at various ages. The rates shown represent the number of stillbirths, or of infant deaths, per thousand of total births (*i.e.*, including stillbirths).

STILLBIRTHS AND INFANT DEATHS—NUMBERS AND RATES

Year	Stillbrths	Infant Deaths			Stillbirths and Infant Deaths
		Under One Week	Under One Month	Under One Year	
NUMBER					
1957	248	233	256	357	605
1958	225	217	240	360	585
1959	225	214	234	345	570
1960	226	239	269	366	592
1961	240	179	218	336	576
1962	203	218	247	380	583
1963	178	214	257	353	531
1964	170	199	217	328	498
1965	181	210	245	351	532
1966	168	208	243	329	497
RATE (a)					
1957	14.4	13.6	14.9	20.8	35.2
1958	13.3	12.8	14.2	21.2	34.5
1959	13.0	12.3	13.5	19.9	32.9
1960	13.2	13.9	15.7	21.3	34.5
1961	13.9	10.3	12.6	19.4	33.3
1962	11.8	12.6	14.3	22.0	33.8
1963	10.2	12.3	14.7	20.2	30.4
1964	10.1	11.8	12.9	19.5	29.5
1965	11.1	12.8	15.0	21.4	32.5
1966	9.8	12.1	14.1	19.2	28.9

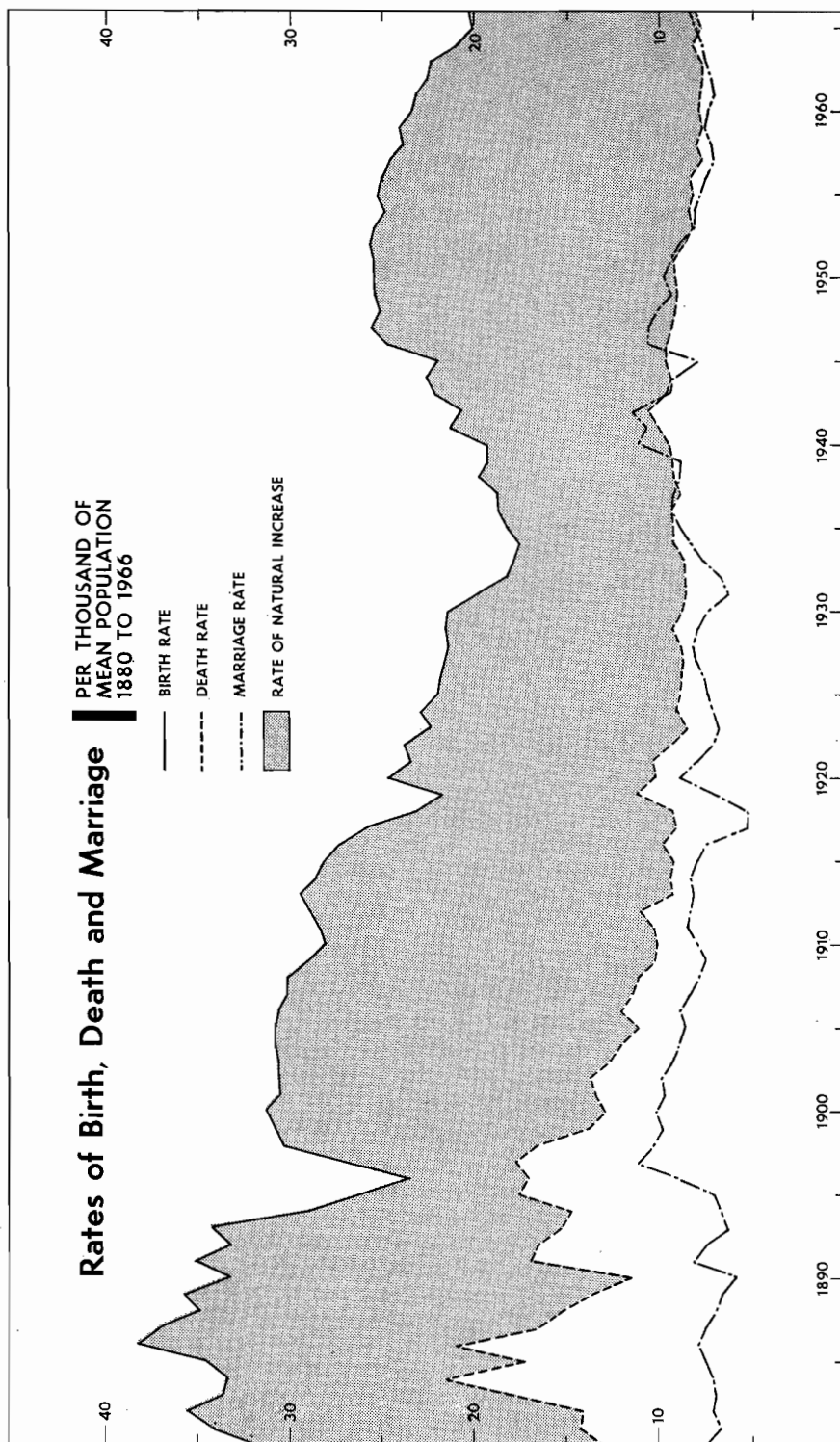
(a) Rate per 1,000 of total births (*i.e.*, including stillbirths).

Of the 5,569 failures during the ten years to complete the first year of life, due either to stillbirth or to death in the first year, 2,064 or 37.1 per cent. were attributable to stillbirth.

Standardized Death Rates—The crude death rate, as noted earlier, expresses simply the number of deaths occurring in a population during any period as a proportion of the mean population for that period. Although this rate is useful as a measure of the absolute level of mortality, its value is necessarily restricted when comparing the mortality in different communities in the same period, or in one community at different times.

The effect on the crude death rate of the presence in a community of a high proportion of young people or of aged people, or of a high or low masculinity, will be readily appreciated. To devise an adequate measure of comparative mortality, it is therefore necessary to select a "standard" population to which the varying mortality experiences may be referred. A standard population compiled by the International Statistical Institute, based upon the age and sex distribution of the population of 19 European countries at their censuses nearest to the year 1900, has been used as the basis of the standardized death rates for Western Australia and Australia quoted in the following paragraph. The rate is computed by applying to each sex and age group in the standard population, the death rates actually recorded in the corresponding groups of the State and Australian populations. The sum of these results represents the number of deaths which would have occurred in the standard population if it had been exposed to the same risks of mortality. The standardized death rate is derived by expressing this number in terms of "per thousand of the standard population."

For the Census years 1921, 1933, 1947, 1954 and 1961 the standardized death rates for Western Australia were 11.83, 8.74, 7.23, 6.71 and 6.02, and the corresponding rates for Australia as a whole were 10.58, 8.62, 7.34, 6.90 and 6.27.



Causes of Death—Statistics of causes of death provide important numerical facts by which to evaluate the varying health conditions and needs of different countries. In order to enable valid international comparisons, it is necessary that each country present its statistics of causes of death in a uniform manner. The first Classification of Causes of Death to be adopted internationally was that compiled by Dr. J. Bertillon at the request of the International Statistical Institute meeting in Vienna in 1891. Subsequently this Classification was periodically revised by the Institute in collaboration with the League of Nations Health Organization. More recently revisions have been carried out by a Committee of the World Health Organization. The figures in the following table have been compiled on the basis of the seventh revision, which remained current until superseded by an eighth revision operative from the 1st January, 1968.

DEATHS CLASSIFIED ACCORDING TO PRINCIPAL CAUSES—NUMBERS AND RATES (a)

Cause of Death	1962	1963	1964	1965	1966
NUMBER					
Diseases of the heart	2,078	2,117	2,350	2,246	2,473
Cancer	923	1,029	1,015	1,049	1,179
Cerebral haemorrhage, etc.	659	640	708	759	716
Automobile accidents	175	199	232	244	259
Other accidents	211	190	210	189	190
Pneumonia	224	211	235	210	271
General arteriosclerosis	221	213	200	156	159
Enteritis and diarrhoea	48	37	43	40	22
Other diseases of digestive system	138	125	150	141	166
Nephritis	41	60	44	75	53
Other diseases of genito-urinary system	72	70	87	67	81
Suicide	108	127	124	111	127
Homicide	7	12	12	8	10
Bronchitis	104	116	128	142	98
Diabetes mellitus	54	73	77	87	90
Tuberculosis	29	13	20	14	19
Maternal causes	5	4	6	3	7
All other causes	713	740	788	733	852
All Causes	5,810	5,976	6,429	6,274	6,772
RATE (a)					
Diseases of the heart	275.0	273.3	295.0	275.8	295.7
Cancer	122.2	132.4	127.4	128.8	141.0
Cerebral haemorrhage, etc.	87.2	82.3	88.9	93.2	85.6
Automobile accidents	23.2	25.6	29.1	30.0	31.0
Other accidents	27.9	24.4	26.4	23.2	22.7
Pneumonia	29.7	27.1	29.5	25.8	32.4
General arteriosclerosis	29.3	27.4	25.1	19.2	19.0
Enteritis and diarrhoea	6.4	4.8	5.4	4.9	2.6
Other diseases of digestive system	18.3	16.1	18.8	17.3	19.9
Nephritis	5.4	7.7	5.5	9.2	6.3
Other diseases of genito-urinary system	9.5	9.0	10.9	8.2	9.7
Suicide	14.3	16.3	15.6	13.6	15.2
Homicide	0.9	1.5	1.5	1.0	1.2
Bronchitis	13.8	14.9	16.1	17.4	11.7
Diabetes mellitus	7.2	9.4	9.7	10.7	10.8
Tuberculosis	3.8	1.7	2.5	1.7	2.3
Maternal causes	0.7	0.5	0.8	0.4	0.8
All other causes	94.4	95.2	98.9	90.0	101.9
All Causes	768.9	768.8	806.9	770.4	809.7

(a) Rate per 100,000 of mean population. Rates for the years 1962 to 1965 have been revised on the basis of the new estimates of mean population referred to on page 118, and are subject to further revision when the final results of the 1966 Census become available. Rates for 1966 are also subject to revision.

Expectation of Life—The Australian Life Tables, prepared on the basis of the results of the national population census, form a comprehensive series covering the experience of eight separate periods, 1881–1890, 1891–1900, 1901–1910, 1920–1922, 1932–1934, 1946–1948, 1953–1955 and 1960–1962. The expectation of life of males and females at various ages as revealed by these investigations is shown in the following table.

It will be seen that there has been a substantial and consistent increase in the expectation of life of both the Australian male and the Australian female. Thus, while males, according to the experience of the period 1881–1890, had at birth an average expectancy of 47.20 years of life, the latest investigation shows that the expectancy has risen to 67.92 years. The anticipated life-span of females at birth has increased from 50.84 years to 74.18 years in the same period. This greater expectation of life of females than of males applies, with very few exceptions, at each age and in each period covered by the table.

EXPECTATION OF LIFE—AUSTRALIA : 1881-1890 TO 1960-1962
(Years)

Age last birthday (years)	1881-1890	1891-1900	1901-1910	1920-1922	1932-1934	1946-1948	1953-1955	1960-1962
MALES								
0	47.20	51.08	55.20	59.15	63.48	66.07	67.14	67.92
1	53.34	56.88	59.96	62.67	65.49	67.25	67.86	68.46
2	54.26	57.41	60.04	62.60	65.00	66.47	67.05	67.59
3	54.01	56.98	59.45	61.99	64.25	65.60	66.17	66.67
4	53.49	56.33	58.71	61.25	63.43	64.70	65.26	65.73
5	52.86	55.61	57.91	60.43	62.57	63.77	64.32	64.77
10	48.86	51.43	53.53	56.01	58.02	59.04	59.53	59.93
15	44.45	46.98	49.03	51.44	53.36	54.28	54.72	55.07
20	40.58	42.81	44.74	46.99	48.81	49.64	50.10	50.40
25	37.10	38.90	40.60	42.70	44.37	45.04	45.54	45.80
30	33.64	35.11	36.52	38.44	39.90	40.40	40.90	41.12
35	30.06	31.34	32.49	34.20	35.46	35.79	36.25	36.45
40	26.50	27.65	28.56	30.05	31.11	31.23	31.65	31.84
45	23.04	23.99	24.78	26.03	26.87	26.83	27.18	27.38
50	19.74	20.45	21.16	22.20	22.83	22.67	22.92	23.13
55	16.65	17.03	17.67	18.51	19.03	18.84	19.00	19.18
60	13.77	13.99	14.35	15.08	15.57	15.36	15.47	15.60
65	11.06	11.25	11.31	12.01	12.40	12.25	12.33	12.47
70	8.82	8.90	8.67	9.26	9.60	9.55	9.59	9.77
75	6.72	6.70	6.58	6.87	7.19	7.23	7.33	7.47
80	5.11	5.00	4.96	5.00	5.22	5.36	5.47	5.57
85	3.86	3.79	3.65	3.62	3.90	3.84	4.01	4.08
90	2.91	2.91	2.64	2.60	2.99	2.74	2.93	3.02
95	2.16	2.16	1.88	1.86	2.11	1.93	2.10	2.29
100	1.32	1.29	1.18	1.17	1.10	....	....	....
FEMALES								
0	50.84	54.76	58.84	63.31	67.14	70.63	72.75	74.18
1	56.44	59.89	62.89	66.03	68.67	71.45	73.22	74.49
2	57.39	60.40	62.95	65.86	68.12	70.68	72.40	73.62
3	57.16	59.98	62.34	65.21	67.34	69.77	71.49	72.70
4	56.63	59.35	61.60	64.44	66.50	68.84	70.55	71.74
5	56.00	58.64	60.80	63.64	65.64	67.91	69.61	70.78
10	51.95	54.46	56.39	59.20	61.02	63.11	64.78	65.92
15	47.54	49.07	51.86	54.55	56.29	58.27	59.90	61.01
20	43.43	45.72	47.52	50.03	51.67	53.47	55.06	56.16
25	39.67	41.69	43.36	45.71	47.19	48.74	50.24	51.32
30	36.13	37.86	39.33	41.48	42.77	44.08	45.43	46.49
35	32.58	34.14	35.37	37.28	38.37	39.46	40.67	41.70
40	29.08	30.49	31.47	33.14	34.04	34.91	36.00	36.99
45	25.56	26.69	27.59	28.99	29.74	30.45	31.44	32.38
50	22.06	22.93	23.69	24.90	25.58	26.14	27.03	27.92
55	18.64	19.29	19.85	20.95	21.58	22.04	22.81	23.63
60	15.39	15.86	16.20	17.17	17.74	18.11	18.78	19.51
65	12.27	12.75	12.88	13.60	14.15	14.44	15.02	15.68
70	9.70	9.89	9.96	10.41	10.98	11.14	11.62	12.19
75	7.24	7.37	7.59	7.73	8.23	8.32	8.69	9.16
80	5.27	5.49	5.73	5.61	6.01	6.02	6.30	6.68
85	3.90	4.12	4.19	4.06	4.30	4.32	4.52	4.79
90	2.98	3.07	2.99	2.91	3.05	3.08	3.24	3.48
95	2.25	2.18	2.10	2.07	2.00	2.14	2.31	2.59
100	1.37	1.23	1.24	1.24	1.02	....	....	....

MARRIAGES

The number of marriages celebrated in Western Australia in each of the five years 1962 to 1966 is shown in the following table. Marriages celebrated by ministers of religion are distinguished from those celebrated by District Registrars, and the numbers of minors marrying are also shown.

MARRIAGES

Year	Marriages Celebrated by		All Marriages	Proportion Celebrated by Registrars (per cent.)	Number of Minors Married		
	Ministers	Registrars			Males	Females	Persons
PERTH STATISTICAL DIVISION (a)							
1962	(b)	(b)	3,577	(b)	(b)	(b)
1963	(b)	(b)	3,929	(b)	(b)	(b)
1964	(b)	(b)	4,050	(b)	(b)	(b)
1965	3,805	660	4,465	14.8	677	1,934
1966	4,190	689	4,879	14.1	751	2,192
REST OF STATE							
1962	(b)	(b)	1,889	(b)	(b)	(b)
1963	(b)	(b)	1,826	(b)	(b)	(b)
1964	(b)	(b)	1,973	(b)	(b)	(b)
1965	1,701	282	1,983	14.2	287	973
1966	1,805	317	2,122	14.9	306	1,056
WHOLE STATE							
1962	4,651	815	5,466	14.9	582	2,207
1963	4,907	848	5,755	14.7	705	2,437
1964	5,151	872	6,023	14.5	725	2,609
1965	5,506	942	6,448	14.6	964	2,907
1966	5,995	1,006	7,001	14.4	1,057	3,248
							2,789
							3,142
							3,334
							3,871
							4,305

(a) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions; see letterpress *Urban and Rural Populations* on pages 120-1. (b) Particulars not available.

The statistics of minors marrying during the five-year period as shown above reveal that 43.7 per cent. of brides were minors, compared with only 13.1 per cent. of bridegrooms.

Age at Marriage—The relative ages of bridegrooms and brides who married in Western Australia in 1966 are shown in the following table.

RELATIVE AGES OF BRIDEGROOMS AND BRIDES, 1966

Age of Bridegroom (years)	Total Bridegrooms	Age of Bride (years)							
		Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 and over
Under 20	589	...	501	85	3	...	...	...	...
20-24	3,574	1	1,475	1,906	118	12	1	...	1
25-29	1,579	...	297	982	253	33	9	...	2
30-34	445	...	35	183	131	56	25	13	2
35-39	243	...	...	13	65	66	32	17	14
40-44	165	...	1	43	30	36	28	34	23
45-49	109	...	...	4	10	13	16	24	42
50-54	108	...	...	...	2	7	7	18	74
55-59	65	...	...	1	...	3	5	9	47
60-64	56	...	...	...	1	1	4	2	48
65 and over	68	...	...	...	...	...	...	1	67
Total Brides	7,001	1	2,315	3,279	611	227	127	121	320

Of the women who married in 1966, 33.1 per cent. were less than 20 years of age. The corresponding figure for men was 8.4 per cent.

The following table gives details of the average age and the conjugal condition of bridegrooms and brides in each of the ten years to 1966. In each year of the period the difference in the average age of bridegrooms and brides was between three and four years, the difference in 1966 being 3.07 years.

AVERAGE AGES OF BRIDEGROOMS AND BRIDES

Year	Average Age of Bridegrooms				Average Age of Brides			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
1957	25.87	54.76	41.46	28.08	22.08	47.86	36.04	24.45
1958	25.70	54.11	41.14	27.84	21.99	47.54	36.69	24.33
1959	25.68	54.98	40.68	27.93	21.96	49.02	36.73	24.45
1960	25.38	53.94	40.27	27.46	21.66	48.08	36.55	24.02
1961	25.28	55.78	41.33	27.46	21.77	48.74	37.69	24.02
1962	25.06	54.74	40.53	27.22	21.66	48.36	36.43	23.93
1963	24.97	53.98	41.40	26.97	21.51	47.96	36.90	23.51
1964	24.79	56.12	42.65	27.00	21.54	50.43	37.71	23.63
1965	24.46	54.65	42.31	26.41	21.32	49.54	38.10	23.26
1966	24.91	54.95	41.97	26.83	21.81	48.78	38.24	23.76

The following table shows the age and conjugal condition at time of marriage of bridegrooms and brides who married in Western Australia during 1966.

AGE AND CONJUGAL CONDITION OF BRIDEGROOMS AND BRIDES, 1966

Age at Marriage (years)	Bridegrooms				Brides			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
Under 20	589	....	....	589	2,315	1	....	2,316
20-24	3,569	2	3	3,574	3,252	3	24	3,279
25-29	1,517	11	51	1,579	520	14	77	611
30-34	359	8	78	445	120	31	76	227
35-39	164	13	66	243	40	23	64	127
40-44	79	18	68	165	35	31	55	121
45-49	35	14	60	109	24	35	51	110
50-54	37	34	37	108	17	42	27	86
55-59	7	20	29	65	9	24	15	48
60-64	6	29	21	56	6	25	9	40
65 and over	9	51	8	68	1	32	3	36
Total	6,371	209	421	7,001	6,339	261	401	7,001

The numbers and ages of minors who married in Western Australia during each of the five years 1962 to 1966 are given in the following table. The proportions of minors marrying to all marriages are also shown.

MARRIAGES OF MINORS

Year	Age in Years							Total	
	14	15	16	17	18	19	20	Number	Per cent. of All Marriages
BRIDEGROOMS									
1962	....	....	2	18	83	180	299	582	10.65
1963	....	....	....	18	91	226	370	705	12.25
1964	....	....	1	17	92	242	373	725	12.04
1965	....	....	....	9	182	292	481	964	14.95
1966	....	....	....	12	170	407	468	1,057	15.10
BRIDES									
1962	3	12	113	278	509	622	670	2,207	40.38
1963	1	14	153	296	525	725	723	2,437	42.35
1964	....	8	176	352	505	743	825	2,609	43.32
1965	1	10	168	392	714	764	858	2,907	45.08
1966	1	8	155	407	708	1,037	932	3,248	46.39

Religious and Civil Marriages—The following table shows the numbers and proportions of marriages celebrated in Western Australia by ministers of the principal religious denominations and by District Registrars during the five years 1962 to 1966.

RELIGIOUS AND CIVIL MARRIAGES

Category of Celebrant	1962	1963	1964	1965	1966	
					Number	Per cent. of Total
Ministers of Religion—						
Church of England....	1,599	1,702	1,900	2,012	2,235	31.92
Roman Catholic	1,444	1,503	1,536	1,700	1,851	26.44
Methodist	646	689	688	723	817	11.67
Presbyterian	380	405	354	381	392	5.60
Churches of Christ	96	106	126	124	132	1.89
Congregational	115	133	122	103	105	1.50
Baptist	62	83	90	97	101	1.44
Orthodox	67	53	79	67	63	0.90
Salvation Army	32	32	28	38	43	0.61
Lutheran	21	17	24	33	35	0.50
Seventh Day Adventist	31	27	28	43	32	0.46
Other Christian	152	147	166	171	174	2.48
Hebrew	6	10	10	14	15	0.22
Total, Ministers of Religion	4,651	4,907	5,151	5,506	5,995	85.63
District Registrars	815	848	872	942	1,006	14.37
Total Marriages	5,466	5,755	6,023	6,448	7,001	100.00
Proportion of Total (p. c.)—						
Ministers of Religion	85.09	85.26	85.52	85.39	....	85.63
District Registrars	14.91	14.74	14.48	14.61	....	14.37

Marriage Rates—The average annual marriage rates per thousand of mean population for Western Australia and for the Commonwealth in each five-year period from 1916 to 1965, as well as the rates for each of the years from 1957 to 1966, are shown in the following table.

MARRIAGE RATES—WESTERN AUSTRALIA AND AUSTRALIA

Period	Average Annual Rate (a)		Year	Annual Rate (a)	
	Western Australia	Australia		Western Australia	Australia
1916-1920	6.80	7.82	1957	7.12	7.65
1921-1925	7.27	8.04	1958	7.20	7.52
1926-1930	7.80	7.52	1959	7.57	7.40
1931-1935	7.58	7.16	1960	7.36	7.34
1936-1940	9.49	9.85	1961	6.98	7.59
1941-1945	9.74	9.94	1962	7.23	7.39
1946-1950	10.01	9.77	1963	7.40	7.42
1951-1955	8.44	8.29	1964	7.56	7.74
1956-1960	7.36	7.50	1965	7.92	8.25
1961-1965	7.43	7.68	1966	8.37	8.32

(a) Rates for the years 1961 to 1965 have been revised on the basis of the new estimates of mean population referred to on page 118, and are subject to further revision when the final results of the 1966 Census become available. Rates for 1966 are also subject to revision.

DIVORCE

The Matrimonial Causes Act 1959-1966 (Commonwealth), which came into operation on the 1st February, 1961, establishes uniform grounds throughout Australia for the termination of marriage. Previously, each State was primarily responsible for the provision of matrimonial relief but the law varied from State to State.

While the Commonwealth Act supersedes the divorce laws of the States, jurisdiction continues to be vested in the State Courts. The transitional provisions of the Act covered matrimonial causes instituted prior to the 1st February, 1961 and gave petitioners the advantage of the new Act without detracting from their position under the former legislation.

Under the uniform law, grounds for dissolution of marriage (*i.e.*, divorce) include desertion for not less than two years, adultery, separation for not less than five years, cruelty, drunkenness and failure to comply with maintenance orders. The main grounds for nullity of marriage are bigamy and incapacity to consummate the marriage.

Decrees may be granted by a Court for dissolution of marriage, judicial separation, nullity of marriage and restitution of conjugal rights. Orders may also be made for the custody and welfare of children, maintenance, the settlement of property, and damages for adultery.

The new Act introduced changes in provisions on divorce and consequently statistics for periods subsequent to the 1st February, 1961 may not be comparable with those for earlier years.

PETITIONS FILED

Year	Petitions for—				Total Petitions	Petitioner	
	Dissolution of Marriage	Nullity of Marriage	Judicial Separation	Restitution of Conjugal Rights		Husband	Wife
1957	623	6	4	....	633	354	279
1958	644	6	15	....	665	339	326
1959	671	3	7	....	681	356	325
1960	560	1	9	....	570	298	272
1961	620	....	2	4	626	311	315
1962	651	3	....	10	664	307	357
1963	623	4	2	4	633	296	337
1964	653	2	1	9	665	321	344
1965	736	2	....	5	743	374	369
1966	787	3	1	7	798	384	414

The following table gives the number of decrees absolute granted and the grounds for the decrees in the period 1957 to 1966. In each of the ten years, adultery was the principal ground for divorce, and accounted for nearly 40 per cent. of dissolutions in 1966. Every decree of dissolution of marriage is in the first instance a decree *nisi* and is generally not made absolute until the expiration of three months.

DISSOLUTION OF MARRIAGE—DECREES ABSOLUTE GRANTED

Year	Ground (a)					Total Decrees Absolute	Petitioner		
	Adultery	Desertion	Separation for 5 years or longer	Main- tenance (b)	Other		Husband	Wife	Both Parties
1957	240	140	134	16	11	541	292	249	....
1958	253	146	108	19	10	536	285	251	....
1959	275	149	130	21	9	584	299	285	....
1960	249	129	131	19	12	540	287	253	....
1961	199	148	95	15	9	466	224	242	....
1962	205	189	156	14	18	582	283	299	....
1963	204	183	148	5	13	553	251	299	3
1964	210	150	160	6	16	542	259	282	1
1965	213	194	168	6	23	604	275	329	....
1966	251	208	154	5	19	637	314	322	1

(a) Where a dissolution is granted on two or more grounds, only one ground is tabulated, preference being given in the order shown. (b) Non-compliance with maintenance order.

In the following table particulars are given of the duration of marriage, *i.e.*, the interval between marriage and the date when the decree was made absolute, for marriages dissolved during the ten years 1957 to 1966.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED

Year	Marriages Dissolved after a Duration of—								Total Marriages Dissolved
	0-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35 years and over	
1957	49	176	122	83	48	40	14	9	541
1958	52	177	145	70	37	23	20	12	536
1959	48	177	144	97	53	33	20	12	584
1960	48	178	137	73	54	25	13	12	540
1961	25	148	120	69	45	27	18	14	466
1962	33	151	171	82	67	49	18	11	582
1963	31	153	123	116	63	40	15	12	553
1964	29	128	131	97	76	44	18	19	542
1965	39	165	130	106	73	50	20	21	604
1966	53	141	155	123	69	44	29	23	637

The following table shows, for the year 1966, the number of marriages dissolved, classified according to duration of marriage and the number of children of the marriage.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED AND NUMBER OF CHILDREN, 1966

Duration of Marriage (years)	Marriages with Children Numbering—							Total Marriages Dissolved		Total Number of Children (a)
	0	1	2	3	4	5	6 or more	Number	Per cent.	
0-4	23	21	5	3	1	....	....	53	8.32	44
5-9	39	37	43	17	4	1	....	141	22.14	195
10-14	31	33	46	27	15	2	1	155	24.33	282
15-19	23	20	34	23	13	7	3	123	19.31	267
20-24	9	14	24	14	4	2	2	69	10.83	143
25-29	14	11	8	9	2	....	....	44	6.91	62
30-34	19	8	1	1	....	....	....	29	4.55	13
35 and over	22	1	....	....	....	....	....	23	3.61	1
Husband Petitioner	101	65	69	48	22	5	5	315	49.37	493
Wife Petitioner	80	80	92	46	17	7	1	323	50.63	514
Total Marriages Dissolved—										
Number	(b) 180	145	161	94	39	12	6	(b) 637	....	1,007
Per cent.	28.26	22.76	25.28	14.76	6.12	1.88	0.94	....	100.00	....

(a) At date of petition. The term *children* refers to *children of the marriage* as defined in the Matrimonial Causes Act, living and under 21 years of age. (b) Includes one dissolution granted on petition of both parties.

The following table shows, for the year 1966, the ages of husband and wife at the date of decree absolute.

DISSOLUTION OF MARRIAGE—AGES OF PARTIES, 1966

Age (a) of Husband (years)	Age (a) of Wife (years)										Total Husbands	
	Under 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 and over	Number	Per cent.
20-24	1	17	3	....	....	....	....	....	....	....	21	3.30
25-29 .....	....	35	38	5	1	....	....	....	....	....	79	12.40
30-34 .....	....	7	47	50	6	1	1	....	....	....	112	17.58
35-39 .....	....	....	15	48	37	5	1	....	....	....	106	16.64
40-44 .....	....	....	1	11	46	41	5	2	....	....	106	16.64
45-49 .....	....	....	....	2	7	26	19	6	....	....	60	9.42
50-54 .....	....	....	....	1	2	14	25	16	7	....	65	10.20
55-59 .....	....	1	....	1	3	2	6	10	12	3	38	5.97
60 and over .....	....	....	....	....	....	....	4	9	11	26	50	7.85
Total Wives—												
Number	1	60	104	118	102	89	61	43	30	29	637	....
Per cent.	0.16	9.42	16.33	18.52	16.01	13.97	9.58	6.75	4.71	4.55	....	100.00

(a) Age at date of decree absolute.

CHAPTER V—SOCIAL CONDITION

PART I—EDUCATION

PRIMARY, SECONDARY AND TECHNICAL EDUCATION

In Western Australia, education at the primary and secondary level is provided at government schools administered and staffed by the Education Department and at non-government schools, most of which are conducted by the principal religious denominations. Technical education is the responsibility of the Education Department. The School of Mines of Western Australia is controlled by the Department of Mines, and Muresk Agricultural College by the Department of Agriculture.

Government Financial Assistance

The State Government each year awards to country students 100 scholarships, valued at \$80 per annum, tenable for the first three years of secondary education at government or non-government schools and a further ten scholarships, valued at \$160 per annum, tenable in the fourth and fifth years. Selected students intending to enter the teaching service are granted bursaries, also valued at \$160 per annum and tenable in the fourth and fifth years. All these amounts are additional to the boarding allowances which are paid to students who are obliged to live away from home to attend secondary schools. As a contribution towards tuition fees at non-government schools assistance is made available on the basis of \$30 annually for a student in the first three years of secondary education and \$36 in each of the fourth and fifth years.

All these forms of assistance are granted without the application of a means test.

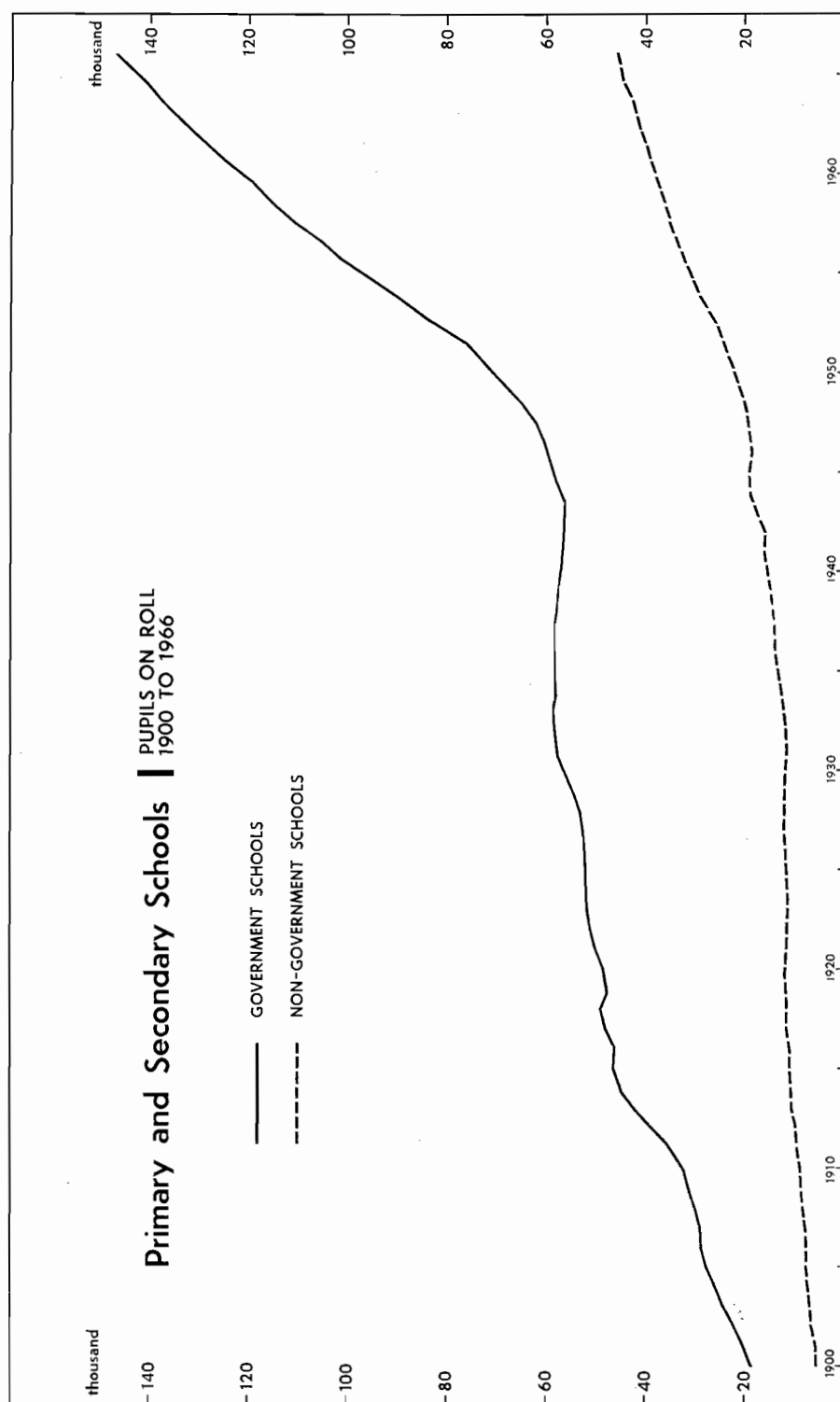
The State Government provides financial aid to non-government schools by meeting part of the costs incurred in purchasing certain equipment, instruments and appliances, including such items as film projectors, radio equipment, library books and musical instruments. Assistance is also given by way of reimbursement of interest paid, up to a prescribed maximum rate, on moneys borrowed since the 1st January, 1965 for expenditure on new residential accommodation for scholars. In addition, subsidies are provided for the installation of swimming pools.

The Commonwealth Government makes an annual award of scholarships tenable by students in the fourth and fifth years of secondary education at government and non-government schools, as well as technical scholarships for certain courses at technical institutions and the School of Mines of Western Australia and Muresk Agricultural College. The numbers of these scholarships awarded in 1966 were 735 and 146 respectively. Benefits, which are not subject to a means test, comprise, for full-time students, a living allowance of \$200 per annum, \$50 per annum for text books and equipment, and up to \$150 per annum for fees. For part-time technical students, allowances of \$100 per annum, not subject to a means test, are granted and compulsory fees are reimbursed. Commonwealth Advanced Education Scholarships are awarded each year to students in approved non-university tertiary courses. They provide benefits comprising payment of compulsory fees and a living allowance which is subject to a means test.

In terms of legislation passed in 1964 and 1965 the Commonwealth Government makes grants to the States for specified purposes in connexion with secondary education and technical training. The States Grants (Science Laboratories and Technical Training) Act 1964 authorized payment to Western Australia during the financial year 1964-65 of maximum amounts of \$707,600, for laboratories and equipment for use in the teaching of science at secondary level in government and non-government schools, and \$714,400 for buildings and equipment for use in trade training and technical education in government institutions. Under the provisions of the States Grants (Science Laboratories) Act 1965 and the States Grants (Technical Training) Act 1965 payment of these amounts is continued for each year up to and including the financial year 1967-68.

School Attendance

Where a child lives within reasonable access of a government or approved non-government school, attendance is compulsory from the age of six years and upward to the end of the year in which the child attains the age of fifteen years, unless satisfactory instruction is provided elsewhere. The Minister for Education may, however, if he is satisfied that the best interests of the child would be served, exempt a child from further attendance at school if the child has attained the age of fourteen years, is assured of employment and it is necessary for the child to leave school in order to engage in that employment.



School Enrolments

School censuses are conducted annually at or about the beginning of August in all States and the internal Territories of Australia. The figures contained in the tables on this page refer to enrolments at the school census date. They relate to schools providing education according to the primary school curriculum or the secondary school curriculum of the Education Department, or both, whether provided in government or non-government schools. The Western Australian Correspondence School (see letterpress on page 150), special schools and classes (see letterpress on page 150), schools in institutional homes, hospitals and similar establishments, and kindergartens are included. The School of Mines of Western Australia, Muresk Agricultural College, and institutions such as business colleges and coaching establishments are excluded.

The following table gives a classification according to age of pupils enrolled at government and non-government schools on the 1st August in each year from 1962 to 1966.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS
PUPILS CLASSIFIED ACCORDING TO AGE

Age last birthday (a) (years)	Government Schools (b)					Non-government Schools (c)				
	1962	1963	1964	1965	1966	1962	1963	1964	1965	1966
Under 6	5,500	5,545	5,551	5,800	5,870	6,809	7,170	7,617	8,223	8,891
6	13,749	13,592	14,042	14,117	14,865	3,222	3,435	3,237	3,487	3,356
7	13,560	14,049	13,856	14,208	14,740	3,222	3,267	3,426	3,294	3,364
8	13,303	13,799	14,197	14,114	14,799	3,003	3,272	3,350	3,311	3,193
9	13,328	13,367	14,106	14,506	14,685	3,013	3,097	3,118	3,271	3,242
10	13,268	13,657	13,616	14,374	15,038	2,940	3,041	3,071	3,210	3,231
11	12,853	13,453	13,809	13,737	14,487	3,050	3,018	3,103	3,113	3,297
12	12,255	12,981	13,196	13,418	13,728	3,180	3,307	3,293	3,446	3,469
13	11,756	12,111	12,708	13,034	13,401	3,642	3,531	3,614	3,816	3,888
14	9,683	10,404	10,890	11,593	12,359	3,210	3,265	3,394	3,464	3,528
15	6,546	6,416	6,851	7,062	7,625	2,547	2,561	2,602	2,715	2,924
16	2,204	2,834	2,898	3,064	3,281	1,420	1,657	1,645	1,743	1,891
17	931	1,087	1,383	1,400	1,490	697	789	903	938	1,005
18 and over	519	488	470	524	520	142	153	166	177	172
Total	129,455	133,783	137,573	140,951	146,888	40,097	41,563	42,539	44,208	45,451

(a) At 1st August. (b) Includes Special Schools and Classes; see letterpress on page 150. Excludes Technical Schools and Colleges; see table on page 151. (c) Includes pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools; see letterpress on page 153.

The following table shows the ages of boys and girls enrolled at government and non-government schools on the 1st August, 1966.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS
PUPILS CLASSIFIED ACCORDING TO AGE AND SEX : AUGUST, 1966

Age last birthday (a) (years)	Government Schools (b)			Non-government Schools (c)			All Schools (b) (c)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Under 6	3,016	2,854	5,870	4,493	4,398	8,891	7,509	7,252	14,761
6	7,751	7,114	14,865	1,633	1,723	3,356	9,384	8,837	18,221
7	7,580	7,160	14,740	1,652	1,712	3,364	9,232	8,872	18,104
8	7,660	7,139	14,799	1,544	1,640	3,193	9,204	8,788	17,992
9	7,712	6,973	14,685	1,554	1,688	3,242	9,266	8,661	17,927
10	7,974	7,064	15,038	1,569	1,662	3,231	9,543	8,726	18,269
11	7,519	6,968	14,487	1,505	1,792	3,297	9,024	8,760	17,784
12	7,215	6,513	13,728	1,532	1,937	3,469	8,747	8,450	17,197
13	6,925	6,476	13,401	1,807	2,081	3,888	8,732	8,557	17,289
14	6,579	5,780	12,359	1,614	1,914	3,528	8,193	7,694	15,887
15	4,252	3,373	7,625	1,374	1,550	2,924	5,626	4,923	10,549
16	1,935	1,346	3,281	964	927	1,891	2,899	2,273	5,172
17	908	582	1,490	570	435	1,005	1,478	1,017	2,495
18 and over	378	142	520	128	44	172	506	186	692
Total	77,404	69,484	146,888	21,939	23,512	45,451	99,343	92,996	192,339

For footnotes, see previous table.

In the following table pupils enrolled in primary grades at the 1st August, 1966 are classified according to grade and age. The figures exclude particulars of pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. Reference to kindergarten schools will be found on page 153.

PRIMARY ENROLMENTS—GRADE AND AGE AT 1st AUGUST, 1966

Age last birthday (years)	Grade							Ungraded Pupils (a)	Total
	1	2	3	4	5	6	7		
GOVERNMENT SCHOOLS									
Under 6	5,821	19	....	....	....	....	....	30	5,870
6	9,605	5,174	14	....	....	....	....	72	14,865
7	691	8,973	4,891	17	....	....	....	168	14,740
8	75	791	5,734	4,953	22	....	....	224	14,799
9	16	123	861	8,706	4,705	16	....	258	14,685
10	16	32	115	1,013	8,837	4,679	13	333	15,038
11	11	15	23	132	912	8,803	4,231	354	14,481
12	5	12	11	34	139	985	8,134	319	9,639
13	1	8	11	16	39	145	970	136	1,326
14	....	1	3	9	16	43	79	98	249
15	....	1	4	1	7	3	8	59	83
16	....	....	....	....	1	2	....	56	59
17	....	....	....	....	1	1	....	38	40
18 and over	....	....	1	2	1	1	7	7	19
Total	16,241	15,149	14,668	14,883	14,680	14,678	13,442	2,152	105,893

NON-GOVERNMENT SCHOOLS (b)

Under 6	1,562	3	....	....	....	....	....	....	1,565
6	2,138	1,173	14	....	....	....	....	....	3,325
7	175	2,121	1,051	6	....	....	....	....	3,353
8	15	243	1,922	1,007	5	....	....	....	3,192
9	4	37	349	1,905	924	23	....	....	3,242
10	1	1	63	329	1,872	953	12	....	3,231
11	....	1	15	62	297	1,929	987	....	3,291
12	....	....	2	10	68	352	1,877	....	2,309
13	....	1	1	4	15	65	380	....	456
14	....	....	....	1	....	7	44	....	52
15	....	....	....	....	....	1	7	....	8
16	....	....	....	....	....	....	....	....	....
17	....	....	....	....	....	....	....	....	....
18 and over	....	....	....	....	....	....	....	....	....
Total	3,895	3,580	3,417	3,324	3,181	3,320	3,307	....	(b) 24,024

ALL SCHOOLS (b)

Under 6	7,383	22	....	....	....	....	....	30	7,435
6	11,743	6,347	28	....	....	....	....	72	18,190
7	866	11,094	5,942	23	....	....	....	168	18,093
8	90	1,034	10,656	5,960	27	....	....	224	17,991
9	20	160	1,210	10,611	5,629	89	....	258	17,927
10	17	33	178	1,342	10,709	5,632	25	333	18,269
11	11	16	38	194	1,209	10,732	5,218	354	17,772
12	5	12	13	44	207	1,337	10,011	319	11,948
13	....	9	12	20	54	200	1,350	136	1,782
14	1	1	3	10	16	50	123	98	301
15	....	1	4	1	7	4	15	59	91
16	....	....	....	....	1	2	....	56	59
17	....	....	....	....	1	1	....	38	40
18 and over	....	....	1	2	1	1	7	7	19
Total	20,136	18,729	18,085	18,207	17,861	17,998	16,749	2,152	(b) 129,917

(a) Special Classes and Schools; see letterpress on page 150. (b) Excludes 7,046 pupils attending kindergarten schools and 323 pupils in kindergarten grades at other non-government schools.

The following table gives a classification of school enrolments at secondary level at the 1st August, 1966 according to year of study and age of pupil.

SECONDARY ENROLMENTS—YEAR OF STUDY AND AGE AT 1st AUGUST, 1966

Age last birthday (years)	Year of Study					Ungraded Pupils (a)	Total
	1	2	3	4	5		
GOVERNMENT SCHOOLS							
11	6						6
12	4,047	25				17	4,089
13	7,983	3,779	146			167	12,075
14	1,162	7,589	3,134	4		221	12,110
15	65	900	5,479	1,010		88	7,542
16	20	104	709	1,771	610	8	3,222
17	6	16	110	153	1,165		1,450
18 and over	162	26	175	16	122		501
Total	13,451	12,439	9,753	2,954	1,897	501	40,995

NON-GOVERNMENT SCHOOLS

11	6	....	....	....	....	....	6
12	1,150	10	....	....	....	....	1,160
13	2,385	1,026	20	1	....	....	3,432
14	387	2,198	888	3	....	....	3,476
15	31	330	1,974	578	3	....	2,916
16	1	19	344	1,069	458	....	1,891
17	....	....	21	151	833	....	1,005
18 and over	1	....	3	18	150	....	172
Total	3,961	3,583	3,250	1,820	1,444	....	14,058

ALL SCHOOLS

11	12	....	....	....	....	....	12
12	5,197	35	....	....	....	17	5,249
13	10,363	4,805	166	1	....	167	15,507
14	1,549	9,787	4,022	7	....	221	15,586
15	96	1,230	7,453	1,588	3	88	10,458
16	21	123	1,053	2,840	1,068	8	5,113
17	6	16	131	304	1,998	....	2,455
18 and over	163	26	178	34	272	....	673
Total	17,412	16,022	13,003	4,774	3,341	501	55,053

(a) Special Classes; see letterpress on page 150.

THE EDUCATION DEPARTMENT

The Education Department is responsible for the organization and management of the State Government's education programme and is controlled by a Director-General of Education responsible to the Minister for Education. The administrative structure of the Department provides for five Divisions and a number of Special Branches. The Divisions, each of which is in the charge of a Director, are those of Primary Education, Secondary Education, Technical Education, Teacher Education, and Special Services. The work of the Special Branches is related to such activities as physical education (including swimming instruction), music, drama, art and crafts, visual education, library services and publications. In addition there is provision for a number of other services which are concerned with particular aspects of the education and welfare of school children, such as the Nature Advisory Service, and the School Medical and Dental Services conducted in collaboration with the Department of Public Health.

Primary and Secondary Schools

Instruction in the primary school is given in seven grades. A child who makes normal progress completes the course at the age of 12 years and may then enter high school. A Senior High School provides tuition to standards required for the Junior Certificate examination, usually taken at the age of 15 years, and the Leaving Certificate examination, which is the final examination in Western Australian secondary schools and is normally taken at the age of 17 years. A pass in certain specified subjects qualifies a candidate to matriculate at the University. A High School gives instruction in the first three

years of the secondary school curriculum leading to the Junior Certificate examination. A Junior High School is one which provides primary and post-primary education to Junior Certificate level. At some centres where there is no high school, post-primary subjects are taught at the primary school.

Children who do not enter for the Junior Certificate examination may elect to sit for a High School Certificate examination, which is also taken at about the age of 15 years.

In 1966, seventeen secondary schools experimented with various types of school organization involved in developing a cumulative Certificate of Achievement, which is intended to give a more accurate assessment of a child's consistent achievement during the first three years of high school work. The Certificate of Achievement, which may ultimately be accepted in place of the present Junior Certificate, was presented for the first time to 70 students who started under the scheme in 1964 and qualified at the end of 1966.

The following table shows the number of schools in each category, the number of teachers employed in primary and secondary education and the number of pupils classified according to grade of education, for each of the years 1962 to 1966. The figures shown under the heading of Special Duties represent teachers engaged in activities associated with the Division of Special Services and the Special Branches of the Department.

GOVERNMENT SCHOOLS

Particulars	At 1st August—				
	1962	1963	1964	1965	1966
NUMBER OF SCHOOLS					
Primary Schools	461	455	461	466	473
Junior High Schools	32	35	37	38	37
High Schools	22	17	16	18	20
Senior High Schools	17	20	21	22	25
Total	532	527	535	544	555
NUMBER OF TEACHERS (a)					
Engaged in Teaching Duties	4,241	4,471	4,713	4,934	5,213
On Special Duties	65	72	74	92	92
On Leave	66	87	107	78	90
Total	4,372	4,630	4,894	5,104	5,395
Males	2,427	2,514	2,641	2,734	2,766
Females	1,945	2,116	2,253	2,370	2,629
Total	4,372	4,630	4,894	5,104	5,395
NUMBER OF PUPILS					
Grade of Education—					
Primary	96,237	98,645	100,343	102,230	105,893
Secondary: Years 1, 2 and 3	30,103	31,503	33,202	34,311	36,144
Years 4 and 5	3,115	3,635	4,028	4,410	4,851
Total	129,455	133,783	137,573	140,951	146,888
Males	68,151	70,454	72,358	74,103	77,404
Females	61,304	63,329	65,215	66,848	69,484
Total	129,455	133,783	137,573	140,951	146,888

(a) Excluding persons teaching part-time.

The Education Department's policy of "consolidating" its schools in country areas has tended to concentrate teaching in the larger towns. Pupils are taken to and from school by motor bus at government expense and it has been possible by this means to close a number of small rural schools, so enabling teaching staff to be used more effectively in the better-equipped consolidated schools.

Primary and Secondary Curriculum

In primary schools the subjects taught are English, arithmetic, social studies, elementary science, physical education, handicrafts, music and art. Handicrafts in the primary schools consist of needlework for girls and such crafts as leatherwork, bookbinding, papiermache work and canework for boys. At the post-primary levels, mathematics, languages, science subjects, economics, home science, woodwork, metalwork and technical drawing are introduced. The teaching of elementary science aims at a better understanding of the child's physical environment. The course is adapted to the conditions of

the particular neighbourhood, and so varies between town and country areas. In musical expression, choral singing receives most attention, although school orchestras are being developed in some primary and high schools. Advisory teachers, under the direction of specialist superintendents, assist teachers in the fields of handicrafts, physical education, art, music, speech, drama and elementary science.

Education in the government schools is secular in character but periods are set aside during which representatives of various religious denominations attend to give religious instruction. In addition, instruction in scripture stories is given by class teachers.

The general curriculum differs slightly between urban and rural areas, an example being the teaching of elementary agricultural science in country schools. It is nevertheless sufficiently consistent to ensure a uniform standard of education throughout the State.

Radio, Television and Film Aids

Extensive use is made of radio and films, most schools having radio receivers and many being equipped also with film projectors and sound-reproduction systems. Increasing use is being made of television as an aid in education, particularly in secondary schools, for which mathematics and science programmes are telecast. The Australian Broadcasting Commission co-operates with the Education Department in providing suitable radio and television programmes and Parents and Citizens' Associations assist in supplying the necessary equipment. The Visual Education Branch of the Department maintains an extensive film library.

Student Counselling and Vocational Guidance

Guidance officers of the Division of Special Services are available to discuss with parents the most suitable courses of study for their children and vocational guidance is given to pupils leaving high school. In addition, cases of handicapped or educationally retarded children are investigated and appropriate courses of education recommended.

Special Schools and Classes

The Division of Special Services provides a variety of assistance for physically and mentally handicapped children. A Kindergarten and Infant School for Deaf Children is maintained, as well as a Deaf School for older pupils. Special classes are organized for the blind and for the mentally handicapped, and instruction is given to patients at the Princess Margaret Hospital for Children and at other hospitals. The Department co-operates with welfare organizations, such as the Spastic Welfare Association and the Slow Learning Children's Group, by making teachers available to them.

Correspondence Tuition

Tuition by correspondence was introduced in 1918 to provide education for children living in remote areas or unable to attend school for other reasons. The service of the Western Australian Correspondence School now extends also to post-primary students in the smaller country schools, to sick and invalid children, and to some adults in country areas. Adults enrol mainly to prepare for nursing training or for the Junior Certificate and similar examinations, or to improve their general education. At the 1st August, 1966, students enrolled in the Correspondence School comprised 404 primary and 618 secondary students. Of the total of 1,022 students, 368 were aged 18 years and over.

Schools of the air are conducted through the radio network of the Royal Flying Doctor Service from bases at Derby, Kalgoorlie, Meekatharra and Port Hedland to supplement tuition provided by the Correspondence School.

Education of Aborigines

Aboriginal and part-aboriginal children are admitted to ordinary schools and are educated under the same conditions as other children. For schools with a preponderance of Aborigines, special attention is directed to the framing of courses of study suited to the vocational needs of the older aboriginal pupils. In August, 1966 there were 4,385 aboriginal and part-aboriginal children at government primary schools and high schools and 928 at non-government schools.

Agricultural Education

Agricultural education is provided at certain high schools. Boys aged from 14 to 16 years who have successfully completed the first year in a secondary school are eligible for enrolment at the Narrogin Agricultural Senior High School, the Harvey Agricultural High School or the Agricultural Junior High Schools at Cunderdin and Denmark. Preference is given to the sons of farmers but other suitably qualified boys, with the physical capacity for farm work, are admitted. The curriculum is designed as

a continuation of general education to standards equivalent to those of other types of schools but with adequate vocational emphasis. The aim is to produce young men capable of becoming leaders in rural communities as well as being successful farmers with an appreciation of the value of scientific methods in agriculture.

In addition to the activities of the Education Department in the field of agricultural education, facilities are also provided by the Department of Agriculture at Muresk Agricultural College to which reference is made on page 152.

Technical Education

Institutions under the control of the Division of Technical Education comprise the Perth Technical College, nine technical schools and twenty-six technical centres. There is also a Technical Extension Service which conducts correspondence courses and extension classes to provide instruction where it is not practicable to establish a technical school or centre. The Division has a Counselling Service which is available to advise students in selecting a course, to assist them in their studies, and to provide consultant services to industry and commerce on staff selection and training.

TECHNICAL EDUCATION

Particulars	1962	1963	1964	1965	1966
Number of—					
Colleges	1	1	1	1	1
Schools	7	8	9	9	9
Centres	17	23	22	26	26
Total	25	32	32	36	36
Number of Teachers at 1st July (a)—					
Perth Technical College (b)	515	523	430	462	482
Schools	405	461	645	761	855
Centres	281	387	436	528	512
Technical Extension Service—					
Correspondence Courses	138	137	154	162	183
Extension Classes	88	76	109	123	143
Youth Education Classes	61	46	57	49	69
Native Education Classes .....	.....	.....	11	33	33
Counselling Service	(b)	(b)	(b)	19	34
Total	1,488	1,630	1,842	2,137	2,316
Students Enrolled—					
Perth Technical College	10,970	9,145	8,153	8,566	9,090
Schools	12,882	14,026	18,430	19,995	20,939
Centres	6,896	7,241	8,128	9,388	9,719
Technical Extension Service—					
Correspondence Courses	10,712	11,263	11,512	13,111	13,753
Extension Classes	2,224	2,145	2,755	2,208	2,297
Youth Education Classes	1,221	1,793	1,839	1,636	1,998
Native Education Classes .....	.....	.....	293	536	756
Total	44,905	45,613	51,110	55,440	58,557
Males	29,374	30,251	34,399	37,326	39,161
Females	15,531	15,362	16,711	18,114	19,396
Total	44,905	45,613	51,110	55,440	58,557

(a) A teacher may occupy teaching positions at more than one school or centre. The number of individual teachers is not available. (b) Prior to 1965, teachers engaged in the Counselling Service were included in the staff of the Perth Technical College.

Courses leading to the award of a Diploma or a Certificate are available on a full-time or a part-time basis, instruction ranging from the training of technicians to the preparation of students for professional occupations. Part-time classes are established at all technical schools and centres, subject to local demand for tuition and availability of teaching staff.

The Perth Technical College offers a variety of diploma and certificate courses as well as courses of a general educational nature, and trade training in printing. It also caters for cultural and leisure-time interests by providing instruction in a range of basic skills.

The work of the Leederville Technical School relates mainly to the building industry and furnishing trades, but the School also accommodates a matriculation group. The Wembley Technical School provides courses for apprentices in the engineering trades, while the Carlisle Technical School is mainly concerned with training for trades associated with the automotive industry. The Mount Lawley Technical

School provides training in baking, hairdressing and the electrical and meat industry trades, as well as commercial vocational training. Technical schools at Claremont, Fremantle, Midland, Kalgoorlie and Bunbury aim to meet the needs of the districts in which they are situated and give tuition in those subjects for which there is sufficient local demand. Technical centres, where evening classes are provided, are located at eighteen of the Department's ordinary metropolitan schools and eight of its country schools.

Apprentices who live within reach of a technical school providing the appropriate instruction must attend classes, usually for eight hours per fortnight. In 1966, the number of trade apprentices enrolled was 8,358. For apprentices in country areas correspondence courses, sometimes conducted in supervised study groups, are available as well as intensive courses during which they have access to the full range of specialized instructors and equipment in the metropolitan area.

At all technical schools and centres where there is enough demand and teachers can be provided, instruction is given in such leisure-time activities as dressmaking, millinery, cookery, home furnishing, pottery, woodwork and motor vehicle maintenance.

Teacher Education

Teacher training is conducted at three colleges especially established for the purpose, the first at Claremont in 1902, the second at Graylands in 1955, and the third on a site adjacent to the University in 1967. The basic course is of two years' duration but is being increased by stages to three years from 1968. The minimum requirement for entrance is the possession of the Leaving Certificate or its equivalent. Selected students may study in extended fields for periods of from three to six years to obtain University degrees and other qualifications. There is also a one-year training course open to University graduates.

TEACHERS' COLLEGES

Particulars	1961	1962	1963	1964	1965	1966
Number of Instructors—						
Males	53	56	54	55	54	57
Females	22	18	19	19	22	23
Total	75	74	73	74	76	80
Number of Students Enrolled—						
Males	545	499	519	511	573	673
Females	807	855	759	750	835	955
Total	1,352	1,354	1,278	1,261	1,408	1,628
Number of Students Graduating—						
Males	225	191	193	162	173	182
Females	319	401	343	311	298	373
Total	544	592	536	473	471	555

OTHER GOVERNMENT EDUCATION

Muresk Agricultural College

Muresk Agricultural College, situated eight miles south of Northam in the Avon valley, was established by the Department of Agriculture in 1926. The aim of the College is to provide a sound technical training for persons wishing to become farm owners or managers, or to go into industries servicing agriculture. In 1969 the educational standard necessary for entrance will be raised to require passes at the Leaving Certificate examination, or its equivalent, in English, Chemistry, Physics and Mathematics. The new tertiary level course will lead to the Muresk Diploma in Agriculture (M.D.A.) in two years. The course will be fully residential. Subjects studied will be Soil Science, Animal Sciences and Husbandry, Plant Sciences and Husbandry, Agricultural Engineering, Farm Management, Humanities, and Practical Farm Work.

The estate of four thousand acres is devoted to mixed farming and provides the students with an opportunity to gain a considerable amount of practical experience by observation, demonstration and actual participation in a wide variety of farming activities. The Department of Agriculture also makes use of the facilities for various research projects. High quality stock from the College's herds and flocks is available to Western Australian farmers at reasonable prices.

From time to time short courses are held at the College. These include in-service training schools for personnel of the Department of Agriculture and for field and service staff of agricultural firms.

The number of students enrolled at the College in 1967 was 75.

School of Mines of Western Australia

The School of Mines of Western Australia was established at Coolgardie in 1902 and was transferred to Kalgoorlie in the following year. Branch Schools have, from time to time, been opened at various mining centres to meet the needs of the industry, but at present the only Branch School is at Norseman. The School of Mines is part of the Department of Mines.

Associateship courses are available in Mining, Metallurgy, Engineering and Mining Geology. These are professional courses for which the entrance requirement is a pass in specified subjects at the Leaving Certificate examination or its equivalent. The courses are arranged to occupy two years of full-time study followed by two years of part-time study, but they can for the most part be completed by all full-time or all part-time study. Certificate courses, which are intended for part-time study, are of four years' or three years' duration. The four-year courses, which are available in assaying, mine surveying and engineering drafting, are semi-professional in character and receive general recognition by industry and by Government Departments. The three-year courses are at a lower level. In addition, the school offers trade technician courses requiring from three to four years of part-time study.

Through the Kalgoorlie Metallurgical Laboratory, the School undertakes metallurgical investigations as well as assays for gold and for other metals. Free assays and mineral determinations are made for *bona fide* prospectors.

The School has a geological museum which is open to the public and contains rocks and minerals from all over Australia and from elsewhere.

The number of students enrolled in 1966 was 292.

NON-GOVERNMENT SCHOOLS

The non-government schools, which are conducted mainly by religious organizations, provide education from kindergarten to the end of the secondary school course, equivalent to the final year in the government high schools. The curriculum at the primary and secondary levels is substantially the same as that in the government schools.

Kindergarten schools and teachers are included in the following table. Almost all the schools shown under the heading *Undenominational* are kindergartens. The Education Act requires that every person conducting a kindergarten must hold a permit issued for the purpose by the Education Department. The Kindergarten Association of Western Australia, a voluntary organization subsidized from government funds, maintains a training college for kindergarten teachers.

At the 1st August, 1966 the number of kindergartens registered with the Education Department was 183, of which 79 were affiliated with the Kindergarten Association.

NON-GOVERNMENT SCHOOLS (a)

Particulars	At 1st August—				
	1962	1963	1964	1965	1966
NUMBER OF SCHOOLS (a)					
Denomination—					
Church of England	9	15	15	13	12
Methodist	3	5	5	5	5
Presbyterian	2	3	3	3	3
Roman Catholic	173	177	178	185	183
Other	9	10	11	9	10
Undenominational	150	150	152	157	170
Total	346	360	364	372	383
NUMBER OF TEACHERS (b)					
Denomination of School—					
Church of England	171	182	191	197	204
Methodist	72	74	77	80	91
Presbyterian	60	62	62	71	72
Roman Catholic	783	829	856	901	892
Other	26	34	36	40	40
Undenominational	226	272	264	267	284
Total	1,338	1,453	1,486	1,556	1,583
Males	(c)	322	342	364	383
Females	(c)	1,131	1,144	1,192	1,200
Total	1,338	1,453	1,486	1,556	1,583

(a) Including kindergarten schools.

(b) Excluding persons teaching part-time.

(c) Not available.

NON-GOVERNMENT SCHOOLS—PUPILS ON ROLL

Particulars	At 1st August—				
	1962	1963	1964	1965	1966
Denomination of School—					
Church of England	3,351	3,511	3,524	3,636	3,741
Methodist	1,321	1,383	1,445	1,527	1,631
Presbyterian	1,137	1,187	1,168	1,198	1,262
Roman Catholic	28,649	29,657	30,224	31,099	31,418
Other	660	750	776	767	819
Undenominational	4,979	5,075	5,402	5,991	6,580
Total	40,097	41,563	42,539	44,208	45,451
Grade of Education—					
Kindergarten (a)	5,361	5,780	6,219	6,684	7,369
Primary	22,908	23,494	23,579	24,234	24,024
Secondary: Years 1, 2 and 3	9,462	9,614	9,882	10,299	10,794
Years 4 and 5	2,366	2,675	2,859	2,991	3,264
Total	40,097	41,563	42,539	44,208	45,451
Males	19,532	20,258	20,504	21,416	21,939
Females	20,565	21,305	22,035	22,792	23,512
Total	40,097	41,563	42,539	44,208	45,451

(a) Comprises pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. The numbers of such pupils at 1st August, 1966 were 7,046 and 323 respectively.

THE UNIVERSITY OF WESTERN AUSTRALIA

University education first became available in Western Australia in 1898, with the formation of the Extension Committee of the University of Adelaide by which facilities were provided for external studies in courses for degrees in Arts and Science. The first step towards the establishment of a university in Western Australia was taken in 1904, when a University Endowment Act providing for the incorporation of a trust to administer funds for the purpose was passed by the State Parliament. Following a favourable report made by a Royal Commission under the chairmanship of Dr. (later Sir Winthrop) J. W. Hackett, the University was established by the University of Western Australia Act of 1911. Teaching began in 1913 in subjects related to the Faculties of Arts, Science and Engineering. Additional Faculties established since that time are those of Law (1927), Agriculture (1936), Dental Science (1946), Education (1947), Economics (1954), Medicine (1956) and Architecture (1966). The Faculty of Economics was reconstituted as the Faculty of Economics and Commerce in 1961.

Degrees

Degrees are granted in the Faculties of Arts, Law, Education, Economics and Commerce, Science, Engineering, Agriculture, Dental Science, Medicine and Architecture.

Courses for the degrees of Bachelor of Arts, Bachelor of Economics, Bachelor of Commerce and Bachelor of Science extend over a period of not less than three years; those for the degrees of Bachelor of Music, Bachelor of Psychology, Bachelor of Laws, Bachelor of Education, Bachelor of Engineering and Bachelor of Science in Agriculture, over not less than four years; and those for the degrees of Bachelor of Dental Science and Bachelor of Architecture over not less than five years. Honours degree courses in Arts, Music, Psychology, Economics and Science are usually of four years' duration, and five years in Education. The course in the Faculty of Medicine for the degrees of Bachelor of Medicine and Bachelor of Surgery extends over six years, and that for the degree of Bachelor of Medical Science over four years or five years according to the subjects taken. The degrees of Master of Arts and Doctor of Letters, Master of Music and Doctor of Music, Master of Psychology, Master of Laws and Doctor of Laws, Master of Education, Master of Economics, Master of Commerce, Master of Science and Doctor of Science, Master of Engineering Science, Master of Engineering and Doctor of Engineering, Master of Science in Agriculture and Doctor of Science in Agriculture, Master of Dental Science and Doctor of Dental Science, Master of Surgery and Doctor of Medicine and Master of Architecture, are conferred by the University. The degree of Doctor of Philosophy is also given for research in all faculties with the exception of the Faculty of Law.

Teachers, Students, Degrees Conferred

The following table gives particulars of teaching staff and students at the 31st July in each of the years from 1962 to 1966. The numbers of degrees conferred and diplomas granted during each of these years are also shown.

UNIVERSITY OF WESTERN AUSTRALIA

Particulars	1962	1963	1964	1965	1966
NUMBER OF TEACHERS					
Full-time—					
Professors	31	36	41	44	41
Readers	34	34	38	37	35
Senior Lecturers	87	99	101	110	111
Lecturers	77	86	91	99	95
Tutors, Demonstrators	18	23	26	31	67
Total—Full-time	247	278	297	321	355
Part-time (a)—					
Lecturers	20	25	24	38	43
Graduate Assistants, Tutors, Demonstrators	216	232	299	341	384
NUMBER OF STUDENTS					
Internal, Full-time	2,144	2,346	2,697	2,971	3,362
„ Part-time	1,334	1,389	1,483	1,681	1,814
External	375	353	385	370	323
Total	3,853	4,088	4,565	5,022	5,499
Males	2,947	3,146	3,496	3,805	4,084
Females	906	942	1,069	1,217	1,415
Total	3,853	4,088	4,565	5,022	5,499
DEGREES (b) AND DIPLOMAS					
Degrees (b) Conferred—					
Agriculture	22	15	10	*30	23
Arts	166	197	193	*233	223
Commerce	4	9	11	8	20
Dental Science	11	15	22	*32	11
Economics	23	20	26	19	40
Education	38	46	36	39	48
Engineering	11	15	24	25	38
Law	32	39	45	40	26
Medicine	108	103	121	*160	41
Science					163
Total	415	459	488	596	638
Males	327	350	372	460	475
Females	88	109	116	136	163
Total	415	459	488	596	638
Diplomas Granted—					
Education	47	57	74	64	79
Other	2	5	....	4	2
Total	49	62	74	68	81
Males	40	50	47	45	58
Females	9	12	27	23	23
Total	49	62	74	68	81

(a) Figures represent units of 100 hours of teaching time per annum.

(b) Excluding honorary degrees.

* Revised.

University Government

The original Act provided that the Senate and Convocation should constitute the governing authority with power to make statutes for “the management, good government and discipline of the University.”

The Senate consists of 21 members, of whom six are appointed by the Governor, six are elected by Convocation, two are elected by the full-time teaching staff, three are *ex officio* members (the Vice-Chancellor of the University, the Under Treasurer of the State, and the Director-General of Education),

and four are co-opted members. Convocation consists of graduates of the University and such other persons as are eligible for membership under the provisions of the University of Western Australia Act.

Since an amendment to the Act in 1944 the Senate alone has been the governing authority and is responsible, subject to the Act and the statutes, for the entire control and management of the University. Statutes originate in the Senate and are submitted to Convocation for its consideration, and although Convocation may suggest amendments the Senate is not bound to accept them. The Act requires that statutes shall be submitted to the Governor for approval, after which they have the force of law.

The Chancellor is the titular head of the University. He is elected annually by the Senate from among its members and presides over its meetings. The Vice-Chancellor is the chief executive officer of the University and is appointed by the Senate for a period not exceeding ten years, at the end of which term he is eligible for reappointment. At meetings of Convocation the chairman is the Warden who is elected annually by Convocation from among its members.

The Guild of Undergraduates is constituted under the Act as an association of undergraduates "for furthering of their common interests, and shall be the recognised means of communication between the undergraduates and the governing authority of the University." The government of the student body is vested in the Guild Council to which the Senate appoints two of its own members, the remaining members of the Council being elected in accordance with regulations made by the Guild.

Principal Benefactions

A large bequest to the University was made under the will of its first Chancellor, Sir Winthrop Hackett, who died in 1916. Of the total amount of \$850,000, a sum of \$400,000 together with accrued interest was allocated to the erection and maintenance of a group of buildings comprising a ceremonial hall (Winthrop Hall), a Senate Chamber, administrative offices, a library, lecture rooms and a students' building (Hackett Hall). A further sum of \$400,000 was devoted to the provision of studentships, scholarships, bursaries and other financial help for deserving students of limited means. Under his will Sir Winthrop Hackett also provided for the continuation of his endowment for a Chair of Agriculture, and Saint George's College, the first residential college within the University, was built and endowed by the Church of England from funds bequeathed by him from the residue of his estate.

In 1927 the University received from the late Robert Gledden an estate valued at \$120,000 to provide two travelling scholarships in "applied science more particularly related to surveying, engineering or mining, or cognate subjects." The bequest has been used to establish the Robert and Maude Gledden Travelling Fellowships and to provide research studentships and fellowships.

In 1957 Mrs. M. B. Raine made a deed of gift in favour of the University for an amount of \$307,800 to be applied to medical research. Mrs. Raine died in 1960 and bequeathed her estate, valued for probate at \$1,377,568 to the University for the same purpose.

The sum of \$125,000 was presented to the University in 1958 by the Wellcome Trust to endow the Wellcome Research Chair of Pharmacology.

In 1962 the University received the sum of \$110,000, bequeathed for general purposes under the will of Dr. W. S. McGillivray.

Student Fees and Scholarships

The Royal Commission appointed to inquire into the establishment of a University recommended that teaching should be free and suggested that "if fees are found to be necessary, they should be on the lowest possible scale." Until 1962 lecture fees were not charged to students normally resident in Australia, except those in the Faculty of Medicine, where tuition fees were payable in the second and later years, and those enrolled at the Western Australian College of Dental Science, an institution affiliated with the University, who paid lecture fees to the College. All students paid a "faculty service charge" designed to cover such items as the use of the library, annual examination fees, the use of laboratory equipment, and the lecture synopses provided in some courses. To assist in meeting the increasing costs of operation resulting from a rapidly growing student population and to enable the University to take full advantage of Commonwealth financial aid available under the States Grants (Universities) Act, a new system of annual "enrolment fees" was introduced in 1962. The current tuition fees, which are considerably higher than the faculty service charges previously levied, are assessed on the number and grade of subjects to be taken during the year by students in the Faculties of Arts, Education, Economics and Commerce, and Science. In the Faculties of Law, Engineering, Agriculture, Dental Science, Medicine and Architecture, they take the form of an annual charge for each year of the course. In all faculties,

students whose normal place of residence is outside Australia are required to pay an annual overseas students' fee. Subscriptions to the Guild of Undergraduates and to certain faculty associations are payable by all students enrolled for one or more full units towards a bachelor degree.

Financial assistance is available to students under the Commonwealth University Scholarship Scheme. Awards are made on merit and, in addition to having their compulsory fees paid, scholarship holders may receive a living allowance, which is subject to a means test. Hackett Bursaries are offered each year for students of merit whose means make it difficult for them to undertake or continue a full-time undergraduate course. The State Government provides a number of University Exhibitions for competition among candidates at the Leaving Certificate examination.

As well as the normal awards under the Commonwealth University Scholarship Scheme, there is provision in the scheme for financial assistance for post-graduate studies in the form of a living allowance, which is not subject to a means test, and payment of fees. The University also provides, from its own funds, research studentships for post-graduate study which are competed for by students holding no other award and having an Honours degree of second class (Division A), or higher, standard. Hackett Scholarships, tenable at the University of Western Australia or in special circumstances at other recognized institutions in Australia, are open to graduates of the University. Graduates may also apply for Hackett Studentships which, in addition to other financial benefits, carry a travel grant where the Student elects to study overseas or in another State. Some large private industrial concerns also make annual awards for study at post-graduate level.

As a contribution towards University fees, the State Government provides financial assistance of \$42 per year for a full-time student who is proceeding to a first degree and who is not the holder of a scholarship or bursary of a value equal to, or greater than, half the amount of the tuition fees.

Tuition

In addition to the normal lectures and tutorials for full-time students, courses for part-time students are offered in the Faculties of Arts, Education, and Economics and Commerce. By arrangement with the Perth Technical College, evening instruction is given in some science subjects. Certain subjects may be taken at institutions affiliated with the University. These are the Perth Technical College and the School of Mines of Western Australia. Other affiliated institutions are the Western Australian College of Dental Science, Claremont Teachers' College, Graylands Teachers' College and the Kindergarten Teachers' College.

Residents of Western Australia living outside the metropolitan area are able to enrol as external students in the Faculties of Arts, Education, and Economics and Commerce.

Colleges and Hall of Residence

There are four residential colleges within the University. For men students, Saint George's College is conducted by the Church of England, Saint Thomas More College by the Roman Catholic Church and Kingswood College by the Methodist Church. Saint Catherine's College is an undenominational college for women students. A site has been allotted for a fifth college, Saint Columba, which will be conducted jointly by the Presbyterian Church and the Congregational Church for the accommodation of men students.

Currie Hall is an undenominational hall of residence for men students.

Public Examinations Board

The Public Examinations Board is constituted by University statute for the purpose of conducting school certificate examinations. The University, the Education Department and the non-government secondary schools are represented on the Board. The Junior Certificate examination is normally taken by pupils at the end of the third year in government high schools or non-government secondary schools. The Leaving Certificate examination is the final examination in Western Australian schools and a pass in certain specified subjects enables a student to matriculate at the University.

Adult Education Board

The Adult Education Board was established by the University in 1928. Its activities are controlled by a full-time Director of Adult Education.

The Board has its headquarters in Perth and operates at a number of centres in the suburbs and in country towns. Its work is generally non-vocational in character and, although the emphasis is on cultural entertainment, attention is given to the applied social sciences. Several series of classes, lectures, conferences, discussion groups and leadership training schools are conducted. The Board co-operates with other organizations, such as the Junior Farmers' Movement, the Country Women's Association and the Parents and Citizens' Federation. Music recitals, ballet performances, art exhibitions, screenings

of high-quality films, drama presentations and drama schools are arranged by the Board in the metropolitan area and most of these activities extend also to the larger country towns. A Summer School is held at the University each year. The annual Festival of Perth was inaugurated by the Board in 1953.

The Board maintains an Adult Education Library and operates a Box Library Scheme for local discussion groups in both metropolitan and country areas.

Finance

The following table relates to University finance in each of the years from 1962 to 1966. Particulars of grants made specifically for capital purposes, and expenditure from such grants, are not included.

UNIVERSITY OF WESTERN AUSTRALIA—FINANCE

(\$'000)

Particulars	1962	1963	1964	1965	1966
GENERAL ACTIVITIES					
Receipts—					
Government Grants—					
State	1,987	2,301	2,376	3,048	2,701
Commonwealth	1,281	1,493	1,662	2,114	2,143
Interest, Rents, Dividends and Donations	83	84	97	119	122
Students' Fees	357	443	680	849	1,155
Charges for Services (a)	11	17	29	31	86
Other Receipts	48	49	79	91	120
Total	3,766	4,387	4,923	6,252	6,417
Payments—					
Administration :					
Salaries	243	306	342	417	452
Other	118	140	155	180	193
Teaching Department :					
Salaries	2,109	2,448	2,665	3,020	3,578
Other	528	740	759	719	753
Library :					
Salaries	98	118	142	166	186
Other	111	139	158	177	209
Maintenance of Premises :					
Salaries and Wages	114	134	163	189	238
Other	226	273	381	406	513
Adult Education—Senate Subsidy	75	83	90	110	113
Other Payments	36	79	49	74	70
Total	3,658	4,462	4,903	6,058	6,304
SPECIAL ACTIVITIES					
Receipts—					
Government Grants :					
State—Adult Education	10	10	10	10	10
Research	121	145	110	70	255
Commonwealth—Research	202	382	210	381	676
Non-government Research Grants	337	559	328	409	367
Interest, Rents, Dividends and Donations, etc.	132	147	421	234	234
Candidates' Fees for Public Examinations	43	52	158	171	245
Adult Education and Extension Fees	75	83	63	79	97
Adult Education—Senate Subsidy	75	83	90	110	113
Total	920	1,377	*1,391	*1,463	1,996
Payments—					
Expenses of Public Examinations	126	144	160	186	235
Adult Education and Extension	114	132	154	182	202
Scholarships, Bursaries, Prizes, etc.	109	154	182	213	61
Special Research Expenses	309	365	460	573	1,209
Other Payments	90	187	121	40	41
Total	748	981	1,076	1,195	1,747

(a) Mainly computing charges and engineering testing fees.

* Revised.

It will be seen from the table that the University's principal source of revenue is in the form of grants made by the State Government. The University of Western Australia Act provides for the payment of an annual subsidy of \$500,000 and "such additional amounts as may be appropriated by Parliament from time to time." In the five-year period to 1966, State Government assistance accounted for 48.6 per cent. of the total receipts of \$25.7 million for general activities. The Commonwealth Government also makes regular annual contributions, which amounted to \$8.69 million in the five-year period and represented 33.8 per cent. of the University's total income for general activities.

THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

The Western Australian Institute of Technology is established in terms of the Western Australian Institute of Technology Act, 1966 as an autonomous organization under the control of a governing council. The Act provides that the main functions of the Institute shall be to provide facilities for higher specialized instruction and to advance training in the various branches of technology and science ; to aid the advancement, development and practical application to industry of science or any techniques ; and to encourage and provide facilities for the development and improvement of tertiary education whether on a full or part time basis to meet the needs of the community in the State.

The Western Australian Institute of Technology will in future be responsible for tertiary educational courses which have been developed within the Perth Technical College. In general, these are professional courses recognized by the appropriate professional bodies. The development of the Institute became necessary on account of the rapid growth of numbers in these courses and the need for more modern facilities and equipment to keep pace with the educational demands of the various professional groups involved.

Buildings for the Institute were commenced in 1963 on a site of 270 acres at South Bentley, approximately seven miles from the Perth city centre, and the initial group of buildings was officially opened on the 17th August, 1966.

Courses leading to the Associateship of The Western Australian Institute of Technology comprise three years' full-time study or the part-time equivalent. (In the case of Architecture the three-year full-time course is followed by two years' part-time study while in approved employment.) Students on entry must have completed the Associateship entrance examination or an equivalent examination at the Leaving Certificate level and must possess aptitude for the course selected. For certain courses, approved practical experience must be obtained before the Associateship is awarded.

Associateship courses are provided in Accounting, Administration, Applied Geology, Applied Physics, Architecture, Art Teaching, Chemistry, Commerce, Design, Engineering, Fine Art, Geophysics, Home Science Teaching, Land Surveying, Management Accounting, Mathematics, Medical Technology, Metallurgy, Nutrition, Pharmacy, Social Science, Social Work, and Town Planning.

The Institute also offers diploma courses in Administration, Applied Physics, Education Administration, Home Science Teaching, Quantity Surveying, and Social Science.

COMMONWEALTH FINANCIAL ASSISTANCE FOR TERTIARY EDUCATION

Universities

Following a report submitted by a committee of inquiry appointed to report on university finances and requirements, the Commonwealth, since 1951, has made matched grants to the States for recurrent expenditure on university purposes. Since 1958 the Commonwealth has also assisted with the capital needs of the universities for building projects and for equipment, and provided unmatched recurrent grants and grants for the building programmes of residential colleges affiliated with universities. In the 1961-1963 triennium the Commonwealth matched State grants for buildings at teaching hospitals and in 1960 instituted grants for research at universities.

Since 1961, Commonwealth assistance to the States in respect of the recurrent expenditures of universities has been on the basis of \$1 of Commonwealth money for every \$1.85 of income received by a university from fees and State grants. From 1951 to 1960 the matching ratio was, in general, \$1 to \$3. Grants in respect of capital expenditures are provided on a \$1 for \$1 basis from the Commonwealth and the State.

In 1959, following the Report of the Committee on Australian Universities, the Commonwealth Government established the Australian Universities Commission under the Australian Universities Commission Act 1959. The Commission's principal functions are to advise the Prime Minister on financial assistance to Commonwealth universities and to States in relation to their universities and also on the balanced development of Australian universities.

Colleges of Advanced Education

In August, 1961, the Commonwealth Government appointed a committee to consider the pattern of tertiary education in relation to the needs and resources of Australia and to make recommendations on the future development of tertiary education.

The Report of the Committee on the Future of Tertiary Education in Australia recommended the establishment of a new type of educational institution, to supplement universities and to be developed from, and around, the tertiary segments of existing technical colleges. The Report also recommended that funds for the capital and recurrent purposes of these colleges should be provided by Commonwealth and State Governments on the same matching basis as for universities.

In March, 1965, the Commonwealth indicated its acceptance, in principle, of the Committee's approach and, as an interim measure, announced its willingness to pay capital grants totalling approximately \$5 million in the remainder of the 1964-1966 triennium, subject to matching by the States on a \$1 for \$1 basis.

Subsequently, the Commonwealth established the Commonwealth Advisory Committee on Advanced Education to promote the balanced development of non-university tertiary institutions in Australia and to advise the Commonwealth Government on proposals presented by the States.

The recommendations in the First Report (and Supplement) of the Advisory Committee relating to the level of assistance to be provided to Colleges of Advanced Education in the three calendar years 1967-1969 were accepted and incorporated in the States Grants (Advanced Education) Act 1966. This Act provided, *inter alia*, for grants by the Commonwealth on the same matching basis as for universities, in respect of recurrent expenditures incurred by the States in excess of the level of such expenditures in the base year 1964-65. The States Grants (Advanced Education) Act 1967, which repealed and replaced the 1966 legislation, makes provision also for the Commonwealth to match funds raised privately for the erection of residential accommodation at Colleges of Advanced Education. For each \$1 raised privately for this purpose, the State contributes \$1 and the Commonwealth \$2.

No grant in respect of recurrent expenditures was made during 1965-66 but grants made for capital purposes amounted to \$982,000, Western Australia's share being \$232,000, comprising \$155,000 for The Western Australian Institute of Technology and \$77,000 for the School of Mines of Western Australia.

COMMONWEALTH FINANCIAL ASSISTANCE FOR RESEARCH

In March, 1965 the Commonwealth Government announced that it would make available \$2 million in the remainder of the 1964-1966 triennium in support of research projects, selected according to merit, to be carried out in any academic field. Where a research project was to be carried out in a State university the provision of Commonwealth assistance was to be conditional on an equal matching grant to the university by the State Government concerned. These proposals were incorporated in the States Grants (Research) Act 1965. The Australian Research Grants Committee was established to evaluate research projects and to make recommendations to the Commonwealth concerning the amount and disposition of grants.

Payment of grants under the scheme commenced in 1965-66 with grants totalling \$1,378,000 for Australia as a whole, and including \$142,000 for research in the University of Western Australia.



Block by courtesy of Westralian Farmers Co-operative Ltd

THE OLD FARM AT STRAWBERRY HILL, ALBANY

A government farm established at King George Sound in 1827 was sold to Captain Sir Richard Spencer, R.N., K.C.H., on his arrival in 1833 to become Government Resident at Albany. He built the present two-storey house at Strawberry Hill in 1836. The property was vested in the National Trust of Australia (W.A.) in 1963. It has been restored, furnished as a typical Western Australian colonial house, and is now open to the public.

CHAPTER V — *continued*

PART 2—PUBLIC LIBRARIES, MUSEUM, ART GALLERY, AND SCIENTIFIC INSTITUTIONS

PUBLIC LIBRARIES

The Library Board of Western Australia

The Library Board of Western Australia, which is constituted under the provisions of the Library Board of Western Australia Act, 1951–1965, is responsible for all forms of public library services which are financed either wholly or in part from State funds. The Board consists of thirteen members. The Director-General of Education and the Director of Adult Education are *ex officio* members. Of the remaining eleven members, who are appointed by the Governor, five represent local government interests, five are nominated by the Minister for Education and one by the Library Association of Australia, Western Australian Branch.

The Board was set up as an independent statutory body in 1952. Its functions are to encourage and assist local authorities to establish public libraries and to co-ordinate those libraries into a State-wide system, to administer funds made available by the Government for this purpose, to provide for the training of librarians and library assistants and to advise the Minister for Education and participating bodies on matters of general policy relating to libraries. Under the provisions of the Acts Amendment (Libraries) Act, 1955, the administration of the Public Library of Western Australia was transferred to the Board on the 1st December, 1955 and its name changed to The State Library of Western Australia. The Central Music Library was inaugurated in 1965.

The following table contains a summary of the principal statistics of the Library Board for the five years to 30th June, 1966.

LIBRARY BOARD OF WESTERN AUSTRALIA

Particulars	1961–62	1962–63	1963–64	1964–65	1965–66
Expenditure—					
Books, periodicals and binding	\$ 163,124	188,676	174,864	207,272	258,300
Salaries and wages	\$ 151,178	160,192	188,514	204,860	226,200
Other	\$ 42,866	34,730	40,204	40,256	46,100
Total	\$ 357,168	383,598	403,582	452,388	530,600
Book stock at 30th June—					
State Library	197,144	203,861	211,059	216,700	223,430
Circulation stock	270,617	327,134	419,253	454,466	496,432
Central Music Library (a)—					
Books				2,561	2,954
Scores				7,901	9,435
Total	467,761	530,995	630,312	681,028	732,251
Net additions to book stock	54,521	63,234	99,317	51,316	50,623
Periodical and serial titles received	6,158	(b) 6,600	7,192	8,966	8,417
Request and Information Service—					
Inter-library requests received	14,343	18,470	22,119	26,197	33,306
Proportion satisfied	93	92	93	92	93
Staff at 30th June—					
Qualified librarians	20	20	19	19	22
Student librarians	15	16	17	19	19
Other	30	36	37	42	50
Total	65	72	73	80	91
Associated public libraries (c)	60	63	77	91	97

(a) Inaugurated 1965.

(b) Estimated.

(c) Number at 30th June.

The books in all public libraries in the State are supplied by the Board and remain its property. A fixed proportion, depending on its size, of the stock of every library is exchanged at least every two months. All books are catalogued and fully prepared for use before being issued to public libraries and the Board maintains all the central stock records.

A catalogue in book-form of the books, arranged by subjects, in all libraries is published regularly by the Board and supplied to all public libraries throughout the State. This facilitates access by library users to the whole stock of the Board, through any library. More than 30,000 inter-library loans both

between public libraries and between other types of library in the State are organized annually through the Request and Information Service provided by the Bibliographical Centre. This centre, housed in the State Library building, is also open to the public. It is equipped with catalogues of the State Library and all other libraries in the service, a union catalogue of books and serials in non-public libraries in the State and a world-wide range of printed bibliographies, indexes to periodicals and subject guides.

The library service of Western Australia thus consists of the State Library, which functions as the reference division of the service, the Central Music Library and a number of independent public libraries which are jointly supported by local authorities and the Board.

The State Library of Western Australia

The original Library was established in 1887 as the Victoria Public Library in commemoration of Queen Victoria's Golden Jubilee. It became known later as the Public Library of Western Australia and in 1955 as The State Library of Western Australia.

In addition to providing reference library facilities for the metropolitan area, its service extends throughout the State, through the agency of a local public library wherever possible but also by post direct to country inquirers not in contact with a local library.

It is divided into five specialist subject units, comprising four libraries and one centre. The J. S. Battye Library of West Australian History was developed from the former Archives Branch. All material relating to Western Australia, including the State archives, has been concentrated in this library. The other libraries are The Library of Business, Science and Technology, The Library of Social Sciences, Philosophy and Religion and The Library of Literature and the Arts. The Information Centre is equipped with current Australian and overseas telephone and trade directories, business guides, commercial publications and a wide variety of similar quick reference material. The Centre is designed principally to provide immediate answers to inquiries, mainly in the commercial field. Current newspapers, which include all those published in Western Australia, the main ones from other Australian States and a representative selection from overseas countries, are available for reference in the Information Centre.

The State Library is fully equipped with micro-film and photo-copy apparatus and copies of material are available on payment of an appropriate fee.

The Central Music Library, situated in the State Library building, lends musical scores to persons or bodies throughout the State but lends books on music only through other libraries. It also provides a reference service in the field of music.

Local Public Libraries

At the 30th June, 1966, there were 97 local public libraries associated with the Library Board's service. The local government authorities conducting these libraries provide accommodation and staff, while the Library Board provides all the books and bibliographical services. The administrative independence of the local libraries is secured under the provisions of the Library Board of Western Australia Act, 1951-1965. Apart from exercising a statutory obligation in respect of the expenditure of State subsidies, the Board takes no direct part in the administration of local public libraries. If the Board's expenditure in respect of a local library exceeds that of the local authority, an amount to equalize the expenditure is payable to the Board by the local authority. Books are provided on a minimum basis of one volume per head of the population of the district concerned and all non-fiction books in public libraries throughout the State are made available on request to the Board at any library associated with its library service.

MUSEUM

The Western Australian Museum has developed from two earlier collections. One of these, the Museum of the Swan River Mechanics' Institute, was founded by public subscription in 1860, and the other, the Geological Museum at Fremantle, was started in 1881. In 1889 the contents of the Geological Museum were moved to the former Perth Gaol (which is still part of the Western Australian Museum) and a Curator was appointed in 1891. In the following year the museum of the Swan River Mechanics' Institute was purchased, and the collections combined to form the Public Museum.

The Museum, which became known as the Western Australian Museum in 1897, is controlled by a Board of five members appointed by the Governor under the provisions of the Museum Act, 1959-1964. The staff, which is grouped within the Divisions of Natural Sciences, Human Studies, and Administration and Services, includes a Director, two Senior Curators, seven Curators and other professional and technical staff.

The work of the Museum relates mainly to natural sciences and human studies. It contains collections devoted to zoology, palaeontology, meteorites, archaeology, anthropology, history, technology and military exhibits. Emphasis in both display and research is on the fauna and the human population, past and present, of Western Australia. There is an extensive scientific library which also houses the library of the Royal Society of Western Australia. Research within the Division of Natural Sciences is related specifically to the marine fauna of Western Australian waters, mammals, birds, reptiles and insects. The Division of Human Studies is concerned with Prehistoric Archaeology and Art, Aboriginal Material Culture, Colonial History, Maritime History, Underwater Archaeology, Industrial and Agrarian Technology, and Arms and Armour.

The Museum Act Amendment Act, 1964 has increased the scope of the Board's activities by vesting in it certain historically important unsalvaged ships which were wrecked off the Western Australian coast in the 17th and 18th centuries. The Act also makes provision for the future vestment of historically important wrecks not known to exist at the date of enactment.

The Museum is an active educational instrument. Members of the scientific staff lecture in Adult Education programmes and in the University departments. Public lectures are held and there is also an extensive programme of nature study for children. A children's centre, staffed by a Museum teacher provided by the Education Department, is open during school holidays. In 1966, almost 40,000 children voluntarily participated in general knowledge tests and other exercises designed for vacation activities. Regular classes are held during school terms and 14,415 children from 60 metropolitan schools attended during 1966. In addition, special visits were made by 2,260 children from schools not included in the regular series.

In connexion with its work of education, research and conservation, the Museum is often called upon to act in an advisory capacity to the Government. In particular, senior staff serve on committees formed for the purpose of protection of native fauna and the preservation of aboriginal sites and artifacts.

The Museum serves as a centre for associations with interests in natural history and human studies. The Royal Society of Western Australia and the Astronomical Society hold regular meetings at the Museum. The Museum is assisted in certain fields by Honorary Museum Associates, some of whom serve on the two Advisory Committees, the Meteorite Advisory Committee and the Historical Materials Advisory Committee.

ART GALLERY

The Western Australian Art Gallery is under the control of a Board of five members appointed by the Governor under the provisions of the Art Gallery Act, 1959. The Gallery occupies part of a building shared with the Museum. The lower gallery is used mainly for lectures, art films and the display of interstate and overseas exhibitions. Works from the permanent collection are exhibited in the upper gallery, while the print room is used to house and exhibit the collection of prints and drawings. Both displays are changed regularly. Important pieces of sculpture are on permanent display in both galleries and in an exterior courtyard designed for this purpose.

The Art Gallery's collection at the 30th June, 1966 contained, in addition to reproductions, 444 oil paintings, 194 water colours, 1,502 drawings and prints, 43 sculptures, 9 miniatures, and a number of ceramics and other art objects. The collection is constantly being increased by purchases, gifts and bequests.

The Gallery has extended its services throughout the metropolitan area and country districts. Reproductions of paintings are circulated by means of its loan service to various public institutions in the metropolitan area. Educational and cultural bodies in rural areas participate in a similar scheme, related groups of reproductions being boxed for country distribution together with discussion notes. Touring exhibitions from the permanent collection are also taken to country districts at regular intervals.

These activities are supplemented by publications of various kinds, which are distributed to schools and other institutions or direct to the public. Reproductions of some works in the collection are also available.

The Art Gallery operates a general information service which is widely used.

BOTANIC GARDEN

The Botanic Garden was established in King's Park in 1962 and is under the control of the King's Park Board (see final section *Public Parks and Reserves* of Chapter VII, Part 1). The Botanic Garden is the counterpart of the Museum in the botanical field, maintaining living collections of plants for scientific and educational purposes. Its official objects are to foster public interest in the conservation and culti-

vation of the Western Australian flora ; to contribute to public education in this field ; to become a centre for botanical and horticultural research in the flora of Western Australia ; to provide a major tourist attraction ; and to foster generally interest in botany and horticulture over the whole field of the plant kingdom.

The Garden was officially opened by the Hon. David Brand, M.L.A., Premier of Western Australia, on the 4th October, 1965. The cultivated areas cover a total of 67 acres, made up of the Western Australian collection (25 acres), a Californian, South African and Mediterranean collection (6 acres), and an arboretum of Western Australian native trees (36 acres). The Western Australian collections at present comprise 1,200 species. Virtually all trees native to the southern half of the State, with the exception of some rare mallees, are represented in the arboretum.

Parties from the Botanic Garden are regularly in the field for the collection of propagating material, and contribute to the botanical exploration of the State. Special attention is devoted to locating rare species or species threatened with extinction. Vegetation maps of the State are being built up. Seed of native plants collected is distributed to botanical institutions throughout the world and to private growers and nurserymen. A seed list, which normally offers from 900 to 1,000 species, is published annually. In 1966-67, almost 5,000 packets of seed were distributed.

Research on propagation of native plants is carried on in the nursery and information acquired is passed on to growers through State branches of the Society for Growing Australian Plants, using the medium of the Society's Journal. Within Western Australia, members of the staff constantly lecture and demonstrate and the nursery is opened to conducted parties at regular intervals. Official guides to the Botanic Garden may be engaged by parties of visitors. There is a nature trail for children in the Park bushland used regularly by the Gould League, and as the Botanic Garden develops it is designed to become of value for nature study groups. A Wildflower Exhibition is held in the Park each spring. Facilities are provided for the employment and ancillary training of students enrolled in the three-year course for the Western Australian Certificate of Horticulture and Park Administration.

SCIENTIFIC INSTITUTIONS

State Government Observatory

The Perth Observatory was established in 1896, on the site now occupied by an administrative office building of the Western Australian Government, facing the main entrance to King's Park.

The buildings of the present Perth Observatory, near Bickley in the Darling Range, were officially opened on the 30th September, 1966.

The principal astronomical instruments of the Observatory are a photographic refractor of 13 inches aperture and a 6-inch meridian transit circle. A 16-inch reflector, now being constructed by the Physics Department of the University of Western Australia, will be mounted at the Observatory in the near future.

Current work is concerned mainly with investigations of stellar motions, based on measurements of old (1900-1920) and recent photographs.

A team of astronomers from the Hamburg (West Germany) Observatory arrived in June, 1967. They brought with them a 7-inch meridian transit circle telescope, which is fully automated, to carry out a concentrated observational programme of the positions of fundamental stars in the southern hemisphere. This programme will take from two to three years to complete, after which the Perth instrument will be renovated and observations with it recommenced.

The Observatory maintains the time service for the State and prepares for publication the annual volume of tide tables for the north and north-west coasts.

The Observatory is open to visitors daily, except Saturdays, at 3 p.m. Night visits will be resumed as soon as possible.

State Government Chemical Laboratories

In 1922 the various chemical services of the State Government were amalgamated to form the Government Chemical Laboratories, primarily for the performance of chemical work required by Government Departments. In addition, the Laboratories serve government instrumentalities and semi-government authorities and undertake some chemical work for the general public. The activities of the Laboratories are organized under six Divisions, and a Physics Section, the separate functions of which are described briefly in the following summary.

The *Agriculture and Water Supply Division* does analytical work, on soils, related principally to the experimental work of the Department of Agriculture (see also Chapter VIII, Part 1); on waters, for the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Public Works and Water Supply, for primary producers seeking an assessment of the suitability of private supplies for domestic, irrigation and livestock purposes, and for commercial interests with particular reference to treatment and corrosion; on plants, as fodders for livestock and also to assess the nutritional requirements of plants with particular reference to the use of fertilizers and the correction of trace element deficiencies; on fertilizers and manures generally; and on animal tissues for diagnostic purposes.

The *Engineering Chemistry Division* is concerned with chemical means of utilization of mineral resources, such as production of sponge iron, upgrading of ilmenite and of low grade ores, and the beneficiation and calcination of lime sand. The Division was associated with the Fuel Technology Division in the production of a metallurgical fuel from Collie coal.

The *Food, Drugs, Toxicology and Industrial Hygiene Division* deals with the analysis of foods, including milk; drugs; police work, including human and animal toxicological examinations for poisons and analysis of blood and urine for alcohol concentration; industrial hygiene, including determinations relating to the amount of potentially harmful substances present in industrial and commercial materials or associated with working conditions; and industrial effluents and pollution surveys of river and ocean waters.

The *Fuel Technology Division* has been primarily concerned with Collie coal and its uses and has done important work on this local coal for the making of coked briquettes as a metallurgical fuel and for the production of town gas. The Division's investigations have extended to other fuels, including sawdust and woodwaste, and also to domestic appliances using fuel, and reduction of atmospheric pollution by emission from smoke-stacks.

The *Industrial Chemistry Division* is used extensively as a source of information and advice on technical problems relating to industry in Western Australia, with special reference to plastics. Research is also in progress on protective coatings, including paint.

The *Mineralogy, Mineral Technology and Geochemistry Division* is basically concerned with minerals, their occurrence and identification, but it also carries out the testing of clays and of aggregates for cement and concrete work, as well as corrosion and other tests. Analyses are done for the Geological Survey Branch of the Department of Mines in connexion with mineral surveys, notably those for copper and iron. This Division is also the reference laboratory for analyses of crushings of gold ores by the State Batteries. An important part of its work is the identification of mineral specimens forwarded by prospectors and others and the Division deals with many hundreds of such samples every year.

The *Physics and Pyrometry Section* is mainly concerned with X-ray examination of minerals and differential thermal analysis, and as a reference laboratory for heat and temperature measurement.

Details of the operations of the Government Chemical Laboratories are published in the Annual Report of the Director.

The Institute of Agriculture, University of Western Australia

The Institute of Agriculture was established in 1938 within the University to provide research facilities and staff essential for the effective training of professional agricultural scientists at both undergraduate and graduate levels. It includes the teaching and examining Faculty of Agriculture, and the research staff associated with it. Although the Institute is financed to some extent from University funds, substantial research grants from producer organizations and other bodies and individuals interested in the promotion of agriculture have made possible most of the research that has been undertaken since its establishment.

During the first ten years of its existence, and despite the dislocation of the war years, it initiated research on plant and animal problems of the pastoral areas, commenced a series of fundamental studies related to the nutrition of ruminants, investigated factors affecting the baking quality and nutritive value of wheat and flour, elucidated factors affecting the fertility of sheep, and carried out a series of economic surveys of the sheep, wheat, dairying, pig and poultry industries. The work of these years is summarized in the report of the Director, published in 1949.

Since 1948 the research programmes have been greatly increased and their scope widened. Plant breeding, selection and genetical research aimed at increasing the productivity and extending the climatic limits of crops and pasture legumes, especially subterranean clovers, medics and lupins, was strongly developed and fundamental studies initiated on the nutritional physiology and microbiology of the wool

sheep with particular reference to the factors influencing the utilization of protein, of urea and of low-quality roughages. In recent years the agronomic research has been expanded to include cereal genetics studies, and the animal research to include nutritional studies with beef cattle.

Further and more detailed economic surveys of the wheat-sheep farming industry and of the butter-fat producing and whole-milk producing industries have been carried out, together with studies of the comparative advantages of forestry and agriculture in parts of the south-west of Western Australia, and studies of egg-marketing problems. In 1961 the John Thomson Agricultural Economics Centre was set up within the Institute with funds supplied by banks, business houses and other organizations. The research economists of this Centre have completed an economic appraisal of irrigation from the Gascoyne River, an inter-industry comparison of the economy of Western Australia, and an investigation of farm population and land development potential in Western Australia.

In 1963 a Department of Soil Science and Plant Nutrition was established within the Institute with a very strong research group engaged in studies of soil physics, soil chemistry, soil microbiology and plant nutrition. The soil microbiology workers are mainly concerned with a continuation of earlier research into nodulation problems in legumes and the nitrogen-fixing process. The plant nutrition group has devoted particular attention to the uptake by crop and pasture plants of mineral nutrients, especially potassium, phosphorus, copper, zinc and manganese. The soil chemistry workers are specially concerned with the chemistry of soil organic matter, and the soil physics group with the role of the clay minerals in soil water, and the movement and retention of soil phosphorus and sulphur.

In 1966 a Department of Agronomy was established within the Institute. The research activities of the staff of this Department include the work in plant breeding mentioned previously and are being expanded to cover investigations into plant-water relations and agricultural climatology.

This brief review of the very wide range of the research activities of the Institute of Agriculture, at both the fundamental and at the more applied level, illustrates the extent to which it contributes to the assistance and service of the rural industries, indirectly by its training of agricultural scientists and directly through its manifold research projects.

Commonwealth Scientific and Industrial Research Organization

Several Divisions of the Commonwealth Scientific and Industrial Research Organization are actively engaged in research work in Western Australia.

Division of Soils—During the post-war period the Division of Soils has carried out soil surveys of large areas, mainly in the Great Southern districts to assist in the planning of War Service Land Settlement schemes. The soils of the areas concerned are predominantly lateritic and a study of their trace mineral status and clay mineralogy has been carried out. On the Swan Coastal Plain, detailed soil surveys of existing and proposed irrigation areas at Pinjarra, Harvey and Capel and the vine-growing areas of the Swan Valley have also been completed. Information obtained during this work provides the basis for study of the pedology and distribution of the soils of the whole Coastal Plain.

In recent years more attention has been given to the principles governing the distribution of soils. Field studies on the development of soils in relation to landscape evolution and past climates have been carried out in representative areas at York, Merredin, Dandaragan and Badgingarra.

The geomorphological relationships established have provided a basis for rapid mapping over extensive areas, which has been employed in the compilation of a soil map of the agricultural region of the State. This map and a broader scale survey of the soils of the remainder of Western Australia are to be published as part of an Atlas of Australian Soils. As an extension of the work in the Merredin area, a study of the hydrology of a typical wheat-belt valley in relation to soil salinity has recently been completed.

An important part of the work of the Division is the problem of the nutrition of exotic pines on the lateritic soils of the Darling Range and the infertile sands of the Coastal Plain. A considerable expansion of soil fertility investigations in relation to cereal crops and pastures is now beginning.

Division of Plant Industry—Most of the activities of the Division of Plant Industry have been directed to the problems of the sheep areas in the south-west of the State. More recently, studies have begun in the higher-rainfall dairying areas and on the sandy soils of the Swan Coastal Plain.

An examination of the influence of environmental factors on the growth and persistence of pasture plants is being continued. While earlier work was devoted largely to clovers, more emphasis is now being given to studying volunteer grasses and herbs in annual pastures. The aim of much of the plant nutrition work is to predict the nutrient requirements of grazed pastures in any specified environment at

any time. The main nutrients being examined are phosphorus, sulphur, nitrogen and potassium. A more efficient utilization of applied nutrients is being sought. Changes in soil organic matter accumulation as a result of agricultural practices of cropping and grazing are under study.

The successful introduction of new legumes for the wheat-belt, and of other pasture plants, is being followed up by critical examination of their production potential in terms of crop or animal product.

Pasture utilization studies, which are directed primarily towards increasing efficiency of production in sheep, have been increased. There is considerable work in progress on clover infertility, lamb mortality and weaner growth. Grazing management systems are also being studied, as well as stocking rates and the nutritive value of plant species in relation to animal production.

The programme of the Division is centred at the Organization's Western Australian Laboratories at Perth and includes field work at a number of country centres.

Division of Entomology—The Division of Entomology is concentrating on the ecology and biological control of the Red-legged Earth Mite and the Lucerne Flea in pastures. Recent extensive surveys in Australia, western Europe and Morocco have revealed that additional predators exist in the northern hemisphere. These belong to the mite families Bdellidae and Anystidae. Two of these are now being imported into Australia and attempts are being made to establish them and measure their effects on pest numbers.

Special attention is being directed to a study of the mechanism of diapause which enables these pests and their predators (and other insects and mites) to survive through the long, hot, dry summer period.

Work has commenced on a detailed ecological study of the jarrah leaf miner which causes serious damage to both jarrah and flooded gum.

Division of Mathematical Statistics—Officers of the Division of Mathematical Statistics are currently investigating the application of statistical methods to special problems of local interest in the fields of engineering, biochemistry and animal behaviour. In addition, they act in an advisory capacity to other research workers in the State on matters relating to the design of experiments and the analysis and interpretation of data.

Division of Applied Mineralogy—The laboratory of the Division of Applied Mineralogy is concerned mainly with research having a bearing on the mineral industry. The main theme of the laboratory's work is directed to the elucidation of the chemical and physical nature of the geological processes of mineral formation and alteration. This work, as applied to the economic minerals lithium and vanadium, is providing the basis for new approaches to the extraction of these metals and their salts. On the other hand, a study of the environs of ore deposits is seeking to establish new leads in geochemical exploration. Work on drilling research is also being maintained.

The laboratory, in addition, is acting as a link between manufacturing industry in Western Australia and physical, chemical and metallurgical divisions of the Commonwealth Scientific and Industrial Research Organization.

Division of Wildlife Research—The Division of Wildlife Research, located at Helena Valley, is concerned with investigations on the higher vertebrates (more particularly mammals and birds) and these cover not only species of economic importance but the native fauna generally. The Division played a part, in association with the Department of Agriculture, in the control of rabbits by the introduction of the disease myxomatosis, and carried out a basic research project on the control of the Euro (a species of kangaroo) in the Pilbara district.

Among birds, studies of the ecology of the Emu, of the Wedgetailed Eagle in the pastoral zone, of the White-tailed Black Cockatoo, and of the Noisy Scrub-bird are proceeding. Other current projects include experimental and field studies on the factors controlling breeding seasons of native birds under Western Australian conditions and surveys of the distribution of the arid-country fauna. The Division organizes the Australian Bird-Banding Scheme and conducts a seasonal trapping and marking scheme on the migratory shore-birds at the Pelican Point sanctuary on the Swan River.

Division of Fisheries and Oceanography—The Division of Fisheries and Oceanography has supplied the project leader for the Western Fisheries Research Project set up co-operatively by the Commonwealth Scientific and Industrial Research Organization, the Department of Primary Industry, the Fisheries Departments of Western Australia and South Australia, the Zoology Department of the University of

Western Australia, and the Western Australian Museum. At present, the research includes work on crayfish, Australian salmon, prawns, tuna and whales and also on marine sedimentation, Haliotids (abalono), and the development of a sonic buoy for automatic collection of hydrological data. Officers of the Division are stationed at Perth to participate in the research on crayfish and on sperm whales. Using naval frigates, the Division is continuing work on the physico-chemical and biological oceanography of the eastern Indian Ocean.

Other Divisions—Besides the research work being conducted at Perth and associated field stations, various co-operative programmes are under way in University departments and in the State Department of Agriculture. The Commonwealth Scientific and Industrial Research Organization has several officers stationed at the Kimberley Research Station investigating the crop and pasture problems of the northern areas.

Department of Agriculture

Reference to the scientific work of the Department of Agriculture appears in the section *The Department of Agriculture* in Chapter VIII, Part 1—*Primary Production*.

CHAPTER V — *continued*

PART 3—HEALTH SERVICES, HOSPITALS AND HOMES FOR THE AGED

HEALTH SERVICES

Health Administration

The Commonwealth and State Government health authorities, together with Boards of Health under local government administration, co-operate in maintaining health services and in the prevention and control of infectious diseases in Western Australia.

The Department of Health (Commonwealth) is administered, subject to the Minister, by a Director-General of Health. In each State there is a Director of Health responsible to the Director-General. Among the principal functions of the Department is the management of the National Health Services provided under the National Health Act. Information relating to these Services appears in Part 5 of this Chapter.

The Department controls the Australian Quarantine Service for the quarantine of humans, animals and plants. Human quarantine is concerned primarily with the procedures necessary to exclude quarantinable diseases, namely smallpox, plague, cholera, yellow fever, typhus fever, leprosy, and such other diseases as may be declared under the Quarantine Act. Animal quarantine regulates the importation of animals and animal products from overseas, and plant quarantine the importation of all plants and plant products, with the object of excluding plant diseases, insect pests and weeds. In respect of interstate movements of animals and plants, the Quarantine Act becomes operative only when it is considered that Commonwealth action is necessary for the protection of any State or States, and in general the control of interstate movements of animals and plants is the responsibility of State Governments.

The Commonwealth Acoustic Laboratories, of which there is a branch in Perth, provide and maintain, without charge, hearing aids for persons under 21 years of age and those entitled to benefits under the Repatriation Act.

The principal Statute relating to the provision and regulation of health services in Western Australia is the Health Act, 1911–1966 which is administered, subject to the control of the Minister, by a Commissioner of Public Health. The Act is comprehensive in scope and confers on the Commissioner the powers necessary for the prevention and control of infectious diseases; the enforcement of sanitation, building and pure foods standards; the control of nuisances and offensive trades; the regulation of the sale of pesticides and the manufacture of therapeutic substances; and the registration of private hospitals and the licensing of maternity homes. Other Acts under Public Health administration are the Anatomy Act, the Clean Air Act, the Cremation Act, the Poisons Act and the Radioactive Substances Act.

The Health Education Council is established as a statutory body under the provisions of the Health Education Council Act, 1958–1961. The Council conducts publicity campaigns and public lectures on matters affecting public health, including home accidents, handling of poisons, poliomyelitis and diphtheria immunization and the control of flies and mosquitoes.

The Cancer Council of Western Australia is constituted under the provisions of the Cancer Council of Western Australia Act, 1958–1964 as a statutory body with the functions of co-ordinating, promoting and subsidizing research into the cause, diagnosis, prevention and treatment of cancer.

The Department of Public Health has a central laboratory housed in the Sir Charles Gairdner Hospital at Hollywood. At the 31st December, 1966 there were 23 branch laboratories, 17 of which were located at country centres. The principal activity of the laboratories is the examination of medical and public health specimens, but there is increasing emphasis on research, particularly in the fields of virology, salmonellosis, tuberculosis, unclassified mycobacteria, cytology and coronary disease.

Infectious Diseases

The Health Act, 1911–1966 provides for the compulsory notification of infectious diseases and for the application of preventive measures. For the purposes of the Act, infectious diseases are those which are specified in the Act, as well as any other diseases which may, from time to time, be declared. The occupier of premises where such a disease occurs is required to notify the local authority forthwith. The medical practitioner who attends a person suffering from an infectious disease must, on the day on which he becomes aware of the nature of the disease, notify the occupier and also the local authority and the Commissioner of Public Health.

On the appearance of any epidemic, endemic or contagious disease, the local authority is required to notify the Commissioner immediately and to report periodically on the disease. The Act provides for the disinfection and cleansing of premises and for the disinfection and destruction of bedding, clothing or other articles which have been exposed to infection. The Commissioner may require any person suspected to be suffering from, or to be a carrier of, an infectious disease to submit to medical examination.

The following table shows, for Western Australia, the number of cases notified during the years 1962 to 1966 for those diseases notifiable in all, or nearly all, States and Territories of Australia. In May, 1965 the National Health and Medical Research Council at its Fifty-ninth Session proposed a basic list of diseases to be notifiable in each State and Territory and this table is based upon that proposal. The table does not include all diseases which are notifiable in Western Australia.

NOTIFIABLE DISEASES (a)—NUMBER OF CASES NOTIFIED (b)

Disease	1962	1963	1964	1965	1966
Brucellosis	6	7	4	3	3
Diphtheria	17	5	3	2	2
Infectious Hepatitis.....	115	144	100	83	28
Leprosy (c)	17	10	11	18	13
Leptospirosis	7	16	4	14	7
Paratyphoid Fever	1	3	.....	3	1
Poliomyelitis	6	5	.....	.....	.....
Tetanus	1	9	8	1	2
Tuberculosis	263	244	207	177	173
Typhoid Fever	5	6	.....	2	2
Typhus (all forms) .....	.....	2	.....	.....	.....

(a) See letterpress immediately preceding table. (b) Figures exclude cases where the original diagnosis was subsequently disproved. No cases of cholera, plague, smallpox or yellow fever were notified during the period. (c) Aborigines account for practically all of these cases.

Leprosy and trachoma are endemic among the Aborigines of the Kimberley Division in the far north of the State, and cases are, with few exceptions, confined to the aboriginal population. The Department of Public Health and the Northern Territory Medical Service co-operate in the control of these diseases.

Under the Health Act, 1911-1966, the Commissioner of Public Health may compel any person believed to be suffering from venereal disease to undergo examination by a medical practitioner. Any person who is aware or suspects that he is suffering from venereal disease is required to consult a medical practitioner and, if found to be infected, must continue treatment until a certificate of cure is issued. Free treatment is available at public hospitals. The number of cases reported to the Department during 1966 was 710, comprising 690 cases of gonorrhoea and 20 cases of syphilis.

A joint campaign of tuberculosis control is conducted by the Commonwealth and State Governments. Under the provisions of the Tuberculosis Act 1948, the Commonwealth reimburses the State for capital expenditure incurred after the 1st July, 1948, and for net maintenance expenditure in excess of that of the base year 1947-48. In addition, the Commonwealth Government pays allowances to tuberculosis sufferers and their dependants, as set out in Part 5 of this Chapter. Western Australia, like the other States, carries out the actual work of diagnosis and treatment. Under the Health Act, 1911-1966 (State), all persons in Western Australia may be required to undergo X-ray examinations, which are conducted by mobile units of the Tuberculosis Control Branch and at its Perth and Fremantle Chest Clinics.

Special Health Services for Children

In addition to measures provided for immunization against poliomyelitis, diphtheria and other infectious diseases, Child Health Services and School Medical and Dental Services assist in maintaining the general health of children in Western Australia.

Infant Health Centres have been established throughout the State to advise mothers concerning the care of infants. Expectant mothers are also assisted in this way and country mothers who are unable to attend a Centre may receive advice by letter under a Correspondence Nursing Scheme. It is estimated that three out of every four infants in the State are taken to a Centre at least once in the first year of life. Infant Health Sisters also visit remote areas of the State and interview mothers who are normally dependent on advice given by correspondence.

INFANT HEALTH CENTRES AND CORRESPONDENCE NURSING SCHEME

Particulars	1962	1963	1964	1965	1966
Infant Health Centres—					
Number of—					
Centres	73	71	72	72	71
Attendances of Infants	237,300	244,956	243,530	231,191	240,401
Visits to Households	23,959	23,381	27,181	26,483	27,312
Correspondence Nursing Scheme—					
Number of—					
Infants on Roll	1,205	1,191	1,316	1,281	1,386
Letters Received	1,228	1,172	1,134	999	1,083
Letters Dispatched	5,378	5,837	5,982	5,725	5,262
Receipts and Payments (a)—	1961-62	1962-63	1963-64	1964-65	1965-66
Receipts—	\$'000	\$'000	\$'000	\$'000	\$'000
Government Aid	233	247	268	268	308
Local Government Aid	9	4	6	4	3
Lotteries Commission Grants	5	11	13	11	7
Total	248	262	286	283	318
Payments—					
Salaries and Wages	202	215	228	236	262
Travelling Expenses, etc.	46	47	55	51	56
Total	248	262	283	287	318

(a) Infant Welfare Centres Trust Account only. Particulars of receipts and expenditure of local committees (e.g., certain expenditure on buildings and motor vehicles) are not available.

Correspondence teaching of parentcraft in schools is conducted by the Child Health Services. During the year ended 30th June, 1966, 20,449 lessons and 20,485 letters were received from children and 11,603 letters were dispatched.

The School Medical Services provide for the examination of each child twice during his school life. In addition, a teacher who at any time observes symptoms of illness in a child may refer the matter for attention by a medical practitioner. Parents are notified of physical defects found during medical examinations and, where a condition needs home supervision, are advised of the action required. Dental defects, ear, nose and throat affections and defective vision are most frequently reported.

The School Dental Services operate mainly in the country, where private dental treatment may not be readily available. Because of limited staff, dental examinations of school children can be repeated only at fairly long intervals, at best about once every two years. Accordingly, in the larger schools, attention is concentrated on the younger children, but at smaller schools all children are examined. Parents are notified of dental treatment required and may have the work done by private dentists or may consent to their children being treated without charge by the schools dentists.

HOSPITALS OTHER THAN MENTAL HOSPITALS

Commonwealth Government Hospitals

The Repatriation General Hospital at Hollywood and the Edward Millen Hospital at Victoria Park provide free medical treatment for ex-servicemen and ex-servicewomen in respect of disabilities which have been accepted as due to war service. With certain exceptions, ex-servicemen or ex-servicewomen who are totally and permanently incapacitated as a result of war service, or who receive war pensions at the intermediate rate, or at the maximum general rate (see letterpress *War Pensions* on page 194) and service pensioners are entitled also to free treatment for disabilities not caused by war. Widows and children of deceased ex-servicemen whose deaths are accepted as due to war service may also receive free treatment. If the deceased serviceman was unmarried, his widowed mother may receive free treatment if widowed prior to his death or within three years after his death.

Serving members of the armed forces of Australia are treated at the hospitals, the cost of treatment being met by the appropriate service Department. Treatment is also provided for British, Canadian, New Zealand and certain other ex-servicemen, the costs being met by the country concerned.

State Government and Government-Assisted Hospitals

The Hospitals Act, 1927-1955 is administered, subject to the direction of the Minister for Health, by the Medical Department. For administrative purposes, a hospital under the direct control of the Medical Department is classified as "departmental" and is financed from State funds. A hospital classified as a "Board" hospital has its own board of management and is subsidized by the State Government.

Five large metropolitan hospitals, comprising Royal Perth Hospital, Fremantle Hospital, Princess Margaret Hospital for Children, Sir Charles Gairdner Hospital and King Edward Memorial Hospital for Women, are Board hospitals. Other Board hospitals in the metropolitan area are the Home of Peace, which is the State's main hospital for the incurable, and the Perth Dental Hospital, which incorporates a training school for dentists. In addition, 40 departmental and 51 Board hospitals were located throughout the State at the 30th June, 1966.

DEPARTMENTAL AND BOARD HOSPITALS (a)

Particulars	At 30th June—				
	1962	1963	1964	1965	1966
Number of Hospitals—					
Departmental	39	39	39	40	40
Board	52	54	53	52	57
Total	91	93	92	92	97
Medical Staff—					
Visiting	350	392	423	408	420
Salaried	143	173	192	203	228
Total	493	565	615	611	648
Nursing Staff—					
Matrons	110	} 1,170	1,144	1,191	1,229
Nurses	954				
Trainees	1,226		1,172	1,129	1,159
Nursing Assistants	1,017		1,111	1,196	1,337
Total	3,307	3,318	3,427	3,516	3,725
Beds and Cots—					
In Departmental Hospitals	2,140	(b) 1,932	2,048	2,123	2,137
In Board Hospitals—					
Metropolitan	1,641	(b) 1,954	1,972	1,965	2,218
Country	1,141	1,163	1,142	1,091	1,136
Total	4,922	5,049	5,162	5,179	5,491

(a) Excluding Perth Dental Hospital. (b) Variations due mainly to transfer of Sir Charles Gairdner Hospital from departmental administration to Board control.

The following table gives details of the activities of departmental and Board hospitals during the five years ended 30th June, 1966.

PATIENTS TREATED IN DEPARTMENTAL AND BOARD HOSPITALS (a)

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
In-patients—					
Number at beginning of year—					
Males	1,315	1,288	1,492	1,593	1,642
Females	1,667	1,593	1,732	1,874	1,929
Admissions—					
Males	44,103	46,667	49,657	52,216	55,026
Females	53,058	57,229	59,413	62,800	65,404
Discharges—					
Males	42,841	45,207	48,191	50,693	53,422
Females	52,070	56,087	58,157	61,538	64,077
Deaths—					
Males	1,289	1,256	1,365	1,474	1,493
Females	1,062	1,003	1,114	1,207	1,132
Number at end of year—					
Males	1,288	1,492	1,593	1,642	1,753
Females	1,593	1,732	1,874	1,929	2,124
Total	2,881	3,224	3,467	3,571	3,877
Average daily number resident	3,059	* 3,103	3,284	3,396	3,588
Out-patients—Total attendances	396,106	458,030	488,261	535,727	587,608

(a) Excluding Perth Dental Hospital. * Revised.

Departmental and Board hospitals collect fees from patients able to pay for treatment, and receive Commonwealth hospital benefit payments provided under Part V of the National Health Act 1953-1967, but are financed mainly from State Government funds.

The effect of the marked rise in costs experienced by all hospitals in recent years is reflected in the following table, which shows the receipts and payments of departmental and Board hospitals. Although fees have been greatly increased, these hospitals have become more and more dependent on assistance from the State.

RECEIPTS AND PAYMENTS OF DEPARTMENTAL AND BOARD HOSPITALS
(\$'000)

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
Receipts—					
From Government Funds	15,923	16,782	18,398	22,523	23,861
Local Government Aid	1	2	3	2	1
Public Subscriptions, Legacies, etc.	542	190	423	222	458
Fees	5,512	6,187	6,400	6,115	6,952
Other	125	84	135	208	178
Total	22,104	23,246	25,358	29,070	31,451
Payments—					
Maintenance—					
Salaries and Wages	10,911	11,654	12,733	13,808	15,341
Other	6,864	7,160	7,950	8,988	9,820
Capital Expenditure	4,783	4,616	4,647	6,102	6,614
Total	22,557	23,429	25,331	28,898	31,775

As previously indicated, the control of tuberculosis is chiefly a State Government activity, supported by Commonwealth subsidies and carried out under the direction of the Commissioner of Public Health. The principal institution for the treatment of tuberculosis is the Sir Charles Gairdner Hospital at Hollywood which was opened in 1958 as the Perth Chest Hospital.

There is a leprosarium at Derby in the Kimberley Division.

Private Hospitals

In addition to the government hospitals there are a number of private general and maternity hospitals, which are registered and inspected by the Department of Public Health. The principal private hospitals are those established by religious bodies in the metropolitan area and the main country towns. These include the Hospitals of Saint John of God at Subiaco, Belmont, Bunbury, Geraldton, Kalgoorlie and Northam; Saint Anne's, Mt. Lawley; the Mount Hospital, Perth and the Hillcrest Maternity Hospital, North Fremantle.

Private hospitals collect fees from patients and receive Commonwealth hospital benefit payments provided under Part V of the National Health Act 1953-1967. At the 30th June, 1966 there were 96 private hospitals in Western Australia approved for payment of hospital benefits under the Act. These hospitals had a total bed capacity of 2,968 at that date.

MENTAL HEALTH SERVICES

The Mental Health Act, 1962-1965, which consolidates and amends the law relating to the treatment of mental disorders, came into operation on the 1st July, 1966. By its provisions, the Lunacy Act, the Inebriates Act, the Mental Treatment Acts and the Mental Treatment (War Service Patients) Act are repealed.

The Mental Health Services established under the new Act are administered, subject to the control of the Minister of Health, by the Director of Mental Health Services. The Director must be a psychiatrist and is appointed by the Governor. Institutions authorized by the Act include hospitals for the treatment of mental illness, reception homes, out-patient and child guidance clinics, day hospitals, training centres, geriatric centres, hostels and sheltered workshop units.

The Act provides for the admission of patients to hospitals approved for the purpose, either on referral by a medical practitioner or by order of a Justice of the Peace supported by the referral of a medical practitioner. A person so received into a hospital must be examined within 72 hours by the superintendent or another psychiatrist, and admission as a patient is dependent upon the result of the examination. Unless found to be in need of treatment, the person is required to leave the hospital. Special provisions exist for the detention for observation or treatment of persons admitted by order of a court or from a prison. The Act also provides for voluntary admissions. A person not less than 18 years of age may be granted admission on his own request in writing. Younger persons may be admitted on the written application of a parent or guardian.

Except in the case of a person admitted by order of a court or from a prison, a patient may be released on leave or discharged by the hospital superintendent. A Board of Visitors or the Supreme Court of Western Australia may also, after due consideration, order the release of a patient. A voluntary patient must be discharged within 72 hours of the receipt by the superintendent of the application in writing of the patient for his discharge or, in the case of a patient under the age of 18 years, the application in writing of the parent or guardian at whose request the patient was admitted.

The principal institution of the Mental Health Services is the Claremont Hospital. Other institutions include the Nathaniel Harper Homes for Children, the Heathcote Reception Hospital, Lemnos Hospital, Whitby Falls Hostel, Greenplace Hostel, the Shenton Park Day Hospital, the Havelock Out-patient Clinic, the Fremantle Out-patient Clinic, the Child Guidance Clinic, the Prisons Psychiatric Clinic, the Irra-beena Referral Centre, the Industrial Therapy Centre and a rehabilitation hostel at Belmont.

The former Graylands Day Hospital is being remodelled and will be used as an Early Treatment Centre working in close co-operation with the Department of Psychiatry of the University of Western Australia. A training centre for the intellectually handicapped is under construction at Bassendean and accepted its first patients early in 1967. The former North Fremantle Technical School was acquired by the Department and commenced operation in 1966 as a sheltered workshop for the intellectually handicapped.

The figures in the following table refer mainly to patients certified as insane under the Lunacy Act, 1903-1954 (now repealed), but include a small number of voluntary patients. Patients admitted under the Inebriates Act are not included. Statistics were formerly compiled on the basis of calendar years but from the year ended 30th June, 1965 figures relate to financial years.

PATIENTS OF MENTAL HOSPITALS

Particulars	1961		1962		1963-64(a)		1964-65		1965-66	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Admissions and Readmissions	165	79	171	95	350	112	229	134	225	140
Discharges—										
Recovered	1	1	3	.....	4	1	.....	.....	.....	.....
Relieved	74	75	81	47	167	107	122	69	206	89
Not improved	17	4	10	10	31	5	7	3	.....	.....
Not insane	1	.....	2	.....	1	.....	.....	.....	.....	.....
Deaths	63	44	53	46	88	77	94	50	81	66
Total	156	124	149	103	291	190	223	122	287	155
Number remaining at end of year—										
In hospital	979	677	982	680	1,044	646	1,025	675	1,016	653
On trial leave	123	156	142	145	139	101	164	84	111	91
Total	1,102	833	1,124	825	1,183	747	1,189	759	1,127	744

(a) Eighteen months ended 30th June, 1964.

Heathcote Reception Hospital did not admit patients certified under the Lunacy Act but admitted other persons suffering from nervous or mental disorders. Details of these patients are shown in the next table.

PATIENTS OF HEATHCOTE RECEPTION HOSPITAL (a)

Particulars	1961		1962		1963-64(b)		1964-65		1965-66	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Admissions and Readmissions	573	562	735	669	1,041	948	716	709	844	813
Discharges—										
Recovered	111	218	126	220	19	24	23	38	251	317
Relieved	278	271	424	380	759	798	451	521	367	379
Not improved	93	22	87	30	120	68	120	73	103	55
Deaths	1	2	1	2	4	3	1	1	1	1
Transfers to other Mental Hospitals	90	37	93	48	156	51	123	70	118	67
Total	573	550	731	680	1,058	944	718	703	840	819
Number remaining at end of year—										
In hospital	43	43	46	35	38	53	33	60	42	58
On leave	78	107	11	21	2	7	5	6	....	2
Total	121	150	57	56	40	60	38	66	42	60

(a) Prior to 1962, figures for patients remaining at the end of each year include those on trial leave. From 1962, patients leaving the hospital on trial leave are counted as discharges; numbers of patients on leave comprise only those on daily leave.

(b) Eighteen months ended 30th June, 1964.

HOMES FOR THE AGED AND INFIRM

A number of homes for the aged and infirm are conducted by religious and charitable organizations. Government homes in Western Australia were "Sunset" at Dalkeith and "Mount Henry" near Canning Bridge but from the 1st July, 1966 these two institutions were redesignated as public hospitals for the accommodation of geriatric patients. The number of inmates of these institutions at the 30th June, 1966 was 812, comprising 406 men and 406 women.

The Commonwealth Government extends financial assistance to religious and charitable organizations in providing accommodation for the aged and infirm. The enabling Acts are administered, subject to any directions of the Minister, by the Director-General of Social Services.

Under the provisions of the Aged Persons Homes Act 1954-1967 grants are made to organizations "to encourage and assist the provision of suitable homes for aged persons, and in particular homes at which aged persons may reside in conditions approaching as nearly as possible normal domestic life . . .". For the purposes of the Act, the term "aged person" means a man aged 65 years or over and a woman aged 60 years or over and includes the spouse of the aged person. The Act authorizes grants to eligible organizations to be applied towards the cost of erecting or purchasing approved homes to be used permanently for the accommodation of aged persons. To be eligible for assistance an organization must be of the non-profit type and may be either a religious, charitable or benevolent organization, an organization of former members of the defence forces, or an organization specifically approved under the Act. An organization conducted or controlled by the Government of the Commonwealth or of a State is not eligible for assistance. This provision also applied to local governing bodies prior to amending legislation in 1967. Under the Aged Persons Homes Act 1967, however, a local governing body is defined as an eligible organization for the purposes of the Act.

When the original Act commenced on the 16th December, 1954 the grant was made on the basis of \$1 for each \$1 raised by the organization, excluding borrowed money and money received from a governmental body. An amending Act, operative from the 22nd October, 1957, increased the Commonwealth contribution to \$2 for each \$1 raised by the organization. Grants are made from moneys appropriated by the Parliament from the Consolidated Revenue Fund.

From the inception of the scheme to the 30th June, 1966, 90 grants aggregating \$5.21 million had been made to organizations in Western Australia to provide accommodation for 2,096 persons.

A supplementary grant may be approved in a year subsequent to the year when the original grant was approved. In the following table each such supplementary grant has been included in the year in which the additional amount was actually approved.

AGED PERSONS HOMES GRANTS—WESTERN AUSTRALIA

Particulars	Year ended 30th June—					From Inception to 30th June, 1966
	1962	1963 (a)	1964	1965	1966	
Number of Grants	6	15	9	12	14	90
Number of Persons Accommodated	181	408	188	255	420	2,096
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Amount of Grants Approved	416	933	574	814	1,372	5,206

(a) Figures revised.

The Disabled Persons Accommodation Act 1963, which came into operation on the 25th November, 1963, authorizes the payment of grants by the Commonwealth to eligible organizations for the provision of buildings to be used permanently for the residential accommodation of disabled persons employed in workshops or factories declared to be sheltered workshops for the purposes of the Act. A disabled person is defined as one who has attained the age of 16 years and who is permanently incapacitated for work to the degree necessary to qualify on medical grounds for an invalid pension, or is permanently blind. The requirements for eligibility of an organization are the same as those laid down in the Aged Persons Homes Act and grants are made on the same basis and to the same extent as authorized by that Act. Moneys are provided similarly by parliamentary appropriation from the Consolidated Revenue Fund. The first grant to be made in Western Australia under the Disabled Persons Accommodation Act was approved in 1965-66 for an amount of \$5,510.

CHAPTER V—continued

PART 4—HOUSING

HOUSING AND THE CENSUS

NOTE—Dwellings occupied solely by full-blood Aborigines are excluded from all tables in this Part which contain information compiled from census schedules (see also letterpress relating to *Aboriginal Population* in the final section of Chapter IV, Part 1—*Population*). Some final results of the Census of 30th June, 1966 are included in the *Appendix*.

For the purpose of the census, an "occupied dwelling" is any habitation occupied by a household group living together as a domestic unit, whether comprising the whole or only part of a building. The term has therefore a very wide reference and includes, in addition to houses and flats, a great variety of dwellings ranging from a single-roomed shack to a multi-roomed hotel or institution.

The term "unoccupied dwellings" is not synonymous with vacant houses and flats available for sale or renting. While these are included, the figures refer also to dwellings, including those used for week-end and holiday purposes, whose usual occupants were temporarily absent on the night of the Census. Newly-completed dwellings whose owners or tenants had not entered into occupation on the night of the Census are also included.

Dwellings According to Class

Occupied dwellings are classified into private dwellings and other dwellings. "Private Dwellings" comprise private houses; shares of private houses; flats; apartments, rooms, and the like. "Dwellings other than Private" include such habitations as hotels, boarding houses, lodging houses, hostels, hospitals, educational, religious and charitable institutions, defence and penal establishments.

"Private Houses" include houses, sheds, huts, garages, etc. used for dwelling purposes, and shared private houses for which only one Householder's Schedule was received. "Share of Private House" is that portion of a shared private house which is occupied separately and for which a separate Householder's Schedule was furnished. "Flat" is any part of a house or other building which can be completely closed off and which has its own cooking and bathing facilities. "Other" private dwellings include dwellings such as apartments, rooms, etc., which are parts of buildings but are not self-contained units.

The following table shows the number of occupied dwellings in Western Australia according to class of dwelling at the Censuses of 1954 and 1961. Private houses constituted 93·5 per cent. of all occupied private dwellings in 1961 compared with 90·8 per cent. in 1954. The proportion of flats to total occupied private dwellings increased from 3·3 per cent. in 1954 to 4·5 per cent. at the 30th June, 1961.

DWELLINGS ACCORDING TO CLASS

Class of Dwelling	Census of 30th June—	
	1954	1961
Occupied Private Dwellings—		
Private House—		
House	140,383	175,495
Shed, Hut, etc.	4,480	3,641
Total, Private Houses	144,863	179,136
Share of Private House	7,487	2,788
Flat	5,257	8,672
Other	1,889	1,020
Total—Private Dwellings	159,496	191,616
Occupied Dwellings other than Private—		
Boarding House, Private Hotel, Motel, etc.	1,594	1,089
Licensed Hotel	445	451
Educational, Religious or Charitable Institution	216	225
Other	(a) 1,072	936
Total—Other Dwellings	3,327	2,701
GRAND TOTAL—OCCUPIED DWELLINGS	162,823	194,317
Unoccupied Dwellings	6,614	13,705

(a) Includes "caretakers' quarters" which in 1961 were classified as private dwellings.

Dwellings According to Material of Outer Walls

Brick was found to be the most frequently used material for outer walls at the 30th June, 1961, being used in 43·8 per cent. of all occupied private dwellings where the material of outer walls was stated, compared with 38·2 per cent. in 1954. Wood, second in importance as a material for outer walls in 1954, fell to third place, after fibro-cement, in 1961. Of those private dwellings where the material of outer walls was stated, 30·2 per cent. in 1961 had outer walls of fibro-cement and 16·7 per cent. had outer walls of wood, compared with 23·1 per cent. and 25·5 per cent. respectively in 1954. The proportion of private dwellings with walls of iron dropped from 5·5 per cent. in 1954 to 3·5 per cent. in 1961. The highest percentage increases between the Censuses were recorded by occupied private dwellings with walls of fibro-cement, 57·6 per cent., and of brick, 37·7 per cent. The number of occupied private dwellings with walls of iron, wood or stone decreased by 22·8 per cent., 21·4 per cent. and 15·4 per cent. respectively.

OCCUPIED PRIVATE DWELLINGS CLASSIFIED ACCORDING TO MATERIAL OF OUTER WALLS

Material of Outer Walls	Census, 30th June, 1954					Census, 30th June, 1961				
	Private House (a)	Share of Private House	Flat	Other	Total	Private House (a)	Share of Private House	Flat	Other	Total
Brick	52,183	3,711	3,637	1,250	60,781	75,006	1,466	6,579	656	83,707
Stone	3,702	360	181	154	4,397	3,319	108	238	53	3,718
Concrete	4,313	143	87	3	4,546	4,858	75	156	5	5,094
Wood	37,998	1,909	564	216	40,687	30,899	494	474	109	31,976
Iron	8,409	175	105	99	8,788	6,546	40	153	43	6,782
Fibro-cement	34,778	1,128	663	158	36,727	56,097	586	1,043	148	57,874
Other	3,286	48	17	9	3,360	2,141	16	19	3	2,179
Not Stated	194	13	3	....	210	270	3	10	3	286
Total	144,863	7,487	5,257	1,889	159,496	179,136	2,788	8,672	1,020	191,616

(a) Includes Sheds, Huts, etc.

Dwellings According to Number of Inmates

The greatest proportional increase (39·1 per cent.) since 1954 occurred in occupied private dwellings with one inmate, due to an increase of 39·8 per cent. in the number of private houses with one inmate and an increase of 144·8 per cent. in the number of flats with one inmate. At the 30th June, 1961, dwellings with less than six inmates represented 85·6 per cent. of total occupied private dwellings compared with 85·9 per cent. in 1954. Dwellings with six or more inmates increased by 22·1 per cent. between the Censuses while those with less than six increased by 19·8 per cent. Dwellings with two inmates were the most numerous in 1961 and 1954, accounting for 22·9 per cent. and 21·5 per cent. respectively of total occupied private dwellings.

OCCUPIED PRIVATE DWELLINGS CLASSIFIED ACCORDING TO NUMBER OF INMATES

Number of Inmates per Dwelling	Census, 30th June, 1954					Census, 30th June, 1961				
	Private House (a)	Share of Private House	Flat	Other	Total	Private House (a)	Share of Private House	Flat	Other	Total
1	11,310	1,307	1,074	601	14,292	15,815	874	2,629	559	19,877
2	29,094	2,510	2,064	674	34,342	39,207	861	3,630	271	43,969
3	28,825	1,683	1,025	340	31,873	32,520	452	1,302	98	34,372
4	31,425	1,038	598	153	33,214	37,066	277	633	45	38,021
5	22,341	527	298	72	23,238	27,327	188	309	27	27,851
6	12,031	247	122	20	12,420	15,299	78	105	11	15,493
7	5,519	104	47	13	5,683	6,811	33	44	7	6,895
8	2,535	42	17	12	2,606	3,075	16	15	....	3,106
9	995	15	7	1	1,018	1,085	8	4	....	1,097
10	424	10	2	1	437	509	1	....	....	510
11 and over	364	4	3	2	373	422	....	1	2	425
Total—Dwellings	144,863	7,487	5,257	1,889	159,496	179,136	2,788	8,672	1,020	191,616
Average Number of Inmates per Dwelling	3·74	2·80	2·56	2·27	3·64	3·69	2·48	2·19	1·82	3·59

(a) Includes Sheds, Huts, etc.

Dwellings According to Number of Rooms

At the 30th June, 1961, occupied private dwellings of four, five and six rooms accounted for 80·5 per cent. of all occupied private dwellings where the number of rooms was stated. In 1954 the proportion was 75·7 per cent. In both 1961 and 1954 private dwellings with five rooms were the most numerous and represented 37·8 per cent. and 30·6 per cent. respectively of private dwellings where the number of rooms was stated. The greatest proportional increases in the number of occupied private dwellings since the 1954 Census occurred in five and seven roomed private dwellings which increased by 48·3 per cent. and 38·6 per cent. respectively. There were notable increases since 1954 in the number of flats with two and three rooms, the increases being 198·7 per cent. and 77·1 per cent. respectively.

OCCUPIED PRIVATE DWELLINGS CLASSIFIED ACCORDING TO
NUMBER OF ROOMS (a)

Number of Rooms (a) per Dwelling	Census, 30th June, 1954					Census, 30th June, 1961				
	Private House (b)	Share of Private House	Flat	Other	Total	Private House (b)	Share of Private House	Flat	Other	Total
1	2,734	902	31	673	4,340	1,757	202	93	251	2,303
2	4,568	1,698	384	620	7,268	2,456	592	1,147	296	4,491
3	8,736	1,640	1,561	334	12,271	6,241	842	2,764	283	10,130
4	38,176	1,262	1,943	133	41,514	37,390	605	2,891	112	40,998
5	46,781	898	905	48	48,632	70,540	393	1,143	32	72,108
6	29,162	570	296	19	30,047	40,177	66	403	8	40,654
7	9,262	191	87	16	9,556	13,124	15	107	3	13,249
8	3,120	68	24	12	3,224	4,315	5	50	1	4,371
9	1,071	32	7	5	1,115	1,486	1	29	....	1,516
10	450	4	2	4	460	628	5	2	....	635
11 and over	425	2	2	2	431	473	1	2	3	479
Not Stated	380	220	15	23	638	549	61	41	31	682
Total—Dwellings	144,863	7,487	5,257	1,889	159,496	179,136	2,788	8,672	1,020	191,616
Average Number of Rooms per Dwelling (a)	4·91	3·36	3·90	2·21	4·77	5·15	3·27	3·69	2·45	5·05

(a) Includes kitchen and permanently enclosed sleep-out, but does not include bathroom, pantry, laundry, or storehouse.

(b) Includes Sheds, Huts, etc.

Dwellings According to Nature of Occupancy

The most significant feature of the following table is the increase in the number of occupied private dwellings being purchased by instalments. Of those occupied private houses where the nature of occupancy was stated, the proportion being purchased by instalments rose from 15·7 per cent. in 1954 to 24·8 per cent. in 1961. The proportion of owner-occupied dwellings declined from 50·7 per cent. in 1954 to 46·6 per cent. in 1961. The proportion of tenanted dwellings also declined, from 32·2 per cent. to 27·7 per cent.

OCCUPIED PRIVATE DWELLINGS CLASSIFIED ACCORDING TO
NATURE OF OCCUPANCY

Nature of Occupancy	Census, 30th June, 1954					Census, 30th June, 1961				
	Private House (a)	Share of Private House	Flat	Other	Total	Private House (a)	Share of Private House	Flat	Other	Total
Owner	77,548	2,083	666	123	80,420	86,926	886	982	77	88,871
Purchaser by Instalments	22,573	421	60	22	23,076	44,255	206	118	19	44,598
Tenant (b)	40,032	4,792	4,450	1,700	50,974	43,077	1,612	7,315	891	52,895
Caretaker	1,890	65	47	27	2,029	1,994	22	163	14	2,193
Other Methods of Occupancy	1,951	62	19	8	2,040	1,999	19	72	6	2,096
Not Stated	869	64	15	9	957	885	43	22	13	963
Total	144,863	7,487	5,257	1,889	159,496	179,136	2,788	8,672	1,020	191,616

(a) Includes Sheds, Huts, etc.

(b) Includes dwellings occupied by "Tenants (Governmental Housing)" in 1954 and by "Tenants (State Housing Commission)" in 1961.

Occupied Tenanted Private Dwellings According to Weekly Rent (Unfurnished)

The following table shows particulars of rents paid for *unfurnished* private dwellings. Many dwellings were occupied on a furnished basis, and this accounts largely for the high proportion of tenanted private dwellings for which an *unfurnished* rental could not be stated.

OCCUPIED TENANTED PRIVATE DWELLINGS (†) CLASSIFIED ACCORDING TO WEEKLY RENT (UNFURNISHED)

Weekly Rent (Unfurnished)	Census, 30th June, 1954					Census, 30th June, 1961				
	Private House (a)	Share of Private House	Flat	Other	Total	Private House (a)	Share of Private House	Flat	Other	Total
Under \$2	4,293	210	36	78	4,617	2,477	27	116	36	2,656
\$2 and under \$3	4,643	433	146	61	5,283	2,524	61	138	21	2,744
\$3 " " \$4	4,874	437	347	62	5,720	2,194	66	161	32	2,453
\$4 " " \$5	3,660	441	212	83	4,401	3,269	140	191	45	3,645
\$5 " " \$6	2,384	295	196	70	2,945	2,401	101	205	22	2,729
\$6 " " \$7	1,903	244	259	53	2,459	3,005	131	266	38	3,440
\$7 " " \$8	712	107	186	26	1,031	2,484	63	261	29	2,837
\$8 " " \$9	566	88	231	12	897	1,960	48	292	16	2,316
\$9 " " \$10	240	25	178	6	449	1,209	33	374	4	1,620
\$10 and over	711	74	344	23	1,152	3,196	59	1,864	19	5,138
Not Stated (b)	8,034	2,364	2,049	1,202	13,649	8,093	856	2,749	616	12,314
Total	32,020	4,718	4,184	1,681	42,603	32,812	1,585	6,617	878	41,892

(†) Excludes particulars of dwellings occupied by "Tenants (Governmental Housing)" in 1954 and by "Tenants (State Housing Commission)" in 1961. (a) Includes Sheds, Huts, etc. (b) Includes tenanted dwellings which were rent-free, those rented on a furnished basis, and those for which the rents were not applicable (e.g., for shop and dwelling combined).

Of those tenanted private dwellings for which rent (unfurnished) was stated, 38.9 per cent. had rentals below \$5 in 1961 compared with 69.1 per cent. in 1954. In the range \$5 and under \$10 the proportion rose from 26.9 per cent. in 1954 to 43.7 per cent. in 1961. The proportion in the category \$10 and over rose from 4.0 per cent. in 1954 to 17.4 per cent. in 1961. The greatest number of tenanted private houses at the 30th June, 1961 were in the rental range \$4 and under \$5 while the greatest number of tenanted flats were in the range \$10 and over.

Dwellings According to Facilities

The following table shows the facilities (gas, electricity and television set) recorded for each class of private dwelling at the Census of 30th June, 1961. Similar information was not compiled at the 1954 Census.

The question on facilities was answered for 190,457 occupied private dwellings in Western Australia. Of these 116,758 (61.3 per cent.) had electricity without gas and 63,767 (33.5 per cent.) had both electricity and gas, making a combined total of 180,525 (94.8 per cent.) with electricity. Occupied private dwellings with gas but not electricity numbered only 432 (0.23 per cent.).

The number of occupied private dwellings stated to have a television set was 71,788, or 37.5 per cent. of all occupied private dwellings.

OCCUPIED PRIVATE DWELLINGS CLASSIFIED ACCORDING TO FACILITIES CENSUS, 30th JUNE, 1961

Facilities	Class of Dwelling				Total Occupied Private Dwellings
	Private House (a)	Share of Private House	Flat	Other Private Dwellings	
Gas or Electricity—					
With gas only	419	4	7	2	432
With Electricity only	112,086	1,322	2,948	402	116,758
With Gas and Electricity	56,101	1,395	5,667	604	63,767
Without Gas or Electricity	9,401	58	33	8	9,500
Not Stated	1,129	9	17	4	1,159
Total	179,136	2,788	8,672	1,020	191,616
With Television Set (b)	68,424	709	2,514	141	71,788

(a) Includes Sheds, Huts, etc.

(b) So stated in census schedules.

Unoccupied Dwellings

In the following table, private dwellings unoccupied at the 30th June, 1961 are classified according to the reason for being unoccupied.

**UNOCCUPIED PRIVATE DWELLINGS CLASSIFIED ACCORDING TO
REASON FOR BEING UNOCCUPIED : CENSUS, 30th JUNE, 1961**

Reason for Being Unoccupied	Class of Dwelling			Total Unoccupied Private Dwellings
	Private House (a)	Flat	Other Private Dwellings	
For Sale or for Renting	2,240	226	21	2,487
Holiday Home, Week-end, Seasonal Workers' Quarters	4,569	156	46	4,771
Occupants temporarily absent	3,199	247	17	3,463
To be Demolished, Condemned	293	...	3	296
Other and Not Stated	2,048	216	9	2,273
Total	12,349	845	96	(b) 13,290

(a) Includes Huts. (b) Excludes 98 unoccupied dwellings *other than private* and 317 unoccupied dwellings for which the class was not stated, making a total of 13,705 unoccupied dwellings.

Of 11,017 unoccupied private dwellings (excluding 2,273 in the category "Other and Not Stated"), more than two-fifths (4,771 or 43.3 per cent.) were holiday or week-end homes or seasonal workers' quarters, 3,463 (31.4 per cent.) were dwellings whose usual occupants were temporarily absent, 2,487 (22.6 per cent.) were for sale or for renting, and 296 (2.7 per cent.) had been condemned or were due to be demolished.

Dwellings at Censuses from 1901 to 1961

The following table shows the numbers of occupied and unoccupied dwellings in Western Australia at each Census from 1901 to 1961. It should be borne in mind that the figures shown for unoccupied dwellings include not only vacant houses and flats available for sale or renting but other dwellings as detailed in the preceding table.

DWELLINGS—CENSUSES, 1901 TO 1961

Census Date	Occupied Dwellings				Unoccupied Dwellings	Total Dwellings (a)
	Private		Other	Total		
	Number	Average Number of Inmates				
1901—31st March	(b) 46,436	(c) 3.35	2,070	48,506	2,263	50,769
1911—3rd April	(d) 66,553	(e) 3.68	2,222	68,775	3,158	71,933
1921—4th April	70,185	4.11	3,363	73,548	3,274	76,822
1933—30th June	100,441	3.95	3,137	103,578	4,029	107,607
1947—30th June	122,078	3.73	2,689	124,767	2,606	127,373
1954—30th June	159,496	3.64	3,327	162,823	6,614	169,437
1961—30th June	191,616	3.59	2,701	194,317	13,705	208,022

(a) Excludes dwellings which were in course of construction and not occupied at the time of the Census. (b) Comprises 17,702 dwellings of calico, canvas, and hessian, with an average of 2.10 inmates, and 28,734 other dwellings with an average of 4.12 inmates. (c) See note (b). (d) Comprises 14,216 dwellings of calico, canvas, and hessian, with an average of 1.93 inmates, and 52,337 other dwellings with an average of 4.16 inmates. (e) See note (d).

GOVERNMENT AND GOVERNMENT-SPONSORED HOUSING**The State Housing Commission**

The State Housing Commission was established in January, 1947 under the State Housing Act of 1946 to replace the Workers' Homes Board which had been created in 1912 to "erect and dispose of workers' dwellings, and to make advances to people of limited means to provide homes for themselves." The Act confers on the Commission the legal authority formerly vested in the Board and has as its objects "the improvement of existing housing conditions" and "the provision of adequate and suitable housing accommodation for persons of limited means and certain other persons not otherwise adequately housed."

The legislation is comprehensive in scope, providing for the erection of homes for workers, the making of advances to workers for the purchase of homes, the erection of homes for letting on a weekly rental basis, the acquisition and development of land, the clearing of slums, the erection of hostels and the planning of community facilities.

The Commission consists of seven members of whom two must be officers of the State Public Service, one a representative of the building trades unions, one a registered builder (or a person qualified to be so registered), one a woman, one a discharged member of the Forces, and one a person with a wide knowledge of and experience in housing conditions in the State. Government housing is primarily the responsibility of the Commission, whose functions include the construction and the letting and sale of dwellings under the authority of the State Housing Act, and the administration of the Housing Loan Guarantee Act (State) and of the Commonwealth and State Housing Agreements and the War Service Homes Act (Commonwealth) as they apply to Western Australia.

Operations under the State Housing Act—Under the authority of the State Housing Act, 1946–1966, the State Housing Commission uses funds provided by the State Government to build dwellings for sale and to lend money for home building. Eligibility for assistance is restricted to persons with income below a prescribed amount, which varies according to movements in the State basic wage, but north of 26°S. latitude the Minister may allow assistance to a family having a higher income. Loans of up to \$6,000 (or more, in some cases) may be made on a minimum deposit of \$200 including the ingoing fees (or less, at the discretion of the Commission), the maximum period of repayment being 45 years. The rate of interest (30th June, 1967) is 5½ per cent. per annum reducible.

Various forms of assistance have been granted to encourage home ownership, including loans secured by mortgage, advances made under contract of sale, advances for acquiring homes under leasehold conditions, second mortgage loans and loans for the completion of partly-built dwellings.

Operations under Commonwealth and State Housing Agreements—The final draft of an agreement on housing between the Commonwealth and State Governments was prepared at the Conference of Premiers in August, 1945 and was later ratified by Commonwealth and State legislation. The Commonwealth and State Housing Agreement Act, passed by the State Parliament in 1945, enabled Western Australia to participate in the Agreement, the purpose of which was to provide homes quickly, primarily for persons at the lower income levels, by standardization of design and erection in large groups. The Agreement provided a broad basis of collaboration between the Commonwealth and the State, with the Commonwealth providing advances of money, general direction on policy and co-ordination of effort and the State undertaking the actual site acquisition and planning, the construction of the dwellings, the selection of tenants and the detailed administrative work.

Homes built under the Commonwealth and State Housing Agreement Act of 1945 were let at an "economic rent" calculated according to a formula laid down in the Agreement. The rents so determined were to be sufficient to meet repayments by the State to the Commonwealth of the capital cost of each dwelling with interest and also current outgoings such as the cost of maintenance, administration, rates, taxes and insurance. Provision was made for a system of rental rebates so designed that families with income near the basic wage level should pay not more than about one-fifth of the family income in rent, irrespective of the "economic rent" of the dwelling, but in no case was the rent paid by a tenant to be less than 80 cents per week. The Commonwealth Government was to bear three-fifths and the State two-fifths of all losses incurred in operations under the Agreement.

Although the principal aim of the arrangement was to make homes available on a rental basis, provision existed for the sale by the State of houses erected under the scheme, on condition that the full capital cost was immediately repaid to the Commonwealth. To satisfy this requirement, the State Housing Commission made use of funds provided by the State Government by means of the State Housing Act when, in 1950, it first offered tenants the option of purchasing their homes by instalments on payment of a moderate deposit. The Commonwealth and State Housing Supplementary Agreement Act, 1955 modified the original Agreement by allowing finance provided by the Commonwealth to be applied for the purchase, by tenants, of houses built under the scheme. The Agreement prescribed a minimum deposit of 5 per cent. of the first \$4,000 of the purchase price and 10 per cent. of the balance. The rate of interest specified was 4½ per cent. per annum, subject to alteration by agreement between the Commonwealth and the State, the maximum loan being \$5,500 and the maximum period of repayment 45 years.

With the expiry of the 1945 Agreement, the Commonwealth Parliament in 1956 passed the Housing Agreement Act providing " financial assistance to the States for the purpose of housing " for a period of five years ending on the 30th June, 1961. The complementary State legislation authorizing the State Government to enter into the Agreement is the Commonwealth and State Housing Agreement Act of 1956.

The 1956 Agreement required that, for the first two years of its operation, at least 20 per cent. of the money allocated to the State was to be advanced to building societies and other approved institutions for lending to private persons for the building or purchase of homes, the proportion to be increased to not less than 30 per cent. during the remainder of the period. The balance of the allocation was to be used by the State for the erection of houses for either rental or sale. The Commonwealth was entitled to specify that of this balance a portion not exceeding 5 per cent. in any one year should be set aside for the erection of houses for serving members of the defence forces. The Commonwealth provided supplementary advances to the State equal to the amounts set aside for this purpose.

On the introduction of the 1956 Agreement, the State Housing Commission adopted the policy of offering for sale before occupancy one-half of the total number of houses built, the remainder being made available on a rental basis. The proportion has since been varied several times.

Under the provisions of Commonwealth and State legislation passed in 1961 the period of operation of the Commonwealth and State Housing Agreement was extended for a further five years to the 30th June, 1966. The 1961 Agreement incorporated all the main features of the earlier arrangement, with only minor modifications. The requirement that building societies and other approved institutions should receive at least 30 per cent. of moneys allocated to a State was continued. Provision was made for the use of funds in excess of the previous maximum of 5 per cent. of the balance for the erection of dwellings for members of the defence forces. Supplementary advances by the Commonwealth of amounts equal to the funds so used were continued.

In terms of the Housing Agreement Act 1966 (Commonwealth) and the Commonwealth and State Housing Agreement Act, 1966 (State) the operation of the Agreement, with minor amendments, has been extended until the 30th June, 1971.

Although Agreements subsequent to that of 1945 make no provision for rebates to tenants unable to pay the full rental, the State Government has continued the system and the cost of rental rebates was \$298,469 in 1965-66 and \$421,119 in 1966-67.

State Housing Death Benefit Scheme Act—The State Housing Death Benefit Scheme Act, 1965 establishes, with effect from the 20th February, 1965, a scheme to provide benefits for the families of purchasers of dwellings who die leaving unpaid the whole or part of a liability to the State Housing Commission under a contract of sale or mortgage. The benefit is applied to the credit of the deceased purchaser's account, and the instalments payable during the unexpired term of the loan are reduced accordingly.

The amount of the benefit varies with the purchaser's age at death and the number of children under 16 years of age. Where the age at death does not exceed 35 years the benefit is \$1,000 ; where it exceeds 35 years but does not exceed 45 years, \$800 ; where it exceeds 45 years but does not exceed 55 years, \$600 ; and where it exceeds 55 years but does not exceed 65 years, \$400. The benefit is increased by \$200 in respect of each child under 16 years of age. Where the purchaser is aged over 65 years at death and is survived by a child or children under 16 years of age, the amount of the benefit is \$200 in respect of each such child.

The benefit applies, in general, in the case of purchasers or lessees under the provisions of the State Housing Act or the Commonwealth and State Housing Agreement, but does not apply to a purchaser who has received an advance granted by a building society from funds made available to it as part of the State's allocation of Commonwealth moneys. The family of a purchaser is not eligible for benefit if he has obtained from the Commission an advance on second mortgage under the State Housing Act to supplement a first mortgage loan from private sources.

Where a dwelling is being purchased in the joint names of a husband and wife, the benefit is granted only on the death of the breadwinner, who is usually the husband, but may be either the wife, in the case of invalidity of the husband, or one of the children.

The scheme is financed from the profits of the State Housing Commission and is therefore similar to the rental rebate system, which allows for an adjustment of rental where the income of a family is reduced following the loss of the breadwinner.

In the first year of operation (1965-66), 20 claims were admitted and a total of \$27,200 was paid in the form of assistance to purchasers. The corresponding figures for 1966-67 were 33 and \$30,922, respectively.

The McNess Housing Trust—The State Housing Commission carries out free of charge the administrative, technical and other work associated with the operations of the McNess Housing Trust, which was established by a bequest made in 1930 by the late Sir Charles McNess. The Trust has been assisted by allocations from State Government funds and by donations from the Lotteries Commission. The income of the Trust is used to provide homes for aged and infirm persons not able to purchase or acquire a home from their own resources.

Other Operations—The State Housing Commission conducts certain other housing schemes and has completed, or is currently engaged on, other specific projects on behalf of the State Government. Under a "Departmental Homes" scheme, 1,089 houses were built in the period 1952-53 to 1966-67 for State Government Departments and semi-government authorities. A Government Employees' Housing Scheme was introduced in 1958-59 and, up to the 30th June, 1964, had provided 107 rental houses in country areas. (See also the following section *Government Employees' Housing Authority*.) The Commission has also undertaken the erection of flats for occupation by widows and by aged women pensioners, as well as cottage flats for aged married couples. Design and supervision services have been made available free of cost to several private charitable organizations which are developing pensioner housing schemes financed jointly by these organizations and the Commonwealth Government under the Aged Persons Homes Act 1954-1967 (Commonwealth). The Commission has also been made responsible from time to time for special housing schemes for industry or major developmental projects. Currently, the Commission is engaged on a housing project at Exmouth and up to the 30th June, 1967 has completed 128 houses for Australian personnel employed at the United States Navy radio communications station. The Commission has also completed 4 other houses at Exmouth for government departments, and has under construction a hostel which is being financed by the Commonwealth Government. During 1966-67 a block of 10 flats was built by the Commission at Brentwood for single working women. This was a pilot scheme to encourage women's organizations to provide similar-type accommodation.

Housing Units Completed—Statistics of housing units built by the State Housing Commission during the period 1961-62 to 1965-66 are given later in this Part in the section *Building Operations*.

Government Employees' Housing Authority

The Government Employees' Housing Authority is established under the provisions of the Government Employees' Housing Act, 1964 to provide adequate and suitable housing accommodation for employees of State Government Departments to which the Act applies. The Authority consists of four members comprising the Public Service Commissioner, the Under Treasurer of the State, the Director-General of Education and the General Manager of the State Housing Commission. It is provided that any of these officials may nominate an officer as a member of the Authority in his stead, and that the Public Service Commissioner or his nominee shall be Chairman of the Authority. The Act enables the Authority to purchase, contract for the use of, or otherwise acquire land or houses; to erect houses on land which it has acquired; and to let or dispose of houses or land which it owns or has under its control.

The permanent head of a State Government Department may, where he is of the opinion that houses are required for government employees, apply to the Authority for the allocation of houses.

The Authority is empowered to enter into an agreement with the State Housing Commission whereby the Commission shall act as its agent upon such terms as may be mutually agreed upon by the Authority and the Commission.

A total of 18 houses were completed for the Authority in 1965-66 and 49 houses in 1966-67. Capital expenditure in the same period on houses and additions amounted to \$312,000 and \$729,000, respectively. Maintenance expenditure was \$11,829 in 1965-66 and \$38,102 in 1966-67.

War Service Homes

Financial assistance by means of loans is provided by the Commonwealth Government, under the War Service Homes Act 1918-1966, to Australian ex-service personnel of the first and second World Wars, the Korean War, and the operations in Malaya or such other areas as may be declared from time to time. Subject to their having resided in Australia prior to enlistment, other British ex-service personnel are eligible for assistance, which may be extended also to the widow or the dependent widowed mother of a member of the Forces. Loans are made within statutory limits for the building of new homes and arrangements may be made in some circumstances for the discharge of mortgages on existing properties.

The State Housing Commission acts as representative in Western Australia of the War Service Homes Division of the Department of Housing (Commonwealth). During 1966-67, 143 homes were constructed, 52 new dwellings were purchased and 107 pre-arranged mortgages were discharged, making a total of 302 new houses for which finance was provided. Assistance was also granted in respect of 434 ex-servicemen acquiring secondhand homes.

Homes Savings Grants

The Homes Savings Grant Act 1964-1967 (Commonwealth), which came into operation on the 28th May, 1964, is designed to "assist young married persons, and young widowed persons with dependent children, to purchase or build their own homes." The Act is administered, subject to any directions of the Minister, by the Secretary to the Department of Housing.

The Act provides for the payment to eligible persons of a grant of \$1 for every \$3 saved for a home by one or both of the marriage partners. The grant takes the form of a gift free of tax and is payable in respect of a house, a home unit or a flat. The maximum benefit is \$500 payable on savings of \$1,500 which must be "acceptable" savings within the meaning of the Act.

To qualify for the grant a person must be married or a widowed person with one or more dependent children; must have lived and saved in Australia for at least three years and was an Australian citizen throughout that period; must, on or after the 2nd December, 1963, have entered into a contract to buy a home or to have a home built, or have begun to build a home; must be under 36 years of age at the date of marriage and at the date of entering into a contract to buy or build the home or at the date on which building began; must not have already received a grant and must not be, nor previously have been, married to a person who has received a grant during the marriage. An undischarged bankrupt or a person serving a term of imprisonment may not receive a grant.

The grant is not payable in respect of a home where the cost, including the cost of land, exceeds \$15,000.

Grants are financed from the National Welfare Fund and the first payments were made during the year ended 30th June, 1965. Expenditure on grants in Western Australia amounted to \$698,698 in 1964-65, \$761,652 in 1965-66 and \$666,181 in 1966-67.

Housing Loans Insurance Scheme

The Housing Loans Insurance Corporation was established by the Housing Loans Insurance Act 1965 to insure approved lenders against losses arising from the making of housing loans. The Corporation consists of a chairman (who is also managing director) and a deputy chairman, who are full-time members, and three part-time members, all of whom are appointed by the Governor-General. The main purpose of the activities of the Housing Loans Insurance Corporation is to assist people to obtain, as a single loan and at a reasonable rate of interest, the money they need and can afford to borrow to obtain a home suited to their requirements.

To encourage the making of high-ratio loans the Corporation will insure loans up to 95 per cent. of valuation for houses valued at \$12,000 or less. Where the valuation of a home exceeds \$12,000 the maximum insurable amount is 95 per cent. of the first \$12,000 of valuation plus 70 per cent. of the balance or \$17,000, whichever is the lesser. A once-and-for-all premium of 2 per cent. of the amount of the loan is charged by the Corporation. The premium is payable by the borrower, but lenders may agree to add it to the amount of the loan for repayment by the borrower over the duration of the loan. The maximum rate of interest that may be charged on insured loans is 7½ per cent. (December, 1967) per annum and the maximum period for repayment is thirty-five years. The maximum rate of interest is kept under continuing review and may be varied by the Corporation, with the concurrence of the Minister for Housing, whenever charges appear to be warranted by movements in interest rates generally or by other developments.

The Housing Loans Insurance Corporation insures loans that are made for a wide range of purposes in addition to the purchase or construction of a dwelling. The other purposes include alterations, extensions or improvements to a dwelling, and the provision or improvement of roads, kerbing and footpaths. An insured loan may be made only by an approved lender. Approved lenders are appointed by the Corporation from within approved classes of lenders specified by the Minister for Housing. The approved classes include banks, building societies, co-operative housing societies, friendly societies, life insurance companies and trustee companies. The Housing Loans Insurance Corporation commenced its insurance operations in November, 1965.

CONTROL OF BUILDING

Each of the local government authorities as constituted under the provisions of the Local Government Act, 1960-1967 has power to exercise general control over the erection of buildings in its own district. At the 31st December, 1967 there were 5 Cities, 13 Towns and 126 Shires in Western Australia. The powers of local government authorities to control building derive from the Town Planning and Development Act and the Local Government Act.

The Town Planning and Development Act, 1928-1967 gives local authorities the right to make by-laws covering such aspects of town planning as the purchase or reservation of land for thoroughfares, the density of dwelling accommodation per acre, the classification of areas for residential, commercial, industrial and recreational use, the prescription of building standards, and the general planning of new subdivisions. Town planning measures proposed by a local authority are subject to the approval of the Minister for Town Planning, who has the advice of a Town Planning Commissioner and a Town Planning Board.

The Local Government Act, 1960-1967 contains provisions for the control of building which are compatible with those exercised under the Town Planning and Development Act but are in a more detailed form. Many local government authorities have adopted comprehensive by-laws relating to building construction, and the erection of all buildings must be carried out in compliance with these by-laws. The Local Government Act provides that no new building or the alteration of an existing building may be begun before the plans have been approved by the local authority. The Governor may by Order, at the request of a local authority, suspend the operation of this provision in its district. Generally, in remote parts of the State prior approval of plans is required only in the case of building in townsite areas. Where any local authority refuses to approve plans an appeal may be made to the Minister for Local Government, who has the power to modify or reverse the decision of the local authority. Other appeals or matters in dispute in relation to the control of building may be determined only by two referees, one of whom is appointed by the Governor and the other by the local authority concerned.

BUILDING OPERATIONS

Since the end of the second World War, the Australian Statisticians have undertaken a quarterly collection of statistics of building operations. The first of these collections in Western Australia related to the quarter ended 30th September, 1945.

The survey covers the activities of building contractors who undertake the construction of new buildings; the building operations of Commonwealth, State, semi-government and local government authorities; and work performed by owner-builders.

An owner-builder is one who is actually building his own house, or is having his house built under his own direction without the services of a contractor responsible for the whole job. Details of owner-builder activity cover in the main only those areas subject to building control by a local government authority. Outside these areas, the activities of owner-builders are generally not recorded and some other building operations may also be excluded. It is considered, however, that these omissions do not materially affect the figures.

Alterations, renovations, repairs and minor additions are excluded.

The following tables relate only to dwellings, as distinct from offices, factories, shops (without dwellings) and other non-residential buildings. The term "contract-built," as used in the first of these tables, refers to the operations of all building contractors and government instrumentalities undertaking the erection of new buildings. The values shown exclude the value of land and represent the estimated value of dwellings on completion. The figures for houses exclude temporary dwellings as well as dwellings attached to other buildings, such as dwellings attached to shops.

The second table on page 187 shows completions of dwellings other than houses. The figures relating to flats refer to individual living-units provided. In the case of dwellings attached to shops, the value of the dwelling(s) is not available separately and the figures shown under this heading are, in fact, the total value of the combined buildings.

NEW HOUSES COMPLETED (a)—CLASSIFIED ACCORDING TO MATERIAL OF OUTER WALLS

Year	Brick, Stone, Cement		Wood or predominantly Wood		Fibro-cement or predominantly Fibro-cement		Other		Total	
	Number	Value	Number	Value	Number	Value	Number	Value	Number	Value
1961-62—Contract-built	3,972	\$'000 27,178	71	\$'000 692	882	\$'000 5,358	84	\$'000 142	5,009	\$'000 33,370
Owner-built	514	3,768	8	32	545	2,282	6	18	1,073	6,100
Total	4,486	30,946	79	724	1,427	7,640	90	160	6,082	39,470
1962-63—Contract-built	4,739	34,384	37	232	872	5,504	13	32	5,661	40,152
Owner-built	483	3,782	15	62	430	1,770	4	14	932	5,623
Total	5,222	38,166	52	294	1,302	7,274	17	46	6,593	45,780
1963-64—Contract-built	5,234	38,596	17	102	1,051	7,020	40	78	6,342	45,796
Owner-built	505	4,120	17	60	412	1,798	....	....	934	5,978
Total	5,739	42,716	34	162	1,463	8,818	40	78	7,276	51,774
1964-65—Contract-built	5,286	42,050	9	86	1,013	7,690	88	278	6,396	50,104
Owner-built	585	5,044	18	62	441	2,010	5	18	1,049	7,134
Total	5,871	47,094	27	148	1,454	9,700	93	296	7,445	57,238
1965-66—Contract-built	5,094	42,007	9	62	1,113	8,755	66	263	6,282	51,087
Owner-built	529	4,888	10	45	443	2,067	1	2	983	7,002
Total	5,623	46,895	19	107	1,556	10,822	67	265	7,265	58,089

(a) Includes operations of The State Housing Commission ; see separate table on next page.

OTHER NEW DWELLINGS COMPLETED (a)

Year	Dwellings other than Houses							
	Flats (b)		Hotels, Guest-houses, etc.		Dwellings attached to Shops		Total	
	Number	Value	Number	Value	Number	Value	Number	Value
1961-62	265	\$'000 1,342	36	\$'000 1,204	9	\$'000 104	310	\$'000 2,650
1962-63	642	2,984	47	3,080	8	132	697	6,196
1963-64	1,295	5,596	45	1,850	13	124	1,353	7,570
1964-65	1,841	9,046	42	2,744	9	134	1,892	11,924
1965-66	1,624	9,096	46	3,211	8	117	1,678	12,424

(a) Includes operations of The State Housing Commission ; see table on next page. (b) Individual living-units.

NUMBER OF NEW HOUSES COMPLETED IN STATISTICAL DIVISIONS

Statistical Division—	Year ended 30th June—				
	1962	1963	1964	1965	1966
Perth	4,471	4,997	5,473	5,473	5,098
South-West	538	615	579	597	687
Southern Agricultural	238	249	293	326	334
Central Agricultural	279	269	284	319	354
Northern Agricultural	302	295	301	351	367
Eastern Goldfields	66	62	115	156	121
Central	21	2	12	18	25
North-West	14	12	72	62	107
Pilbara	26	24	38	18	72
Kimberley	127	68	109	125	100
Whole State	6,082	6,593	7,276	7,445	7,265

Operations of The State Housing Commission

The following table shows the number of housing units completed by the State Housing Commission in various categories during each year from 1961-62 to 1965-66. It also shows the numbers of housing units in connexion with which the Commission provided design and supervisory services free of cost to private charitable organizations.

STATE HOUSING COMMISSION—SUMMARY OF OPERATIONS

Category	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Housing Units (a) Completed—					
State Housing Act	396	610	630	887	957
Commonwealth and State Housing Agreements	873	1,104	1,092	692	995
McNess Housing Trust	6	10	73	.....	.....
Departmental Homes	147	93	165	*198	155
Government Employees' Housing	16	18	14	31	34
War Service Homes	198	141	176	174	118
Other (b) .....	.....	29	31	*52	36
Total	1,636	2,005	2,181	2,034	2,295
Other Activities (c)	55	130	139	97	185

(a) Comprises houses and individual flat units. (b) Comprises houses built by the Commission in terms of the Laporte Industrial Factory Agreement Act, 1961-1965, the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, 1960 and the Exmouth development scheme. (c) The figures shown represent housing units built by charitable organizations in connexion with which the Commission provided design and supervisory services. * Revised.

DWELLINGS COMPLETED IN AUSTRALIA

The following table shows the numbers of new houses and flats completed in each of the Australian States and Territories during the five-year period ended 30th June, 1966. In Western Australia the number of new houses and flats completed per thousand of mean population was 10·26, compared with 8·91 in the rest of Australia and 9·01 in Australia as a whole. The proportion of houses to flats completed in Western Australia was 6·1 : 1, and throughout Australia 4·0 : 1.

NEW HOUSES AND FLATS COMPLETED—AUSTRALIAN STATES AND TERRITORIES
1st JULY, 1961 TO 30th JUNE, 1966

State or Territory	Houses	Flats (a)	Houses and Flats (a)		
			Total Number Completed	Proportion of Australian Total (per cent.)	Per thousand of Mean Population (b)
New South Wales	130,624	47,455	178,079	35·89	8·74
Victoria	105,846	30,292	136,138	27·44	8·86
Queensland	51,379	7,700	59,079	11·91	7·45
South Australia	50,673	5,944	56,617	11·41	11·06
Western Australia	34,661	5,667	40,328	8·13	10·26
Tasmania	12,251	789	13,040	2·63	7·21
Northern Territory	2,266	349	2,615	0·52	16·52
Australian Capital Territory	8,834	1,430	10,264	2·07	26·58
AUSTRALIA	396,534	99,626	496,160	100·00	9·01

(a) Individual living units.

(b) Figures subject to revision.

CHAPTER V—*continued*

PART 5—SOCIAL BENEFITS, RELIEF PAYMENTS AND CHILD WELFARE

NOTE—The rates and the conditions applying to payment of the several benefits dealt with in this Part are described as they existed at the 1st January, 1968.

The information given is intended to serve as a general guide to the main provisions relating to social benefits and relief payments provided by the Commonwealth and State Governments. For more complete details of the Commonwealth benefits, reference should be made to the *Official Year Book of the Commonwealth of Australia*.

Social benefits are provided by the Commonwealth Government under a series of Acts, and their payment is financed from a National Welfare Fund. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year by transfer from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

War and service pensions are paid by the Commonwealth Government from the Consolidated Revenue Fund.

The Social Services Act 1947-1967 provides for the payment of age and invalid pensions, widows' pensions, unemployment, sickness, and special benefits, maternity allowances and child endowment; the Repatriation Act 1920-1967, for war and service pensions; and the Tuberculosis Act 1948, for allowances to sufferers from tuberculosis as well as assistance to the States in a national campaign against the disease.

Health services, such as medical, hospital and pharmaceutical benefits, are provided under the National Health Act 1953-1967.

War pensions, child endowment, maternity allowances and health service benefits, other than tuberculosis allowances, are paid regardless of income received from other sources or of property owned by the claimant. These payments do not affect eligibility for other social services benefits.

Age and invalid pensions (other than pensions paid to blind persons), widows' pensions and service pensions are subject to a means test in respect of both income and property. Only income is taken into account in assessing eligibility for unemployment and sickness benefits or tuberculosis allowances. Generally, a person receiving a pension or an allowance under one category is ineligible for benefit under any other.

Australian Aborigines, other than the nomadic or primitive, are eligible for social services benefits on the same conditions as other members of the community.

Under the provisions of legislation passed in 1963 and 1964 certain allowances payable on account of children were extended to include "student" children. For the purposes of the Social Services Act 1963 and the Repatriation Act 1963 the term "student child" meant a dependent child aged between 16 and 18 years receiving full-time education at a school, college or university, and the allowance continued until the end of the calendar year in which the child attained the age of 18 years. The Acts made provision for payment in respect of student children of permanently incapacitated age pensioners, invalid pensioners, widow pensioners and service pensioners. The benefit was extended to include also student children of recipients of tuberculosis allowances. The Social Services Act 1964 provides for the payment of child endowment on account of students until the twenty-first birthday.

In terms of amendments made to the Social Services Act and the Repatriation Act in 1965, the payment of allowances in respect of student children, which previously ceased at the end of the calendar year in which the child attained the age of 18 years, was extended until the twenty-first birthday.

The State Government makes certain payments for the relief of women and others in necessitous circumstances which in most cases supplement benefits provided by the Commonwealth Government.

SOCIAL SERVICES BENEFITS

Age and Invalid Pensions

Age pensions were first paid on the 1st July, 1909 and invalid pensions on the 15th December, 1910. Pensions are payable subject to a means test which does not, however, apply to pensions paid to persons who are permanently blind.

The age pension is payable to men aged 65 years and over and to women aged 60 years and over who have resided in Australia continuously for at least 10 years, which need not be immediately prior to the date of claim for a pension. If a person has not completed 10 years' continuous residence but has been so resident for a period of not less than five years, the period of 10 years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of 10 years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

Invalid pensions are payable to persons aged 16 years and over who have resided in Australia for a continuous period of not less than five years (including certain absences), and are permanently incapacitated for work to the extent of at least 85 per cent. or are permanently blind. If the incapacity or blindness first occurred outside Australia, except during a temporary absence, a period of not less than 10 years' continuous residence is necessary. If a person has not completed 10 years' continuous residence but has been so resident for a period of not less than five years, the period of 10 years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of 10 years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

The maximum rate of pension payable to an unmarried person (single, widowed or divorced) is \$13 per week. This rate applies also to a married pensioner where the spouse is not receiving an age or invalid pension, an unemployment, sickness or special benefit, a tuberculosis allowance or a service pension. In the case of a married couple, both of whom are pensioners, the maximum weekly rate is \$11.75 for each pensioner. A wife's allowance may be granted, subject to the means test, to the wife of an invalid pensioner or of an age pensioner permanently incapacitated or blind, or if she has the care of a child and is not receiving an age or invalid pension, or a service pension. The maximum weekly rate of a wife's allowance is \$6. A child's allowance of \$1.50 per week, free of the means test, is payable for the first child under 16 years of age, and the pension may also be increased by \$1.50 per week, subject to the means test, for each other child under 16 years. This allowance applies also to each student child of a pensioner. A guardian's allowance of up to \$4 per week is payable to widowers and other unmarried age or invalid pensioners who have one or more children in their care.

If the pensioner pays rent and is entirely or substantially dependent on the pension, supplementary assistance to a maximum of \$2 per week, subject to a means test, may be paid to a single pensioner or to a married pensioner whose spouse does not receive a pension or tuberculosis allowance.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture and personal effects and some other specified assets.

AGE AND INVALID PENSIONS—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	1964	1965	1966
Number of Pensioners at 30th June—					
Age—					
Males	12,061	12,190	12,467	12,596	13,020
Females	27,043	28,471	29,352	30,110	30,856
Persons	39,104	40,661	41,819	42,706	43,876
Invalid—					
Males	4,399	4,628	4,719	4,911	4,817
Females	3,427	3,542	3,587	3,704	3,758
Persons	7,826	8,170	8,306	8,615	8,575
Average Fortnightly Pension at 30th June (a)—					
Age	\$ 20.38	\$ 20.29	\$ 21.35	\$ 22.22	\$ 22.52
Invalid	21.07	21.11	22.47	23.42	24.36
Amount Paid during Year ended 30th June (b)	\$'000 24,344	\$'000 25,582	\$'000 27,373	\$'000 29,413	\$'000 30,760

(a) Includes allowances and supplementary assistance. maintenance of pensioners and to pensioner inmates of these homes.

(b) Includes amounts paid to benevolent homes for maintenance of pensioners and to pensioner inmates of these homes. Includes also allowances and supplementary assistance.

Rehabilitation Service—Since the 10th December, 1948 a rehabilitation service has been provided for invalid pensioners and others whose disabilities are remediable and who have reasonable prospects

of engaging in a suitable vocation within three years. With the aim of restoring disabled persons to independence and usefulness, the service provides the necessary treatment and training together with books, tools and equipment. Rehabilitation and training allowances are paid. Commonwealth expenditure in respect of the Rehabilitation Service in Western Australia was \$157,352 in 1961-62; \$149,228 in 1962-63; \$161,966 in 1963-64; \$173,944 in 1964-65; and \$186,924 in 1965-66.

Funeral Benefit—From the 1st July, 1943, a funeral benefit of up to \$20 has been payable to persons who are required to meet the funeral expenses of an age or invalid pensioner. This benefit is increased to a maximum of \$40 where a person receiving either an age, invalid or widow's pension, or a wife's allowance, is required to meet the funeral expenses of another pensioner or those of a non-pensioner spouse or dependent child. Commonwealth payments of funeral benefit in Western Australia amounted to \$51,978 in 1961-62; \$51,392 in 1962-63; \$54,850 in 1963-64; \$59,386 in 1964-65; and \$66,127 in 1965-66.

Widows' Pensions

Widows' pensions have been paid since the 30th June, 1942 and are granted subject to a means test and residential qualifications. The term "widow" is extended to include deserted wives, divorcees and women who have been deprived of support by the insanity or imprisonment of the husband.

Pensions and allowances payable to widows vary according to classes designated "A", "B" and "C" in terms of the Social Services Act. To qualify for pension under Class "A" a widow must have the custody, care and control of one or more children who may be either less than 16 years of age or student children as defined in the Act. The maximum rate of pension is \$17 per week (including a mother's allowance of \$4 per week), together with an additional \$1.50 per week in respect of each child. A Class "B" pensioner is one who has not the custody, care and control of any child under 16 years of age (or any student child) and who is at least 50 years of age, or is not less than 45 years of age when her Class "A" pension ceases because she no longer has a child in her custody, care and control. The maximum rate of pension payable is \$11.75 per week. A Class "C" pensioner is a widow who, at the time of her husband's death or within 26 weeks thereafter, is less than 50 years of age, has not the custody, care and control of any child under 16 years of age (or any student child), and is in necessitous circumstances. Pension at the rate of \$11.75 per week may be paid for a period of 26 weeks immediately after the husband's death but, if the widow is pregnant, may be continued until the birth of the child, when she may qualify for a Class "A" pension.

A widow pensioner who pays rent and is considered to be entirely or substantially dependent on her pension may, subject to a means test, receive supplementary assistance up to a maximum of \$2 per week.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture and personal effects and some other specified assets.

WIDOWS' PENSIONS—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	1964	1965	1966
Number of Pensions current at 30th June—					
Class "A" Pensioners (a)	1,905	1,930	2,120	2,221	2,288
Class "B" Pensioners (b)	2,657	2,548	2,607	2,692	2,775
Class "C" Pensioners (c)	8	8	7	13	8
Total	4,570	4,486	4,734	4,926	5,071
Average Fortnightly Pension at 30th June (d)	\$ 20.53	\$ 20.51	\$ 26.81	\$ 27.56	\$ 27.94
Amount Paid during Year ended 30th June (d)	\$'000 2,371	\$'000 2,377	\$'000 3,115	\$'000 3,463	\$'000 3,602

(a) Widow having custody, care and control of one or more children aged less than 16 years, or of a student child or children. (b) Widow aged 50 years or over with no dependent children. (c) Widow, other than Class "A" or "B", in necessitous circumstances following death of husband. (d) Includes allowances and supplementary assistance.

Unemployment, Sickness and Special Benefits

Payments to persons unemployed or temporarily incapacitated for work by sickness or accident were introduced on the 1st July, 1945 and are subject to residential qualifications and a means test in respect of income but not of property. Unemployment and sickness benefits are paid to men over 16 and under 65 years of age and to women over 16 and under 60 years of age.

The maximum weekly rate of benefit for an unmarried claimant over 21 years of age is \$8.25 per week. For unmarried juveniles, the rate is \$3.50 for those aged under 18 years and \$4.75 for those aged 18 and under 21 years. A married claimant with dependent spouse may receive \$14.25 per week, with an additional \$1.50 per week for each dependent child under 16 years of age. In the case of a claimant aged over 21 years or a married claimant aged less than 21 years, income of \$4 per week is allowed in addition to the benefit but any income in excess of \$4 is deducted from the benefit. Where the claimant is less than 21 years of age, the permissible weekly income is \$2 and the rate of benefit is reducible by the amount of any income in excess of \$2 per week. For unemployment benefit purposes, the incomes of both husband and wife are taken into account. For sickness benefit purposes, any payment received on account of the sickness from an approved friendly society or similar body is disregarded. A married woman is not eligible to receive a sickness benefit if it is reasonably possible for her husband to maintain her. Where her husband is able to maintain her only partially a benefit may be paid at such rate as is considered reasonable in the circumstances. There is a waiting period of seven days, during which time neither unemployment nor sickness benefit is payable.

Special benefits have been provided since the 1st July, 1945. A special benefit may be granted to a person not qualified for unemployment or sickness benefit and who receives no Commonwealth pension if, on account of age, physical or mental disability or for any other reason, he is unable to earn a sufficient livelihood for himself and his dependants. Special benefits are also paid to migrants who are in reception centres and are awaiting their first placement in employment. The maximum rate for special benefit is the same as for unemployment or sickness benefit.

UNEMPLOYMENT, SICKNESS AND SPECIAL BENEFITS—WESTERN AUSTRALIA

Item	1961-62	1962-63	1963-64	1964-65	1965-66
Unemployment Benefit—					
Number Admitted to Benefit during Year	15,525	15,115	14,971	10,175	5,883
Average Number on Benefit at end of each Week	2,932	2,674	2,677	1,679	785
Number on Benefit at end of Year—					
Males	1,824	2,062	1,360	503	389
Females	843	1,117	1,007	634	354
Persons	2,667	3,179	2,367	1,137	743
Sickness Benefit—					
Number Admitted to Benefit during Year	5,412	6,008	6,127	5,862	5,756
Average Number on Benefit at end of each Week	685	790	866	832	752
Number on Benefit at end of Year—					
Males	529	658	623	581	544
Females	185	249	236	236	224
Persons	714	907	859	817	768
Special Benefit—					
Ordinary—					
Number Admitted to Benefit during Year	157	115	101	84	78
Average Number on Benefit at end of each Week	151	129	122	106	107
Number on Benefit at end of Year—					
Males	27	33	26	21	24
Females	100	97	86	78	76
Persons	127	130	112	99	100
Migrants—					
Number Admitted to Benefit during Year .....	....	247	45	....	....
Average Number on Benefit at end of each Week .....	....	16	1	....	....
Number on Benefit at end of Year .....	....	24	....	....	....
Benefits Paid during Year—					
Unemployment	\$'000	\$'000	\$'000	\$'000	\$'000
Sickness	1,452	1,438	1,403	842	368
Special (a)	381	505	522	512	457
Special (a)	53	63	54	46	47
Total (a)	1,887	2,006	1,978	1,401	872

(a) Includes benefits paid to migrants in reception centres.

Maternity Allowances

Maternity allowance payments were introduced on the 10th October, 1912. The allowance is payable to a woman who, at the date of giving birth to a child (live or stillborn), is residing in Australia. There is no means test. Part of the allowance may be paid four weeks before the expected date of birth, and the balance immediately after the birth.

The allowance is \$30 where there are no other children, \$32 where the mother has one or two other children under 16 years of age, or \$35 where she has three or more other such children. The amount payable is increased by \$10 for each additional child of a multiple birth.

MATERNITY ALLOWANCES—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	1964	1965	1966
Number of Claims Paid during Year ended 30th June—					
Single Births : Amount of Allowance—					
\$30	5,060	5,097	5,275	5,451	5,698
\$32	8,040	8,012	7,852	7,654	7,665
\$35	4,112	3,879	3,680	3,389	3,232
Multiple Births : Amount of Allowance—					
Twins—					
\$40	34	27	48	42	48
\$42	85	79	87	88	87
\$45	34	58	45	43	31
Triplets—					
\$50	1	1	1	1	1
\$52	1	1	1	1	1
\$55	1	1	1	1	1
Total Number of Claims Paid	17,366	17,152	16,988	16,667	16,764
Amount Paid during Year ended 30th June	\$'000 559	\$'000 552	\$'000 546	\$'000 534	\$'000 536

Child Endowment

Child endowment was introduced on the 1st July, 1941. The payment of endowment is not subject to a means test. A person who is resident in Australia and has the custody, care and control of one or more children under the age of 16 years, or of a student child or children, is qualified to receive endowment in respect of each child. Approved institutions of which children are inmates are similarly entitled.

At the inception of the scheme, the first child of a family was not endowed. From the 20th June, 1950 child endowment has applied in respect of the first or only child of a family at the rate of 50c per week. Endowment for the second child is at the rate of \$1 per week; for the third child, \$1.50 per week and for the fourth child, \$1.75 per week. A further 25 cents is payable for the fifth and each subsequent child. Endowment is payable to a person having the custody, care and control of a student child aged 16 years but under 21 years who is receiving full-time education at a school, college or university and is not in employment or engaged in work on his own account. Endowment is at the rate of \$1.50 per week for each such child.

An approved institution is qualified to receive \$1.50 per week in respect of each child (including student children) in its care.

CHILD ENDOWMENT—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	(a) 1964	(a) 1965	(a) 1966
Endowed Families at 30th June—					
Number of Claims in Force in respect of—					
Children under 16 years of age	112,006	113,464	115,645	117,528	120,973
Student Children (a) .....	.....	.....	7,386	8,248	8,092
Number of Endowed Children—					
Children under 16 years of age	262,646	267,268	272,356	275,978	282,827
Student Children (a) .....	.....	.....	7,809	8,784	8,679
Average Number of Endowed Children per Claim—					
Children under 16 years of age	2.34	2.36	2.36	2.35	2.34
Student Children (a) .....	.....	.....	1.06	1.06	1.07
Institutions at 30th June—					
Number of Institutions	69	69	69	64	64
Number of Endowed Child Inmates—					
Children under 16 years of age	3,421	3,468	3,554	3,664	3,707
Student Children (a) .....	.....	.....	56	60	90
Total Number of Endowed Children at 30th June—					
In Families	262,646	267,268	(b) 280,165	(b) 284,762	(b) 291,566
In Institutions	3,421	3,468	(b) 3,610	(b) 3,724	(b) 3,797
Total	266,067	270,736	(b) 283,775	(b) 288,486	(b) 295,363
Amount Paid during Year ended 30th June (c) (d)	\$'000 10,205	\$'000 10,485	(e) 12,994	\$'000 13,406	\$'000 13,624

(a) Payment of endowment for student children aged 16 years but under 21 years has operated from 14th January, 1964.
 (b) Includes student children; see note (a). (c) Includes payments to institutions. (d) A number of endowments are paid every twelve weeks. During two years in every three, there are four such payments each year, and five in the third year.
 (e) Expenditure in this year includes five twelve-weekly payments; see note (d).

Reciprocal Arrangements with Other Countries

Reciprocal arrangements in respect of payment of age and invalid pensions, widows' pensions, unemployment and sickness benefits and child endowment have been in force between the Governments of Australia and New Zealand since the 1st July, 1949 and between Australia and the United Kingdom since the 7th January, 1954.

WAR AND SERVICE PENSIONS

War Pensions

The Repatriation Act 1920-1967 provides for the payment of pensions to ex-servicemen (and ex-servicewomen) and their dependants in respect of disability or death accepted as due to war service.

For members of the forces who served outside Australia, or within Australia in circumstances which can be regarded as combat against the enemy, pensions are payable in respect of incapacity or death which may result from any occurrence during the whole period of service. If a member served only in Australia, incapacity or death to be pensionable must have been attributable to service. In all cases, providing a member had at least six months' camp service, a condition which existed at the time of enlistment may be pensionable if it is considered that the condition was aggravated by service. If, at any time after discharge, an ex-serviceman who served in a theatre of war becomes incapacitated or dies from pulmonary tuberculosis, war pension is payable as if the incapacity or death resulted from an occurrence on service.

WAR PENSIONS(a)—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	1964	1965	1966
Number of Pensions current at 30th June—					
Incapacitated Ex-servicemen	18,814	19,089	19,273	19,253	19,188
Dependants of Incapacitated Ex-servicemen	34,977	34,340	33,540	32,366	31,016
Dependants of Deceased Ex-servicemen	4,113	4,114	4,197	4,262	4,317
Miscellaneous (b)	43	37	37	39	39
Total	57,947	57,580	57,047	55,920	54,560
Amount Paid in Pensions during Year ended 30th June (c)	\$'000 10,177	\$'000 10,527	\$'000 11,564	\$'000 11,447	\$'000 12,637

(a) Including pensions in respect of ex-servicewomen.

(b) Pensions payable under Seamen's War Pensions and Allowances Act, Interim Forces Benefits Act, Native Members of the Forces Benefits Act and various Cabinet decisions.

(c) Includes widows' allowances.

The main classes of war pensions are the special (T.P.I.) rate, the intermediate rate, the general rate and the war widows' pension. The special rate of war pension, \$30.50 per week, is payable to those who are totally and permanently incapacitated and are unable to earn more than a negligible percentage of a living wage. The intermediate rate of war pension, \$21.25 per week, was introduced in October, 1965. It is payable to an ex-serviceman who, because of the severity of a war-caused incapacity, can work only part-time or intermittently and, in consequence, is unable to earn a living wage. The wife of a pensioner receiving the special rate or the intermediate rate of war pension is paid \$4.05 per week plus \$1.38 per week for each child under 16 years of age. The general rate of war pension is the rate payable to those who suffer war-caused disabilities but are not thereby prevented from working, although their earning capacity may be reduced. The actual pension payable is assessed in accordance with the degree of incapacity suffered. The maximum (100 per cent.) rate is \$12 per week. A wife and children also receive pensions at rates according to the assessed degree of incapacity of the ex-serviceman, the maximum being \$4.05 per week for a wife and \$1.38 per week for each child under 16 years of age. The war widows' pension is paid to widows of ex-servicemen who died as a result of war service, and to their children under the age of 16 years. The weekly rate for a widow is \$13, for the first child \$4.40, and for the second and each subsequent child \$3.25.

Provision is also made for the payment of certain allowances, among which are the domestic allowance, the attendant's allowance, the sustenance allowance, and allowances for clothing and recreation transport. A domestic allowance at the rate of \$7 per week is paid, in addition to pension, to the widow of an ex-serviceman whose death is due to war service, if she is over 50 years of age; or is permanently unemployable; or has a dependent child under the age of 16 years, or a dependent child aged

16 years or more who is being educated and is not in receipt of an adequate living wage. An attendant's allowance at a maximum rate of \$10.50 per week is paid, in addition to pension, to certain classes of seriously disabled ex-servicemen including the war blinded, those who are paralysed, and certain double amputees. A sustenance allowance is payable where an ex-serviceman is prevented from following his usual occupation through necessities of treatment of a disability accepted as due to war service, or while undergoing medical investigation. The rate payable is the difference between the general (100 per cent.) rate pension and his current war pension. In certain circumstances, when the period exceeds 28 days and the ex-serviceman is still under treatment which prevents him from following his usual occupation, an additional sustenance allowance may be paid to bring the allowance to the equivalent of the special (T.P.I.) rate. Where an ex-serviceman is receiving in-patient treatment for a war-caused disability or undergoing periods of essential convalescence immediately following discharge from hospital, a higher rate to bring the sustenance allowance up to the equivalent of the special (T.P.I.) rate is payable. A wife and any children aged under 16 years may also receive sustenance equal to the difference between the general (100 per cent.) rate for wives and children and their current rate of war pension. A clothing allowance at rates ranging from 38c to 75c per week is payable, to compensate for exceptional wear and tear or damage to clothing, to an ex-serviceman who has suffered the loss of a limb due to war service. An amount of up to \$19.50 a year may be paid for other damage to clothing under specified conditions. A recreation transport allowance not exceeding \$20 per calendar month may be paid in certain circumstances.

Service Pensions

The payment of service pensions is provided for in the Repatriation Act 1920-1967 and has operated since the 1st January, 1936. A means test is applied in respect of income and property.

A service pension may be granted to a former member of the forces who is suffering incapacity from pulmonary tuberculosis, or who has served in a theatre of war (or, in the case of an ex-servicewoman, served abroad) and has attained the age of 60 years (or, in the case of an ex-servicewoman, 55 years) or is permanently unemployable.

The maximum weekly rate of pension payable to an ex-serviceman (or an ex-servicewoman) is \$13 where the spouse is not receiving a Commonwealth pension or allowance, and \$11.75 where the spouse is receiving any such benefit. The maximum rate payable to the wife of an ex-serviceman is \$6 per week. The rate for eligible children is \$1.50 for the first child, and 25c for each additional child, up to and including the fourth child of the family. An eligible child is a child under 16 years of age, or a child aged up to 21 years who is not receiving an invalid pension and is undergoing full-time education. The service pension of an ex-serviceman is increased by \$1.50 per week for each eligible child other than the first, whether or not such children qualify for pension in their own right.

A service pensioner who is unmarried, widowed, divorced, or married but separated, and who has care and control of one or more children, qualifies for a guardian's allowance of \$4 per week.

Supplementary assistance up to a maximum of \$2 per week may be paid to an ex-serviceman who is paying rent, or for lodging, or board and lodging.

An ex-serviceman or ex-servicewoman in receipt of a service pension is entitled, with certain exceptions, to free medical benefits for disabilities not caused by war. These benefits include general practitioner service, specialist service where necessary, full pharmaceutical benefits, surgical aids and appliances (including spectacles), dental treatment and treatment in Repatriation General Hospitals.

SERVICE PENSIONS(a)—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	1964	1965	1966
Number of Pensions current at 30th June—					
Ex-servicemen	5,455	5,875	6,103	6,181	6,187
Dependants of—					
Living Service Pensioners	1,305	1,293	1,262	1,181	1,131
Deceased Service Pensioners	355	358	389	417	437
Miscellaneous .....	.....	.....	.....	1	2
Total	7,115	7,526	7,754	7,780	7,757
Amount Paid in Pensions during Year ended 30th June	\$'000 2,687	\$'000 2,927	\$'000 3,177	\$'000 3,320	\$'000 3,571

(a) Including pensions in respect of ex-servicewomen.

NATIONAL HEALTH SERVICES

The National Health Act 1953-1967 provides for expenditure from the National Welfare Fund in respect of a free general practitioner service to eligible pensioners and their dependants, and hospital, medical and pharmaceutical benefits to the community generally. Other services financed from the Fund are the nutrition of children by the free supply of milk, the payment of allowances to sufferers from tuberculosis, reimbursement to State Governments of maintenance expenditure in relation to the diagnosis, treatment and control of tuberculosis, and a number of miscellaneous health services.

Hospital and Nursing Home Benefits

The payment of hospital and nursing home benefits is authorized under Part V of the National Health Act. Benefits are payable only in respect of treatment received in approved hospitals and approved nursing homes. For the purposes of the National Health Act, premises which provide medical treatment, care and accommodation for sick persons are approved either as hospitals or as nursing homes depending mainly on their clinical standards and the type of patients accommodated. The basic principle of the provision of Commonwealth hospital benefits is the encouragement of voluntary insurance by individuals against the costs involved.

An amendment to the National Health Act passed in 1962 and effective from the 1st January, 1963 altered the basis and method of payment of Commonwealth benefit. Prior to the amendment, Commonwealth hospital benefits were of two types, "ordinary" hospital benefit and "additional" hospital benefit. Commonwealth ordinary hospital benefit was provided for patients in public and approved private hospitals, by way of deduction from the patient's hospital account, at the rate of 80c a day. For pensioners enrolled in the Pensioner Medical Service and their dependants while patients in public hospitals, \$1.20 a day was provided. Commonwealth additional benefit was paid through approved hospital benefit organizations to their financial members at rates varying with the amount of fund benefit for which the member was contributing.

Payment of \$2 per day is now made for patients in approved hospitals who are contributors to a registered hospital benefit fund, the benefit being paid through the fund. Payment of 80c per day is made direct to the hospital for patients who are not contributors to a benefit organization.

Under arrangements made with the States, pensioners who are enrolled in the Pensioner Medical Service and are treated in public wards of public hospitals are entitled (with a few exceptions) to free public ward treatment. For this the Commonwealth pays the hospitals a benefit of \$5 per day for each pensioner.

Commonwealth benefit of \$2 per day is paid for all qualified patients in approved nursing homes, whether the patient is insured or not.

The following table shows the amounts of benefit paid in Western Australia during each financial year from 1961-62 to 1965-66, and the number and membership of registered benefit organizations at the 30th June in each year. It should be noted that the total number of persons covered by hospital benefit schemes is considerably higher than the number of members shown, as many members contribute on account of dependants as well as for personal benefits.

HOSPITAL BENEFITS—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	1964	1965	1966
Registered Organizations—					
Number at 30th June	11	10	9	9	9
Membership at 30th June	269,123	265,765	260,663	267,694	279,192
Amount of Benefit Paid—					
Commonwealth Benefit—	\$'000	\$'000	\$'000	\$'000	\$'000
Under arrangements applying before 1st January, 1963—					
Ordinary Benefits (a)	1,561	857	....	....	....
Additional Benefits (b)	1,953	1,347	....	....	....
Under arrangements applying from 1st January, 1963—					
Insured Patients	....	500	1,550	1,569	1,577
Uninsured Patients	....	57	151	151	152
Pensioner Patients	....	398	1,204	1,349	1,443
Nursing Home Patients	....	600	1,565	1,734	1,897
Special Account Deficits (c)	482	431	235	184	217
Total	3,996	4,189	4,705	4,987	5,286
Fund Benefit	3,067	3,256	3,362	3,856	4,386

(a) Paid to hospitals in respect of occupied beds. (b) Paid through benefit organizations. (c) Reimbursements paid to benefit organizations; see letterpress immediately following table.

A "special account" system was introduced on the 1st January, 1959 to provide an assured rate of hospital fund benefits to contributors who would otherwise have been excluded from fund benefits on account of organizations' rules covering pre-existing ailments, chronic illnesses and maximum fund benefit. The hospital fund benefit generally payable in such cases is \$3 a day and is paid either from special accounts guaranteed by the Commonwealth or from the ordinary accounts of the organizations. One condition of payment is that the treatment in respect of which the fund benefit was paid was given in an approved hospital, although fund benefit is paid in certain circumstances in respect of treatment given in approved nursing homes. If the payments from special accounts exceed the contributions credited to the account, the amount of the deficit is reimbursed by the Commonwealth.

Australian residents who receive hospital treatment in recognized hospitals in overseas countries, while temporarily absent from Australia, are eligible to receive the Commonwealth and fund benefits to which they are entitled.

Medical Benefits

A Medical Benefits Scheme commenced to operate from the 1st July, 1953, being authorized under the National Health (Medical Benefits) Regulations. These regulations were superseded by the National Health Act. The basic principle of the scheme is the encouragement of voluntary insurance by individuals against the costs of medical attention. The scheme provides for the payment of benefits by the Commonwealth, through medical insurance organizations registered for the purpose. The Commonwealth benefits supplement the benefits paid by the registered organizations in respect of a proportion of the medical expenses, such as fees for medical and surgical treatment, incurred by members of those organizations and their dependants.

The Act was amended in 1958 to enable registered organizations to extend their payment of medical benefits by means of the special account system referred to in the preceding section. Medical fund benefits previously disallowed in cases of pre-existing disabilities and protracted illnesses have been paid from the 1st January, 1959 under the provisions of this amendment.

Australian residents who, while temporarily absent from Australia, receive medical attention by registered medical practitioners are entitled, if insured, to the Commonwealth benefit and the medical fund benefit to which they would be entitled if the service were rendered in Australia.

The following table shows the number of medical services rendered in Western Australia to members of medical benefit organizations and their dependants during each financial year from 1961-62 to 1965-66. The number of organizations and their membership at the 30th June in each year are also shown. It should be noted that the total number of persons covered by medical benefit schemes is considerably higher than the number of contributors, as many members subscribe for benefits on account of dependants as well as for themselves.

MEDICAL BENEFITS—WESTERN AUSTRALIA

Item	Year ended 30th June—				
	1962	1963	1964	1965	1966
Registered Organizations—					
Number at 30th June	9	8	8	8	8
Membership at 30th June	225,328	237,029	247,192	254,440	268,719
Number of Medical Services Received—					
General Practitioner Services	'000 1,314	'000 1,384	'000 1,416	'000 1,395	'000 1,463
Other	512	591	654	726	770
Total	1,826	1,975	2,070	2,121	2,233
Amount of Benefit Paid—					
Commonwealth Benefit—					
Ordinary	\$'000 1,843	\$'000 1,984	\$'000 2,117	\$'000 3,001	\$'000 3,337
Special Account Deficits (a)	41	41	44	55	50
Total	1,883	2,026	2,161	3,056	3,387
Fund Benefit	2,414	2,597	2,928	3,096	3,269

(a) Reimbursements paid to benefit organizations.

A Pensioner Medical Service, which commenced on the 21st February, 1951, was introduced under the authority of the National Health (Medical Services to Pensioners) Regulations made under the provisions of the National Health Service Act 1948-1949. The service has been continued under the provisions of the National Health Act 1953-1967.

From the 1st November, 1955 to the 31st December, 1965, a special means test applied in determining eligibility for benefits provided by the Pensioner Medical Service. By an amendment to the National Health Act operative from the 1st January, 1966, this provision was relaxed so that all pensioners satisfying the means test in force at that date for payment of a full or partial age, invalid, widow's or service pension become eligible for enrolment in the Pensioner Medical Service. The benefits extend also to persons who receive a tuberculosis allowance and are able to satisfy this means test. Under the scheme, qualified persons and their dependants, including student children aged up to 21 years, are provided with a free general practitioner service. Specialist services are not provided. A small fee may be charged by practitioners who attend qualified patients outside normal surgery or visiting hours. Practitioners in the scheme are remunerated on a fee-for-service basis by the Commonwealth Government.

Pharmaceutical Benefits

The Pharmaceutical Benefits Scheme was inaugurated on the 4th September, 1950 when certain life-saving and disease-preventing drugs became available to the general community free of charge if duly prescribed by a medical practitioner registered in Australia. From the 1st March, 1960 a charge of 50c has been levied, except in the case of pensioners or their dependants, for each prescription dispensed and for each repeat supply. This amount represents the first 50c of the total cost, the remainder being met by the Commonwealth. With the introduction of this charge, the list of drugs available as pharmaceutical benefits was greatly expanded and now comprises a wide range of drugs, including the majority of those covered by the British Pharmacopoeia. Additions are recommended from time to time by the Pharmaceutical Benefits Advisory Committee, a committee of experts which advises the Government on the value of drugs most suitable for the treatment of various diseases.

A service providing pharmaceutical benefits free of charge to pensioners has been in operation since the 2nd July, 1951. The full range of medicines supplied under the general scheme, and certain additional drugs, are available for this service. Persons qualifying for benefits are those who hold a Pensioner Medical Service entitlement card, and the dependants of such persons including student children aged up to 21 years.

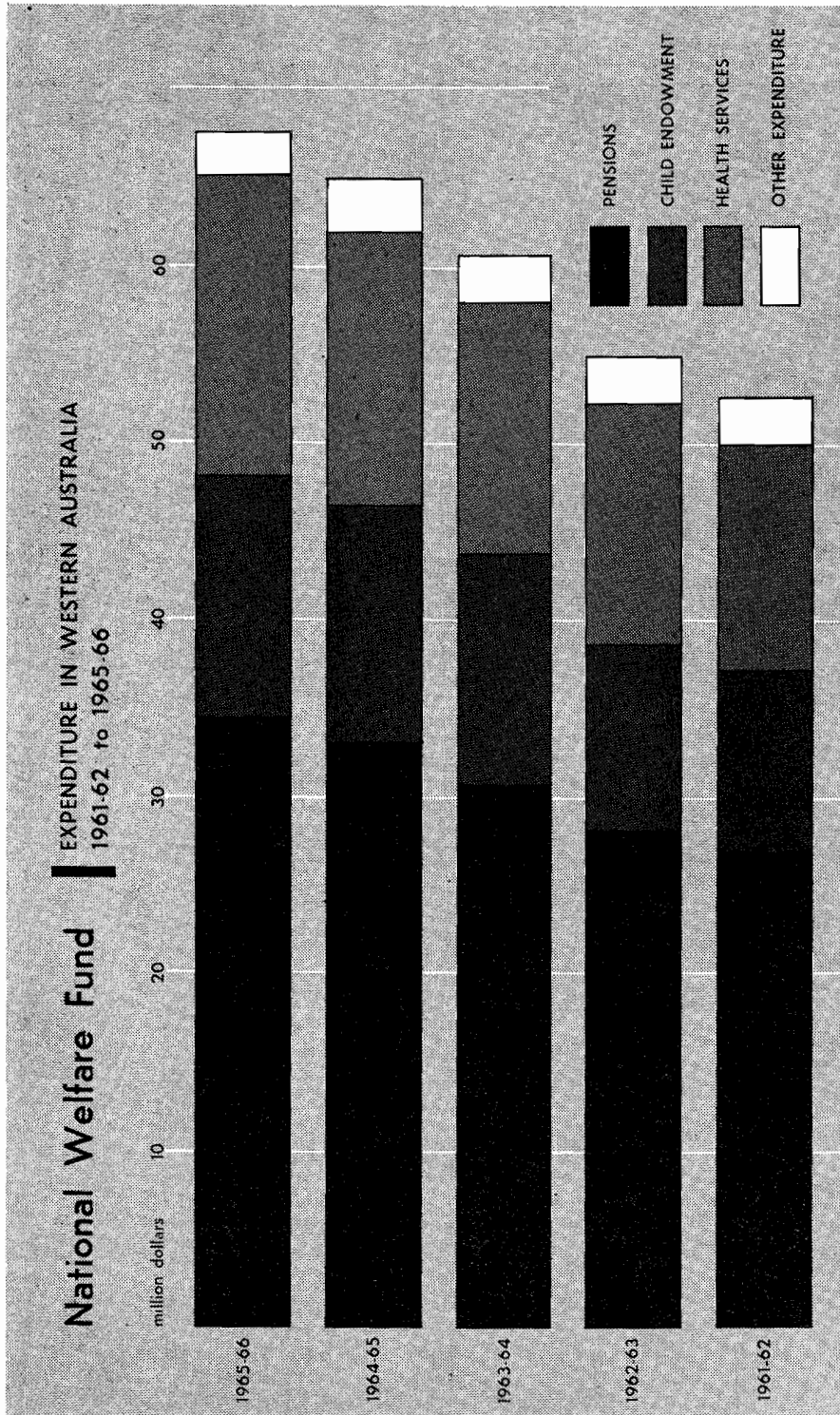
Free Milk for School Children

The States Grants (Milk for School Children) Act 1950 provides for the distribution of free milk to school children throughout the Commonwealth, with the object of improving their diet. All children under the age of 13 years attending school are eligible to receive this issue. The cost of the milk plus half the capital or incidental costs, including expenses incurred in administering the scheme, is reimbursed by the Commonwealth to the State, which arranges for the distribution.

Tuberculosis Campaign

The Tuberculosis Act 1948 provides for a joint Commonwealth and State campaign against tuberculosis. The Commonwealth has an arrangement with the States, whereby each State is required to conduct a campaign against tuberculosis and to provide adequate facilities for that purpose. In consideration of this, the Commonwealth undertakes to reimburse the State for all approved capital expenditure in relation to tuberculosis and for net maintenance expenditure to the extent that it is in excess of net maintenance expenditure for the base year 1947-48. Thus, the States are required to carry out the actual physical or field work of the national campaign with the Commonwealth acting in an advisory, co-ordinating and financial capacity.

The Act provides also for the payment of allowances to sufferers and their dependants at such rates as the Director-General of Health, subject to the direction of the Minister, determines. Payments under the scheme commenced on the 13th July, 1950. The maximum rate of allowance to a married sufferer with dependent wife is \$26 75 per week. An amount of \$1.50 per week is payable for each dependent child under 16 years of age and for each student child. A sufferer without dependants is eligible to receive a maximum of \$16 25 per week or, if receiving hospital treatment free of charge, \$13 per week. There is a means test, which applies only to income and not to property. The allowance is reduced by the amount by which income from other sources exceeds \$14 per week in the case of a married sufferer and \$7 per week in the case of a person without a dependent wife.



The amounts of expenditure shown in the next table exclude Commonwealth payments to the State Government in the form of reimbursement of capital expenditure in connexion with the campaign. These payments were \$23,780 in 1961-62; \$66,988 in 1962-63; \$43,778 in 1963-64; \$11,434 in 1964-65; and \$2,034 in 1965-66.

Miscellaneous Health Services

Other expenditure from the National Welfare Fund in relation to health services includes the cost of Commonwealth Health Laboratory services, subsidies to home-nursing services, radio-active isotopes provided under the National Health Act, running expenses of the blood fractionation plant of the Commonwealth Serum Laboratories and hearing aids for school children.

Summary of Expenditure

Expenditure on health services in Western Australia from the National Welfare Fund in each financial year from 1961-62 to 1965-66 is summarized in the following table.

NATIONAL WELFARE FUND EXPENDITURE ON HEALTH SERVICES—WESTERN AUSTRALIA (\$'000)

Service	Year ended 30th June—				
	1962	1963	1964	1965	1966
Hospital Benefits (a)	3,996	4,189	4,705	4,987	5,286
Medical Benefits (a)	1,883	2,026	2,161	3,056	3,387
Medical Benefits for Pensioners	572	632	648	660	958
Pharmaceutical Benefits	3,589	3,844	3,856	3,824	4,205
Pharmaceutical Benefits for Pensioners	1,220	1,317	1,386	1,470	1,665
Free Milk for School Children	526	584	615	637	619
Tuberculosis Campaign—					
Allowances	80	85	89	80	61
Maintenance	793	800	751	742	697
Miscellaneous Services	35	25	27	30	23
TOTAL	12,695	13,501	14,238	15,486	16,906

(a) For further details, see tables *Hospital Benefits—Western Australia* on page 196 and *Medical Benefits—Western Australia* on page 197.

Mental Health Institutions

The Commonwealth provides financial assistance to the States for or in connexion with the building or equipment of mental health institutions. Payments are made from the Consolidated Revenue Fund.

Under the provisions of the States Grants (Mental Institutions) Act 1955 the Commonwealth was authorized to make payments up to a total of \$20 million, of which Western Australia's share was fixed at \$1.44 million. The assistance available to a State took the form of a grant equal to one-third of the State's capital expenditure on or in connexion with mental institutions. The first payments were made in respect of the financial year 1955-56.

The States Grants (Mental Health Institutions) Act 1964 repeals the earlier legislation and authorizes payments commencing with the financial year 1964-65. The provision of grants equal to one-third of a State's capital expenditure on mental health institutions is continued.

Assistance extended to Western Australia under these Acts amounted to \$1,706,336 during the period from 1955-56 to 1965-66.

STATE RELIEF PAYMENTS

Under the provisions of the Welfare and Assistance Act, 1961, the State Government, through the Child Welfare Department, extends financial assistance to indigent persons. These relief payments which in many cases supplement the social benefits provided by the Commonwealth Government are made primarily to ensure that dependent children do not suffer hardship from the indigence of parents or guardians. Those assisted include deserted wives, unmarried mothers, widows having the care of children, and families where the husband is unable to provide adequate support because of sickness, unemployment, age or imprisonment.

Other aid provided by the State for persons in need includes rail passes for country people requiring medical treatment in the metropolitan area and the provision of school requisites for children of women receiving financial assistance. In certain circumstances, the burial of indigent persons is arranged at State expense.

Deserted wives and unmarried mothers applying to the Department for assistance are given advice concerning the legal redress available to them and it is usual for application to be made to a Summary Relief Court or a Children's Court for an order requiring the husband or the father to provide maintenance. Court orders are enforceable throughout Australia and in certain oversea countries.

State monetary assistance to widows, not in receipt of a Commonwealth widow's pension, is at the rate of \$11.25 per week, plus \$5 per week for the first dependent child and \$1.50 per week for each other dependent child. Unmarried mothers receive State monetary assistance at the same rate. To a widow receiving a Commonwealth pension the State pays \$3.00 per week if she has three or more dependent children. In this context, the term "widow" includes deserted wives, divorcees and women deprived of support by the insanity or imprisonment of husbands. If an age or invalid pensioner has dependent children, the State allows \$2 per week where there is one child, \$2.50 per week where there are two children and \$3.50 per week where there are more than two children. Where the wife of an age pensioner is not eligible to receive a wife's allowance from the Commonwealth and there are dependent children, she may be paid an amount of \$7.50 per week by the State.

Where Commonwealth unemployment or sickness benefits are payable to married men, the State allows \$3 per week where there are one or two dependent children, \$2.50 where there are three or four children and \$2 where there are five or more children. In addition, Commonwealth child endowment is payable in respect of all dependent children. Details of Commonwealth Social Services benefits are given earlier in this Chapter in the section *Social Services Benefits*. The amount of State assistance granted is subject to a means test and in assessing income the earnings of the children of a family are taken into account.

FAMILIES RECEIVING FINANCIAL ASSISTANCE FROM CHILD WELFARE DEPARTMENT

Description	Number at 30th June—				
	1962	1963	1964	1965	1966
Widows	183	206	94	88	77
Unmarried Mothers	40	35	64	39	46
Deserted Wives	322	414	300	377	395
Husband Pensioner	142	156	170	160	152
Husband Sick or Unemployed	472	645	320	173	187
Husband Imprisoned	62	63	48	38	48
Divorced Women	8	13	3	4	19
Foster-mothers	76	74	102	89	95
Special Cases.....	9	2	3	3	3
Total	1,314	1,608	1,104	971	1,022

CHILD WELFARE

Under the provisions of the Child Welfare Act, 1947-1967 the State Government, through the Child Welfare Department, is responsible for the care of State wards and children placed under supervision or released on probation by Children's Courts. For the purposes of the Act, a child is defined as "any boy or girl under the age of eighteen years." Institutions caring for children, as well as children brought to Western Australia under child migration schemes, are subject to supervision by the Department, as also are foster-mothers who have in their care children under six years of age and are required under the Act to be licensed for this purpose. Among other functions of the Department are the arranging of legal adoptions and the licensing of children employed in street trading and in public entertainment. A provision of the Child Welfare Act vests in the Department the right to decide which institution or what form of treatment is appropriate to the needs of a child committed by a Children's Court to the care of the Department for treatment, discipline and training.

Children's Courts are established at Perth and at other centres throughout the State and have jurisdiction in all cases where children under 18 years of age are involved whether as offenders or as being neglected or destitute. The Courts also have jurisdiction to deal with adults committing certain specified offences against children. The public may be excluded from Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Adults charged with certain indictable offences against children may forgo the right to trial by jury and agree to be dealt with summarily by Children's Courts. This power to exercise summary jurisdiction is designed to eliminate as far as possible the necessity for children to appear in open courts as witnesses in cases dealing with sex offences. A Children's Court may commit such offenders for sentence by the Supreme Court.

Children guilty of minor offences may be cautioned, fined, bound over, placed on probation, or dismissed without a conviction being recorded. A Court may declare a child to be neglected or destitute and may order the child to be committed to the care of the Child Welfare Department or released on probation. Children found guilty of offences punishable by imprisonment may be committed to the care of the Department, released on security given by parents, or released on probation under the supervision of the Department. Those guilty of less serious or first offences are generally placed in the care of their parents or suitable guardians under appropriate supervision by officers of the Child Welfare Department. Supervision and probation cases, other than State wards, numbered 580 at the 30th June, 1966.

Expenditure—The following table gives details of the annual expenditure of the Child Welfare Department during the five-year period ended 30th June, 1966.

EXPENDITURE OF CHILD WELFARE DEPARTMENT
(\$'000)

Nature of Expenditure	Year ended 30th June—				
	1962	1963	1964	1965	1966
Administration	326	352	396	411	445
Departmental Institutions	345	376	408	516	632
Maintenance of Wards	265	267	332	358	385
Maintenance of Migrant Children	45	29	26	19	12
Outdoor Relief (a)	296	313	321	337	351
Unemployment Relief	239	101	91	60	42
Parole Classes	4	3	3	4	3
Burial of Indigents	8	6	9	7	9
Total Expenditure	1,529	1,447	1,586	1,720	1,879
Total Revenue	139	141	154	166	193
Net Expenditure	1,390	1,306	1,432	1,554	1,686

(a) Assistance to women with dependent children and to the infirm.

Wards of the Child Welfare Department—A child committed to the care of the Child Welfare Department or to the custody of the Director of Child Welfare becomes a ward of the Department. A ward may be placed in an institution, boarded out with a relative or other approved person, paroled or placed in suitable employment. The Director of Child Welfare has authority to place wards of working age in employment or apprenticeship. Where a ward is required to live at the place of employment, a service agreement covering wages and working conditions is made between the employer and the Department, which continues to watch the interests of the ward. At the 30th June, 1966 there were 3,809 wards, of whom 931 were in institutions (including 368 at native missions, 17 in hospital and 9 in prison), 842 were boarded out on subsidy, and 2,036 were on parole, probation or in employment.

Private Children—In addition to wards, there are some private children under the supervision of the Department. These comprise children under six years of age who may be either in institutions or in the care of licensed foster-mothers. At the 30th June, 1966 the Department had under its supervision 158 private children in institutions and 52 in the care of foster-mothers.

Institutions—The State Government subsidizes homes for children in Western Australia. Most of these institutions are conducted by religious organizations and several of them provide for children brought from Great Britain, Ireland and Malta under child migration schemes. All institutions having the care of wards, migrant children or private children under six years of age are subject to the supervision of the Department.

“ Hillston ” Anglican Farm School at Stoneville and “ Riverbank ” at Caversham are reformatories for delinquent boys. “ Riverbank ” is a maximum security institution for the treatment of the more difficult offenders and is controlled by the Child Welfare Department. The Home of the Good Shepherd at Leederville cares for delinquent and maladjusted girls.

The Child Welfare Department maintains a Reception Home at Mount Lawley which serves as a temporary shelter for deprived or neglected children awaiting placement, and as a haven for children whose parents are temporarily unable to care for them. “ Longmore ” Remand Home at Bentley is a maximum security institution which provides personal supervision for boys and girls aged 13 to 18 years.

Children accommodated are those who are on remand from a Children's Court or have been newly committed to the care of the Department. While at the Home they undergo medical, mental or social investigation to determine appropriate subsequent action. The Home is designed to accommodate 60 children.

The following table shows details of children in institutions under the supervision of the Child Welfare Department at the 30th June, 1966.

CHILDREN IN INSTITUTIONS AT 30th JUNE, 1966 (a)
(Excluding missions for Aborigines)

Institution	State Wards		Migrant Children (b)		Private Children		Total		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Children
CHILD WELFARE DEPARTMENT—									
Longmore, Bentley	30	20	...	...	2	2	32	22	54
Reception Home, Mt. Lawley	38	23	...	...	2	2	40	25	65
Riverbank, Caversham	29	...	...	...	...	...	29	...	29
Total	97	43	...	...	4	4	101	47	148
ANGLICAN—									
Hillston Farm School, Stoneville	51	...	...	...	...	...	51	...	51
Parkerville Children's Home, Parkerville	43	20	...	...	36	43	79	63	142
Swanleigh, Middle Swan	5	3	1	...	30	12	36	15	51
Total	99	23	1	...	66	55	166	78	244
METHODIST—									
Mofflyn, East Victoria Park	...	7	...	...	18	21	18	28	46
PRESBYTERIAN—									
Sister Kate's Children's Home, Queens Park	26	32	...	...	13	8	39	40	79
ROMAN CATHOLIC—									
Castledare Boys' Home, Wilson	14	...	9	...	72	...	95	...	95
Clontarf Boys' Town, Wilson	26	...	4	...	136	...	166	...	166
Home of the Good Shepherd, Leederville	...	45	...	...	...	41	...	36	86
Nazareth House, Geraldton	2	4	...	4	15	35	17	43	60
Saint Joseph's Boys' Town, Bindoon	2	...	11	...	75	...	88	...	88
Saint Joseph's Orphanage, Wembley	...	7	...	10	...	46	...	63	63
Saint Mary's Agricultural School, Tardun	10	...	9	...	49	...	68	...	68
Saint Vincent's Foundling Home, Wembley	9	11	...	...	47	65	56	76	132
Total	63	67	33	14	394	187	490	268	758
SALVATION ARMY—									
Boys' Home, Nedlands	40	...	...	...	20	...	60	...	60
Girls' Home, Mosman Park	...	9	...	...	...	22	...	31	31
Total	40	9	...	...	20	22	60	31	91
UNDENOMINATIONAL—									
Kingsley Fairbridge Farm School, Pinjarra	...	...	74	63	11	12	85	75	160
Ngal-a, Kensington	13	18	...	...	15	13	28	31	59
Total	13	18	74	63	26	25	118	106	219
GRAND TOTAL	338	199	108	77	541	322	987	598	1,585

(a) Excludes 17 State wards in mental hospitals and 9 State wards in prison.
Australia under child migration schemes.

(b) Children brought to Western

Maintenance of Children—Payments by the Child Welfare Department to foster-parents having the care of State wards are at the weekly rate of \$5.60 for the first child, \$5.20 for the second child and \$5 for each additional child. Institutions are paid subsidies of from \$5.10 to \$6 per week for each ward in their care. The British Government pays \$2.50 per week for each British migrant child in institutions or boarded out and the State Government pays an additional amount of 60c per week. A further grant of \$1 per week for each child maintained is paid to the institutions by the State Lotteries Commission. Where an institution refuses assistance from the Commission on religious or moral grounds the State Government may grant an equivalent allowance to the institution for each ward maintained. All institutions and foster-parents having the care of children receive Commonwealth child endowment payments.

Parents or step-parents are required to contribute towards the maintenance of wards in institutions or boarded out.

Employment of Children—The Child Welfare Act, 1947–1967 provides that children may not engage in street trading except under licence granted by the Department. The issue of licences is restricted to those aged 12 years and over and it is an offence to employ an unlicensed child. Most of the licences issued are for the sale of newspapers.

The Act provides further that children under the age of 16 years may not take part in any form of public entertainment for profit or reward unless under licence, except in the case of an occasional entertainment for the benefit of a school or charitable or patriotic object. Most of these licences are issued for concerts arranged by dancing teachers and other tutors.

Adoption of Children—Any person who takes charge of a child with the object of adoption must notify the Director of Child Welfare. Legal adoptions may be arranged by the Department or privately by solicitors. In either case, the Director is required to investigate the suitability of applicants and an order for adoption must be obtained from a Judge of the Supreme Court. During the year ended 30th June, 1966, adoption orders numbering 561 were granted. Of this total, 285 were arranged by the Department and 276 were arranged privately.

CHAPTER V—*continued*

PART 6—LAW COURTS, POLICE AND PRISONS

LAW COURTS

The principal courts operating in Western Australia are the High Court of Australia, the Supreme Court of Western Australia, Courts of Session, the Magistrates' and Coroners' Courts, the Summary Relief Court and the State Licensing Court. In Chapter X, Part 2—*Wages*, reference is made to the Commonwealth Industrial Court, the Commonwealth Conciliation and Arbitration Commission, the Western Australian Industrial Appeal Court, and The Western Australian Industrial Commission.

High Court of Australia

The High Court of Australia is the Federal Supreme Court and its powers are defined in the Commonwealth Constitution and in the Judiciary Act 1903–1966. The High Court consists of a Chief Justice and six other Justices. Sittings are held in the capital city of each State as occasion may require. The High Court exercises both original and appellate jurisdiction, acting as a court of appeal for Australia. An appeal may lie from a judgment of the High Court of Australia to the Judicial Committee of the Privy Council in London.

Supreme Court of Western Australia

The Supreme Court of Western Australia, as constituted under the Supreme Court Act, 1935–1964, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court in both civil and criminal matters is exercised by a single Judge, sitting alone or with a jury, unless it is provided that an action must be brought before a Full Court. Criminal cases are heard before a jury. Criminal sittings of the Supreme Court are held at Perth each month from February to December. Civil sittings and Full Court sittings are held at times fixed by the Court from year to year.

The Circuit Court sits at Albany, Bunbury, Geraldton and Kalgoorlie four times a year, and a Judge of the Supreme Court usually presides.

Any two or more Judges together comprise a Full Court except that when sitting as a court of criminal appeal there must be an uneven number of Judges. The Full Court sits at least five times in every year with additional sittings when necessary. Appeals are heard against judgments of the Supreme Court and of the Circuit Courts and Courts of Session as well as against decisions of the magistrates in lower courts.

Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the Judiciary Act 1903–1966 (Commonwealth), and may also be made direct to the Privy Council. Under the Bankruptcy Act 1966 (Commonwealth) the Supreme Court is invested with federal jurisdiction in bankruptcy.

Courts of Session

Courts of Session are held four times a year, or as required, at the principal court house of each of the fourteen session divisions. Either a Judge of the Supreme Court or the Chairman of the Court of Session may preside. The Chairman of a Court of Session is the Stipendiary Magistrate stationed at the centre at which a Court is held. Only criminal cases are dealt with and a jury is therefore required at all sittings. A case may be reserved for hearing before a Judge of the Supreme Court.

Magistrates' and Coroners' Courts

In addition to their usual functions, magistrates act as coroners and mining wardens where required. Two or more Justices of the Peace sitting together in petty sessions may deal with cases which could be decided by a magistrate sitting alone.

Police Courts are held at centres of population throughout the State. Minor offences are dealt with summarily, but a person charged with an indictable offence may be committed to a higher court for trial or sentence if there is sufficient evidence to justify this course.

Children's Courts—Special Children's Courts are established in Perth, and at other centres as required, to deal with offenders under the age of eighteen years and to hear certain specified cases of offences against children. A Children's Court has power to deal summarily with most offences concerning children. The public may be excluded from Children's Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Further reference to Children's Courts appears in the section *Child Welfare* in Part 5 of this Chapter.

Coroners' Courts may be held to inquire into the circumstances of sudden or unnatural deaths or the cause and origin of fires. A Coroner may charge a person with a major offence and commit him for trial at a higher court.

Summary Relief Court—The Summary Relief Court is established under the provisions of the Married Persons and Children (Summary Relief) Act, 1965 and is empowered to make orders providing for separation, payment of maintenance, legal custody of a child and access to a child.

Local Courts are held throughout the State to determine minor civil issues, largely the recovery of small debts. Jurisdiction is limited in most cases to claims not exceeding \$1,000.

State Licensing Court

The State Licensing Court consists of three members appointed by the Governor to administer the Licensing Act and to issue licences for the sale of alcoholic liquor.

COURT PROCEEDINGS

Civil Proceedings

Particulars of civil cases (including divorce cases) dealt with by the courts in the ten years ended 31st December, 1966 are shown in the following table. Decrees of dissolution of marriage, nullity of marriage and judicial separation may be granted by the Supreme Court or the Circuit Court.

CIVIL PROCEEDINGS (a)

Year	Civil Cases other than Divorce						Divorce (b)			
	Higher Courts			Lower Courts			Petitions Filed (c)	Decrees Granted		
	Writs Issued	Judgments Signd and Entered		Plaints Entered	Verdicts for Plaintiffs			Dissolu- tion of Marriage	Nullity of Marriage	Judicial Separa- tion
		Number	Amount Awarded		Number	Amount Awarded				
			\$'000			\$'000				
1957	718	262	674	39,259	14,058	1,050	633	541	1	3
1958	792	273	601	46,077	14,816	1,124	665	536	6	2
1959	822	219	714	45,794	14,382	1,056	681	584	2	1
1960	890	285	621	43,810	15,125	1,180	570	540	2	5
1961	1,020	321	835	46,657	21,495	1,726	622	466	....	1
1962	1,054	388	1,192	49,832	21,567	1,799	654	582	2	1
1963	1,121	380	1,137	54,916	24,283	2,182	629	553	1	....
1964	1,255	408	1,237	60,023	26,834	2,534	656	542	2	1
1965	1,463	490	2,228	56,141	27,910	2,627	738	604	2	....
1966	1,776	652	2,274	54,289	23,885	2,446	791	637	3	....

(a) Excludes proceedings in bankruptcy (see page 239).

(b) For further details, see pages 142-3.

(c) Excludes petitions for restitution of conjugal rights.

Other Court Proceedings

Statistics appearing in the following table and the tables on pages 207-8 exclude particulars of Aborigines.

The following table gives particulars of convictions in Magistrates' Courts, including Children's Courts, during the ten years ended 31st December, 1966.

CONVICTIONS IN MAGISTRATES' COURTS

Year	Offences against the Person		Offences against Property		Forgery and Offences against Currency		Offences against Good Order		Other Offences (a)		Total Convictions (a)		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total
1957	377	15	4,439	374	....	....	6,571	578	41,842	2,101	53,229	3,068	56,297
1958	448	22	5,139	407	....	....	6,023	571	32,707	1,720	44,317	2,720	47,037
1959	381	13	4,671	354	4	....	6,675	710	32,768	2,003	44,499	3,080	47,579
1960	356	26	4,896	483	3	....	6,302	616	32,431	2,349	43,988	3,474	47,462
1961	393	18	4,493	351	1	....	6,721	461	30,826	2,509	42,434	3,339	45,773
1962	490	18	5,838	467	....	1	7,035	417	32,545	2,880	45,908	3,783	49,691
1963	516	11	6,703	575	4	4	6,499	484	33,731	3,185	47,453	4,259	51,712
1964	544	19	6,084	532	10	....	6,184	475	33,833	3,285	46,655	4,311	50,966
1965	513	22	5,857	522	3	8	6,470	527	33,682	4,074	51,525	5,153	56,678
1966	550	25	6,908	714	6	1	6,938	624	36,078	4,014	50,450	5,378	55,828

(a) Including traffic offences; for separate particulars see next table. Regulations under the Traffic Act allow fines to be imposed without court action for minor traffic offences. Similar provisions under the City of Perth Parking Facilities Act became operative on 28th July, 1958 and under City of Fremantle by-laws, on 1st November, 1965. These minor offences are not included in the figures shown. They numbered 31,405 in 1957; 36,909 in 1958; 44,973 in 1959; 50,879 in 1960; 44,392 in 1961; 42,582 in 1962; 43,970 in 1963; 49,488 in 1964; 51,167 in 1965; and 64,842 in 1966.

CONVICTIONS IN MAGISTRATES' COURTS FOR CERTAIN OFFENCES

Year	Assault, Wounding, etc.		Breaking, Entering, and Stealing		Stealing, Receiving, etc.		Drunkenness		Disorderliness		Traffic Offences (a)	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1957	259	15	599	28	2,936	337	4,968	460	924	54	35,022	1,637
1958	303	20	672	5	3,263	362	4,409	412	990	66	25,194	1,053
1959	303	12	608	2	3,025	329	5,046	541	900	97	25,219	1,183
1960	249	25	872	17	3,106	431	4,679	465	903	86	26,178	1,242
1961	303	17	701	20	2,983	320	4,997	336	820	46	24,664	1,216
1962	333	18	877	7	3,685	435	5,024	303	1,444	91	25,726	1,343
1963	390	10	961	22	4,434	504	4,542	335	1,041	69	27,313	1,619
1964	365	18	777	14	3,983	472	4,176	353	1,212	70	27,155	1,511
1965	415	22	871	21	3,876	469	4,293	360	1,253	76	31,351	2,011
1966	419	25	1,126	64	3,946	579	4,700	411	1,263	91	30,081	2,036

(a) See note to previous table.

Particulars of distinct persons convicted in Magistrates' Courts are not available, but it is known that many are charged with multiple offences. This applies particularly to offenders under 18 years of age. Statistics of convictions of juvenile offenders during 1966 for certain offences are shown in the following table.

CONVICTIONS OF JUVENILES, 1966

Age (years)	Breaking, Entering, and Stealing		Stealing, Receiving, etc.		Wilful Damage		Assault, Wounding, etc.		Unlawful Use of Motor Vehicle		Disorderliness	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
7	2	....	6	2	1	....	....	....	....	....	....	....
8	4	....	16	1	5	....	....	....	....	....	....	....
9	21	....	13	1	5	....	....	....	....	....	....	....
10	19	3	46	1	5	....	....	....	2	....	....	....
11	53	1	53	....	5	....	1	....	....	....	....	....
12	100	....	110	6	15	....	....	3	....	....	....	....
13	139	5	132	37	13	1	5	....	14	2	1	....
14	222	3	229	61	23	3	3	....	80	7	9	3
15	198	10	245	56	26	....	13	....	226	2	33	3
16	215	38	315	80	45	1	9	2	289	6	62	5
17	136	4	364	34	48	1	23	1	142	7	108	3
Not Stated	14	....	40	1	8	....	4	1	4	....	2	....
Total	1,123	64	1,569	280	199	6	58	4	760	24	215	14

The following table shows the total numbers of convictions of juveniles, classified according to nature of offence, during each year from 1957 to 1966.

CONVICTIONS OF JUVENILES

Year	Breaking, Entering, and Stealing		Stealing, Receiving, etc.		Wilful Damage		Traffic Offences		Other Offences		Total Convictions		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total
1957	586	28	1,125	92	97	1	2,037	56	915	29	4,760	206	4,966
1958	664	5	1,229	131	162	2	2,067	77	1,231	38	5,353	253	5,606
1959	605	1	1,065	91	125	3	2,698	151	941	32	5,434	278	5,712
1960	849	17	1,282	177	148	3	1,986	80	964	41	5,229	318	5,547
1961	673	20	1,229	109	147	....	1,368	40	825	34	4,242	203	4,445
1962	843	7	1,300	156	100	3	1,707	66	1,225	43	5,175	275	5,450
1963	931	22	1,827	196	173	4	1,773	72	1,245	98	5,949	392	6,341
1964	766	14	1,634	192	155	5	2,146	85	1,544	117	6,245	413	6,658
1965	666	21	1,600	223	180	10	2,344	72	1,320	110	6,110	436	6,546
1966	1,123	64	1,569	280	199	6	2,268	75	1,344	116	7,003	541	7,544

Details of penalties inflicted by the Higher Courts during the ten years ended 31st December, 1966 are shown in the following table. The category *Probation* became operative with the commencement on the 1st January, 1965 of the relevant sections of the Offenders Probation and Parole Act of 1963. The numbers shown for 1964 represent persons placed on probation after the 1st January, 1965 in respect of charges laid in 1964.

HIGHER COURTS—NATURE OF PUNISHMENT OF DISTINCT PERSONS

Year	Probation		Bound Over		Fined		Imprisoned		Sentenced to Death (a)		Total		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total
1957	....	....	53	2	3	....	134	5	3	....	193	7	200
1958	....	....	55	3	7	1	185	4	....	....	247	8	255
1959	....	....	28	1	4	1	175	6	1	....	208	8	216
1960	....	....	45	1	2	....	132	2	1	....	180	3	183
1961	....	....	35	3	17	2	141	4	1	....	194	9	203
1962	....	....	41	....	10	1	169	7	....	....	220	8	228
1963	....	....	54	3	20	....	214	7	2	....	290	10	300
1964	3	2	42	1	(b)21	2	160	7	2	....	228	12	240
1965	48	4	3	....	6	....	219	11	1	....	277	15	292
1966	64	1	3	1	4	....	201	4	1	....	273	6	279

(a) Four executions were carried out during the period. One death sentence was commuted to 10 years' imprisonment; all others were commuted to life imprisonment. (b) Includes one forfeiture of bond.

Particulars of persons dealt with in Higher Courts are shown in the following table. Where a person was charged with more than one offence, only the most serious charge has been included.

HIGHER COURTS, 1966

Offence	Distinct Persons Charged			Distinct Persons Convicted		
	Males	Females	Total	Males	Females	Total
I—Offences against the Person—						
Murder	4	....	4	1	....	1
Attempted murder	1	....	1	1	....	1
Manslaughter	12	2	14	2	2	4
Negligent driving causing death	11	....	11	11	....	11
Rape	11	....	11	11	....	11
Incest	4	....	4	4	....	4
Unlawful carnal knowledge	5	....	5	5	....	5
Indecent assault	5	....	5	5	....	5
Indecent dealing	5	....	5	5	....	5
Abduction	2	....	2	2	....	2
Bigamy	3	2	5	3	2	5
Assault, wounding, etc.	12	....	12	10	....	10
Total, Class I	75	4	79	60	4	64
II—Offences against Property—						
Robbery	10	....	10	7	....	7
Breaking, entering, and stealing	172	....	172	171	....	171
Stealing, receiving, etc.	36	1	37	31	1	32
Unlawfully killing cattle	1	....	1	1	....	1
Total, Class II	219	1	220	210	1	211
III—Forgery and Offences against Currency						
	2	1	3	2	1	3
IV—Offences against Good Order						
	1	....	1	1	....	1
V—Other Offences						

GRAND TOTAL	297	6	303	273	6	279

Particulars are given in the next table of charges brought against Aborigines and convictions recorded in Magistrates' and Higher Courts during the year 1966. It will be seen that more than one-half of the charges are in connexion with the consumption of alcoholic liquor. From the 1st July, 1964, when

the Licensing Act Amendment Act (No. 4), 1963 came into operation, the former restrictions on the consumption of alcoholic liquor by Aborigines have been limited to areas of the State declared for the purpose. The restricted area which, from the 1st July, 1964, was the portion of Western Australia outside the South-West Land Division, was reduced, with effect from the 1st November, 1966 so as to comprise approximately that area of the State lying east of longitude 121° E.

OFFENCES BY ABORIGINES, 1966
(Inclusive of concurrent offences)

Offence	Magistrates' Courts						Higher Courts		
	Charges			Summary Convictions			Convictions		
	M.	F.	Total	M.	F.	Total	M.	F.	Total
I—Offences against the Person—									
Manslaughter	4	....	4	....	....	....	3	....	3
Attempted suicide	1	....	1	....	....	....	....	....	....
Rape	4	....	4	....	....	....	1	....	1
Unlawful carnal knowledge	26	....	26	16	....	16	1	....	1
Indecent assault	1	....	1	....	....	....	....	....	....
Indecent dealing	6	....	6	3	....	3	1	....	1
Abduction	1	....	1	1	....	1	....	....	....
Assault, wounding, etc.	257	48	305	232	41	273	1	....	1
Total, Class I	300	48	348	252	41	293	7	....	7
II—Offences against Property—									
Robbery	4	1	5	....	....	....	4	1	5
Breaking, entering, and stealing	224	15	239	201	15	216	14	....	14
Unlawfully on premises	74	11	85	67	10	77	....	....	....
Stealing, receiving, etc.	331	54	385	304	50	354	2	....	2
Unlawfully using motor vehicle	109	8	117	106	8	114	....	....	....
Unlawfully using other vehicle	12	....	12	11	....	11	....	....	....
Wilful damage	70	20	90	65	19	84	....	....	....
Other offences	6	1	7	3	1	4	3	....	3
Total, Class II	830	110	940	757	103	860	23	1	24
III—Forgery and Offences against Currency .....	....	....	....	....	....	....	....	....	....
IV—Offences against Good Order—									
Drunkenness	2,012	905	3,817	2,905	903	3,808	....	....	....
Habitual drunkenness	93	24	117	90	24	114	....	....	....
Disorderliness	687	333	1,020	679	326	1,005	....	....	....
Vagrancy	153	35	188	152	33	185	....	....	....
Uncontrollable child	2	3	5	2	2	4	....	....	....
Indecent behaviour	2	....	2	1	....	1	1	....	1
Escaping legal custody	34	2	36	33	2	35	....	....	....
Other offences	157	30	187	154	29	183	....	....	....
Total, Class IV	4,040	1,332	5,372	4,016	1,319	5,335	1	....	1
V—Other Offences—									
Breach of Native Welfare Act	313	41	354	310	40	350	....	....	....
Traffic offences	518	21	539	501	20	521	....	....	....
Breach of liquor laws	101	31	132	101	31	132	....	....	....
Health offences	2	....	2	2	....	2	....	....	....
Gaming	4	4	8	4	4	8	....	....	....
Maintenance offences	17	....	17	13	....	13	....	....	....
Other offences	99	24	123	96	21	117	....	....	....
Total, Class V	1,054	121	1,175	1,027	116	1,143	....	....	....
GRAND TOTAL	6,224	1,611	7,835	6,052	1,579	7,631	31	1	32

Liquor Licences

The following table shows the number of liquor licences of the several types in force in Western Australia at the 31st December of each year from 1962 to 1966. The figures in the table relate to licences granted under the provisions of the Licensing Act, 1911-1967 (State). A further licence, applying to premises at Perth International Airport, is issued in terms of the Airports (Business Concessions) Act 1959 (Commonwealth).

LIQUOR LICENCES IN FORCE

Description of Licence	At 31st December—				
	1962	1963	1964	1965	1966
Publican's General	403	403	407	411	413
Limited Hotel	3	3	3	3	3
Wayside House	48	47	43	42	42
Australian Wine, Beer and Spirits	1	1	1	1	1
Australian Wine	50	48	48	48	47
Australian Wine, Bottle	5	6	5	5	5
Packet	9	9	9	9	9
Railway Refreshment Room	2	2	1	1	1
Spirit Merchant's	43	43	44	44	44
Brewer's	4	4	4	4	4
Gallon	216	215	214	211	212
Eating, Boarding, and Lodging House	2	2	.....	.....	.....
Club	213	218	230	236	237
Canteen	4	8	5	15	14
Restaurant	26	22	24	24	22
Total	1,029	1,031	1,038	1,054	1,054

POLICE

The Western Australian Police Force comprises five main branches under the direction of the Commissioner of Police. The Commissioner is responsible to the Minister for Police and is assisted by a Deputy Commissioner.

For the administration of the Uniformed Branch, the State is divided into three metropolitan districts and seven country districts, each under the direction of an Inspector-in-Charge. There are three specialized branches, the Criminal Investigation Branch, the Traffic Branch and the Plain Clothes Branch, each of which is headed by an Inspector-in-Charge. The Women Police form the fifth branch.

The Uniformed Branch comprises the main body of the Police Force and is responsible for the routine maintenance of law and order throughout the State. Where required, officers of the Branch act as Clerks of Courts and perform special duties for other government authorities.

The Criminal Investigation Branch is centred in Perth, with several sub-branches in the metropolitan area and at Albany, Bunbury, Geraldton, Kalgoorlie, Narrogin and Northam. The Branch is equipped with radio patrol cars and the usual facilities for work on fingerprints, photography and ballistics.

Special staffs attached to the Criminal Investigation Branch are responsible for security and for police work in connexion with gold stealing, pillaging and thefts from retail shops.

The Traffic Branch has its principal office in Perth and has four suburban sub-branches. It is responsible for the regulation of traffic and the licensing of motor vehicles in the Metropolitan Traffic Area. In other parts of the State these functions are performed by the local government authorities. Licences to drive motor vehicles are issued by police officers throughout the State. The Traffic Branch is responsible for the patrol of major highways to check commercial vehicles for overloading and for excessive speed. Officers of the Branch instruct school children in the principles of road safety and assist the National Safety Council of Western Australia to conduct a school where young persons are instructed in the proper use of motor cycles. Traffic Education Classes, although held mainly for the instruction of minor offenders against traffic laws, also admit members of the public who attend voluntarily.

The Plain Clothes Branch is concerned mainly with the enforcement of the liquor laws and laws for the suppression of vice and gaming. Licensing of firearms is also a responsibility of the Branch.

The Women Police—Policewomen are stationed at Perth, Fremantle and Kalgoorlie. They are employed mainly in police duties concerning women and children.

Police and Citizens' Youth Clubs are established by the Department to provide recreational facilities for young people and to give them an appreciation of civic responsibilities. In 1966, there were nine clubs in the metropolitan area and 20 in country districts, with a total membership of approximately 6,000.

The following table shows the numbers and classification of members of the Police Force at the 30th June in each of the years 1962 to 1966.

POLICE FORCE—NUMBER AND CLASSIFICATION

Classification	At 30th June—				
	1962	1963	1964	1965	1966
Commissioner of Police	1	1	1	1	1
Deputy Commissioner	1	1	1	1	1
Chief Inspector	1	1	1	1	1
Inspector	34	33	33	35	36
Sergeant	169	176	168	186	193
Detective Sergeant	35	36	37	39	39
Detective Constable	53	54	54	59	62
Constable	856	867	950	937	967
Women Police—					
Sergeant	2	2	2	2	2
Constable	12	13	13	16	17
Total	1,164	1,184	1,260	1,277	1,319

PRISONS

There are four common gaols, at Fremantle, Albany, Broome and Geraldton, and twelve police gaols in Western Australia. There are outstations of the Fremantle Prison at Barton's Mill, Pardelup Prison Farm, and Karnet Rehabilitation and Training Centre at Keysbrook.

Fremantle gaol is divided into separate sections for females, prisoners on remand or awaiting trial, reformatory prisoners and others. There are workshops where prisoners are usefully employed in boot-making, carpentry, printing, tailoring and tinsmithing. A school is conducted by a teacher supplied by the Education Department, while tuition in technical subjects is available by correspondence.

At Barton's Mill, where prisoners are employed in cutting firewood, and at the Pardelup Prison Farm supervision is fairly open. Karnet Rehabilitation and Training Centre is a minimum security institution with accommodation for 60 men in each of two blocks. One block is for the reception of young offenders convicted of criminal offences and the other for convicted inebriates. Inmates in both sections are employed in developing land at the Centre for vegetable growing and orchards and the establishment of pasture for a dairy herd.

Broome gaol is situated in the northern part of the State and is used mainly for the imprisonment of Aborigines.

Police gaols are established in Perth and at other centres and are used for short-term prisoners and for prisoners awaiting trial. In addition, provision is made for holding prisoners for short periods at police stations throughout the State.

In the following table, which shows the number of prisoners received for penal imprisonment in gaols in Western Australia during the five years ended 30th June, 1966, a prisoner is counted once for each time he is received.

PRISONERS RECEIVED FOR PENAL IMPRISONMENT

Year	Prisoners other than Aborigines			Aborigines			Total Prisoners		
	M.	F.	Total	M.	F.	Total	M.	F.	Total
1961-62	3,268	149	3,417	868	320	1,188	4,136	469	4,605
1962-63	3,360	172	3,532	920	276	1,196	4,280	448	4,728
1963-64	3,191	151	3,342	1,053	384	1,437	4,244	535	4,779
1964-65	2,763	114	2,877	1,303	373	1,676	4,066	487	4,553
1965-66	2,599	110	2,709	1,284	397	1,681	3,883	507	4,390

In the next table a prisoner is counted only once in a particular year, irrespective of the number of times he is imprisoned during that year.

DISTINCT PERSONS IMPRISONED

Year					Prisoners other than Aborigines			Aborigines			Total Prisoners		
					M.	F.	Total	M.	F.	Total	M.	F.	Total
1961-62	....	....	....	....	1,903	81	1,984	563	178	741	2,466	259	2,725
1962-63	....	....	....	....	1,960	100	2,060	588	134	722	2,548	234	2,782
1963-64	....	....	....	....	2,069	87	2,156	659	213	872	2,728	300	3,028
1964-65	....	....	....	....	1,904	67	1,971	839	209	1,048	2,743	276	3,019
1965-66	....	....	....	....	1,758	66	1,824	797	234	1,031	2,555	300	2,855

The following table shows the number of prisoners, excluding trial and remand prisoners and debtors, in gaols in Western Australia at the 30th June in each of the years 1962 to 1966.

PRISONERS IN GAOL

At 30th June—					Prisoners other than Aborigines			Aborigines			Total Prisoners		
					M.	F.	Total	M.	F.	Total	M.	F.	Total
1962	....	....	....	....	558	15	573	110	23	133	668	38	706
1963	....	....	....	....	620	20	640	121	13	134	741	33	774
1964	....	....	....	....	651	11	662	143	20	163	794	31	825
1965	....	....	....	....	558	15	573	200	30	230	758	45	803
1966	....	....	....	....	649	12	661	181	21	202	830	33	863

PROBATION AND PAROLE SERVICE

The Probation and Parole Service, a branch of the Crown Law Department, is constituted under the provisions of the Offenders Probation and Parole Act, 1963-1965.

Part II of the Act, dealing with the probation of offenders, came into operation on the 1st January, 1965. Probation officers appointed under the Act carry out supervision of offenders placed on probation by the courts. A court may require the Chief Probation Officer to report on an offender before sentence is imposed.

Part III, which relates to the parole of offenders, came into operation on the 1st October, 1964. It established a Parole Board of five members, comprising a Judge of the Supreme Court as chairman, the Comptroller-General of Prisons, and three members appointed by the Governor.

The Act requires that where a person is sentenced to imprisonment for twelve months or longer the court shall, unless special circumstances make it inappropriate, fix a minimum term during which the convicted person is not eligible to be released. The court is given discretionary power to fix a minimum term where the sentence is for less than twelve months. Provision is made for the reduction of a minimum term, as a reward for good conduct or industry. Where no minimum term has been fixed, remission of up to twenty-five per cent. of the sentence may be allowed for diligence and good conduct.

The Parole Board is empowered to release on parole a prisoner who has served a minimum term fixed by a court, or a prisoner being detained at the Governor's pleasure. The Governor may direct the release on parole of a prisoner sentenced to imprisonment for life, a prisoner undergoing a sentence of imprisonment for life commuted from a sentence of death, or an unconvicted person held in custody during the Governor's pleasure following acquittal because of unsoundness of mind.

Parole officers establish contact with prisoners before release on parole and supervise them during the parole period.

CHAPTER VI—FINANCE

PART 1—PUBLIC FINANCE

In Western Australia there are three groups of authorities responsible for the collection and expenditure of public moneys. They are the State Government and associated semi-governmental authorities, the Commonwealth Government, and the local government authorities, comprising City Councils, Town Councils and Shire Councils.

COMMONWEALTH-STATE FINANCIAL RELATIONS

The Financial Agreement of 1927

Under the terms of the Financial Agreement, the Commonwealth Government took over from the States their public debts existing at the 30th June, 1927 and assumed responsibility for all future loan raisings by the Australian Governments. The Commonwealth also agreed to contribute annually for a period of 58 years from the 1st July, 1927 an amount of \$15,169,824 towards the interest payable on the State debts, Western Australia's share of this amount being \$946,864. A Sinking Fund, under the control of the National Debt Commission, was created to finance all State debts. In respect of the net public debts of the States at the 30th June, 1927, a contribution of three-eighths per cent. per annum was prescribed, the Commonwealth paying one-third and the States the remaining two-thirds, each according to the amount of its net indebtedness at the date of transfer. All moneys and securities standing to the credit of sinking, redemption and similar funds of the States at the 30th June, 1929 were assigned to the National Debt Commission, except in cases where the conditions relating to a fund precluded a transfer.

In the case of loans raised by a State after the 30th June, 1927 it is provided that, for a period of 53 years from the date of the raising, the sinking fund contribution shall be at the rate of one-half per cent. per annum shared equally between the Commonwealth and the State. This provision does not, however, apply to loans raised by a State to meet a revenue deficit. In respect of debt incurred in financing deficits accruing after the 30th June, 1927 and before the 1st July, 1935 it was agreed that until the 30th June, 1944 the rate of one-half per cent. per annum shared equally between the Commonwealth and the State should operate, but that for a period of 39 years from the 1st July, 1944 the annual contribution should be one-quarter per cent. from the Commonwealth and three-quarters per cent. from the State. For the funding of all other revenue deficits contributions are at a rate of not less than 4 per cent. per annum to be paid wholly by the State.

The Australian Loan Council

The Australian Loan Council was established by the Financial Agreement Act of 1928 to co-ordinate the public borrowings of the Commonwealth and the States. The Council has as its Chairman the Prime Minister of the Commonwealth, or a Minister nominated by him, and the other members are the Premiers of the States or, in the absence of a Premier, a Minister nominated by him. The Commonwealth and each State submits to the Council a programme of its desired loan raisings during each financial year, including the amount of any revenue deficit to be funded. The Commonwealth Government's borrowings for defence purposes are expressly excluded from its submissions to the Council. If the Council decides that the total amount of the loan programme for a year cannot be borrowed at reasonable rates and conditions it decides the amount to be borrowed during the year, and may by unanimous decision allocate this amount between the Commonwealth and the States. Where the members fail to arrive at a unanimous decision the Commonwealth is entitled to a maximum of one-fifth of the total sum to be borrowed. Of the balance, each State is entitled to an amount in the proportion which its net loan expenditure during the preceding five years bears to the aggregate for all the States.

The Commonwealth Grants Commission

Section 96 of the Commonwealth Constitution provides that the States may be granted financial assistance and Western Australia has regularly received assistance under this provision. In 1933 the Commonwealth Parliament passed the Commonwealth Grants Commission Act establishing a Commission of three members to inquire into and report on applications made by States for grants of financial aid. During the initial period of its work the Commonwealth Grants Commission considered compensation for

disabilities arising from Federation as a possible basis upon which its recommendations should be made. It considered also the basis of financial need. In its Third Report, submitted in 1936, the Commission finally rejected the principle of compensation for disabilities arising from Federation, and chose instead the principle of financial need, having come to the conclusion that "special grants are justified when a State through financial stress from any cause is unable efficiently to discharge its functions as a member of the Federation and should be determined by the amount of help found necessary to make it possible for that State by reasonable effort to function at a standard not appreciably below that of other States." Another essential feature of special grants, noted in the Commission's Second Report, is that they are "continuous in principle with other transfers of Commonwealth revenue to the States. They should be the amount required to complete the work begun by other transfers, and to reduce the financial inequality of the States sufficiently for the harmonious and effective working of Federal Government."

In each year from 1934-35, in respect of which the Commission made its first recommendation, Western Australia's application has resulted in a special grant. The amounts received in each year from 1961-62 to 1965-66 after an annual authorization by the Commonwealth Parliament under a States Grants (Special Assistance) Act is shown against the item "Special Grants" in the table on page 215.

Tax Reimbursements

With the passage of enabling legislation in 1942, the Commonwealth Government became the sole taxing authority in the field of income tax. At the time of introduction of this "uniform tax scheme," Western Australia was levying three separate taxes on incomes. These were income tax on individuals and on companies, a hospital fund contribution and a tax on the profits of gold-mining companies. The States Grants (Income Tax Reimbursement) Act of 1942 provided for the payment to each State of a fixed annual amount by way of financial assistance to compensate for loss of revenue from income tax. The Act was repealed in 1946 by the States Grants (Tax Reimbursement) Act which prescribed a fixed grant for each of the financial years 1946-47 and 1947-48 and, for subsequent years, an amount to be varied in accordance with changes in population and in average wages per person employed.

Special and Additional Financial Assistance

With the increasing financial needs of the States it became necessary for the Commonwealth Government to make grants in excess of those prescribed by the States Grants (Tax Reimbursement) Act 1946-1948. Financial aid was extended by a States Grants (Special Financial Assistance) Act passed in each year from 1951 to 1958 and by the States Grants (Additional Assistance) Acts of 1958, 1962, 1963 and (No. 2) 1963.

Financial Assistance Grants

The States Grants Act 1959 repealed the States Grants (Tax Reimbursement) Act and provided for a new system of annual payments which are described as "Financial Assistance Grants." The Act incorporated an arrangement, unanimously agreed to by the States at a Premiers' Conference in June, 1959, which was designed to eliminate the need for supplementary grants in the form of Special Financial Assistance and to reduce to a marginal level the special grants provided for under the Commonwealth Grants Commission Act 1933-1957.

The amount of the Financial Assistance Grant to Western Australia for 1959-60, the first year of operation of the scheme, was prescribed by the Act as \$50,924,000. The grant was essentially a *per capita* payment, which varied as between States. For each year subsequent to 1959-60, this *per capita* payment was increased, if average wages paid in Australia as a whole increased in the preceding year, by a percentage equal to 1.1 times the percentage rise in average wages. By this means, not only were the effects on State finances of population changes and wage increases taken into account but a "betterment factor" was also introduced to enable a State Government to extend the range or improve the standard of its services.

The Act was repealed by the States Grants Act 1965 which gives effect to an agreement, reached at a Premiers' Conference held at Canberra in June, 1965, on a revised arrangement to operate for a period of five years from the 1st July, 1965. Under this arrangement the amount of the annual grant continues to be related to changes in a State's population and in the level of wages paid in Australia as a whole. The grant payable in respect of any year is determined by adjusting the amount of the previous year's grant for these two factors and increasing the result by 1.2 per cent. The Act provides that the system may be reviewed in relation to grants for any year subsequent to 1969-70.

Other Financial Assistance

As well as providing general financial assistance to the States by means of grants, the Commonwealth Government has allocated to them funds for specific purposes. These include moneys for roads (see letterpress, Chapter IX, Part 2), railway standardization (Chapter IX, Part 2), the tuberculosis campaign (Chapter V, Part 5), mental health institutions (Chapter V, Part 5), universities, colleges of advanced education and approved research projects (Chapter V, Part 1) and also, in the case of Western Australia, for water supply (Chapter VII, Part 2) and the development of the part of the State north of 20° S. latitude (Chapter VII, Part 2). These payments, together with various forms of assistance to industries and contributions for road safety practices, blood transfusion services, housekeeper services and the relief of natural disasters, are made from the Consolidated Revenue Fund. In addition, finance for housing (see letterpress, Chapter V, Part 4) is provided from Loan Fund, for social services and health services (Chapter V, Part 5) and home savings grants (Chapter V, Part 4) from the National Welfare Fund, for war and service pensions (Chapter V, Part 5) aged persons' homes and the accommodation of disabled persons (Chapter V, Part 3) and assistance to schools in science teaching and technical training (Chapter V, Part 1) from Consolidated Revenue and for war service land settlement (Chapter VII, Part 1) from Consolidated Revenue and from Loan Fund.

FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA

Consolidated Revenue Fund

The following table gives particulars of payments made by the Commonwealth Government from Consolidated Revenue Fund to or on behalf of the Government of Western Australia in each of the financial years 1961-62 to 1965-66. Subsidy and bounty payments are not included, as particulars are not available for individual States.

COMMONWEALTH CONSOLIDATED REVENUE FUND FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA (a) (\$'000)

Nature of Payment	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Financial Agreement—					
Interest Contributions on State Debts	947	947	947	947	947
Sinking Fund on State Debts	1,306	1,403	1,519	1,616	1,726
Special Grants (b)	12,312	12,420	12,144	17,120	24,038
Financial Assistance Grants	60,171	62,480	65,597	70,498	78,474
Additional Assistance Grants (c)	1,320	2,728	3,764	.....	.....
Commonwealth Aid Roads—					
Grants	15,424	16,164	16,988	21,945	22,618
Additional Grants	2,103	2,811	3,538	1,062	2,121
Eyre Highway—Contribution to Maintenance	25	25	25	25	25
Road Safety Practices	16	17	16	17	16
Railway Standardization Agreement (d) .....	.....	4,325	7,526	10,265	17,828
Tuberculosis Act—Reimbursement of Capital Expenditure	24	67	44	11	2
Mental Institutions—Contribution to Capital Expenditure	154	116	332	447	338
Grants for Universities	1,988	2,300	2,756	3,000	3,053
Grants for Science Laboratories .....	.....	.....	.....	708	502
Grants for Technical Training .....	.....	.....	.....	714	269
Grants for Colleges of Advanced Education .....	.....	.....	.....	.....	232
Grants for Research Projects .....	.....	.....	.....	.....	142
Water Resources Investigation and Measurement—					
Underground .....	.....	.....	.....	84	95
Surface .....	.....	.....	.....	52	116
Water Supply	122	.....	.....	.....	(e) 1,250
Exmouth Township Development .....	.....	.....	.....	380	750
Development of North Western Australia (f)	3,410	2,864	2,166	2,568	2,266
Replacement of Derby Jetty (g) .....	.....	600	700	300	.....
Encouragement of Meat Production	6	.....	.....	.....	.....
Beef Cattle Roads Grant	1,000	1,400	1,500	1,500	1,500
Dairy Industry Extension Grant	34	42	50	48	50
Expansion of Agricultural Advisory Services	54	52	54	54	54
Natural Disaster Payments	(h) 387	.....	.....	.....	.....
Coal Mining Industry Long Service Leave	30	31	30	32	34
Blood Transfusion Services	32	35	37	42	44
Housekeeper Services	2	2	2	1	1
Migrant Centre .....	.....	.....	34	.....	.....
TOTAL	100,868	110,830	119,770	133,437	158,492

(a) Excludes subsidy and bounty payments. Payments from the National Welfare Fund and War and Service Pension payments are also excluded. (b) See letterpress *The Commonwealth Grants Commission* on pages 213-14. (c) The amounts shown represent Western Australia's share of grants of \$20 million, \$35 million and \$40 million made to the States for the stimulation of employment, in terms of the States Grants (Additional Assistance) Acts of 1962, 1963 and (No. 2) 1963.

(d) Includes repayable advances: 1962-63, \$2,544,000; 1963-64, \$4,427,000; 1964-65, \$6,088,000; 1965-66, \$10,487,000. (e) Repayable advance. (f) Includes repayable advances: 1963-64, \$350,000; 1964-65, \$550,000; 1965-66, \$577,000. (g) Includes repayable advances: 1962-63, \$300,000; 1963-64, \$350,000; 1964-65, \$150,000. (h) Includes an amount of \$87,000 in respect of personal relief.

National Welfare Fund

The National Welfare Fund was established in 1943 by the National Welfare Fund Act passed by the Commonwealth Parliament in that year. The purpose of the Fund is to provide for the payment of social service and health benefits. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year by transfer from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

NATIONAL WELFARE FUND—PAYMENTS IN WESTERN AUSTRALIA (a)
(\$'000)

Pension or Benefit	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Social Services—					
Age and Invalid Pensions	24,344	25,582	27,373	29,413	30,760
Rehabilitation Service	157	149	162	174	187
Funeral Benefits	52	51	55	59	66
Widows' Pensions	2,371	2,377	3,115	3,463	3,602
Unemployment, Sickness and Special Benefits—					
Unemployment	1,452	1,438	1,403	842	363
Sickness	381	505	522	512	457
Special	53	63	54	46	47
Maternity Allowances	559	552	546	534	536
Child Endowment	10,205	10,485	12,994	13,406	13,624
National Health Services—					
Hospital Benefits (b)	3,996	4,189	4,705	4,987	5,286
Medical Benefits (c)	1,883	2,026	2,161	3,056	3,387
Medical Benefits for Pensioners	572	632	648	660	953
Pharmaceutical Benefits	3,589	3,844	3,856	3,824	4,205
Pharmaceutical Benefits for Pensioners	1,220	1,317	1,386	1,470	1,665
Milk for School Children	526	584	615	637	619
Tuberculosis Campaign—					
Allowances	80	85	89	80	61
Maintenance (d)	793	800	751	742	697
Miscellaneous (e)	35	25	27	30	28
Home Savings Grants .....	....	....	....	699	762
TOTAL	52,270	54,705	60,460	64,635	67,316

(a) For conditions applying to payment of social service and health benefits, see Chapter V, Part 5. (b) For details, see table *Hospital Benefits—Western Australia* on page 196. (c) For details, see table *Medical Benefits—Western Australia* on page 197. (d) Figures exclude payments and reimbursements from Commonwealth Consolidated Revenue Fund in respect of capital expenditure by the State Government; see preceding table. (e) See letterpress *Miscellaneous Health Services* on page 200.

COMMONWEALTH TAXATION COLLECTIONS IN WESTERN AUSTRALIA

The taxes levied in Western Australia by the Commonwealth Government are listed in the following table, which shows the net amounts collected in each year from 1961-62 to 1965-66.

COMMONWEALTH TAXATION—NET COLLECTIONS IN WESTERN AUSTRALIA
(\$'000)

Tax, Duty, Charge or Levy	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Customs Duties	6,846	8,574	9,782	10,077	13,363
Excise Duties	35,624	35,874	37,746	43,083	53,077
Sales Tax	17,650	18,926	19,109	20,055	23,062
Income Tax and Social Services Contribution	82,609	84,981	94,018	119,240	130,675
Pay-roll Tax	7,014	7,373	8,045	8,746	10,192
Estate Duty	1,550	1,075	1,459	1,784	1,652
Gift Duty	258	290	488	479	611
Wool Tax (a)	631	668	778	1,756	2,283
Stevedoring Industry Charge (a)	764	879	941	939	961
Export Charges on Primary Products (a)	44	64	68	46	41
Tobacco Charge (a)	3	1	....	....	....
Dairy Produce Levy (a) (b)	29	26	27	30	(c) 3
Canning-fruit Charge (a)	(d)	(d)	(d)	(d)	....
Cattle Slaughter Levy (a) (e)	27	52	65	101	....
Honey Levy (a) (f) .....	....	(d)	7	9	9
Livestock Slaughter Levy (a) (g)—					
Cattle .....	....	....	....	32	93
Sheep and Lambs .....	....	....	....	9	28
Butter Fat Levy (a) (h) .....	....	....	....	....	65
TOTAL	153,049	158,783	172,534	206,384	236,116

(a) Transferred to Trust Funds or relevant authorities and used for purposes of the industry concerned. (b) Replaced by Butter Fat Levy from 1st July, 1965. (c) Arrears; see note (b). (d) Less than \$500. (e) Discontinued 1st August, 1964; see note (g). (f) Introduced 1st March, 1963. (g) Operative from 1st August, 1964; see note (e). (h) Operative from 1st July, 1965; see note (b).

It is important to note that, although the figures shown in the preceding table represent the amounts of taxes actually collected in Western Australia, they do not necessarily indicate the amounts contributed by the people of the State, as moneys may be collected in one State in respect of goods consumed or assessments made in other States. Further, administrative arrangements for the collection of certain taxes are such that a large proportion of the revenue (or, as in the case of Wheat Tax, the whole of the revenue) is brought to account in a State other than Western Australia.

STATE GOVERNMENT FINANCE

Moneys collected and expended by the State Government are dealt with through accounts based on funds of three types, the Consolidated Revenue Fund, the General Loan Fund and Trust Funds. The transactions of these Funds are summarized in the Public Accounts prepared each year by the Treasurer and in the Financial Statement presented to the Parliament by the Treasurer in introducing the annual budget.

Consolidated Revenue Fund

All State revenues, apart from those which are credited to trust or special accounts, are paid into the Consolidated Revenue Fund. Disbursements from the Fund are authorized by the Parliament, each year under an Appropriation Act, or under Special Acts subject to periodical review. Among the permanent appropriations by Special Acts are such items as the salaries of the Governor, the Judges of the Supreme Court and Members of Parliament, interest charges on the public debt, contributions to the Public Debt Sinking Fund, payments to the State Superannuation Fund and the annual subsidy to the University of Western Australia.

The principal sources of revenue, as shown in the following table, are the grants and other financial assistance received from the Commonwealth Government; the income of public utilities; departmental revenues from reimbursements, fees and services; taxation; and territorial revenues.

The payments made to Western Australia by the Commonwealth Government from Consolidated Revenue during each of the years from 1961-62 to 1965-66 appear in the table on page 215. Not all of these moneys are paid to the State Consolidated Revenue Fund, as some of them are provided for specific purposes and are therefore paid to trust or other accounts.

CONSOLIDATED REVENUE FUND—SOURCES OF REVENUE (\$'000)

Nature of Revenue	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Collected by the State—					
Taxation (a)	12,926	14,762	17,604	19,512	22,574
Territorial Revenues (b)	3,283	3,501	3,751	4,107	4,598
Public Utilities—					
Railways	33,651	33,817	34,929	36,381	41,864
Water Supplies, Sewerage and Drainage	8,306	9,224	9,968	(c) 2,906	(c) 3,308
Other Public Utilities	500	518	480	491	511
Departmental Revenue—Reimbursements, Fees, etc.	16,549	18,134	20,948	26,712	28,753
Other	1,208	1,373	1,222	1,468	1,589
Total	76,422	81,334	88,901	(c) 91,578	(c) 103,196
Received from the Commonwealth (d)—					
Interest on State Debts	947	947	947	947	947
Special Grants	12,312	12,420	12,144	17,120	24,038
Financial Assistance Grants	60,171	62,481	65,597	70,498	78,474
Additional Financial Assistance			300		
Total	73,430	75,847	78,988	88,565	103,459
GRAND TOTAL	149,852	157,182	167,888	(c) 180,143	(c) 206,655

(a) For net amounts collected, see table *Net Collections of State Taxation* on page 218. (b) Comprises revenue from sales, leases and licences relating to lands, timber and mining. (c) Excludes particulars of the Metropolitan Water Supply, Sewerage, and Drainage Board which replaced the former Metropolitan Water Supply, Sewerage and Drainage Department from 1st July, 1964. (d) See table on page 215.

In the five-year period ended 30th June, 1966, revenues collected by the State amounted to \$441 million. Of this total \$217 million (49.1 per cent.) came from public utilities, the principal contributor being government railways which accounted for \$181 million. Departmental revenues amounted to

\$111 million, or 25.2 per cent. of the total collected by the State. The main contributing Departments in 1965-66 were Treasury (\$16.7 million, including \$15.6 million on account of interest and sinking funds), Harbour and Light (\$2.39 million), Forests (\$1.20 million), Printing (\$0.90 million), Public Works (\$0.84 million), Education (\$0.78 million), Agriculture (\$0.72 million), and Police (\$0.70 million).

The figures appearing against the item "Taxation" comprise Consolidated Revenue Fund receipts from probate and succession duties, stamp duties, land tax, entertainment tax, liquor licences, totalisator duty and licences, bookmakers' turnover tax, bookmakers' licences, Totalisator Agency Board betting tax, betting investment tax, and certain other licences. Some account of the rates and conditions applying to these and other levies is given in the *Western Australian Pocket Year Book*.

Territorial revenues are those derived from sales of Crown land and the issue of leases, licences and permits in connexion with land, mining and timber. Reference to the several types of tenure in these categories will be found in Chapter VII, Part 1—*Land Tenure and Settlement*.

The following table gives details of net collections of State taxation. Payments to trust or special accounts as well as to Consolidated Revenue are shown.

NET COLLECTIONS OF STATE TAXATION
(\$'000)

Nature of Tax	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Paid to Consolidated Revenue Fund—					
Probate and Succession Duties	3,018	3,074	3,069	3,006	3,924
Stamp Duties not elsewhere included	4,240	5,342	6,849	7,670	8,709
Land	2,498	2,499	2,646	2,831	3,324
Entertainments (a)	108				
Liquor Licences	1,057	1,382	1,809	1,927	2,013
Racing—					
Betting Tax—Totalisator Agency Board	646	1,114	1,355	1,680	1,794
Betting Investment Tax	360	419	440	514	549
Totalisator Duty	282	275	279	307	356
Bookmakers' Betting Tax and Licences	375	251	174	132	134
Stamp Duty on Betting Tickets	118	85	64	58	56
Totalisator Licences	5	5	5	5	5
Stamp Duty on Totalisator Dividends	3	2	1	1	1
Motor Vehicle—					
Registration Fees (b)		23	29	51	24
Drivers' and Riders' Licences and Fees					
(b) (c)	32	29	92	127	168
Stamp Duty on Registration and Transfer			272	690	965
Third Party Insurance Surcharge		223	538	572	609
Other	(d)	6	4	11	6
Licences not elsewhere included	197	324	521	595	565
Total	12,939	15,052	18,146	20,176	23,203
Paid to Trust or Special Accounts—					
Motor Vehicle (e)—					
Registration Fees (f) (g)	5,755	6,293	6,852	7,406	8,944
Drivers' and Riders' Licences (g)	551	581	649	658	891
Road Maintenance					392
Transport Department Licences	162	166	199	248	315
Passenger and Carriers' Licences	43	40	42	39	25
Taxi Control Board Licences				17	15
Other	(d)	1	2	2	2
Other Vehicle Registration Fees	6	7	9	13	20
Metropolitan Region Improvement	471	371	390	474	489
Vermis	243	260	307	374	450
Noxious Weeds				56	82
Fruit Fly Eradication	34	35	36	42	41
Total	7,264	7,755	8,484	9,329	11,667
GRAND TOTAL	20,203	22,807	26,630	29,504	34,869

(a) Entertainments Tax discontinued from 1st January, 1962. (b) Part collections only; for amounts paid to Trust or Special Accounts, see below. (c) Includes Conductors' Licences. (d) Not available. (e) See letterpress *Finance for Roads*, Chapter IX, Part 2. (f) For purposes of comparison with other States, fees collected by local government authorities outside the Metropolitan Traffic Area have been treated as State Taxation and included here. See also table *Summary of Local Government Revenue* on page 226. (g) Part collections only; for amounts paid to Consolidated Revenue Fund, see above.

The amounts shown in the preceding table are grouped according to the nature of the tax rather than the method of collection. Thus stamp duties on betting tickets and revenue from bookmakers' licences and totalisator licences are included under the heading "Racing" and not under "Stamp Duties" or "Licences." It will be seen that, although the figures represent net collections, the aggregates of the amounts shown as payments to the Consolidated Revenue Fund exceed those appearing as taxation

revenue (gross) in the table on page 217. This is accounted for by the fact that some types of licences are not included under the heading of taxation in the Public Accounts, earnings from them being credited to departmental revenue. Items dealt with in this way include Drivers' and Riders' Licences and Fees as shown in the first part of the table, as well as licences relating to firearms; factories and shops; fishing, pearling and game; explosives; and marine collectors.

Motor vehicle taxation shown as paid to Consolidated Revenue under the heading "Stamp Duty on Registration and Transfer" is collected by authority of the Stamp Act, 1921-1967. An amendment to the Act, effective from the 31st December, 1963, imposed a duty, subject to certain statutory exemptions, on a motor vehicle licence or the transfer of a licence at the rate of \$1 for every \$200, or part of \$200, of the value of the vehicle to which the licence or transfer relates. A further amendment to the Act increased the rate to \$1.50 with effect from the 1st December, 1965.

The amount appearing against the item "Road Maintenance" represents moneys collected under the provisions of the Road Maintenance (Contribution) Act of 1965, which came into operation on the 1st April, 1966. The Act imposes a charge on the operations of commercial goods vehicles having a load capacity in excess of eight tons. Moneys are paid to a Roads Maintenance Trust Fund.

CONSOLIDATED REVENUE FUND
EXPENDITURE ACCORDING TO NATURE OF SERVICE
(\$'000)

Nature of Expenditure	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Expenditure on Public Utilities—					
Railways	34,507	34,068	35,340	36,965	40,300
Water Supplies, Sewerage and Drainage	6,762	7,333	8,036	(a) 5,441	(a) 5,852
Other	828	866	872	954	955
Total	42,097	42,267	44,247	(a) 43,360	(a) 47,106
Departmental Expenditure—					
Agriculture	2,374	2,581	3,047	3,215	3,519
Child Welfare and Outdoor Relief	1,529	1,447	1,586	1,720	1,879
Crown Law	1,448	1,599	1,772	1,976	2,189
Education	21,417	22,850	25,880	29,133	34,016
Forests (b)	892	972	1,090	1,248	1,297
Harbour and Light and Jetties	879	881	1,105	1,299	1,540
Lands and Surveys	1,861	2,183	2,353	2,408	2,616
Mental Health Services	2,497	2,670	2,836	3,152	3,481
Metropolitan (Perth) Passenger Transport					
Trust—Recoup of Loss	1,212	1,068	840	956	1,325
Mines	1,162	1,274	1,453	1,639	1,780
Native Welfare (c)	2,578	3,289	(c) 1,517	(c) 1,860	(c) 2,131
Police	4,127	4,264	4,633	5,166	5,529
Printing	1,110	1,357	1,384	1,449	1,631
Public Health	12,439	13,403	15,869	18,009	19,605
Public Works and Buildings	3,778	4,205	4,991	5,359	6,196
Western Australian Coastal Shipping Commission (d)—Recoup of Loss	2,112	2,323	2,452	2,805	2,481
Treasury	235	239	314	339	353
University of Western Australia—Additional Payments (b)	1,413	1,658	1,928	2,421	2,831
Other	13,373	11,864	12,966	15,540	19,571
Total	76,484	80,177	88,014	99,694	113,971
Expenditure under Special Acts—					
Forests Act (e)	1,805	1,823	1,956	2,152	2,363
Loan Acts (Public Debt)—					
Interest	22,271	24,551	25,925	28,223	31,023
Sinking Fund Contributions	4,979	5,429	5,847	6,446	6,903
Parliamentary Allowances	390	411	436	440	561
Superannuation Acts—Government Employees	2,098	2,243	2,410	2,587	2,709
University of Western Australia Act (e)	500	500	500	500	500
Other	923	1,031	1,071	1,131	1,205
Total	32,969	35,988	38,144	41,478	45,264
Other Expenditure	230	255	275	307	324
GRAND TOTAL	151,780	158,687	170,681	(a) 184,840	(a) 206,665

(a) Excludes particulars of the Metropolitan Water Supply, Sewerage, and Drainage Board which replaced the former Metropolitan Water Supply, Sewerage and Drainage Department from 1st July, 1964. (b) For expenditure under Special Acts, see below. (c) From 1st July, 1963 Native Welfare expenditure on Education, Health, Police, and Prisons is included in the expenditure of the Department concerned. (d) The Western Australian Coastal Shipping Commission replaced the former State Shipping Service with effect from 15th November, 1965. (e) For additional payments, see Departmental Expenditure above.

In the five-year period ended 30th June, 1966, expenditure under the heading "Departmental" amounted to \$458 million, or 52·5 per cent. of all expenditure from the Consolidated Revenue Fund. Education (\$133 million) and Public Health (\$79 million) together accounted for 46·4 per cent. of Departmental Expenditure. Other large items were those attributable to Public Works and Buildings (\$24·5 million), Police (\$23·7 million), Agriculture (\$14·7 million), Mental Health Services (\$14·6 million), and Lands and Surveys (\$11·4 million).

Expenditure on public utilities (\$219 million) amounted to 25·1 per cent. of the total, the predominant item being Railways (\$181 million).

Commitments under Special Acts accounted for \$194 million, or 22·2 per cent. of all expenditure. The principal amounts were those relating to Loan Acts (\$162 million) and legislation providing pensions for government employees (\$12·0 million).

The amount paid under the Forests Act, 1918-1964 represents nine-tenths of the net annual revenue of the Department and is credited to a fund for forests improvement and reforestation. The University of Western Australia Act, 1911-1964 provides for the payment of an annual subsidy of \$500,000 and "such additional amounts as may be appropriated by Parliament from time to time." In 1965-66 additional payments amounting to \$2·83 million were made from Departmental Expenditure. Further details of University finance are given in Chapter V, Part 1.

The particulars shown in the preceding table and in the table on page 217 are an abridged form of the presentation given in the Public Accounts. It is, of course, possible to present the figures of income and expenditure of the Consolidated Revenue Fund on other bases for particular purposes. One such grouping is a dissection according to function as in the following table. The classification used is one which was devised by the Conference of Australian Statisticians and has been summarized for the purposes of this table from a more detailed statement appearing in the *Statistical Register of Western Australia—Part II, Public Finance*.

CONSOLIDATED REVENUE FUND
REVENUE AND EXPENDITURE CLASSIFIED ACCORDING TO FUNCTION
(\$'000)

Function	Financial Year					
	1964-65			1965-66		
	Revenue	Expenditure		Revenue	Expenditure	
		Gross	Net		Gross	Net
Legislation	1	1,321	1,320	.....	1,318	1,318
General Administration and Services, not elsewhere included	110,225	6,986	Cr. 103,239	128,468	9,384	Cr. 119,084
Law, Order and Public Safety	1,388	8,554	7,165	1,515	9,381	7,866
Education	801	34,701	33,900	851	39,962	39,112
Cultural and Recreational Facilities .....	.....	1,081	1,081	.....	1,258	1,258
Public Health	871	21,568	20,697	896	23,530	22,634
Welfare	840	5,208	4,368	899	5,800	4,901
War and Defence .....	.....	25	25	.....	28	28
Immigration .....	.....	142	142	.....	266	266
Regulation of Trade and Industry and Industrial Safety	398	679	281	427	750	324
Development and Conservation of National Resources and Assistance to Industry	11,133	22,184	11,051	12,037	25,326	13,289
Transport and Communication	38,380	43,137	4,757	44,439	46,817	2,378
Housing	10	45	36	11	46	36
Banking and Insurance	129	51	Cr. 78	205	60	Cr. 145
Public Debt Charges	15,633	(a) 35,988	20,356	16,548	(a) 39,238	22,690
Miscellaneous	335	3,172	2,837	361	3,500	3,139
TOTAL	180,143	184,840	(b) 4,697	206,655	206,665	(b) 10

(a) Comprises the amounts shown under "Loan Acts (Public Debt)" in the preceding table and exchange on interest payments and other charges aggregating \$1,319,856 in 1964-65 and \$1,312,127 in 1965-66. (b) Published Budget deficit.

The table is designed to show (in respect of the Consolidated Revenue Fund only) the gross and net cost of each function of Government irrespective of the Department or Departments administering these functions. In cases where an activity is such that it involves more than one function, each of

its components has been included in that function which is considered to be the most appropriate. For example, in classifying expenditure attributable to child welfare, the custody and care of delinquent children is included under "Law, Order and Public Safety" and the education of children in institutions under "Education", only the balance being assigned to the item "Welfare".

The amount shown as revenue under the heading "General Administration and Services, not elsewhere included" is more than three-fifths of the total. The item includes receipts from the Commonwealth in the form of Special Grants and Financial Assistance Grants as well as Taxation collected by the State (see table on page 217), amounting in all to \$107.1 million in 1964-65 and \$125.1 million in 1965-66.

By a provision of the State Government Insurance Office Act, 1938-1965 the State Government Insurance Office is required to pay each year to the Treasury the equivalent of the amount of State taxes on profits or income that any insurance company, other than a life insurance company, would be liable to pay. The amounts shown as revenue under Banking and Insurance include sums of \$114,504 for 1964-65 and \$196,874 for 1965-66 in relation to such payments. The expenditure under the heading of Banking and Insurance comprises mainly reimbursements from the Treasury to The Rural and Industries Bank of Western Australia of administration expenses incurred in the conduct of its Government Agency Department. These recoups amounted to \$49,846 in 1964-65 and \$56,373 in 1965-66.

General Loan Fund and Public Debt

General Loan Fund—The first Loan Act in Western Australia was assented to in 1872 and gave authority for the raising of a loan for public works, mainly in connexion with harbours and rivers, for the purchase of the Perth-Fremantle telegraph line and for railway surveys in the Champion Bay district. A General Loan Fund was established by the Loans Consolidation Act of 1896 which provided for the merging in the Fund of all loan balances unexpended at the 30th June, 1896, and since that time the proceeds of each new loan have been paid to the credit of the General Loan Fund.

The principal net expenditures from the General Loan Fund during the five years ended 30th June, 1966 were those relating to Public Buildings (\$80.9 million), Water Supplies, Sewerage and Drainage (\$55.9 million), Railways, Tramways and Omnibuses (\$33.6 million), Harbours and Rivers (\$13.5 million), Housing (\$10.9 million), Electricity Supply (\$3.03 million) and Development of Agriculture (\$2.58 million).

NET LOAN EXPENDITURE (\$'000)

Nature of Expenditure	From 1872 to 30th June, 1961	Financial Year					From 1872 to 30th June, 1966
		1961-62	1962-63	1963-64	1964-65	1965-66	
Public Works, Services, etc.—							
Railways, Tramways and Omnibuses	145,332	5,432	6,204	7,496	6,800	7,628	178,892
Electricity Supply	41,847	300	500	....	794	1,434	44,876
Harbours and Rivers	36,188	2,587	2,438	3,028	2,822	2,583	49,646
Public Buildings—							
Schools	36,421	5,738	5,313	5,753	7,008	7,690	67,923
Hospitals	23,836	4,435	4,840	5,032	6,514	6,568	51,225
Other	10,085	1,858	3,267	4,844	6,426	5,650	32,132
Housing (a)	27,612	2,701	2,115	3,382	1,539	1,151	38,501
Water Supplies, Sewerage and Drainage	116,612	10,952	10,770	10,537	10,957	12,667	172,494
Development of Goldfields and Mineral Resources	15,389	154	174	113	126	401	16,358
Development of Agriculture	55,323	570	626	490	429	463	57,901
Miscellaneous	68,523	3,023	2,648	2,424	3,362	1,564	76,544
Total	572,168	37,751	38,894	43,100	46,779	47,800	786,492
Other Expenditure—							
Discounts and Flotation Expenses	10,820	Cr. 863	Cr. 2,257	Cr. 44	173	293	8,123
Revenue Deficits	34,308	1,120	1,909	564	6	....	37,907
Total	45,128	257	Cr. 348	520	179	293	46,030
GRAND TOTAL	617,296	38,008	38,546	43,620	46,958	48,093	832,521

(a) Excludes expenditure from Commonwealth loans under Commonwealth-State Housing Agreement.

Of the total expenditure of \$80.9 million on Public Buildings, \$31.5 million was spent on the construction of new schools, additions and improvements to existing schools, and technical education institutions, including The Western Australian Institute of Technology. Work on regional hospitals at Albany, Bunbury and Geraldton, a new mental hospital at Guildford, and new or improved hospitals in both metropolitan and country areas accounted for \$27.4 million. Other expenditure included the cost of work on the construction of a new administrative office building to house Government Departments, the completion of a remand home for boys and girls at Bentley, extensions to Parliament House and the Supreme Court building, the erection of a regional gaol at Albany and new police headquarters at Perth, new court houses and police stations and government offices at a number of centres, and additions to homes for the aged and infirm.

Expenditure on Water Supplies, Sewerage and Drainage included the cost of work on the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply, completion of Serpentine Reservoir and duplication of the Serpentine trunk main, the Ord River diversion dam and a weir on the Fitzroy River for the Liveringa project, developmental and improvement work in northern and south-west irrigation districts including the building of Logue Brook Dam and Waroona Dam, sewerage works construction and extension of services in the metropolitan area and in country towns, and water supplies for towns and stock routes in northern and north-western areas. An account of progress in the field of water conservation and supply is given in Chapter VII, Part 2.

Expenditure under the heading of Railways, Tramways and Omnibuses included the cost of new rolling stock, maintenance and renewals of permanent way, the construction of a new railway bridge over the Swan River at North Fremantle, land resumptions for, and construction of, marshalling yards at Kewdale, construction of a railway between bauxite deposits at Jarrahdale and alumina works at Kwinana, and contribution to costs of railway standardization. Advances were made to the Metropolitan (Perth) Passenger Transport Trust for the purchase of new omnibuses and the construction of workshops and an administrative headquarters. Reference is made to the operations of the Trust in Chapter IX, Part 2.

The amounts shown under the heading of Housing consist mainly of additional capital provided to the State Housing Commission for the erection of houses, land acquisition and development, and assistance to home builders. The expenditure, which relates only to the General Loan Fund, does not, of course, include moneys applied to the Commission's purposes from Commonwealth loans under the Commonwealth-State Housing Agreement. Reference to the Agreement and to the work of the State Housing Commission will be found in Chapter V, Part 4.

The principal works under the heading of Harbours and Rivers were those undertaken at the Port of Fremantle, including the building of a passenger terminal and new headquarters for the Fremantle Port Authority, the reconstruction of quays, dredging, and the installation of new mechanical equipment. Among other works were the construction of breakwaters and land-backed berths at Bunbury and Esperance, harbour improvements at Albany and Geraldton and at ports on the north and north-west coasts, including installation of new mechanical equipment at Carnarvon and the construction of a fishing-boat harbour at Fremantle.

Expenditure attributed to Electricity Supply includes amounts spent by the State Electricity Commission on a power station at Muja on the Collie coalfield, and the development of the South-West Power Scheme. The figures do not represent all of the Commission's expenditure as they refer only to the General Loan Fund and therefore exclude moneys available to the Commission from its own public loan raisings. The activities of the State Electricity Commission are described in Chapter VIII, Part 2.

Expenditure under the heading of Development of Agriculture includes the cost of additions to the buildings and laboratories of the Department of Agriculture at South Perth, improvements to research stations operated by the Department and to the Agricultural College at Muresk, land regeneration at the Ord River, advances made to Northern Developments (Ord River) Pty. Ltd. to assist the Company in developing a pilot farm in the vicinity of the diversion dam, and the provision of a cotton ginnyery at Kununurra.

Expenditure on the Development of Goldfields and Mineral Resources relates to moneys spent on assistance to prospectors, loans to mine owners, drilling in connexion with mineral exploration, hydrological drilling and miscellaneous works at various State Batteries. It also includes advances on account of the Wundowie Charcoal Iron and Steel Industry for expenditure on capital works.

The aggregate expenditure described as "Miscellaneous" amounted to \$13.0 million, of which \$2.09 million was used to provide additional capital for The Rural and Industries Bank of Western Australia and to finance advances by the Bank to primary and secondary industries. A further sum

of \$1.13 million was spent on account of the former State Shipping Service (replaced by the Western Australian Coastal Shipping Commission with effect from the 15th November, 1965) to meet instalment payments on ships, to provide for structural alterations to some of its fleet and expenditure on cargo containers and radar installations. The remaining expenditure relates to such items as industrial development and assistance to industry, the purchase and resumption of land for industrial purposes, pine planting, advances to the University of Western Australia for construction of buildings and purchase of equipment, to the Western Australian Tourist Development Authority for improvement of tourist facilities, and loans and grants to a number of welfare organizations.

Public Debt—Reference is made on page 213 to the National Debt Commission and its functions in relation to the public debts of the States.

Western Australia's gross public debt at the 30th June, 1966, was \$705 million, compared with \$523 million at the 30th June, 1961, representing an increase of \$182 million during the five years. Total raisings in the financial years 1961-62 to 1965-66 amounted to \$217 million and the value of securities repurchased and redeemed in Australia, London, New York and Canada by the National Debt Commission was \$35 million.

The following table presents a summary of public debt transactions in each year of the period between the 30th June, 1961 and the 30th June, 1966 and provides a reconciliation between public debt and the aggregate net loan expenditure to each of those dates as shown in the preceding table.

NET LOAN EXPENDITURE AND PUBLIC DEBT
(£'000)

Particulars	As at 30th June—					
	1961	1962	1963	1964	1965	1966
Debits—						
Aggregate Net Loan Expenditure	(a) 617,296	655,304	693,850	737,470	784,428	(a) 832,521
Inscribed Stock issued under Agricultural Bank Act	3,132	3,132	3,132	3,132	3,132	3,132
The Rural and Industries Bank of Western Australia Debenture Stock (b) .....	.....	.....	.....	2,134	2,134	2,134
Unexpended Balance of General Loan Fund	1	1	.....	5	78	38
Total Debits	620,430	658,437	696,982	742,741	789,773	837,825
Credits—						
Aggregate Redemptions	97,360	103,307	109,643	116,697	124,153	132,310
Over-expenditure from General Loan Fund .....	.....	.....	3	.....	.....	.....
Total Credits	97,360	103,307	109,646	116,697	124,153	132,310
Balance—Gross Public Debt	523,070	555,130	587,336	626,045	665,620	705,514
Amount of Public Debt Maturing in—						
Australia	455,939	486,850	515,465	550,362	591,340	632,794
London	60,864	60,824	62,754	66,853	65,844	64,796
New York	5,216	5,866	7,530	7,267	6,890	6,417
Canada	666	666	662	638	621	584
Netherlands .....	.....	539	539	539	539	539
Switzerland	385	385	385	385	385	385
Total—Gross Public Debt	523,070	555,130	587,336	626,045	665,620	705,514
Sinking Fund available for further Debt Redemption	94	222	485	442	473	267
Net Public Debt	522,976	554,908	586,851	625,603	665,147	705,247

(a) From preceding table. (b) Stock issued in connexion with the acquisition by the Government of the assets of The Midland Railway Company of Western Australia Limited (see Chapter IX, Part 2).

Trust Funds

Trust Funds are divided into three groups, Governmental, Private, and those which deal with moneys advanced by the Commonwealth Government for specific purposes.

The detailed list of Trust Fund transactions, as published quarterly in the *Statement of Receipts and Disbursements of Western Australia*, is an extensive one, and in the following summary only selected items are shown separately. They have been chosen as being among those under which the largest totals of receipts and expenditure, though not necessarily the largest balances, are recorded, and as giving some indication of the diverse nature of the government Trust Funds.

SUMMARY OF TRUST FUNDS—RECEIPTS AND EXPENDITURE
(\$'000)

Title of Account	Financial Year				Balance of Fund at 30th June, 1966
	1964-65		1965-66		
	Receipts	Expend- iture	Receipts	Expend- iture	
Governmental Trust Funds—					
Agriculture Protection Board	343	364	266	277	49
Crown Law Advance	5,196	5,341	5,876	5,825	132
Forests Improvement and Reforestation	3,271	3,028	3,557	3,700	471
Hospital Buildings and Equipment	1,277	1,629	1,450	1,472	35
Hospital Fund Contributions	20,937	20,937	22,837	22,837	....
Housing—					
Government Employees' Housing Authority .....	....	....	1,009	526	483
Kwinana Housing	228	260	248	292	5
State Housing Commission	20,046	19,034	18,462	22,316	3,595
Infant Welfare Centres	297	302	321	321	(a)
Insurance—					
Government Fire and Marine Insurance	976	959	1,616	1,445	215
Government Workers' Compensation	1,124	1,043	1,163	1,143	360
Railway Accident and Fire Insurance	214	233	214	153	347
State Insurance	7,779	7,790	9,053	9,078	9
Library Board of Western Australia	469	470	534	533	1
Metropolitan Region Improvement	1,682	1,748	1,995	2,144	84
Milk Board	238	242	399	321	84
Milk Board Investment Reserve	130	105	228	122	188
National Parks Board	293	282	317	330	10
Native Welfare Administration	1,904	1,910	2,194	2,144	50
Noxious Weeds	424	418	422	379	49
Plant Hire	2,392	2,428	1,880	3,784	172
Public Debt Sinking Fund	8,067	8,036	8,649	8,856	267
Railways Rolling Stock Replacement	1,007	1,466	1,045	787	1,899
Roads—					
Central Road Fund	5,734	13,020	7,666	7,666	....
Main Roads	12,525	7,864	11,657	9,892	8,656
Metropolitan Traffic	4,208	4,208	5,013	5,013	....
Roads Maintenance Trust .....	....	....	394	2	392
Rural and Industries Bank	3,773	1,593	2,261	1,924	2,554
State Electricity Commission Loans—Sinking Funds	284	164	435	555	745
Tourist Fund	404	443	489	420	141
Transport Co-ordination	947	910	1,248	1,190	222
Vernin Act	792	663	959	797	440
Western Australian Museum	162	154	184	179	20
Other	7,183	8,820	5,508	5,440	6,760
Total	114,306	115,865	119,547	121,862	28,434
Funds financed from Commonwealth Advances—					
Colleges of Advanced Education—Building Projects .....	....	....	232	168	64
Schools—Science Buildings and Equipment	711	391	513	730	102
Housing—					
Commonwealth-State Housing Agreement	14,097	13,409	16,669	16,710	2,537
Home Builders	3,055	3,037	3,575	3,442	170
War Service Homes	6,761	6,765	5,530	5,535	1
Petroleum Products Subsidy .....	....	....	1,578	1,459	119
Pharmaceutical Benefits	764	764	910	910	....
Roads—					
Beef Cattle Roads	1,561	1,561	1,639	1,639	....
Commonwealth Aid Roads Acts	36,442	34,492	41,116	41,238	1,829
Scholarship Scheme	557	553	666	670	1
South-West Region Water Supplies .....	....	....	1,250	1,250	....
Technical Training Buildings and Equipment	715	406	284	493	99
War Service Land Settlement	1,660	1,566	986	1,159	34
Other	693	3,003	764	784	632
Total	67,015	65,947	75,711	76,187	5,587
Private Trust Funds—					
Charitable Institutions	230	352	223	225	114
Clerk of Courts	3,650	3,641	4,083	4,088	130
Coal Mine Workers' Pensions	477	478	488	492	11
Coal Mine Workers' Pensions Investment Reserve	140	37	126	27	2,000
Country High School Hostels Authority	322	445	333	346	32
Public Trustee Common Fund	5,152	5,251	6,013	5,948	67
Superannuation Fund	8,133	8,020	8,278	8,167	411
Superannuation Investment Reserve	3,355	673	2,904	1	25,528
Workers' Compensation in Suspense	292	277	248	266	9
Other	2,828	2,603	2,318	2,168	2,459
Total	24,578	21,776	25,015	21,728	30,762
GRAND TOTAL	205,900	203,589	220,272	219,778	64,783

(a) Less than \$500.

of private roadways, the provision of street nameplates and seats, street tree planting and street lighting. Other costs are those connected with health, sanitation and garbage services, capital and maintenance expenditure on property and on vehicles and other plant. Some of the items included under the general heading of Public Works and Services are financed only partly from revenue, the remaining expenditure being from loan funds (see table on page 228).

Grants and Donations—Many of the local authorities make annual contributions as required by the Fire Brigades Act towards the maintenance of fire brigades, while grants are also made in some cases to hospitals and ambulances, to infant health clinics where they are not under the direct control of the local authority concerned, to other local organizations and to the Western Australian State Symphony Orchestra.

Electricity Undertakings—The figures shown for expenditure of electricity undertakings exclude amounts appropriated from profits to the general account of the local authority concerned.

SUMMARY OF LOCAL GOVERNMENT EXPENDITURE
(Exclusive of Loan Expenditure)
(\$'000)

Nature of Expenditure	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
General Administration	1,956	2,319	2,538	2,740	3,131
Debt Services (a)—					
Interest and other Charges	1,262	1,677	1,894	2,065	2,292
Redemptions	2,038	2,546	2,834	3,138	3,573
Total—Debt Services (a)	3,301	4,223	4,728	5,203	5,864
Public Works and Services—					
Roads, Paths and Bridges—					
Construction and Maintenance	6,057	7,029	8,086	9,762	11,044
Other Road Work	572	633	582	651	519
Street Lighting	288	410	441	477	509
Property and Plant—					
Parks, Gardens and Recreational Facilities	2,256	2,238	2,585	2,575	2,870
Halls and other Buildings	1,060	1,759	1,600	1,763	2,578
Vehicles and Plant	1,252	1,531	1,976	2,410	2,358
Other Property	571	938	1,591	1,023	1,005
Other Public Works and Services—					
Sanitary and Garbage Services	989	1,280	1,331	1,366	1,461
Other Health Services	439	532	542	639	617
Water Supply	106	118	125	153	156
Sundry Works and Services	1,081	1,331	1,771	2,212	2,746
Total—Public Works and Services	14,670	17,798	20,530	23,032	25,863
Grants and Donations—					
Fire Brigades	233	266	296	300	335
Hospitals and Ambulances	14	21	21	21	22
Other	87	116	122	161	166
Total—Grants and Donations	334	403	440	482	522
Electricity Undertakings (including debt services) (b)	1,322	1,671	1,746	1,873	2,273
Other Expenditure	601	446	637	577	520
GRAND TOTAL (b)	22,185	26,859	30,618	33,907	38,174

(a) Excludes debt services of Electricity Undertakings.

(b) Figures exclude amounts appropriated to general revenue as profits from electricity undertakings.

Loan Transactions

Under the provisions of the local government legislation, local government authorities are constituted as corporate bodies and are authorized to raise loans for works and undertakings and for the liquidation of existing loan debts. The conditions imposed by the Local Government Act, 1960-1967 in relation to loan raisings, the levying of loan rates, the expenditure of loan moneys and the repayment of loans are summarized in the section *The Local Government System* in Chapter III.

Loans are raised mainly from banks, insurance companies and superannuation funds. The State Government exercises a measure of supervision over the loan transactions of local government authorities and, where a loan is repayable in full at maturity, maintains the necessary sinking fund at the Treasury.

The following table gives a dissection of the loan receipts and expenditure of local government authorities in each financial year during the period from 1961-62 to 1965-66.

LOCAL GOVERNMENT LOAN RECEIPTS AND EXPENDITURE
(\$'000)

Item	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
RECEIPTS					
Ordinary Services	4,967	6,639	5,994	6,701	6,942
Health Services	407	343	193	176	81
Water Supply	30	95	80	78	139
Electricity Undertakings	393	591	713	907	602
Total	5,797	7,668	6,980	7,862	7,764
EXPENDITURE					
Roads, Paths and Bridges	1,687	1,505	1,774	1,951	1,910
Property and Plant	2,401	3,909	2,587	2,717	3,198
Parks, Gardens and Recreational Facilities	1,182	1,148	1,051	976	1,742
Water Supply	21	87	109	59	117
Electricity Undertakings	311	588	509	862	783
Other Works and Services	201	195	168	261	296
Redemptions	14	11	8	7	2
Other Loan Charges, Transfers, etc.	604	518	428	280	142
Total	6,421	7,960	6,634	7,113	8,190

The following table shows the aggregate local government loan debt outstanding at the 30th June of each year during the period from 1962 to 1966.

LOCAL GOVERNMENT LOAN DEBT
(\$'000)

Nature of Debt	At 30th June—				
	1962	1963	1964	1965	1966
Loan Debt Outstanding	31,474	36,329	40,293	44,723	48,696
Sinking Fund Balances	187	116	127	140	151
Net Loan Debt	31,287	36,214	40,166	44,584	48,545
Net Loan Debt on Account of—					
Ordinary Services	28,225	32,442	35,733	39,327	42,864
Health Services	1,067	1,320	1,432	1,509	1,500
Water Supply	389	452	492	525	644
Electricity Undertakings	1,606	2,000	2,508	3,222	3,536
Total—Net Loan Debt	31,287	36,214	40,166	44,584	48,545

CHAPTER VI — *continued*

PART 2 — PRIVATE FINANCE

CURRENCY

The power to legislate with respect to currency, coinage and legal tender and the issue of paper money is vested by the Constitution in the Commonwealth Parliament. This power was originally exercised by the Commonwealth Government under the Coinage Act of 1909 and the Australian Notes Act of 1910. The legislation now in force comprises the Reserve Bank Act 1959–1966, the Currency Act 1965, and the Decimal Currency Board Act 1963–1965.

Prior to the introduction of a decimal currency in February, 1966 the Australian monetary system was based on that used in the United Kingdom and therefore had as its unit the pound (£) divided into 20 shillings (s.) each of 12 pence (d.). When the Australian currency was first introduced, the Australian pound was identical in value with the pound sterling. Following a gradual depreciation of the Australian pound in terms of sterling during 1930 and 1931, it was stabilized from the 3rd December, 1931 at the rate of £125 Australian = £100 sterling.

In February, 1959 the Decimal Currency Committee was appointed by the Commonwealth Government to investigate the advantages and disadvantages of a decimal currency and, if a decimal currency was favoured, to make recommendations concerning the unit of account and denominations of subsidiary currency most appropriate for Australia, the method of introduction and the cost involved. The Committee presented its report in August, 1960, and in April, 1963 the Commonwealth Government announced that, in accordance with the recommendations of the Decimal Currency Committee, a system of decimal currency was to be introduced in Australia. The tentative changeover date was set for February, 1966.

The Currency Act 1965, which replaced the Coinage Act 1909–1947, provides for the adoption of a monetary unit, known as the “dollar”, equivalent in value to ten shillings in the currency previously in use. The dollar is divided into 100 minor units, or “cents”. Coins are in the denominations of 50 cents (silver); 20, 10 and 5 cents (cupro-nickel); and 2 cents and 1 cent (bronze). Minting of the new coins took place at the Royal Mint, London, its Branches at Melbourne and Perth, and at the Royal Australian Mint, Canberra. The Reserve Bank Act 1965, which came into operation on the 14th February, 1966, authorizes the issue of notes in the denominations of one dollar, 2, 5, 10, 20 and 50 dollars, or in any other denomination that the Treasurer determines. The initial issue of one dollar, 2, 10 and 20 dollar notes was made on the 14th February, 1966. Notes in the denomination of 5 dollars were first issued on the 29th May, 1967.

Australian notes are legal tender in Australia to any amount, coins of the denomination of 5, 10, 20 or 50 cents for amounts not exceeding five dollars, and bronze coins for amounts up to and including twenty cents.

The changeover to decimal currency in Australia took place on the 14th February, 1966. During a transitional period, the new and the old currency systems operated simultaneously. In terms of a proclamation made under the provisions of the Currency Act and published in the *Commonwealth of Australia Gazette* of the 8th June, 1967, this period was officially terminated with effect from the 1st August, 1967.

Rates of Exchange

At the 31st December, 1966 the par value of the Australian dollar (\$A1), as agreed with the International Monetary Fund, was eight shillings (£stg 0.4) in terms of sterling currency, and \$US 1.12 in terms of American currency.

The following table shows the average telegraphic transfer selling rates of exchange for Sydney (New South Wales) on a selection of oversea countries. The figures appearing in the table, which are averages of daily quotations, are based generally on rates quoted by the Commonwealth Trading Bank of Australia. For China (Mainland), the Union of Soviet Socialist Republics and the United Arab Republic these rates were not available, and the figures shown for these countries represent the rates used by the Department of Customs and Excise in converting import values to \$A for the purpose of calculating customs duty.

**OVERSEA EXCHANGE RATES—AVERAGE TELEGRAPHIC TRANSFER SELLING RATES
SYDNEY ON OVERSEA COUNTRIES : DECEMBER, 1966**

Country	Basis of Quotation	Australian Currency Equivalent	Country	Basis of Quotation	Australian Currency Equivalent
Belgium	Francs to \$A1	55.30	New Zealand	\$A to £100 N.Z.	249.08
Canada	Dollars to \$A1	1.20	Norway	Kroner to \$A1	7.90
Ceylon	Rupees to \$A1	5.27	Pakistan	Rupees to \$A1	5.28
China (Mainland) (a)	New Yuan to \$A1	2.74	Singapore	Dollars to \$A1	3.40
Denmark	Kroner to \$A1	7.63	South Africa	Rands to \$A1	0.795
France	Francs to \$A1	5.48	Sweden	Kronor to \$A1	5.72
Germany, Federal Republic of	Deutsche Marks to \$A1	4.39	Switzerland	Francs to \$A1	4.79
Hong Kong	Dollars to \$A1	6.36	Union of Soviet Socialist Republics (a)	Roubles to \$A1	1.004
India	Rupees to \$A1	8.33	United Arab Republic (a)	£E to \$A1	0.478
Italy	Lire to \$A1	690.00	United Kingdom	\$A to £100 stg	251.00
Japan	Yen to \$A1	400.84	United States of America	Dollars to \$A1	1.11
Netherlands	Guilders to \$A1	4.00			

(a) Rate of exchange used in converting import values to Australian currency for the purpose of calculating customs duty; see letterpress immediately preceding table.

BANKING

The banking system in Western Australia comprises the Commonwealth banking institutions, The Rural and Industries Bank of Western Australia and the private trading banks.

Commonwealth Banking Institutions

Prior to the operation of the Reserve Bank Act and the Commonwealth Banks Act, passed by the Commonwealth Parliament in 1959, the Commonwealth banking institutions were the Commonwealth Bank, the Commonwealth Trading Bank and the Commonwealth Savings Bank. The Commonwealth Bank, in addition to performing the functions of a central bank, controlled the Australian note issue through a Note Issue Department and also provided special banking facilities through the Rural Credits Department, the Mortgage Bank Department and the Industrial Finance Department. The policy of the Banks was determined by a Commonwealth Bank Board.

The Reserve Bank Act 1959 repealed the Commonwealth Bank Acts, the first of which was passed in 1911, and established the Reserve Bank of Australia under the control of a Reserve Bank Board. The Reserve Bank was constituted as the central bank and took over the Note Issue Department and the Rural Credits Department of the former Commonwealth Bank. The function of the Rural Credits Department is to make available to statutory authorities or co-operative associations of primary producers advances to assist the marketing or processing of primary products.

The Commonwealth Banks Act 1959 constituted the Commonwealth Banking Corporation, which came into being on the 14th January, 1960 as the authority responsible for the operations of the Trading Bank, the Savings Bank and a new Development Bank. The Development Bank was formed basically from the Mortgage Bank Department and the Industrial Finance Department of the Commonwealth Bank, to provide finance and advice to persons to assist them in primary production or in the establishment or development of industrial undertakings, particularly small enterprises.

The Rural and Industries Bank of Western Australia

The Rural and Industries Bank of Western Australia was established by the State Government under the Rural and Industries Bank Act of 1944 to replace the former Agricultural Bank of Western Australia. The Bank consists of a Rural Department and a Government Agency Department, and management is vested in five Commissioners. The Rural Department provides general banking services, and since 1956 has also conducted savings bank business through a Savings Bank Division.

Trading Banks

The nine trading banks conducting business in Western Australia comprise the Commonwealth Trading Bank of Australia, The Rural and Industries Bank of Western Australia (Rural Department) and seven private trading banks.

The private banks, each of which has its head office either in London or in another State, are the Australia and New Zealand Bank Limited, The Bank of Adelaide, the Bank of New South Wales, The Commercial Bank of Australia Limited, The Commercial Banking Company of Sydney Limited, The English, Scottish and Australian Bank, Limited and The National Bank of Australasia Limited. The operations of trading banks are governed by the Banking Act 1959-1967 (Commonwealth) which places them under a degree of control by the central bank, the Reserve Bank of Australia.

The following table shows the averages of total amounts on deposit with the trading banks and of their outstanding advances during each of the years 1961-62 to 1965-66. The figures relate to Western Australian business only and represent the annual average of amounts as at the close of business each Wednesday. The information is prepared from returns furnished under the requirements of the Banking Act 1959-1967 by all trading banks except The Rural and Industries Bank of Western Australia, which supplies information by special arrangement.

TRADING BANKS—AVERAGES OF AMOUNTS ON DEPOSIT AND OF ADVANCES (a)
(\$'000)

Particulars	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Amounts on Deposit—					
Not bearing Interest—					
Australian Governments	1,152	1,092	1,238	1,356	1,734
Other	139,864	143,248	154,882	159,486	174,565
Bearing Interest—					
Australian Governments	30	20	62	1,586	3,101
Other—Current	7,948	9,336	11,280	12,686	13,875
Fixed	60,280	66,256	74,806	97,316	117,160
Total	209,274	219,952	242,268	272,480	310,432
Loans, Advances and Bills Outstanding (b)	139,204	153,528	164,878	186,000	195,190
Ratio of Advances to Deposits (per cent.)	66.5	69.8	68.1	68.3	62.9

(a) Figures revised since previous issue.

(b) Excludes loans to authorized dealers in the short-term money market.

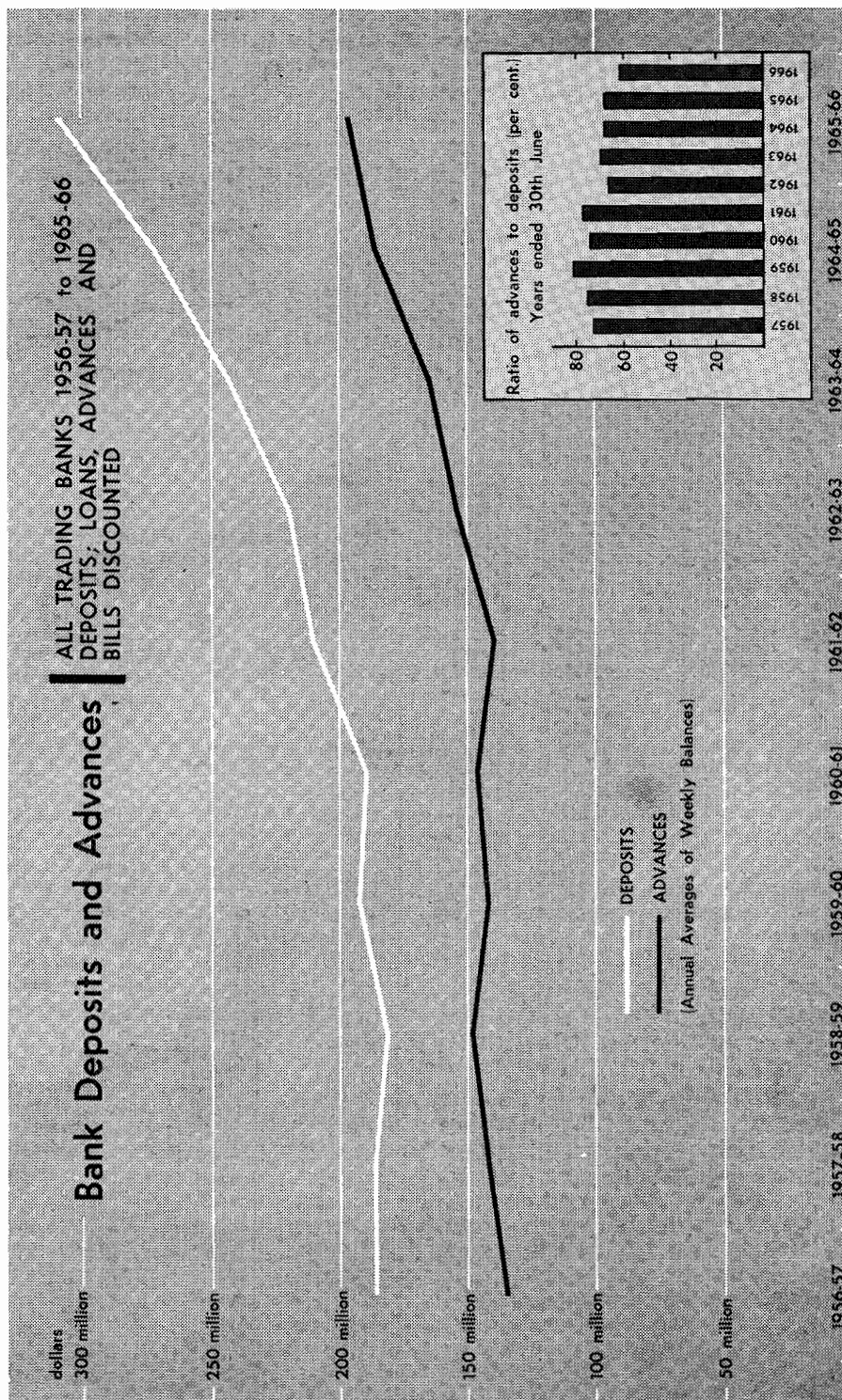
In July, 1966 the outstanding advances of the trading banks, excluding The Rural and Industries Bank of Western Australia, amounted in total to \$167.4 million. Business advances represented \$133.4 million, personal advances \$28.7 million, advances to non-profit organizations \$3.66 million, and to public authorities other than the Commonwealth and State Governments \$1.62 million. Business advances were mainly for rural industry (\$59.3 million), for retail and wholesale trade (\$32.5 million) and for manufacturing (\$13.0 million). Of the personal advances, loans for the building or purchasing of homes accounted for \$14.4 million.

In the following table, which relates to Western Australian business only, the average amount on deposit with each trading bank and the average of its outstanding advances during the month of June, 1966 are shown, together with the number of branches and agencies of each bank at the 30th June, 1966.

TRADING BANKS—BRANCHES, AGENCIES, DEPOSITS AND ADVANCES : JUNE, 1966

Bank	Number of Branches (a)	Number of Agencies (a)	Amounts on Deposit (b)			Loans, Advances and Bills Outstanding (b) (c)
			Not Bearing Interest	Bearing Interest	Total	
Commonwealth Trading Bank of Australia	65	28	\$'000 28,739	\$'000 32,555	\$'000 61,294	\$'000 27,362
The Rural and Industries Bank of Western Australia (Rural Department)	51	26	20,509	17,511	38,020	34,302
Private Trading Banks—						
Australia and New Zealand Bank Limited	41	32	23,303	15,990	39,292	19,930
The Bank of Adelaide	2	2	1,545	681	2,225	1,464
Bank of New South Wales	99	44	52,351	35,666	88,017	47,397
The Commercial Bank of Australia Limited	35	26	12,889	7,443	20,332	13,742
The Commercial Banking Company of Sydney Limited	2	1	1,217	974	2,190	3,175
The English, Scottish and Australian Bank, Limited	22	2	9,791	4,536	14,328	10,514
The National Bank of Australasia Limited	78	34	30,572	28,490	59,062	35,900
Total—Private Trading Banks	279	141	131,668	93,780	225,446	132,122
TOTAL—ALL TRADING BANKS	395	195	180,916	143,846	324,760	193,786

(a) At 30th June. (b) Average as at the close of business on Wednesdays in June. (c) Excludes loans to authorized dealers in the short-term money market.



The following table contains particulars of the average weekly debits to customers' accounts in each year from 1961-62 to 1965-66 and in each quarter of those years. The figures represent the total of all cheques drawn by customers of all trading banks and, in addition, the Rural Credits Department of the Reserve Bank of Australia and the Commonwealth Development Bank of Australia. Debits to Commonwealth and State Government accounts at city branches are excluded as they are subject to abnormal influences. The figures are derived by averaging the debits made during weeks ended on Wednesdays during the several periods shown.

TRADING BANKS—AVERAGE WEEKLY DEBITS TO CUSTOMERS' ACCOUNTS (a)

Particulars	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
WEEKLY AVERAGE (\$ million)					
Average for Quarter ended—					
September	73.1	81.2	87.5	93.3	107.7
December	81.4	88.8	99.8	108.5	124.1
March	86.5	94.7	99.9	110.0	130.2
June	80.5	88.3	98.4	114.3	128.4
Average for Year....	80.4	88.2	96.4	106.3	122.4
PER HEAD OF MEAN POPULATION (\$) (b)					
Average for Quarter ended—					
September	99.0	107.1	112.2	116.8	132.0
December	109.6	116.3	127.1	135.1	150.9
March	115.7	123.1	126.4	136.1	157.1
June	106.9	113.9	123.8	140.8	154.1
Average for Year....	107.9	115.1	122.4	132.0	148.4

(a) Excludes debits to Commonwealth and State Government accounts at city branches; see letterpress immediately preceding table. (b) Figures subject to revision on the basis of the final results of the 1966 Census.

On the 1st October, 1962 the trading banks introduced a system of service charges on current accounts, and abolished the exchange rates previously in operation (see *Official Year Book of Western Australia*, No. 3—1962, page 200).

The charges, comprising three separate elements, are calculated quarterly and debited as one composite item. In addition to a basic maintenance fee of 50c per quarter, there is a ledger activity fee related to the number of transactions each quarter, and a collection fee on cheques deposited in excess of 20 per quarter. Rebates are allowable on ledger activity fees where credit balances are maintained at the level of \$600 or more throughout the quarterly period.

Savings Banks

Savings bank facilities in Western Australia are provided by the Commonwealth Savings Bank of Australia, which commenced business in Western Australia in 1913; the Australia and New Zealand Savings Bank Limited, the Bank of New South Wales Savings Bank Limited, the C.B.C. Savings Bank Limited and The Rural and Industries Bank of Western Australia (Savings Bank Division), all of which were established in 1956; the E.S. & A. Savings Bank Limited, established in 1961; and The Bank of Adelaide Savings Bank Limited, The National Bank Savings Bank Limited, and The Commercial Savings Bank of Australia Limited, all of which commenced business in 1962.

Individual depositors may not operate on their savings bank accounts by cheque, but cheque accounts are generally available to non-profit organizations such as friendly, co-operative and charitable societies. Interest is paid on deposits with savings banks and no charge is made for the keeping of accounts. A school savings bank service is provided and the amount standing to the credit of 93,138 accounts at schools was \$1,351,306 at the end of June, 1966. The operations of the school savings bank service are included in the figures shown in the following table except those which relate to the number of accounts open at the end of each year.

SAVINGS BANK TRANSACTIONS (a)

Particulars	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Deposits (b) \$'000	223,662	258,132	306,142	345,734	397,581
Withdrawals (b) \$'000	209,384	236,432	281,322	331,250	375,075
Excess of Deposits over Withdrawals \$'000	14,278	21,700	24,820	14,484	22,506
Interest added to Accounts \$'000	5,354	6,056	6,134	7,404	8,711
Accounts Open at end of Year No.	625,070	683,417	736,009	786,340	848,562
Amount Due to Depositors at end of Year—					
Total \$'000	181,056	208,812	239,766	261,654	292,871
Average per Account \$	289.7	305.7	325.8	332.9	345.4
Average per head of Population \$	239.6	268.5	300.7	321.3	350.0

(a) Figures revised since previous issue.

(b) Including inter-branch transfers but excluding transfers from and to other States.

Bank Interest Rates

The following table shows the annual average rates of interest paid on fixed deposits and the average maximum rates charged on overdrafts by the trading banks for each year of the period from 1961-62 to 1965-66.

TRADING BANKS—AVERAGE RATES OF INTEREST
(per cent. per annum)

Year	Interest on Fixed Deposits				Interest on Overdrafts (Maximum Rate)
	Thirty Days but less than Three Months (a)	Three Months but less than Twelve Months	Twelve Months to Eighteen Months (b)	Over Eighteen Months to Twenty-four Months (c)	
1961-62 ....	....	3.95	4.20	....	(d) 7.00
1962-63 ....	....	3.62	3.87	....	6.88
1963-64	3.75	3.37	3.62	....	6.59
1964-65	3.90	3.90	4.16	4.35	7.08
1965-66 (e)	4.25	4.25	4.50	4.50	7.25

(a) Prior to 8th April, 1964 banks were not permitted to accept fixed deposits for less than three months. From 8th April, 1964 banks have been permitted to accept deposits of \$100,000 or more for periods of 30 days but less than three months. (b) From 17th November, 1960 to 9th September, 1962 banks did not accept deposits for periods longer than 12 months. From 10th September, 1962 to 28th September, 1964 banks were permitted to accept deposits for periods up to 15 months. From 29th September, 1964 banks have been permitted to accept deposits for periods of from 12 to 18 months. (c) From 29th September, 1964 banks have been permitted to accept deposits for periods of more than 18 months up to 24 months. (d) Between 17th November, 1960 and 13th April, 1962 the average rate on all advances was limited to 6 per cent. (e) Rates operative from 10th March, 1965.

The following table shows the annual average rates of interest paid on depositors' balances by The Rural and Industries Bank of Western Australia (Savings Bank Division) and by other savings banks during each year of the period from 1961-62 to 1965-66.

SAVINGS BANKS—AVERAGE RATES OF INTEREST ON DEPOSITORS' BALANCES
(per cent. per annum)

Year	The Rural and Industries Bank of Western Australia (a)			Other Savings Banks		
	Ordinary Accounts (b)	Friendly and other Society Accounts		Ordinary Accounts (b)	Friendly and other Society Accounts	
		\$1-\$6,000	Over \$6,000		\$1-\$6,000	Over \$6,000
1961-62	3.75	3.75	2.00	3.50	3.50	2.00
1962-63	3.67	3.67	1.92	3.42	3.42	1.92
1963-64	3.27	3.27	1.52	3.02	3.02	1.52
1964-65	3.56	3.56	1.81	3.31	3.31	1.81
1965-66 (c)	3.75	3.75	2.00	3.50	3.50	2.00

(a) Savings Bank Division.
from 1st April, 1965.

(b) No interest payable on amounts in excess of \$6,000.

(c) Rates operative

INSURANCE

Life Insurance

Life insurance business throughout Australia is regulated by the Life Insurance Act 1945-1965 (Commonwealth), which requires companies to be registered by the Insurance Commissioner appointed under the Act and to establish statutory funds in relation to their life insurance transactions. The purpose of the Act, which supersedes State legislation, is to place life insurance business on a uniform basis throughout the Commonwealth and to afford protection to policy holders. Under a previous Commonwealth Act, the Insurance Act 1932-1937, the companies were required to deposit money or approved securities with the Treasurer in order to guarantee the claims of insured persons, and this provision is continued by the present Act.

During 1965, there were 34 life insurance companies or societies operating in Western Australia. In terms of total sums insured, life insurance policies relate predominantly to ordinary endowment or whole-life insurance and superannuation, although an appreciable volume of industrial business is also undertaken.

LIFE INSURANCE

Particulars	Year				
	1961	1962	1963	1964	1965
ORDINARY AND SUPERANNUATION BUSINESS					
Number of Companies	27	31	33	33	34
New Policies Issued—					
Sum Insured	\$'000 97,618	110,424	123,474	144,446	157,424
Single and Annual Premiums	\$'000 2,635	2,856	3,256	3,648	3,953
Policies Existing at End of Year—					
Sum Insured	\$'000 523,636	597,892	679,161	774,550	881,652
Annual Premiums	\$'000 16,145	17,933	19,939	22,134	24,527
Bonus Additions	\$'000 43,931	52,436	62,017	72,706	84,484
INDUSTRIAL BUSINESS					
Number of Companies	7	8	8	8	8
New Policies Issued—					
Sum Insured	\$'000 4,983	6,173	6,161	7,195	7,637
Annual Premiums	\$'000 221	258	248	286	308
Policies Existing at End of Year—					
Sum Insured	\$'000 44,745	46,754	47,983	50,588	53,565
Annual Premiums	\$'000 2,016	2,074	2,090	2,162	2,258
Bonus Additions	\$'000 1,969	2,252	2,620	3,041	3,572
TOTAL BUSINESS					
Number of Companies	27	31	33	33	34
New Policies Issued—					
Sum Insured	\$'000 102,601	116,597	129,635	151,641	165,060
Single and Annual Premiums	\$'000 2,856	3,114	3,504	3,934	4,261
Policies Existing at End of Year—					
Sum Insured	\$'000 568,381	644,646	727,144	825,138	935,217
Annual Premiums	\$'000 18,161	20,006	22,030	24,296	26,785
Bonus Additions	\$'000 45,900	54,687	64,637	75,747	88,057

General Insurance

General insurance is available to the public in Western Australia from a number of companies and, in some fields, from the State Government Insurance Office. There is also a Motor Vehicle Insurance Trust whose activities are confined to motor vehicle third party insurance.

During 1966, there were 144 companies operative in Western Australia. Of this number, 98 were "tariff" offices, being members of the Fire and Accident Underwriters' Association and issuing the standard policies of the Association at uniform premium rates. The remaining 46 were "non-tariff" companies effecting insurances at competitive rates and reinsuring direct with Lloyd's or other underwriters.

The State Government Insurance Office covers fire, marine and general insurance risks for State Government instrumentalities and semi-government and local government authorities. It also conducts some classes of insurance business for the general public, the principal transactions being workers' compensation and comprehensive motor vehicle insurance. By authority of amendments to the State Government Insurance Office Act in 1954 and 1958 the Office engages in personal accident insurance in respect of school children and students under a policy which indemnifies the parent or guardian against the cost of medical and surgical treatment and funeral and other expenses.

The following table gives details of revenue and expenditure relating to fire, marine and general insurance during each of the years from 1961-62 to 1965-66. It contains only selected items of statistics and is therefore not suitable for the construction of a "Profit and Loss" statement or "Revenue Account". The amounts shown as "Premiums" represent the full amount receivable in respect of policies issued or renewed during the year, less returns, rebates and bonuses paid or credited to policy holders during the year. They are not adjusted to provide for premiums unearned at the end of the year and consequently the amounts differ from "earned premium income" appropriate to the year. The amounts shown as "Claims" include provision for outstanding claims and represent claims or losses incurred during the year. Salvage and other amounts recoverable have been deducted. The transactions of The Motor Vehicle Insurance Trust are not included, but are shown in the table on page 237. The figures shown under the heading of Contributions to Fire Brigades represent payments made to the Western Australian Fire Brigades Board for the operation and maintenance of fire brigades, as required by the Fire Brigades Act.

FIRE, MARINE AND GENERAL INSURANCE (a)
(\$'000)

Particulars	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
REVENUE					
Premiums—					
Motor Vehicles	6,477	7,117	8,182	8,940	10,277
Fire	4,719	4,937	5,187	5,448	6,009
Workers' Compensation	5,688	5,975	6,108	6,411	7,136
Householders' Comprehensive	1,246	1,393	1,600	1,960	2,286
Personal Accident	1,208	1,338	1,239	1,305	1,425
Hailstone	1,040	1,102	890	927	1,479
Marine	1,036	1,146	1,201	1,234	1,418
Other Classes	1,500	1,755	1,817	1,999	2,356
Total Premiums	22,914	24,761	26,285	28,224	32,385
Other (Interest, Dividends, Rents, etc.—Net)	872	854	874	1,011	1,059
Total—Revenue	23,786	25,615	27,159	29,235	33,444
EXPENDITURE					
Claims—					
Motor Vehicles	4,514	5,372	6,527	6,557	7,439
Fire	1,485	1,709	1,221	1,522	1,711
Workers' Compensation	4,216	4,518	4,693	5,242	5,516
Householders' Comprehensive	259	298	382	559	555
Personal Accident	674	786	631	563	587
Hailstone	87	780	969	338	970
Marine	460	608	400	372	548
Other Classes	561	651	746	955	922
Total Claims	12,255	14,723	15,629	16,108	18,247
Other—					
Management Expenses	4,923	5,280	5,444	5,858	6,314
Commission and Agents' Charges	2,068	2,228	2,320	2,457	2,691
Taxation	739	736	559	740	988
Contributions to Fire Brigades	586	666	681	781	920
Total—Expenditure	20,570	23,633	24,633	25,943	29,160

(a) Excludes transactions of The Motor Vehicle Insurance Trust (see table on page 237). Operations of the State Government Insurance Office are included.

Motor Vehicle Third Party Insurance

Third party insurance in connexion with motor vehicle accidents became compulsory on the 1st July, 1944 under the provisions of the Motor Vehicle (Third Party Insurance) Act of 1943. The Motor Vehicle Insurance Trust was established by an amendment to the Act in 1948 and comprises the general manager of the State Government Insurance Office, three members nominated by the Fire and Accident Underwriters' Association of Western Australia and one nominee of those approved insuring organizations which are not members of the Association.

The Trust administers a Motor Vehicle Insurance Fund in which approved insurers participate. Premiums received from motor vehicle third party insurance and revenue from other sources constitute annual "pools" and, after payment of claims and other expenses appropriate to each pool, the resulting profit or loss is shared by the participating insurers, which include the State Government Insurance Office. These shares cannot be finally determined until the last claim is paid and it is usually several years before a pool has satisfied all the claims attributable to it. For this reason, the figures given in the following table are subject to progressive revision as the business of each pool approaches finality.

MOTOR VEHICLE INSURANCE TRUST
(\$'000)

Revenue and Expenditure	Pool (a) for the Year—				
	1961-62	1962-63	1963-64	1964-65	1965-66
Revenue—					
Net Premiums	2,110	2,558	3,740	4,850	5,130
Interest Received	197	214	372	439	308
Total Revenue	2,306	2,772	4,112	5,289	5,438
Expenditure—					
Claims Paid (b)	2,706	3,507	4,260	4,448	4,753
Commission	15	16	21	30	31
Management Expenses	92	92	96	99	100
Taxation	4	4	4	5	5
Total Expenditure	2,816	3,619	4,381	4,582	4,891

(a) See accompanying letterpress *Motor Vehicle Third Party Insurance*.
notified.

(b) Inclusive of estimate for claims not

Health Insurance Organizations

Voluntary health insurance is offered by a number of organizations which provide one or more types of benefit covering such items as hospital and medical fees, funeral expenses and sick pay to or on behalf of contributing members and their dependants. They include societies registered under the Friendly Societies Act, 1894-1964 and other organizations registered under the National Health Act 1953-1967 (Commonwealth).

Benefits are available in a wide range to meet the cost, either wholly or in part, of such services as treatment by a general or specialist medical practitioner (including surgical operations and obstetrical attention), X-ray, cardiographic and pathological examinations, physiotherapy, dental treatment, hospital care, home nursing and ambulance transport. In many cases, the Commonwealth Government pays a benefit additional to that received from the organization. Reference to these additional benefits is made in Chapter V—*Social Condition*. Members of friendly societies may contribute also for the supply of medicines and some societies maintain endowment assurance funds and supplementary death benefit funds.

The following table gives details, for the years 1961-62 to 1965-66, of the membership and the financial activities of friendly societies registered under the Friendly Societies Act. "Benefit" members are those who contribute to the Sick and Funeral Fund of a society and "honorary" members are principally those who pay only for medical and hospital benefits.

FRIENDLY SOCIETIES

Particulars	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Registered Societies	12	12	11	11	11
Branches	258	257	255	253	253
Members at end of Year—					
Benefit Members	17,898	17,488	17,120	16,744	16,316
Honorary Members	25,367	25,008	29,207	31,943	33,857
Sickness Benefits—					
Number of Members Paid	3,042	2,924	2,716	2,703	2,550
Number of Weeks of Sick Pay	55,343	55,273	57,238	56,364	57,370
	\$'000	\$'000	\$'000	\$'000	\$'000
Revenue—					
Fees, Contributions and Levies	1,284	1,352	1,430	1,552	1,637
Interest and Rent	121	113	121	129	136
Other	28	47	110	155	56
Total	1,432	1,511	1,661	1,835	1,829
Expenditure—					
Sick Pay	47	46	47	46	45
Medical Attendance and Medicine	1,084	1,148	1,213	1,304	1,428
Death Benefits	43	37	37	46	42
Administration	126	131	136	137	137
Other	139	92	118	116	156
Total	1,438	1,453	1,551	1,649	1,807
Balance of Funds at end of Year	3,035	3,092	3,203	3,389	3,411

BUILDING SOCIETIES

Building societies in Western Australia are registered under the provisions of the Building Societies Act, 1920-1962 primarily for the purpose of raising funds to assist members by granting loans, secured on mortgage, to build or acquire homes. They also provide a means of investment for shareholder members, trustee funds and other depositors. The funds of the societies may be in the form of payment for fully-paid shares, subscriptions for contributing shares, money placed on deposit, or negotiated loans. Another important source of revenue became available to the societies in 1956-57 when, under the Housing Agreement Act 1956 (Commonwealth), it was provided that moneys should be allocated to approved institutions from Commonwealth funds advanced to the States in terms of the Commonwealth and States Housing Agreement. (Reference is made to this Agreement in Chapter V—*Social Condition*.) A requirement of the Act was that these institutions should receive not less than 30 per cent. of total advances made to the State during each of the financial years 1958-59 to 1960-61, and this provision has been continued by later Acts. The present legislation, the Housing Agreement Act 1966, provides for its extension to the year ending 30th June, 1971.

BUILDING SOCIETIES

Particulars	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Registered Societies	24	38	70	100	144
Shareholders	26,482	29,289	31,012	34,366	37,752
Borrowers	7,802	9,114	10,365	11,667	12,541
	\$'000	\$'000	\$'000	\$'000	\$'000
Loans Granted during Year	6,346	8,904	11,700	13,190	11,833
Working Expenses	626	825	1,046	1,298	1,577
Liabilities at end of Year—					
Investing Members' Funds	10,964	12,562	14,950	17,856	20,312
Borrowing Members' Funds	252	400	600	919	1,296
Deposits	4,358	6,070	8,282	10,005	11,026
Loans due to Government	8,690	10,814	12,588	15,162	17,125
Bank Overdraft and other Liabilities	1,988	3,106	5,280	7,517	9,552
Total Liabilities	26,252	32,952	41,700	51,457	59,310
Assets at end of Year—					
Advances on Mortgages	25,410	31,640	39,768	48,606	55,840
Other Assets	842	1,312	1,932	2,851	3,470
Total Assets	26,252	32,952	41,700	51,457	59,310

The Building Societies Act provides for the constitution of a Building Societies Advisory Committee of five members, comprising the Registrar of Building Societies as chairman, the President of the State branch of the Commonwealth Institute of Valuers, two persons who are qualified and experienced in building society management and practice, and an officer of the State Public Service nominated by the Minister.

BANKRUPTCY

Under the provisions of the Bankruptcy Act 1966 (Commonwealth), which is administered by the Attorney-General, the State of Western Australia is a proclaimed Bankruptcy District and the Supreme Court of Western Australia has federal jurisdiction in bankruptcy matters. There is a Registrar in Bankruptcy whose duties include the holding of public sittings for the examination of bankrupts, the examination of witnesses, the issuing of bankruptcy notices and creditors' petitions, and such other duties as are specified in the Act or delegated to him by the Court. Another bankruptcy officer is the Official Receiver, who acts under the general authority and direction of the Court and whose duties relate to the conduct of the debtor and to the realization and administration of his estate.

An order for the sequestration of an estate may result from a petition by either the debtor or the creditors. In cases where it appears certain that the assets of a deceased estate will be insufficient to meet the debts, the executor or a creditor may petition to have the estate administered in bankruptcy.

Compositions, deeds of assignment and deeds of arrangement are provided for in Part X of the Act. A debtor may call a meeting of his creditors and either compound with them to pay a certain sum in the \$ as full settlement of his debts or enter into a deed of arrangement allowing him a specified time in which to pay. On the other hand, his creditors may require him to execute a deed of assignment, by which control of his affairs passes to a trustee registered under the Act, or to file a petition in bankruptcy.

The following table relates to bankruptcy proceedings during each of the years from 1961-62 to 1965-66.

BANKRUPTCY PROCEEDINGS

Particulars	Financial Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
Sequestration Orders (a)—					
On Creditors' Petitions	16	14	15	11	10
On Debtors' Petitions (b)	125	157	171	225	187
Assets \$'000	181	157	118	175	187
Liabilities \$'000	618	542	646	892	755
Compositions and Assignments without Sequestration—					
Number	97	70	55	72	80
Assets \$'000	808	1,988	400	423	2,283
Liabilities \$'000	1,147	1,840	541	719	2,476

(a) Includes orders for administration of deceased debtors' estates.
representatives of deceased debtors.

(b) Includes petitions by legal personal repre-

CHAPTER VII

LAND TENURE AND SETTLEMENT, WATER CONSERVATION AND SUPPLY

PART 1—LAND TENURE AND SETTLEMENT

An outline of the origin and development of the land tenure system in Western Australia from the early years of settlement is given in Chapter VII of the *Official Year Book of Western Australia*, Nos. 1 and 2 (*New Series*).

The growth of land settlement in relation to particular agricultural and pastoral activities is dealt with in the relevant sections of Chapter VIII and in the *Statistical Summary from 1829* appearing after Chapter X.

LEGISLATION AND ADMINISTRATION

By the Land Act of 1898, earlier legislation relating to the sale, occupation and management of Crown lands was consolidated and amended. Under a series of Agricultural Lands Purchase Acts which were passed between 1896 and 1904 and consolidated by the Agricultural Lands Purchase Act, 1909, provision was made for the repurchase by the Crown of land suitable for closer settlement. The principal criteria applied in the purchase of such land were suitability for wheat or mixed farming and proximity to transport, especially the railways.

The operation of subsequent legislation has not greatly changed the pattern of land development which was created by the Land Act, 1898 and the Agricultural Lands Purchase Act, 1909. The Land Act, 1933–1967 is now the basic statute controlling the leasing and disposal of Crown land. Closer settlement legislation relates predominantly to schemes for the benefit of returned war-service personnel. Crown land is also leased under the Mining Act, 1904–1965, the Petroleum Act, 1936–1967 and the Forests Act, 1918–1964, but no alienations are made under these Acts. In most freehold or leasehold titles of a residential, agricultural or pastoral nature the mineral rights and, in many instances, the timber rights are reserved to the Crown.

The Department of Lands and Surveys is responsible for the leasing and alienation of Crown land, except where mining and forestry tenures are involved, and is under the control of the Minister for Lands. In certain instances, advisory or partly-executive boards have been created to assist in administration. These include the Land Board, which deals with general applications for land, and the Pastoral Appraisal Board.

Permits and leases for mining purposes are issued by the Department of Mines and those for forestry and timber milling by the Forests Department.

METHODS OF LAND ALIENATION

The principal methods of alienation provided for in the Land Act, 1933–1967 are conditional purchase, public auction, private tender, selection under Part VIII which supersedes the Agricultural Lands Purchase Act, endowment (including free Crown grants) and reservation for public purposes. In addition to these normal methods of alienation there is provision in the Land Act for the release of land under special circumstances, where particular developmental projects are envisaged. In such cases any agreement must be ratified by the State Parliament.

Conditional Purchase

Titles secured by this method originally take the form of conditional purchase leases, on the satisfactory conclusion of which Crown grants may be obtained. The Act provides that a person shall not be competent to acquire, either as lessee or transferee, an area of land exceeding in the aggregate 5,000 acres; but on the recommendation of the Minister and with the approval of the Governor, it shall be competent



LAKE CAVE, MARGARET RIVER, IN THE SOUTH-WEST OF WESTERN AUSTRALIA

for a person to acquire an area of land in one or more parcels exceeding 5,000 acres, but not in any event exceeding 10,000 acres, in any case where the Minister is satisfied that a holding requires an area greater than 5,000 acres in order to be of a standard deemed by the Minister an economic farm unit. The Governor may reduce the maximum area that may be acquired in prescribed localities. The minimum purchase price of land acquired by conditional purchase is 20 cents per acre and the purchaser must pay the costs of survey as well as the value of any improvement. He must progressively clear, cultivate and sow to pasture or crop, areas of land which must aggregate 50 per cent. of the total area of the land at the end of the eleventh year. In addition, the purchaser is required to fence in at least the cleared and cultivated land during the first five years and the whole of the land within ten years.

The maximum period allowed for completion of purchase under an ordinary conditional purchase lease ranges from 25 to 30 years, with a possible extension of 10 years in certain cases. There is, however, provision for conditional purchase by means of accelerated payments under which a 10 per cent. deposit is lodged and the balance of the purchase price paid in four quarterly instalments. The improvement conditions for accelerated-payment leases require that the land shall be fenced within three years of the commencement of the lease and that improvements, equal in value to the purchase money, shall be effected within seven years. Unlike the ordinary conditional purchase lease, which cannot be converted to a Crown grant until the expiry of at least five years from the date of commencement, an accelerated-payments type of lease can be converted to a Crown grant at any time after the conditions have been met. Residential conditions, requiring that the lessee or a near relative shall reside on the property within two years from commencement of the lease and make it his habitual residence during at least six months of each year for the following three years, apply to ordinary conditional purchase leases but are not obligatory under accelerated-payment leases. Restrictions on transfers are imposed in each case.

Sale by Public Auction

The general conditions governing the sale to the public by auction of town or suburban land are set out in Part IV of the Land Act. Lands may be offered for sale by order of the Minister at such times and places as he may think fit, and notice of forthcoming sales must be published in the *Government Gazette* and in a newspaper. Ten per cent. of the purchase money must be paid at the time of the sale and the balance in four equal quarterly instalments. The purchaser may be required to erect a residence or business premises within the specified period, or to fence the land on the surveyed boundaries within two years after the sale. Town or suburban land acquired at auction by instalment purchase is regarded as being held on licence until general requirements such as fencing and other prescribed improvements have been met, after which a grant in fee simple may be issued. In some instances special additional conditions may be imposed. In certain circumstances the Governor may dispense with the requirements as to sale of town and suburban lands by public auction and may approve of any such lands being offered for sale in fee simple or for leasing.

Sale by Private Tender

Sales by private tender, which are also called negotiated cash sales, are comparatively rare and usually relate to unwanted War Service Land Settlement farms and to areas set apart as special settlement lands.

Endowment of land and reservation for public purposes

Few disposals of Crown land by way of endowment or free grant are now made. However, it is within the power of the Governor to dispose of, in any manner which serves the public interest, lands which are vested in the Crown. Crown land is frequently reserved by order of the Governor for a variety of public purposes, and where alienation is ultimately required for certain of such purposes the necessary land is granted in fee simple in trust for the purpose of the reserve. Grounds for reservation include: the general requirements of the Government (*e.g.*, public works and buildings; conservation of water, timber and indigenous flora and fauna; housing; public health and social welfare); the benefit of the aboriginal inhabitants; local government needs for such purposes as the provision of town halls and other buildings, public utilities, social amenities, sports grounds and cemeteries; sites for churches, hospitals and other institutions; sites for clubs and club premises; mining and quarrying purposes; public parks; and the provision of camping and watering places for travellers and stock. Reserves may be of class "A", which by proclamation of the Governor are reservations that must remain dedicated to the purpose declared in their proclamation until by Act of Parliament it is otherwise enacted, or classes "B" and "C",

which are terminable by the Governor on notice in the *Government Gazette*. In the case of class "B", however, the Land Act provides that in the event of cancellation, a special report by the Minister shall be presented to Parliament setting forth the reasons for such cancellation and the purpose to which it is intended to devote the land. Common uses of class "A" reserves are for public recreation or amusement and for major public buildings. All reserves under Part III of the Act that are not proclaimed as class "A" are classified as either "B" or "C".

The Land Act provides that, when any reserve is not immediately required for the purpose for which it was made, the Governor may grant a lease for a period not exceeding 10 years at such rents and subject to such conditions as he may think fit. Land reserved for parks or recreation grounds may be leased for the depasturing of stock even though the land is being used for the purpose for which it is reserved.

Other methods of alienation comprise mainly reservations of land for housing projects. Individual occupiers may acquire freehold title subject to certain conditions. Otherwise the land remains under Crown lease.

State Forests and Timber Reserves

In addition to the foregoing types of alienation, special provision is made in the Forests Act, 1918-1964, for the Governor, by Order in Council, to dedicate Crown land as a State Forest or to reserve Crown land as a Timber Reserve. While the reservation of a Timber Reserve may be revoked in whole or in part by the Governor in Council, the dedication of a State Forest may not be revoked except with the consent of both Houses of Parliament. The use of such Forests and Reserves comes within the administration of the Conservator of Forests.

METHODS OF LEASING

Brief reference has been made to the work of the Department of Lands and Surveys, the Department of Mines and the Forests Department in granting leases of Crown lands in Western Australia. The activities of each Department in this field are described in greater detail in Chapter VII of the *Western Australian Year Book*, No. 6—1967 and earlier issues.

LAND CLASSIFICATION

Large-scale as well as detailed land classification measures have been developed progressively in Western Australia, the basic data being the reports made by surveyors when traversing and mapping new tracts of land. From the early years of land settlement the staff surveyors of the Department of Lands and Surveys have commented generally on the nature of the country in which they were working and a practical guide to land utilization prospects has been obtained. By such methods the settlement potentialities of the State's area of 975,920 square miles first became approximately known, and the Surveyor-General has estimated that about 11 per cent. of the total area is represented by agricultural areas, 52 per cent. by pastoral areas and the remaining 37 per cent. by practically unoccupied areas of the interior.

In the agricultural and the pastoral areas, detailed classifications have been facilitated by the comments of surveyors when dealing with individual blocks and, although frequent use is now made of soil analyses, surveyors' reports are still the basis for classifying saleable or leaseable Crown land as First, Second or Third Class. The classification system dates back to 1909 and is used primarily to put a price on land but another important function is to ensure, as far as possible, that newly-selected farms are of sufficient size, with adequate amounts of suitable soil, to make an economic unit. Not only are soils classified, but the positions of rivers, creeks, swamps, hills and valleys are taken into account. When assessing the economic prospects of an area it is consequently possible to make allowance for types of soil, the adequacy of water supplies, the proximity of roads and railways and the costs of development. In arriving at an equitable price, all these factors are considered.

In addition to this general method of classifying land for agricultural or pastoral purposes, a considerable area of forest country has been classified by ground survey and by aerial photography and the Department of Mines carries out a continuous geological survey. Substantial use is also made of aerial photography and photographic and photogrammetric methods by the Mapping Branch of the Department of Lands and Surveys.

OCCUPATION OF LAND

The following table shows, for a selection of years during the period from 1900 to 1966, the areas of land absolutely alienated or in process of alienation and of Crown land held under certain types of lease or licence. For the years 1900, 1910 and 1920 the basis of classification according to Department has been made to conform to current practice in the issue of leases and licences. For example, tenures

relating to forests, which were originally issued by the Department of Lands and Surveys and later by the Department of Mines, have been shown for those years under the heading of Forests Department. For 1930 and later years the figures are as recorded by the Departments concerned. The types of tenure included under the several departmental headings are indicated in the footnotes to the table.

Land which is shown as "absolutely alienated" consists mainly of farming areas, acquired originally as Conditional Purchase Leases and subsequently alienated under Crown grant. While held under lease prior to alienation they account for most of the land shown as "in process of alienation." These two sets of figures taken together consequently give a broad indication of the increased use of land for agricultural purposes during the period under review. Similarly, variations in the area occupied as sheep and cattle stations may be gauged by reference to the area of pastoral leases issued by the Department of Lands and Surveys.

LAND ALIENATED AND LAND HELD UNDER LEASE

Date	Area absolutely alienated	Area in process of alienation	Area of Leases or Licences in Force on Crown Land and Issued (a) by—			
			Department of Lands and Surveys		Department of Mines (c)	Forests Department (d)
			Pastoral Leases	Other Leases (b)		
At 30th June—	acres	acres	acres	acres	acres	acres
1900 (e)	3,462,490	3,156,798	86,429,037	10,654	84,470	851,820
1910	4,449,326	12,880,195	165,463,185	501,315	99,732	1,143,572
1920	8,763,051	14,259,769	253,436,312	2,454,204	97,387	1,622,068
1930	14,506,064	21,533,054	241,504,687	2,397,790	84,381	1,402,898
1940	18,244,428	14,192,666	204,950,557	2,008,124	93,709	2,327,371
1950	21,263,085	11,514,531	219,200,060	3,289,017	97,868	3,418,217
1957	25,726,950	12,837,282	(f) 208,396,798	4,434,105	97,402	3,882,488
1958	26,205,502	13,053,345	212,543,505	5,202,529	98,392	3,919,067
1959	26,810,081	12,907,720	217,855,338	5,320,659	92,948	4,031,140
1960	27,343,902	12,758,807	216,908,871	6,623,272	93,000	4,024,720
1961	27,786,699	12,829,828	220,782,073	6,918,781	91,874	4,011,966
1962	28,227,002	13,240,996	230,286,920	5,627,281	73,114	4,049,432
1963	28,721,958	13,884,749	237,203,687	6,771,962	74,660	4,196,090
1964	29,101,406	14,542,063	235,062,418	7,246,690	80,575	4,077,057
1965	29,757,989	14,829,752	234,977,404	7,146,560	80,529	4,150,051
1966	30,487,407	14,928,135	235,113,241	6,548,670	76,407	4,300,123

(a) See letterpress preceding table. (b) Comprises special leases, leases of reserves, leases of residential lots and perpetual leases. (c) Comprises gold-mining leases, mineral leases and miners' homestead leases. (d) Predominantly sawmilling permits. Includes permits for cutting wandoos for tannin extraction but excludes permits and licences for cutting timber and firewood in Goldfields areas. (e) At 31st December. (f) Apparent decrease in area due mainly to revision in the records of the Department of Lands and Surveys.

The passing of the Homesteads Act in 1893 and of a comprehensive Land Act in 1898 provided the basis for a rapid increase in the settlement of agricultural land. Under the Homesteads Act, any man over the age of 18 years who did not already own an area of 100 acres or more in this State could apply for a free homestead farm of 160 acres, on condition that he resided on his land during at least six months of each of the first five years and carried out prescribed improvements. With a lower minimum age of 16 years, a similar provision is contained in the Land Act, 1933-1967, and this provision, operating in conjunction with the conditional purchase lease system, has also been a factor in the increase in land settlement, particularly in the wheat-growing areas.

About 1905 the Department of Lands and Surveys, by implementing a system of survey and subdivision before selection, partially checked the indiscriminate selection of land by inexperienced farmers. A further stabilizing influence on agricultural development was the introduction in 1909 of a system of grading Crown lands into classes, First, Second and Third according to suitability for farming.

The movement of population from the goldfields to the wheat belt contributed to the increase in the area of land in process of alienation from 3,156,798 acres in 1900 to 12,880,195 in 1910. The ultimate alienation of about one-third of this land by Crown grant is reflected in the greatly increased figures for "absolutely alienated" land in 1920. Settlement of the wheat belt developed rapidly during and after

the period 1910 to 1920, in spite of serious droughts which occurred in 1911 and 1914. Although the increased totals at the 30th June, 1930 were principally due to this development, they resulted in part from the acquisition during the previous 10 years of farmland, mainly for dairying, in the south-west of the State under the Group Settlement Scheme. These holdings were individually much smaller than those in the wheat-growing districts, because of the type of farming and the heavy clearing costs, but the numbers involved made the total area taken up under the Scheme of some significance.

Pastoral leases, which comprise the greatest proportion of Crown land held under lease or licence, increased threefold between 1900 and 1920 and continue to cover approximately one-third of the whole State. The aggregate area of gold-mining leases, mineral leases and miners' homestead leases, appearing in the table under the heading of Department of Mines, shows comparatively little variation since 1900. However, in recent years very large areas have been included in tenures issued under the provisions of the Petroleum Act, 1936-1967 and in temporary reserves under the Mining Act, 1904-1965. At the 30th June, 1966 there were current, under the Petroleum Act, permits to explore covering 781,548 square miles and licences to prospect covering 12,459 square miles. The area relating to permits appearing under the heading of Forests Department shows a general increase from less than one million acres in 1900 to more than four million acres in 1966.

From 1930 the demand for land for agricultural purposes declined considerably, the principal reason being the lower farm commodity prices which prevailed for several years prior to the second World War. After 1945, however, the demand for land again increased, stimulated by the sharp rise in export prices, notably of wheat and wool, and later by the War Service Land Settlement Scheme mentioned in the following section *Government Land Settlement Schemes*. The area conditionally alienated in any one year reached a post-war peak of 1,707,894 acres in 1953. During the next decade the area fluctuated between 705,874 acres in 1956 and 1,234,516 acres in 1962, and in 1966 it was 961,150 acres.

The following table gives details of areas of land for which applications were approved, during each of the years 1957 to 1966, by the Department of Lands and Surveys for conditional alienation or allocation under lease or licence. The figures shown for any year do not necessarily represent land allotted for the first time, as they may include land previously held under any of the several forms of land tenure.

CROWN LANDS—AREA OF ALLOCATIONS
APPROVED BY DEPARTMENT OF LANDS AND SURVEYS (a)

Year	Conditional Alienation					Leases and Licences			
	Con- ditional Pur- chases	Agricul- tural Land Purchases	Town and Suburban Lots	Miscel- laneous (b)	Total	Pastoral Leases and Licences	Special Leases	Miscel- laneous Leases (c)	Total
	acres	acres	acres	acres	acres	acres	acres	acres	acres
1957	932,686	727	507	6,319	940,239	5,218,047	346,254	224,328	5,788,629
1958	796,865	1,255	285	4,051	802,456	3,175,303	536,222	182,740	3,894,265
1959	976,440	2,179	631	1,266	980,516	10,246,253	1,037,882	276,816	11,560,951
1960	712,410	4,779	266	678	718,133	4,164,358	912,046	251,361	5,327,765
1961	1,017,800	729	381	1,380	1,020,290	6,488,872	131,968	158,062	6,778,902
1962	1,229,889	2,876	499	1,252	1,234,516	15,862,470	226,985	355,546	16,445,001
1963	1,183,247	246	672	3,528	1,187,693	3,859,374	1,101,293	110,432	5,071,099
1964	887,007	2,262	1,340	20,276	910,885	831,631	105,074	180,665	1,117,370
1965	1,077,764	....	290	260	1,078,314	2,434,099	87,320	48,279	2,569,698
1966	916,263	....	400	44,487	961,150	3,593,254	179,972	452,730	4,225,956

(a) See letterpress immediately preceding table. (b) Comprises Free Homestead Farms and Reserves. (c) Comprises perpetual leases, leases of reserves and leases of town and suburban lots.

GOVERNMENT LAND SETTLEMENT SCHEMES

Although, generally, the method of land alienation and settlement in the agricultural areas of Western Australia has been by independent applications by individual settlers for conditional purchase leases, there has also been a series of government land settlement schemes. The more important of these are the Soldiers' Settlement Scheme following the 1914-18 war, the Group Settlement Scheme introduced in 1921, the War Service Land Settlement Scheme which was initiated in 1945 and other lesser schemes for the settlement of civilians.

Soldiers' Settlement Scheme

The Soldiers' Settlement Scheme was introduced after the first World War and was financed partly by the United Kingdom Government, which arranged free passages for ex-service personnel and their families, and partly by the Commonwealth and State Governments of Australia. Under joint financial responsibility for the scheme the Commonwealth Government was to provide loan moneys to an average of \$1,000 per settler as working capital for such essentials as initial improvements, implements and seed. Later this was increased to \$1,250 and a further average loan of \$750 towards the cost of land brought the Commonwealth commitment to \$2,000 per settler. The State Agricultural Bank provided all extra funds for operations in Western Australia.

By 1940, when operations under the scheme virtually came to an end, 5,213 soldier settlers had been assisted in Western Australia and advances totalling \$13,475,386 had been made. The ultimate cost of the scheme was greater than had been anticipated and the extension of settlement, which was one of its purposes, was frustrated to some degree by the war-caused disabilities of the settlers. Much of the land taken up eventually either reverted to the Crown or was acquired by other settlers.

Group Settlement Scheme

The Group Settlement Scheme was introduced in 1921, but its major development resulted from the passage of the Empire Settlement Act of 1922 by the British Parliament. The main purposes of the Act were to relieve the considerable degree of unemployment prevailing in Britain and to expand land settlement in the Dominions. Agreements were consequently negotiated between the Governments concerned and in the case of the Western Australian scheme it was agreed to establish 6,000 holdings in various "Groups" in the south-western portion of the State, with the farmers on each "Group" forming a loosely-knit community. The settlers were to be assisted British immigrants and dairying and pig raising were to be the main activities. As in the Soldiers' Settlement Scheme, the expenditure involved was shared by the British, Commonwealth and State Governments.

The scheme did not develop to the extent originally planned, the maximum number of holdings settled at any one time being 2,442. By amalgamation of properties and abandonments, this number became reduced to 1,700 and in 1942, just over twenty years after the scheme was launched, 530 of the holdings were unoccupied and available for resettlement while little more than one-quarter of the 500,000 acres initially taken up had been brought into production. Nevertheless, the scheme had an important influence on the settlement and development of several parts of the extreme south-western portion of the State.

War Service Land Settlement Scheme

Proposals for a scheme to settle discharged members of the Forces on the land were agreed to at a conference of Commonwealth and State Ministers held at Canberra in August, 1945. Legislative authority for the scheme was later given by the War Service Land Settlement Agreements Act 1945 (Commonwealth) and the War Service Land Settlement Agreement Act, 1945 (State). Commonwealth moneys have been made available by means of a series of Loan (War Service Land Settlement) Acts and the States Grants (War Service Land Settlement) Act 1952-1953 (Commonwealth). State Government funds have been allocated by annual parliamentary appropriation. In terms of the Agreement Acts, the Commonwealth assumed responsibility for policy decisions and the general supervision of the Scheme. The State Government was required to bear the cost of State administration of the Scheme and to make a capital contribution in respect of each holding equal to two-fifths of the excess of the total cost involved in acquiring, developing and improving the holding over the sum of the valuations of land and improvements. The Commonwealth Government agreed to meet other costs of the Scheme, as detailed in the penultimate paragraph of this section.

Those benefited are ex-members of the Forces who served in the second World War, the Korean War and the operations in Malaya. Guidance and technical advice are made available to settlers through the extension services of the Department of Agriculture.

In the early years of the Scheme, certain privately-owned properties were purchased for resettlement, but suitable areas of Crown land were later acquired and developed. Land chosen was closely examined as to accessibility, climate, types of soils, water supply, productive capacity, and the possibilities of development, improvement and subdivision. In order to ensure, as far as possible, the success of each individual venture, care was taken to assess the suitability of both the applicant and the land selected for the type of farming contemplated. The policy was to prepare the holdings by clearing, fencing and other improvements before occupation by applicants.

Although holdings were originally available only on perpetual lease, legislation passed by the State Parliament in 1951 enabled War Service Land Settlement lessees to purchase the fee simple in the land after having held the lease for not less than 10 years. By a provision of the War Service Land Settlement Scheme Act Amendment Act, 1960 freehold can now be obtained after such shorter period than 10 years as the Commonwealth and the State have determined or may determine where special circumstances exist.

The main developmental work, both in project areas and on repurchased estates, has been completed. The final allotment of farms in Western Australia was made in October, 1962, and when the last ex-servicemen to be assisted under the Scheme entered into occupation early in 1963 the total number of farms accepted and occupied by ex-servicemen in this State was 1,280. Activities in respect to the Scheme were officially terminated on the 31st August, 1966.

Commonwealth Government expenditure on the Scheme in Western Australia to the 30th June, 1966 amounted to \$106.2 million, comprising provision of credit facilities to settlers, \$50.8 million; development and improvement of land, \$39.5 million; acquisition of land, \$7.09 million; contribution of three-fifths of the excess cost of land and improvements over valuation, \$4.41 million; cost of administration of credit facilities, \$1.97 million; remission of settlers' rent and interest, \$1.06 million; living allowances to settlers during the assistance period, \$0.96 million; losses on advances, \$0.37 million; and operation and maintenance of vacated holdings, \$0.032 million. Up to the 30th June, 1966 the State Government, in addition to meeting administrative and other costs associated with the Scheme, had spent \$2.94 million, representing two-fifths of the excess of the total cost involved in the acquisition, development and improvement of holdings over the sum of the valuations of land and improvements.

Commonwealth Government receipts in connexion with the Scheme in Western Australia up to the 30th June, 1966 aggregated \$60.6 million, comprising principal repaid by settlers, \$40.3 million; receipts from sales of structural improvements, \$7.50 million; rent paid by settlers \$4.29 million; interest paid by settlers, \$3.89 million; the State's contribution to excess costs of land, and improvements, \$2.94 million; receipts from sales of unwanted land (including interest), \$1.20 million; and other receipts, \$0.50 million.

Other Schemes of Settlement

The 3,500 Farms Scheme in Western Australia was one of the projects proposed to be undertaken under an agreement in 1925 between the British and Australian Governments, whereby \$68 million was to be made available for joint developmental projects during the following 10 years. The Commonwealth Government set up a Development and Migration Commission to examine the suitability of any suggested projects. The Commission ultimately reported adversely on the 3,500 Farms Scheme and it was abandoned, but not before some expenditure had been incurred on the preparatory work of surveys and public works. In fact, the \$68 million agreement itself lapsed before any significant results by way of additional farms had been achieved in Western Australia.

PUBLIC PARKS AND RESERVES

Reference has been made earlier in this Chapter in the section *Methods of Land Alienation* to land set aside by the Government for public purposes. Some of this land is reserved for public recreation and amusement, national and other public parks, or flora and fauna sanctuaries and the reserves are controlled by statutory bodies, the more important of which are dealt with in this section. Further reference to reserves will be found in the section *Conservation of the Flora* in Part 3 of Chapter II.

The *National Parks Board of Western Australia* controls a number of National Parks and reserves, having a total area of approximately 783,000 acres at the 30th June, 1967. National Parks vested in the Board at that date comprised Kalbarri (358,000 acres), which is situated near the mouth of the Murchison River; Stirling Range (284,540 acres); Cape Le Grand (39,500 acres) east of Esperance on the south coast; Cape Range (33,171 acres) near Exmouth; Nornalup (32,229 acres) on the south coast; Geikie Gorge (7,750 acres) in the north near Fitzroy Crossing; Porongurup (5,531 acres); Walyunga (4,000 acres) in the foothills some 20 miles north of Perth; John Forrest (3,648 acres) near Glen Forrest in the Darling Range; Neerabup (2,785 acres); Serpentine (1,571 acres); Kalamunda (919 acres); Greenmount (127 acres); and Lesmurdie Falls (81 acres). At the same date, reserves vested in the Board included Yanchep Park and Caves (6,432 acres) near the coast about 30 miles north of Perth; Yanchep Flora Reserve (439 acres); Yanchep Beach Reserve (44 acres); Nornalup Park Lands (919 acres); Nornalup Flora Reserve (228 acres); Hamelin Bay (366 acres) on the west coast near Cape Leeuwin; Nowergup Lake Fauna Reserve (288 acres); Albany Boronia Reserve (115 acres); Matilda Bay (57 acres) on the Swan River near Perth; Araluen-Canning Dam (50 acres); Penguin Island (31 acres); and East Perth Cemetery (12 acres), a disused burial ground containing the graves of early

pioneers. Flora and fauna are protected and firearms prohibited in all National Parks and reserves controlled by the Board. Picnic and recreational facilities are provided in each of them, while camping and caravan facilities have been, or are being, established in many of the National Parks and reserves.

The Emu Point (Albany) Reserve Board controls a reserve containing an area of approximately 1,120 acres at Emu Point near Albany, which has been developed for recreation, camping and residential purposes. A small boat harbour has been dredged and pen facilities to accommodate 60 boats constructed. An additional dredged area, without constructed pens, is provided so that large professional fishing boats might use ground moorings.

The King's Park Board administers an area of almost 1,000 acres close to the centre of Perth. Part of this area was dedicated in 1872 "for the purpose of a public park and recreation ground" and was enlarged in 1890. Beautification commenced in 1896 under the Presidency of Sir John Forrest, and the name was changed in 1901 from Perth Park to The King's Park in honour of the accession of King Edward VII. In addition to its original function as park and recreation ground, The King's Park has over the years gradually developed two other important functions, as a National Shrine and as a Botanical Reserve. In the former case it houses the State's most important monuments and commemorative features of a military and historical nature. A memorial to the South African war was built in 1901, and the State War Memorial to the fallen of both world wars was erected on a commanding position on Mount Eliza in 1929 and extended in 1952. "Honour Avenues" of trees dedicated to individual fallen servicemen were planted in 1919 and later, and another avenue commemorates the State Centenary of 1929. There are numerous smaller memorials erected by individual regiments or other military units, and a number of monuments to important historical personages.

The concept of the botanical reserve grew from the fact that four-fifths of the Park's area remained undeveloped under a natural bushland which contained many native wildflowers. Increasing urbanization and the elimination of natural sites in and close to Perth made the retention of this bushland area a matter of scientific and aesthetic value. This function was strengthened from 1962 onwards by the establishment in the Park of a botanic garden and arboretum of 66 acres for the cultivation and display of Western Australian native plants.

Recent developments have not neglected the Park's original aesthetic and recreational functions. Facilities exist for playing tennis, bowls and hockey. A fully equipped modern restaurant was erected in 1956, close to which are tourist attractions including a floral clock, a wishing well and a giant Karri log. There are two public barbecue sites and many miles of pedestrian paths and tracks. The original 50 acres of lawns and shrubberies have been materially extended by the Botanic Garden area. Four new lawns have been added, one of which encircles a landscaped water garden with four pools, two cascades and a waterfall, one pool featuring an illuminated fountain dedicated to the pioneer women of the State. In addition to this, a new picnic lawn has been established around an artificial lake at the western end of the park and linked to older-developed areas by a mile-long vista dominated by a steel viewing tower of unusual design.

Zoological Gardens Board (Acclimatisation Committee)—An area of 45 acres at South Perth is under the control of the Acclimatisation Committee, for Zoological and Acclimatisation purposes. Animals, birds and reptiles are exhibited in the Zoological Gardens and picnic, sporting and recreational facilities are available to the public. During the financial year ended 30th June, 1967, 151,417 adults and 133,784 children paid for admittance.

The Rottnest Island Board administers as a tourist and holiday resort a reserve comprising almost the whole of Rottnest Island, which is situated about 10 miles west of Fremantle.

Caves Reserves—Extensive limestone caves have been discovered at several places in the south-west part of the State. Some of them, between Cape Naturaliste and Cape Leeuwin and at Yanchep, have been developed for public inspection and certain areas of the surrounding land have been reserved, notably at Yanchep, Yallingup, Margaret River and Augusta.

Local Government Reserves—Many local authorities hold land for recreational purposes, the areas having been either vested in them by the Crown, acquired by way of purchase or received under private bequest. The reserves are frequently developed as public parks or to provide facilities for sports or for camping.

The National Fitness Council controls reserves, principally for youth activities, at Point Peron on the coast south of Fremantle, at Sorrento to the north, at Bickley in the Darling Range and at Pemberton in the forest country of the South-West.

CHAPTER VII—continued

PART 2—WATER CONSERVATION AND SUPPLY

The principal water supply systems of Western Australia are under the control of two State authorities, the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Public Works and Water Supply.

The Metropolitan Water Supply, Sewerage, and Drainage Board is constituted under the provisions of the Metropolitan Water Supply, Sewerage, and Drainage Act, 1909–1967. It came into being on the 1st July, 1964 and replaced the former Metropolitan Water Supply, Sewerage and Drainage Department as the authority responsible, subject to the Minister, for the general administration of the Act. The Board consists of seven members appointed by the Governor. One member is appointed Chairman on the nomination of the Governor and the remaining members comprise the General Manager of the Board ; a qualified engineer ; the Under-Treasurer or an officer of the Treasury nominated by him ; and three representatives of ratepayers of municipal districts within the Metropolitan Water, Sewerage, and Drainage Area as described in the Act. This area of approximately 1,300 square miles constitutes the territory under the Board's administration. It embraces Perth and the metropolitan area southward to Safety Bay and Serpentine, northward to Sorrento and Herne Hill and eastward to Greenmount, Kalamunda, Bickley and Carmel, and incorporates approximately 700 square miles of the water catchment areas of the Canning and Serpentine Rivers and streams in the Darling Range.

The Department of Public Works and Water Supply controls the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply as well as 93 local water supplies. It also provides water for irrigation purposes in the three South-West Irrigation Districts (Waroona, Harvey and Collie River), the Camballin Irrigation District and the Ord Irrigation District. In addition a small pilot scheme supplying 23 growers in the Carnarvon Non-Artesian Area is being operated.

Five independent town schemes are controlled by local Water Boards in country areas under the Water Boards Act, 1904–1964 and some local authorities supply water under the provisions of the Local Government Act, 1960–1967. Individual water supplies serve railways, timber mill towns, isolated mines, pastoral properties, stock routes and agricultural areas, mainly from dams, tanks, wells and bores.

The principal water storages in Western Australia are shown in the table below. Supplies for the metropolitan area and environs are drawn almost entirely from Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. Mundaring Weir, which is the source for the Goldfields and Agricultural Water Supply, is linked to Kalgoorlie by pipeline and serves the more populous parts of the Eastern Goldfields as well as certain towns and farming areas north and south of the main pipeline. As occasion arises Mundaring Weir supplies to or draws from the Metropolitan Water Supply. Stirling Dam, with a supplementary catchment at Harvey Weir, serves part of the irrigation area of the South-West. Drakes Brook Dam, Samson Brook Dam, Logue Brook Dam and Waroona Dam, which was completed in 1966, are also used for this purpose. Wellington Dam, on the Collie River, has been enlarged to meet not only the needs of the southern parts of the irrigation area but also of towns included in the Great Southern Towns Water Supply.

The storage capacity of the several dams and reservoirs at the 30th June, 1966 was as shown below.

DAMS AND RESERVOIRS—STORAGE CAPACITY (a)
(million gallons)

Dam or Reservoir	Storage Capacity	Dam or Reservoir	Storage Capacity
Canning Reservoir	20,550	Serpentine Pipehead Reservoir	850
Churchman Brook Reservoir	430	Serpentine Reservoir	39,000
Drakes Brook Dam	504	17-Mile Dam (c)	1,250
Fitzroy Dam	1,209	Stirling Dam	12,552
Harvey Weir	2,275	Victoria Reservoir	139
Logue Brook Dam	5,358	Waroona Dam (d)	3,290
Mundaring Weir	16,966	Wellington Dam	40,790
Ord River Diversion Dam (b)	21,457	Wungong Brook Diversion Weir	(e)
Samson Brook Dam	2,021		

(a) At 30th June, 1966. (b) Bandicoot Bar Dam. (c) On Uralla Creek, an anabranch of the Fitzroy River.
(d) Storage commenced June, 1966. See letterpress on page 253. (e) Diversion weir only.

METROPOLITAN WATER SUPPLY

The sources of the metropolitan water supply are Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. The supply from these sources is supplemented as necessary from a pipeline link with Mundaring Weir and from a number of artesian bores. The amount of bore water used, however, is now low in proportion to total metropolitan consumption, being rarely more than 10 per cent. during a severe summer and usually considerably less.

Victoria Reservoir, which was completed in 1891 with a capacity of 189 million gallons, was the first of the existing water conservation projects to be completed in the Darling Range. In 1921 a 23-million gallon reservoir, which is no longer used for water supply, was constructed at Bickley Brook to replace a pipehead dam, and in 1928 one with a capacity of 480 million gallons was completed at Churchman Brook. During the same period pipehead dams were built across the upper course of the Canning River and its tributary, Wungong Brook, preliminary to the construction of Canning Reservoir, which was begun in 1933 and completed in 1940. Canning Reservoir has a storage capacity of 20,550 million gallons retained by a concrete wall 218 feet high and 1,534 feet long at the crest. Serpentine Pipehead Reservoir was completed in 1957 and Serpentine Reservoir, commenced in 1957, was completed in 1961. Serpentine Reservoir is constructed of rolled earth fill and the embankment rises 171 feet above the stream bed, the length at the crest being 1,390 feet. Its capacity, which is slightly less than that of Wellington Dam on the Collie River, is 39,000 million gallons.

Water from the storages in the Darling Range is conveyed to the metropolitan area by large trunk mains and then distributed by feeder, distribution and reticulation mains, either directly from the trunk mains or from large service reservoirs at Mount Yokine, Mount Eliza, Bold Park, Mount Hawthorn, Richmond, Melville, Buckland Hill, Hamilton Hill, Thompson Lake and Greenmount and from summit tanks and water towers situated at high points throughout the area supplied. To meet the peak demand during the summer months, supplies from these sources are supplemented from a system of artesian bores which can provide a daily maximum of 15 million gallons. On the 30th June, 1966, the number of consumer services was 158,675. The following table shows the quantities of water which were drawn from the various sources during each of the five years ended 30th June, 1962 to 1966.

METROPOLITAN WATER SUPPLY—QUANTITIES OF WATER DRAWN (a)
(million gallons)

Source	1961-62	1962-63	1963-64	1964-65	1965-66
Canning Reservoir	7,247	5,933	4,641	7,200	7,462
Churchman Brook Reservoir	614	646	1,069	759	661
Mundaring Weir	107	54	194	238	226
Serpentine Reservoir (b)	7,381	7,045	11,055	10,194	11,736
Victoria Reservoir	265	428	132	596	271
Wungong Brook Diversion Weir	1,826	2,056	1,937	708	822
Metropolitan Bores	1,297	1,429	599	1,093	804
Total	18,736	17,591	19,627	20,788	21,982

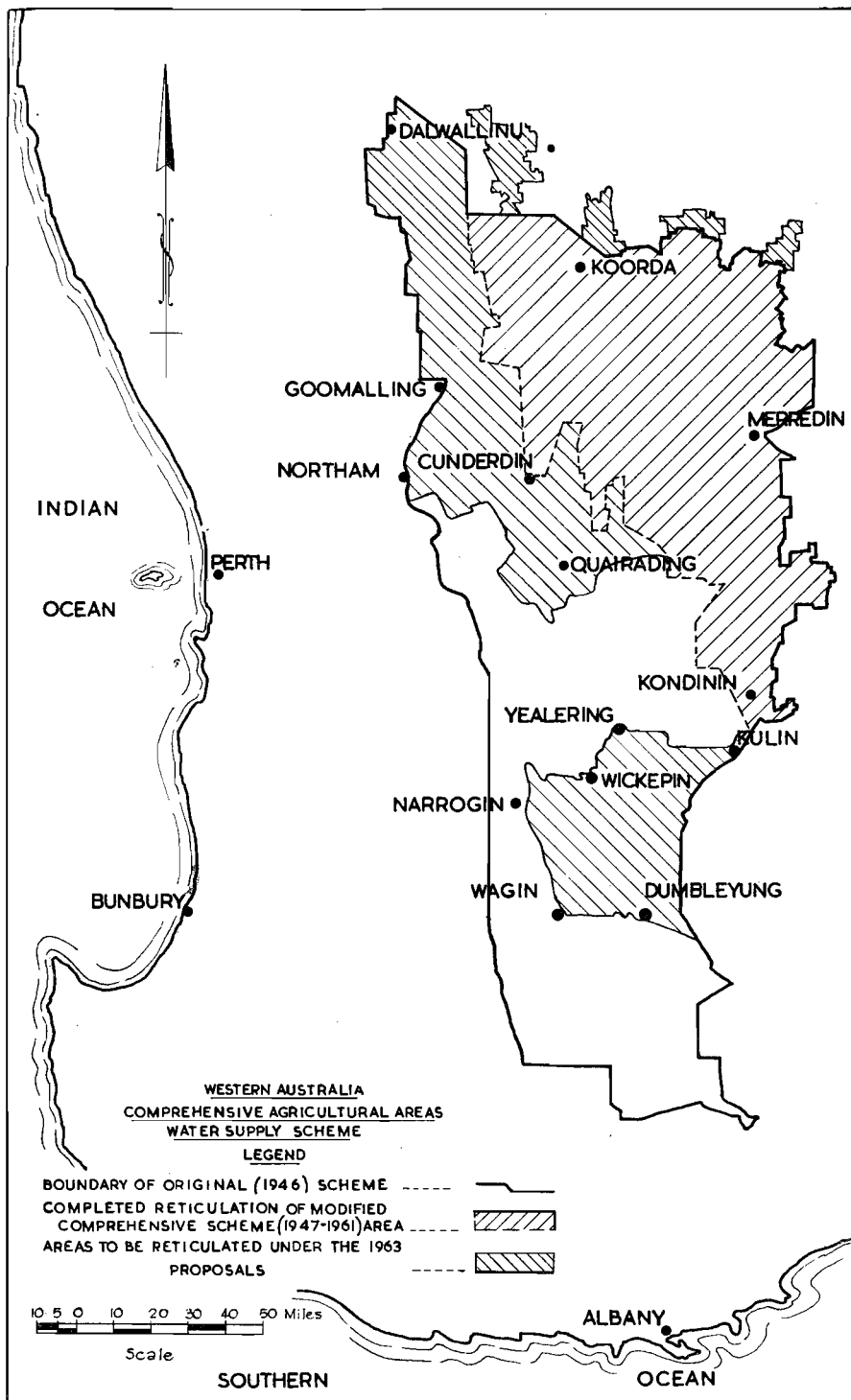
(a) Including supplies to railways and shipping.

(b) Includes water drawn from Serpentine Pipehead Reservoir.

COUNTRY WATER SUPPLIES

Controlled by the Department of Public Works and Water Supply

Since 1947 enlargement and extension of the Goldfields and Agricultural Water Supply and the development of the Great Southern Towns Water Supply have been carried out mainly in accordance with a project known as the Modified Comprehensive Scheme. A proposal for a comprehensive water supply scheme was first submitted by the State Government to the Commonwealth Government in January, 1946 when applying for financial assistance in its construction. The initial plan was intended to supply water to towns and farms in an area of 11.6 million acres in mixed farming (cereal and sheep) districts of Western Australia, as well as to increase the supply to the Eastern Goldfields. A committee appointed by the Commonwealth Government to consider the State's submission reported that certain areas within the scheme had a higher priority than others. As a result, the project was greatly reduced in scope and a modified scheme, to embrace 4.1 million acres, was agreed to by both Governments and adopted in October, 1947. The extent of the scheme as originally proposed, and as modified, is shown



on the map on page 250. A description of the boundary of the modified scheme is contained in a schedule to the Agricultural Areas, Great Southern Towns, and Goldfields Water Supply Act, 1947 (State), which gave parliamentary approval of the undertaking. Commonwealth financial aid was provided by means of the Western Australia Grant (Water Supply) Act 1948 (Commonwealth) and later amendments, which authorized reimbursement to the State of one-half of its expenditure on the scheme, up to a maximum grant of \$10 million.

The modified scheme was completed in 1961, the total expenditure amounting to \$20.6 million. A request made by the State Government in 1960 for a grant equal to half the cost of extending the scheme virtually to the boundary as first proposed in 1946 was rejected by the Commonwealth Government. Following this rejection the State Government embarked on a necessarily limited programme financed from its own loan moneys, the policy being to restrict extensions to supply certain towns within the original area and farm lands adjacent to pipelines. A further request was made by the State Government in 1963 for a grant of \$10.5 million payable over a seven-year period and representing one-half of the estimated cost of proposed extensions which would increase by 3.7 million acres the area served by the scheme. The Commonwealth agreed to provide assistance in the form of an interest-bearing loan up to a maximum of \$10.5 million, advances to be made during a period of eight years commencing with the financial year 1965-66. Legislative authority for the loan is given by the Western Australia (South-west Region Water Supplies) Agreement Act 1965 (Commonwealth). The map on page 250 shows the additional areas to be reticulated under the 1963 proposals.

Goldfields and Agricultural Water Supply

The original purpose of this undertaking, which was formerly known as the Goldfields Water Supply was to supply water for the Coolgardie and the Kalgoorlie-Boulder areas. To provide conservation, the Helena River was dammed near Mundaring, and on completion of the reservoir in 1902 it had a capacity of 4,655 million gallons. The increasing demand for water in the area served made it necessary to augment supplies. This was achieved by raising the wall 32 feet to a height of 132 feet and when the work was completed in 1951 the enlarged capacity of the reservoir was 15,154 million gallons. The capacity has since been further increased to 16,966 million gallons by the erection of adjustable steel crest gates four feet in height. The main pipeline between Mundaring and Kalgoorlie is 346 miles long. It is for the most part 30 inch diameter steel but has 40 miles of 42 inch and 36 inch pipe in the western portion. The pipeline is equipped with ten pump stations. The maximum pumping capacity from Mundaring Weir is 18.5 million gallons per day. The total capacity of all receiving, regulating, standby and service tanks (including three standby reservoirs at Kalgoorlie with a combined capacity of 60 million gallons) is 154 million gallons.

At the 30th June, 1966 the Goldfields and Agricultural Water Supply was serving 96 towns and water was being reticulated to farms in an area of 4.7 million acres. The number of services, length of water mains and consumption for the years 1961-62 to 1965-66 are given in the following table.

GOLDFIELDS AND AGRICULTURAL WATER SUPPLY

Year	Number of Services (a)	Mileage of Water Mains (a)	Consumption (a) (million gallons)						
			Domestic	Commercial	Industrial (including Railways)	Mining	Farms and Market Gardens	Other	Total
1961-62	24,400	3,727	1,025	121	233	503	615	392	2,889
1962-63	24,963	3,782	970	120	238	511	569	270	2,678
1963-64 (b)	24,114	3,919	1,048	123	222	551	627	158	2,727
1964-65	24,208	3,940	1,012	124	204	575	619	263	2,798
1965-66	25,094	3,992	930	114	246	538	517	257	2,602

(a) Figures include amounts consumed from local supplies at Waddouring-Barbalin-Knungajin, Bruce Rock, Narembene and Kondinin. (b) In 1963-64 portion of the "Hills District" previously supplied by the Goldfields and Agricultural Water Supply was transferred to the Metropolitan Water Supply.

Extensions to country towns and agricultural areas have been made from several points along the main pipeline. Norseman is connected by an extension southward from Coolgardie. A branch from this main supplies the nickel mining town of Kambalda. From a point west of Merredin water is taken northward to supplement local schemes at Waddouring-Barbalin-Knungajin. Other extensions north and south of the main pipeline provide water for a number of towns and surrounding districts, including Toodyay, Goomalling, York, Beverley and Bullfinch. A pipeline southward from Merredin to serve

Bruce Rock, Narembreen, Kondinin and surrounding districts and Kulin and surrounding districts is linked to an extension south-west from Doodlakine and taken westward to supply Corrigin. A main south from Cunderdin serves Quaraiding and the intermediate farmlands. Areas north-west of Burra-coppin are served by an extension northward from a point east of Merredin, and districts north of Kellerberrin by a pipeline connecting Kellerberrin to the Waddouring-Barbalin-Knungajin system already mentioned. Water is taken northward from Cunderdin through Minnivale to a point near Kokardine. Extensions westward, eastward and northward from this pipeline serve a number of towns and localities, including Dowerin, Wyalkatchem, Yelbeni, Koorda, Ballidu, Dalwallinu and Wongan Hills, and surrounding farm lands. An extension northward from the main pipeline serves Koolyanobbing, where iron ore is mined.

Great Southern Towns Water Supply

The Great Southern Towns Water Supply serves towns on the Great Southern Railway from Brookton to Katanning, as well as a number of other towns. Water is drawn from Wellington Dam which also supplies the Collie River Irrigation District. Work on the raising of the wall of the Dam was completed in 1960 and, with a capacity of 40,790 million gallons, it is now the largest in the State. Water is taken through Narrogin to Wickepin by means of a main pipeline 106 miles long. In addition to the pumping installation at the dam site, there are stations at a point 28 miles east of the dam and at Narrogin. From Narrogin, pipelines extend 40 miles northward to Brookton and 59 miles southward to Katanning. A branch westward from Katanning serves the town of Kojonup. A further extension south-eastward from Katanning through Broomehill to Gnowangerup was completed in 1964. An extension southward from Wickepin to Dumbleyung is currently under construction. A pipeline 11 miles long supplies water to a power station constructed for the State Electricity Commission at Muja, south-eastward from Collie.

At the 30th June, 1966 the Great Southern Towns Water Supply was serving 23 towns. Details of the number of services, length of water mains and consumption for the years 1961-62 to 1965-66 are given in the following table.

GREAT SOUTHERN TOWNS WATER SUPPLY

Year	Number of Services	Mileage of Water Mains	Consumption (million gallons)					
			Domestic	Com-mercial	Industrial (including Railways)	Farms and Market Gardens	Other (a)	Total
1961-62	6,641	353	296	56	76	19	82	530
1962-63	7,124	362	288	58	81	20	75	522
1963-64	7,328	365	337	67	71	22	68	565
1964-65	7,752	419	333	36	66	22	60	518
1965-66	7,958	450	286	35	207	24	59	611

(a) Excludes Mining, for which no services were provided by the Department of Public Works and Water Supply.

Supplies to other Country Towns

Ninety-two local schemes supply water from stream flow, dams, tanks, wells and bores, mainly to country towns. Ninety-one of these schemes are administered under the provisions of the Country Areas Water Supply Act, 1947-1964 and one under the Rights in Water and Irrigation Act, 1914-1964. The following table gives, for these local schemes, the number of services, length of water mains and consumption for the years 1961-62 to 1965-66.

DEPARTMENT OF PUBLIC WORKS AND WATER SUPPLY : LOCAL SCHEMES

Year	Number of Services	Mileage of Water Mains	Consumption (million gallons)						
			Domestic	Com- mer- cial	Industrial (including Railways)	Mining and Shipping	Farms and Market Gardens	Other	Total
1961-62	18,726	500	763	191	110	15	50	140	1,267
1962-63	18,828	512	816	128	122	16	50	142	1,273
1963-64	19,593	(a) 621	946	121	164	17	54	197	1,501
1964-65	21,322	679	886	206	198	18	55	208	1,571
1965-66	22,389	796	918	234	237	18	28	254	1,689

(a) Increase due principally to inclusion of mains for which records were not previously available.

The Department of Public Works and Water Supply is also responsible for the provision and maintenance of tanks and wells as a source of cartage water for a number of small communities in gold-mining and agricultural areas.

Other Country Water Supplies

As well as the schemes controlled by the Department of Public Works and Water Supply, there are five local Water Boards operating under the Water Boards Act, 1904-1964 which also draw supplies from stream flow, dams, tanks, wells and bores. In addition, some local authorities exercise powers under the Local Government Act, 1960-1967 to supply water within their boundaries. There are still, however, a large number of individual farms and pastoral stations which are not connected to public schemes and are therefore obliged to provide their own supplies. The Forests Department and sawmilling companies operate schemes to supply water to their mill towns.

Railways of the Commonwealth and State Governments make independent provision for supplies of water for their own purposes, although considerable additional quantities are consumed by the railways from other sources, such as those controlled by the Department of Public Works and Water Supply and the Metropolitan Water Supply, Sewerage, and Drainage Board.

Underground Water

Considerable use is made of underground water by individual farmers, pastoralists, market gardeners, etc., and it is estimated that over 50,000 bores are in use in the State. The quality of the water varies from place to place and much of it is too saline for irrigation or even stock. However, artesian aquifers are tapped to supply or augment the town supplies of Perth, Bunbury, Busselton, Eaton and Denham, and non-pressure water is used in the public supplies of thirty-seven other towns.

Considerable advances in the knowledge of aquifers and quality of water in the main sedimentary basins have been made as a result of extensive geological surveys by oil exploration companies and exploratory drilling by the Department of Mines.

The Department of Public Works and Water Supply and the Metropolitan Water Supply, Sewerage and Drainage Board are responsible for all developmental works. The Geological Survey, a branch of the Department of Mines, is responsible for all exploratory works, as well as for investigating and assessing the State's groundwater resources, advising local government authorities, private industry and individuals on groundwater problems, and supervising departmental drilling.

Groundwater exploration projects are in progress or have recently been completed for Port Hedland, Exmouth, Geraldton, Morawa, Jurien Bay, Yunderup, Mandurah, Albany, Esperance and Watheroo, and additional supplies have been located for the Perth metropolitan area. A long-term systematic exploratory drilling programme in the Perth Basin is continuing.

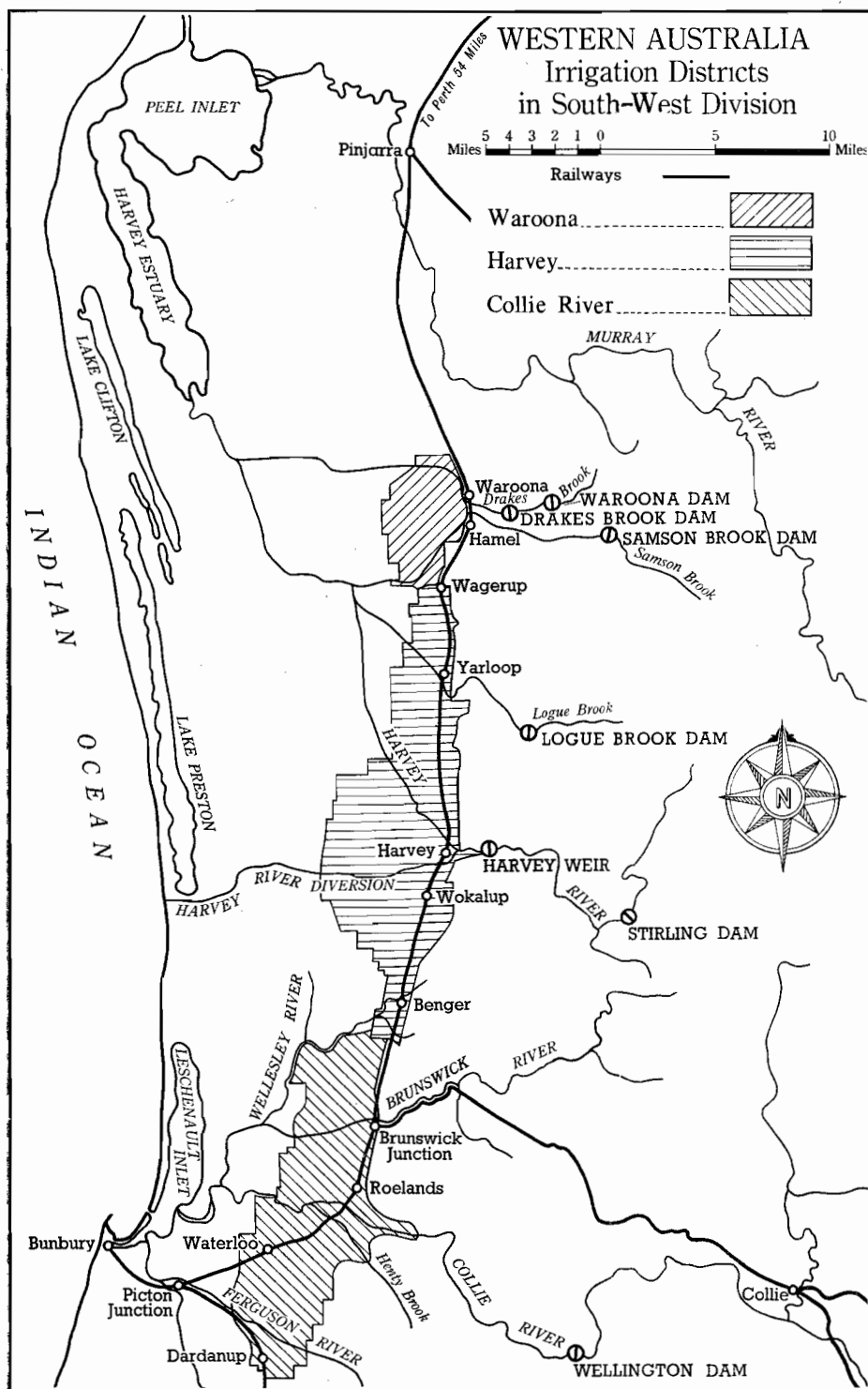
SOUTH-WEST IRRIGATION SCHEMES

Irrigation schemes have been established by the State Government on the coastal plain south of Perth in the Waroona, Harvey and Collier River Irrigation Districts between Waroona and Dardanup, the water being channelled from dams in the adjacent Darling Range.

Specialist advice on irrigation farming methods is available through the Department of Agriculture and the properties are watered on a rotational plan, according to the "Zone", or section of the District, within which the farms are situated. Three free waterings are given each season on all rated land. All other waterings are charged for and special waterings, out of rotation, are available at a higher fee.

The Harvey Irrigation District, opened in 1916, was the first large-scale project. Harvey Weir, with a capacity of 520 million gallons on completion, was constructed as the source of water supply and the service initially provided was for 3,000 acres of land for citrus growing.

The success of dairying and stock raising and to a lesser extent vegetable growing, which have replaced citrus culture, has led to gradual but substantial extensions of the South-West irrigation area. The damming of Drakes Brook in 1931 and Samson Brook in 1941 provided a storage capacity of 2,281 million gallons which, by alterations to Samson Brook Dam in 1960, has been increased to 2,525 million gallons and is used for the irrigation of 3,060 rated acres in the Waroona Irrigation District. Construction of a third storage to serve the Waroona District was begun in 1963. Known as Waroona Dam, it has been built on Drakes Brook about three miles up-stream from the existing Drakes Brook Dam. Its capacity is 3,290 million gallons and storage, which commenced in June, 1966, was available for the 1966-67 irrigation season. In 1931 the capacity of Harvey Weir was enlarged to 2,275 million gallons and in



1948 Stirling Dam, with an original capacity of 12,060 million gallons (increased to 12,552 million gallons by alterations in 1958), was completed further up-stream on the Harvey River. These works enabled the Harvey Irrigation District to be extended northward to link with the Waroona District. Logue Brook Dam, with a capacity of 5,358 million gallons, was completed in 1963 and provides additional supplies for the Harvey Irrigation District, the rated area of which is now 13,290 acres.

Concurrently with developments in the Harvey and Waroona Irrigation Districts, action was taken to conserve water for the Collie River Irrigation District and Wellington Dam on the Collie River was completed in 1933. In view of its importance, not only to irrigation projects but also to the Great Southern Towns Water Supply, the wall of this reservoir has been raised and when work was completed in 1960 its capacity of 8,000 million gallons had been increased to 40,790 million gallons. It serves an area of 10,870 rated acres in the Collie River Irrigation District, which extends from Brunswick Junction to Dardanup.

Details of irrigation in each District in the years 1964-65 and 1965-66 are given in the following table.

IRRIGATION : SOUTH-WEST SCHEMES

Particulars	Irrigation District						Total	
	Waroona		Harvey		Collie River			
	1964-65	1965-66	1964-65	1965-66	1964-65	1965-66	1964-65	1965-66
Area Watered—								
Pasture acres	3,114	3,871	12,841	13,274	11,581	12,095	27,536	28,740
Fodder Crops "	299	210	271	221	677	609	1,247	1,040
Potatoes "	12	9	23	84	368	333	403	426
Other Vegetables "	293	279	76	51	83	34	452	364
Orchards ..... "	.....	.....	178	178	44	45	222	223
Other (a) ..... "	.....	.....	.....	.....	.....	.....	.....	.....
Total "	3,718	3,869	13,389	13,808	12,753	13,116	29,860	30,793
Acre Waterings (b)	20,963	20,804	87,317	86,214	74,243	76,192	182,523	183,210
Average Number of Waterings (c)	5.6	5.4	6.5	6.2	5.8	5.8	6.1	5.9
Total Water Gauged at Entry to District	3,358	3,032	12,199	12,719	13,110	12,518	28,667	28,269
Dam Capacity "	2,525	5,815	20,185	20,185	40,790	40,790	63,500	66,280
Length of Channels miles	46	46	154	154	126	125	326	325

(a) Includes areas watered for softening purposes. (b) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each District. (c) Total acre waterings divided by total area watered.

NORTHERN IRRIGATION SCHEMES

Although not yet comparable in size with the South-West undertakings, the irrigation areas at Carnarvon and on the Ord and Fitzroy Rivers in the northern portion of the State are of increasing significance.

Carnarvon—During the past thirty years a centre of tropical agriculture has been developed at Carnarvon, near the mouth of the Gascoyne River. At first a number of tropical fruits were grown but, until recent years, production consisted mainly of bananas. A considerable quantity of early beans is now grown for the metropolitan market and for export interstate, and production of tomatoes and a variety of other vegetables has also increased in importance. This trend towards vegetable production has been accelerated by the damage caused to the banana plantations by cyclones and floods in recent years.

Agricultural development has been made possible only by irrigation, as the rainfall is extremely variable and averages little more than nine inches per annum. Each holding has its own irrigation plant and, wherever possible, the pumping unit is installed on a bank of the Gascoyne River. Usually the river bed is exposed, as surface flow does not occur regularly each year. Concrete-lined wells have been sunk into the river sands and the water obtained is pumped either to storage tanks or direct to the plantation feeder channels, from which it is distributed among the plants by furrows. Because of the limitations of supply from the river sands, the State Government has instituted controls over the quantity of water pumped by growers, has commenced to develop up-river sources and is delivering

supplementary water by pipeline to twenty-three plantations on the south bank of the river at the eastern extremity of the Carnarvon Irrigation District. A tropical research station is maintained at Carnarvon by the Department of Agriculture. To the early activities of this research station may be credited much of the success of the Carnarvon plantations, notably in the field of plant selection and pest control, and experimental work is being continued.

Ord River—The Ord River in the Kimberley Division traverses a tropical area which receives monsoonal rains of irregular incidence and quantity, varying from an annual mean of 20 inches in the south to 30 inches in the north. Investigations at the Kimberley Research Station, established in 1945 and operated by the Department of Agriculture in conjunction with the Commonwealth Scientific and Industrial Research Organization, have shown that the climate and soil conditions are favourable for the cultivation of sugar-cane, rice, cotton, safflower and various oil seeds. As a result of these investigations the State Government, with Commonwealth financial assistance, has embarked on a project to provide water supplies for irrigation in the area.

The Ord Irrigation Project provides for the development of 175,000 acres of land agriculturally and topographically suitable for irrigation. In the original scheme, the total area to be irrigated amounted to 150,000 acres. The project comprises four stages, the first being the construction of a diversion dam to supply water for an area of 30,000 acres. The other stages are the building of a main storage dam with a capacity of 3.5 million acre-feet (equivalent to more than 950,000 million gallons), the progressive development of the remaining 145,000 acres, and the construction of a hydro-electric power station.

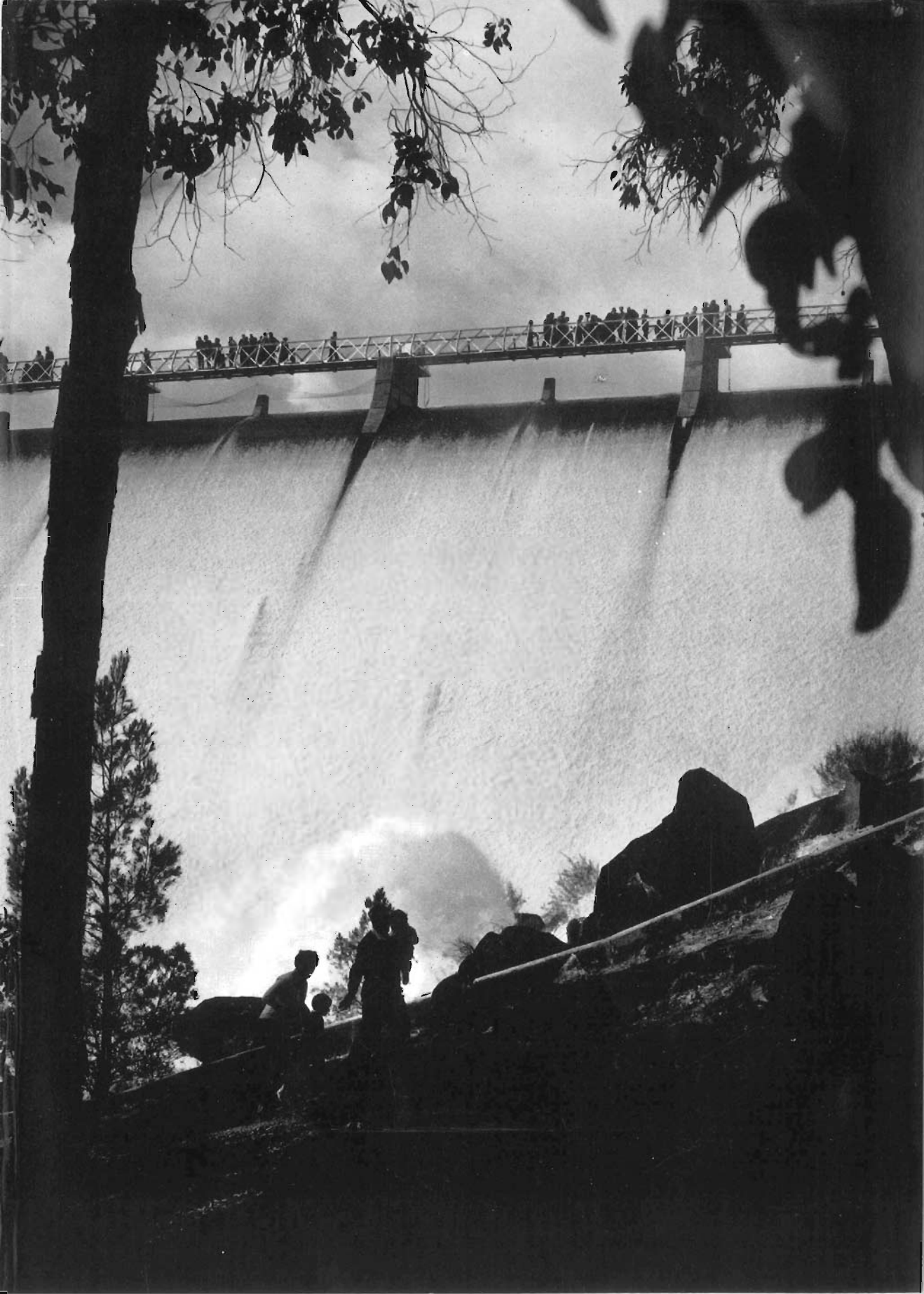
The diversion dam, situated at Bandicoot Bar about 65 miles by road south-east of Wyndham and 30 miles downstream from the site of the proposed main dam, was officially opened on the 20th July, 1963. The capacity of the diversion dam is 21,467 million gallons and irrigation from the dam commenced in April, 1963.

Apart from an area of 2,400 acres formerly used as a pilot farm but now being developed privately, thirty farms are included in the first stage of the project. The farms each have an area of approximately 660 acres and cotton is the principal crop, although in 1967 small areas of grain sorghum and wheat were planted as an experiment by some of the farmers.

The diversion dam was recognized by the Commonwealth Government in August, 1959 as an approved project within the meaning of the Western Australia Grant (Northern Development) Act 1958-1959 (Commonwealth). This legislation provides for payment by the Commonwealth to the State Government of a non-repayable grant of \$10 million for development of the part of the State north of 20° S. latitude. Of this grant, \$8.2 million was spent on the diversion dam. In February, 1963 a further approach was made to the Commonwealth requesting an amount of \$3.3 million for the completion of channels and drains required to develop the whole of the 30,000 acres included in the first stage of the project. The request was approved in August, 1963 and moneys made available by way of grant in terms of the Western Australia (Northern Development) Agreement Act 1963. The total expenditure on the Project to the 30th June, 1967 was \$17.3 million, of which \$5.22 was expenditure by the State Government and \$12.08 the amount of Commonwealth aid.

In February, 1964 the State Government submitted to the Commonwealth a case for financial assistance to complete the Ord Irrigation Project. The request was for \$60 million, also on the basis of costs at the end of 1963, to be spent over a period concluding with the financial year 1979-80. The principal components of this sum are the cost of building the main storage dam and extending the existing channels, drains and ancillary works to irrigate the total area of 150,000 acres (\$40 million), the construction of an underground hydro-electric power station at the site of the main dam (\$12 million) and the provision of housing for farmers and their employees, as well as government workers associated with the project (\$8 million).

It was announced in April, 1965 that the Commonwealth Government had deferred a decision on the State's request until more information as to the likely future productivity of the area, based on a longer trial period, became available. In May, 1966 the request was the subject of discussions between the State and Commonwealth Governments at ministerial level. On the basis of revised costs, the amount sought from the Commonwealth to complete the second phase of the Ord Irrigation Project was \$70,620,000. Subsequently, the Commonwealth Government announced that additional financial assistance for the project could not be given until, in their view, such action was warranted by results on the existing farms. Following a further submission by the Western Australian Government, incorporating the latest information, the Commonwealth Government in November, 1967 approved the plan for the second phase



MUNDARING WEIR

Mundaring Weir is the source for the Goldfields and Agricultural Water Supply. It is linked to Kalgoorlie by pipeline and serves the more populous parts of the Eastern Goldfields as well as certain towns and farming areas north and south of the main pipeline. As occasion arises, Mundaring Weir supplies to or draws from the Metropolitan Water Supply. When completed in 1902 the reservoir had a storage capacity of 4,655 million gallons. This was augmented in 1951 with the raising of the wall 32 feet to a new height of 132 feet, giving a capacity of 15,154 million gallons. With the installation in 1959 of adjustable steel crest gates, four feet in height, the capacity was further increased to 16,966 million gallons.

of the Ord River Irrigation Scheme and agreed to provide a \$20.9 million grant for the building of the main Ord dam and a \$27.25 million interest-bearing loan for associated irrigation works in Western Australia.

Fitzroy River—On the Liveringa flood plain, grain and fodder sorghums and rice are being produced at Camballin, 65 miles south-east of Derby. Irrigation water from the Fitzroy River is diverted, by means of a weir with a capacity of 1,209 million gallons constructed across the river, through Uralla Creek, an anabranch, for 17 miles to another dam with a storage of 1,250 million gallons constructed on Uralla Creek.

During 1965-66, water used in the irrigation of crops amounted to 8,398 acre-feet. Later it will be necessary to construct a storage dam on the upper reaches of the Fitzroy River for the large-scale developments envisaged for this area.

Details of irrigation in the Ord and Camballin Irrigation Districts for the years 1964-65 and 1965-66 are given in the following table.

IRRIGATION : ORD AND CAMBALLIN DISTRICTS

Particulars	Irrigation District				Total	
	Ord		Camballin			
	1964-65	1965-66	1964-65	1965-66	1964-65	1965-66
Area Watered acres	(a) 6,957	(a) 11,652	3,667	(a) 2,624	(a) 10,624	(a) 14,276
Acre Waterings (b)	49,859	90,932	(c)	(c)	(d)	(d)
Average Number of Waterings (e)	7.2	7.8	(c)	(c)	(d)	(d)
Total Water Gauged at Entry to District million gal.	9,696	16,113	2,357	2,282	12,053	18,395
Dam Capacity "	21,467	21,467	(f) 1,576	(f) 1,576	(f) 23,043	(f) 23,043
Length of Channels miles	41	53	4	16	45	69

(a) Includes 588 acres of cotton regrowth in 1964-65 and 1513 acres in 1965-66. (b) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (c) Not applicable as irrigation is continuous. (d) See note (c). (e) Total acre waterings divided by total area watered. (f) Includes 326 million gallons of natural storage.

CHAPTER VIII – PRODUCTION

Secondary industry in Western Australia has become increasingly important and now almost equals primary industry in terms of net value of production. This relationship, however, could be materially affected by the development of recent major discoveries of minerals, including oil, and may change substantially in the next few years. Primary production, and in particular the agricultural, pastoral and mining sectors, may therefore still be regarded as having the greater influence on the economy of the State.

Farming has been carried on from the earliest years of settlement but its development was originally restricted by inadequate transport, shortage of labour and a limited local consumption. These difficulties were partly overcome by the introduction of convict labour during the period from 1850 to 1868, but the Colony was still dependent on the importation of many items of foodstuffs when the position was aggravated by a great influx of people attracted by the discovery of gold in the Kimberley in 1885 and by the spectacular finds in the 1890s at Coolgardie and Kalgoorlie and at other places on the eastern goldfields. Between 1890 and 1905 the population increased from 48,502 to 250,138 and, despite an increase in the area under crop from 69,700 acres to 364,700 acres during these years, agricultural production remained insufficient to meet local demands.

A decline in gold mining which began after 1903 caused a growing interest in farming as an alternative pursuit and by 1911 the area under crop had increased to more than one million acres, of which 612,000 were sown to wheat for grain. Since that time, although there have been some fluctuations in agricultural activity, the area under crop has risen to almost eight and a half million acres of which more than six million acres are sown to wheat for grain.

Circumstances similar to those applying to agriculture stimulated the growth of the pastoral industry and large cattle and sheep stations were established on land leased from the Crown, mainly in the northern and north-western areas and in parts of the eastern goldfields. The number of cattle in the State increased from 131,000 to 825,000 and of sheep from 2,525,000 to 5,159,000 between 1890 and 1910, when nearly three-fifths of the sheep were in the pastoral areas and little more than two-fifths in the agricultural areas as defined on page 284. With the development of mixed wheat and sheep farming the total number of sheep has risen and in 1966 was 24.4 million, but less than one-fifth are now in the pastoral areas and more than four-fifths in the agricultural areas. Of the total of 1,271,226 cattle in the State in 1966 nearly half were in the Kimberley Division where cattle are raised almost exclusively for meat production.

The contribution of gold mining to the Western Australian economy has diminished greatly since the peak production of 1903. It is nevertheless of considerable importance and, in 1965, was still the major mining activity, followed in order by the mining of iron, coal, ilmenite, manganese, asbestos and tin.

Dairying, with an average annual milk production over the last five years of about 59 million gallons, has become a significant factor in primary industry and in 1965-66 the output of butter was 18,132,833 lb. and of cheese 2,711,774 lb.

The demand for jarrah and karri hardwoods has long been a feature of the State's economy. Indiscriminate cutting in earlier years and disregard of the need for preservation and regeneration threatened the survival of the timber industry. However, governmental controls over forestry operations and a policy of reforestation introduced in 1918 have proved to be effective and the industry is now established on a firm basis, timber forming an important component of primary production.

The overseas demand for crayfish, which developed in post-war years, gave great impetus to the fishing industry and the total value of the take of fish has increased from \$739,000 in 1947 to \$13,823,000 in 1965-66. Interest in whaling was evident in the first years of colonization, exports of oil and whale-bone being recorded in the earliest of the colonial Blue Books. Whaling activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949 when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. Since the 1963 season, activity has declined considerably following the imposition by the International Whaling Commission of a total ban on the taking of humpback whales. The only station now operating is at Albany where sperm whaling is conducted.

Secondary industry has expanded substantially in recent years and may be expected to expand even more rapidly in future. A major oil refinery, a steel rolling mill, an alumina refinery and a factory for the manufacture of titanium oxide from ilmenite have been established since 1955. These are among a growing number of factories which rely mainly on the interstate and overseas export of their products and this new trend indicates that dependence primarily on local demand is becoming less serious as an obstacle to development than it has been in the past. A blast furnace with an annual output of approximately 600,000 tons of pig-iron is nearing completion and will constitute an important addition to the

State's manufacturing capacity. It is being constructed in the Kwinana area where development has been encouraged by the dredging of a deep-water channel and the construction of harbour facilities to meet the requirements of large-scale projects.

The following table shows net values of production of the various primary industries and of secondary industry during the five years 1961-62 to 1965-66. An effective comparison of their relative importance is provided by the five-yearly averages quoted, as they tend to lessen the effect on the statistics of unusual seasonal or other conditions occurring in individual years.

NET VALUE OF RECORDED PRODUCTION

Industry	1961-62	1962-63	1963-64	1964-65	1965-66	Average of five years
VALUE (\$'000)						
Agriculture	102,651	108,506	79,619	92,800	154,493	107,614
Pastoral	82,657	82,579	123,545	101,069	129,772	103,924
Dairying	8,738	9,014	10,520	12,601	13,031	10,781
Poultry Farming	1,200	1,787	1,345	1,589	3,253	1,837
Bee Keeping	495	532	849	519	643	608
Trapping	373	293	434	678	663	488
Forestry	10,382	10,163	10,735	11,334	11,965	10,916
Fishing and Whaling	10,256	10,703	8,926	13,973	14,478	11,667
Mining and Quarrying	31,106	32,244	30,697	32,163	35,192	32,280
Total, Primary	247,867	255,821	266,670	266,726	363,490	280,115
Manufacturing	196,083	216,422	230,511	260,637	288,803	238,491
Total, Primary and Manufacturing	443,950	472,243	497,181	527,363	652,293	518,606
PROPORTION OF TOTAL (PER CENT.)						
Agriculture	23.12	22.98	16.01	17.60	23.68	20.75
Pastoral	18.62	17.49	24.85	19.16	19.89	20.03
Dairying	1.97	1.91	2.12	2.39	2.00	2.08
Poultry Farming	0.27	0.38	0.27	0.30	0.50	0.36
Bee Keeping	0.11	0.11	0.17	0.10	0.10	0.12
Trapping	0.08	0.06	0.09	0.13	0.10	0.09
Forestry	2.34	2.15	2.16	2.15	1.83	2.11
Fishing and Whaling	2.31	2.26	1.80	2.65	2.22	2.25
Mining and Quarrying	7.01	6.83	6.17	6.10	5.40	6.22
Total, Primary	55.83	54.17	53.64	50.58	55.72	54.01
Manufacturing	44.17	45.83	46.36	49.42	44.28	45.99
Total, Primary and Manufacturing	100.00	100.00	100.00	100.00	100.00	100.00

The *Net Value* quoted in the above table represents the return to the producer, after deducting from the gross value the cost of all goods consumed in the process of production and costs of marketing the product. It is the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.

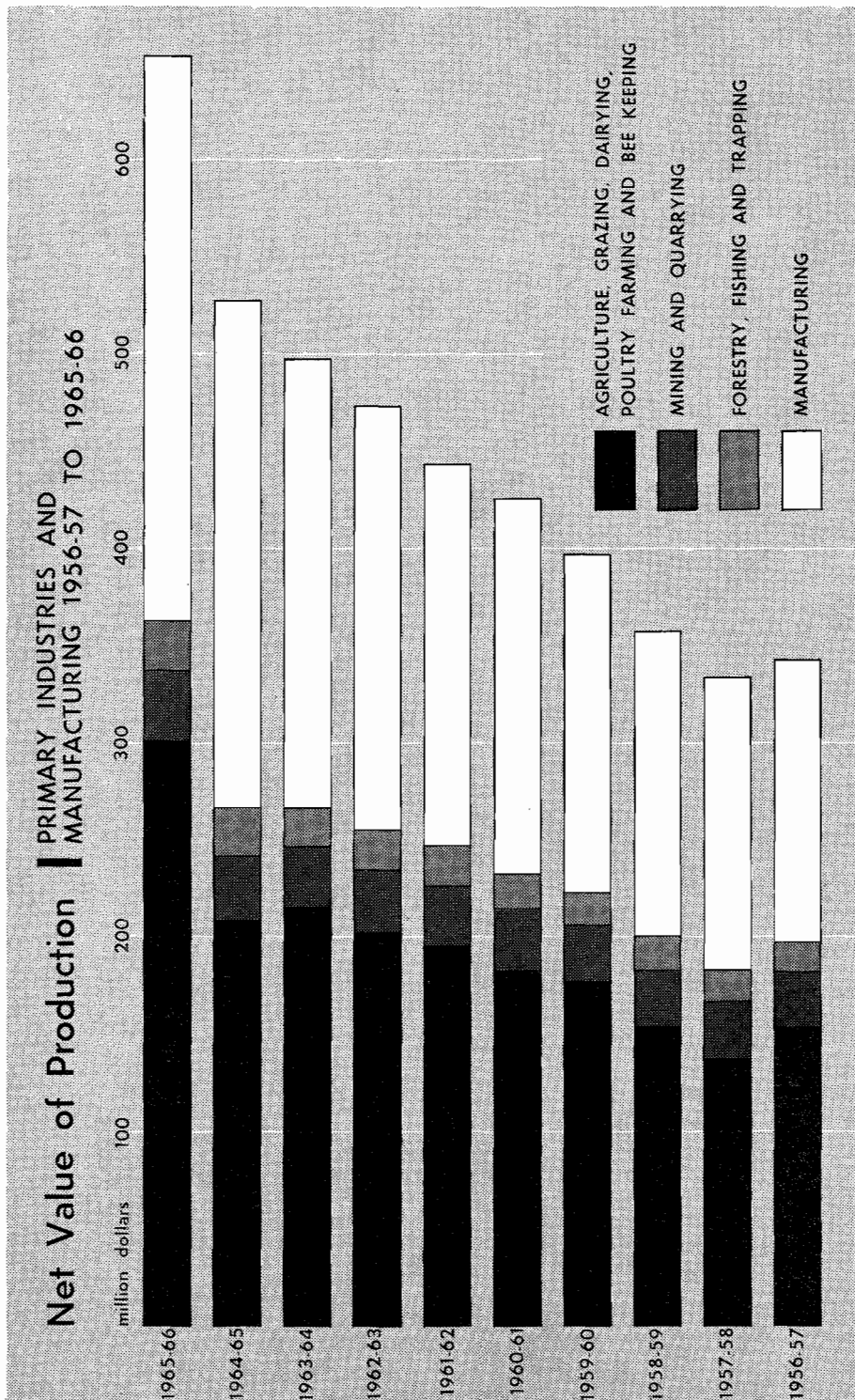
GEOGRAPHICAL DISTRIBUTION OF INDUSTRY

The following brief survey of production in the Statistical Divisions of the State should be read in conjunction with the map appearing at the back of the Year Book. Reference should also be made to the *Note on Statistical Divisions* preceding the Index.

The Perth Division (2,072 square miles), with a population of 558,821 (30th June, 1966) or over two-thirds of the State total, is the principal centre of manufacturing activity. Its industrial establishments, which are engaged in most classes of secondary industry, employ 49,400 or over four-fifths of the factory workers of the State. They also contribute over four-fifths of the total net value of factory production.

Farm activity for the Division is confined mainly to the production of citrus, pome and stone fruits, eggs, poultry, vegetables and whole milk. Production is principally for consumption within the metropolitan area but small quantities are exported. In addition, most of the State's viticultural industry is carried on in this region. Table grapes, currants, raisins and sultanas are produced for the local market and for export, and wine-making grapes are grown for use in local wineries and distilleries. A well-established fishing industry operates from the port of Fremantle, the main catch being crayfish.

The South-West Division (11,030 square miles) is the main dairying area of the State and produces a large proportion of the total output of whole milk and of butter, cheese and condensery products. Pig raising is carried on both separately and as an ancillary activity to dairying. The rearing of cattle for meat production is now of major importance. Apples, pears, stone fruits, potatoes and other vegetables are grown extensively. Timber is one of the main products, being milled over a wide area,



and coal, ilmenite and tin are the principal minerals produced. Commercial fishing is centred on Mandurah, Bunbury and Busselton. The factories of the Division, which employ 4,700 workers, include sawmills, butter, cheese and milk-processing plants, meat works, a superphosphate works, a large chemical factory producing titanium oxide pigments and two major electricity generating stations.

The Southern Agricultural, Central Agricultural and Northern Agricultural Divisions, which together cover 86,216 square miles, comprise the principal cereal-growing districts and produce the bulk of the State's wheat, oats and barley crops. The development of clover ley farming over a wide area has led to a remarkable increase in the number of sheep carried on farms in these Divisions and the total, 18.1 million, is now almost three-quarters of the State's sheep population. There has been a corresponding rise in wool production which now represents 75 per cent. of the State's clip. The raising of cattle, principally for meat production, has also increased in importance and the number kept for all purposes is now 212,387 or 17 per cent. of the State total. Tomatoes and other vegetables are grown around Geraldton and citrus fruits in the Chittering area. Dairying, apple and pear growing, potato growing and the cultivation of peas for processing are important in the districts around Denmark, Albany and Mount Barker. Whaling and fishing are carried on from Albany, on the south coast, and the important crayfishing industry on the lower west coast is based on the Abrolhos Islands, Geraldton, Dongara, Jurien Bay, Cervantes and Lancelin Island. Lead has been mined near Northampton for many years and the mining of iron ore, which is being shipped to Japan from Geraldton, commenced at Koolanooka in 1966. Factories, which include flour-mills, superphosphate works, butter factories, sawmills, a woollen mill, a charcoal iron and wood-distillation plant, a fish cannery and a meat works, provide employment for 4,600 workers.

The North-West Division (75,731 square miles) has 1.29 million sheep, representing over five per cent. of the State total, and 24.5 thousand cattle. Tropical agriculture has been developed on the Gascoyne River at Carnarvon where bananas and beans and other vegetables are grown. Whaling operations, formerly based on Carnarvon, have been discontinued and an important prawn-fishing industry has been established in the area. Commercial fishermen operate also from Shark Bay.

The Kimberley Division (162,363 square miles), with over half a million cattle, or 41 per cent. of the State total, and meat works at Wyndham, Derby and Broome, is the most important source of beef for export from Western Australia to overseas markets. Broome is also the centre of pearl-shell fishing. Culture pearls are being successfully produced at Kuri Bay in Brecknock Harbour, Cygnet Bay in King Sound and at Exmouth Gulf. Iron ore is mined at Cockatoo and Koolan Islands in Yampi Sound. Reference is made on pages 255-7 to agricultural developments at Kununurra on the Ord River and Camballin on the Fitzroy River.

The Eastern Goldfields, Central and Pilbara Divisions covering a total area of 638,508 square miles contain the principal gold and mineral fields of the State and almost all the gold produced in Western Australia comes from this area. Iron ore, which is used for the production of pig-iron at Wundowie in the Darling Range, east of Perth, has been mined since 1950 at Koolyanobbing, east of Bullfinch in the Yilgarn district. Deposits in this area are being developed on a large scale for the supply of ore to the blast furnace under construction at Kwinana, and for export. Large-scale mining of iron ore, which is being exported to Japan, commenced in the Pilbara in 1966. Further reference to these developments will be found on pages 315-6. Other minerals and ores produced elsewhere in these Divisions include beryl, feldspar, gypsum, pyrites and ores of copper, manganese, silver, tin and tanto-columbite. Although mining is the main industry, these Divisions contribute also to pastoral output, the area containing almost 14 per cent. of the sheep and more than seven per cent. of the cattle in the State. Cereals are grown in the south-western portion of the Eastern Goldfields Division, which produced over 7.5 million bushels of wheat, oats and barley in 1965-66.

PART 1—PRIMARY PRODUCTION

LAND UTILIZATION ON RURAL HOLDINGS

In 1965-66 there were 22,853 rural holdings in the State, comprising 270,054,451 acres of land or 43 per cent. of the total area of Western Australia.

The total area of rural holdings consisted of 30,898,048 acres of cleared land and 239,156,403 acres uncleared. Of the cleared land, 8,448,751 acres were used for crop, 11,382,183 acres were under established pastures, 1,193,730 acres were newly cleared during the season and 1,942,225 acres were in fallow. The balance of the cleared area, 7,931,159 acres, comprised land which was used for grazing or was resting during the season. The uncleared land is mainly pastoral leases held by sheep and cattle stations.

Land development in the post-war period has been stimulated by generally favourable prices for agricultural and pastoral commodities. Special concessions to primary producers under the provisions of the taxation legislation have also contributed to the increased capital investment in primary industry. This development, which has been undertaken principally by established farmers and by the War Service Land Settlement Board, has been aided by the introduction of modern mechanical methods of land clearing. As a result, the area of cleared land on rural holdings has more than doubled, from 14,621,424 acres in 1946-47 to 30,898,048 acres in 1965-66. In the same period land used for crops has increased from 3,532,445 acres to 8,448,751 acres and the area under established pastures from 2,092,279 to 11,382,183 acres. The area in fallow has decreased from 2,070,076 to 1,942,225 acres.

LAND UTILIZATION

Season	Cleared Land						Rural Holdings	
	Used for Crop (a)	Under Established Pasture	Newly Cleared, prepared for next Season	In Fallow	Used for Grazing or Resting	Total	Number	Area
	acres	acres	acres	acres	acres	acres		acres
1956-57	5,139,098	6,055,737	653,317	1,682,291	8,579,474	22,109,917	21,385	232,689,218
1957-58	5,510,867	6,425,664	616,412	1,459,894	8,806,806	22,819,643	21,593	236,666,717
1958-59	6,015,387	6,960,243	710,207	1,988,440	8,038,696	23,712,973	21,563	238,263,581
1959-60	6,382,121	7,358,662	726,382	1,921,417	8,232,097	24,620,679	21,832	244,618,596
1960-61	6,756,637	7,687,468	775,905	1,867,803	8,280,221	25,368,034	21,922	247,736,774
1961-62	6,975,879	8,181,566	888,906	1,745,884	8,468,969	26,261,204	22,082	252,783,283
1962-63	7,326,848	8,679,375	999,438	1,999,302	8,267,951	27,272,914	22,554	262,659,722
1963-64	6,705,632	9,509,620	1,133,475	1,712,050	9,201,732	28,262,509	22,770	266,555,916
1964-65	7,289,406	10,426,891	1,120,042	1,756,989	8,952,149	29,545,477	22,856	268,553,428
1965-66	8,448,751	11,382,183	1,193,730	1,942,225	7,931,159	30,898,048	22,853	270,054,451

(a) Excluding meadow hay.

LAND UTILIZATION IN EACH STATISTICAL DIVISION: 1965-66

Statistical Division	Cleared Land						Rural Holdings	
	Used for Crop (a)	Under Established Pasture	Newly Cleared, prepared for next Season	In Fallow	Used for Grazing or Resting	Total	Number	Area
	acres	acres	acres	acres	acres	acres		acres
Perth	27,517	173,728	9,845	5,346	48,333	264,769	3,963	434,301
South-West	69,842	1,286,448	46,634	9,706	135,984	1,548,614	4,388	2,503,626
Southern Agricultural	1,351,777	3,508,714	315,841	367,971	1,151,894	6,696,197	4,557	9,626,071
Central Agricultural	3,954,636	3,512,439	305,140	689,970	3,344,413	11,806,598	5,113	15,229,699
Northern Agricultural	2,543,743	2,356,933	292,594	598,868	2,706,404	8,498,542	3,233	15,480,482
Eastern Goldfields	484,082	542,552	220,423	267,051	488,912	2,003,020	963	43,131,893
Central	2,246	1,002	940	1,323	4,182	9,693	159	62,806,713
North-West	1,496	.....	42	311	744	2,593	240	42,604,905
Pilbara	2	.....	.....	.....	15	17	58	23,587,028
Kimberley	13,410	367	2,271	1,679	50,278	68,005	129	54,649,733
Total	8,448,751	11,382,183	1,193,730	1,942,225	7,931,159	30,898,048	22,853	270,054,451

(a) Excluding meadow hay.

CLASSIFICATION OF RURAL HOLDINGS

Some of the information from the 1965-66 Agricultural and Pastoral Census was classified by size of principal characteristics (area of holdings, area of established pasture, area of selected crops and numbers of livestock). In addition all holdings were classified according to type of activity. Tables showing this information together with definitions and an outline of methods used have been published by the Commonwealth Bureau of Census and Statistics, Canberra in a series of bulletins, *Classification of Rural Holdings by Size and Type of Activity, 1965-66*. Similar information was also published for the year 1959-60 when type of activity classifications were undertaken uniformly throughout Australia for the first time. Data on size classification were published in a series of bulletins for the year 1955-56.

Selected size classification tables for Western Australia are published elsewhere in this Chapter and the type of activity classifications for the State are shown on the next three pages. For definitions and a description of the methods used in classifying rural holdings by type of activity, reference should be made to the bulletins mentioned above.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO AREA AND TYPE OF ACTIVITY—SEASON 1965-66

Area of Wheat for Grain (acres)		Type of Activity												Total Class- ified Holdings	Unclassified Holdings		All Holdings	
		Sheep— Cereal Grain	Sheep	Cereal Grain	Cattle (Meat Pro- duc- tion)	Cattle (Milk Pro- duc- tion)	Vine- yards	Fruit (Other than Vine)	Po- tatoes	Other and Mixed Vege- tables	Poultry	Pigs	Other		Multi- purpose			
1-9	...	18	61	...	2	...	...	...	...	...	1	1	4	89	8	...	97
10-19	...	37	62	...	...	...	...	...	...	...	1	1	2	108	18	...	126
20-29	...	34	49	1	2	...	...	...	...	...	1	...	7	94	10	...	104
30-39	...	88	76	2	2	...	...	...	...	...	1	...	9	180	23	...	203
40-49	...	88	67	23	...	...	...	...	...	...	2	...	20	202	15	...	217
50-59	...	138	56	13	2	...	...	...	...	...	2	...	14	226	16	...	242
60-69	...	318	46	64	4	...	...	...	...	...	1	...	24	460	...	...	462
70-79	...	289	20	45	1	...	...	...	...	...	...	...	7	365	...	...	365
80-89	...	624	28	151	...	...	...	...	...	...	...	...	31	834	...	...	834
90-99	...	709	10	163	...	...	...	...	...	...	...	...	2	905	...	...	905
100-149	...	702	1	151	2	...	...	...	...	...	1	...	17	867	...	...	867
150-199	...	500-999	...	257	...	...	...	...	...	...	...	...	12	1,488	...	...	1,488
200-299	...	1,000-1,999	...	357	...	...	...	...	...	...	...	...	7	1,414	...	...	1,414
300-399	...	1,043	...	528	...	...	...	...	...	...	...	...	13	1,579	...	...	1,579
400-499	...	5,000-9,999	...	1,041	...	...	...	...	...	...	...	...	9	1,579	...	...	1,579
500-599	...	1,041	...	157	...	...	...	...	...	...	...	...	...	364	...	...	364
600-699	...	207	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
700-799	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
800-899	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
900-999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,000-1,999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2,000-4,999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5,000-9,999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10,000-and over	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	...	6,560	475	1,913	16	1	2	1	...	2	4	15	10	176	9,175	92	...	9,267

HOLDINGS WITH SHEEP FLOCKS, CLASSIFIED ACCORDING TO SIZE OF FLOCK AND TYPE OF ACTIVITY—SEASON 1965-66

Size of Sheep Flock (numbers)	Type of Activity												Total Class- ified Holdings	Unclassified Holdings		All Holdings		
	Sheep— Cereal Grain	Sheep	Cereal Grain	Cattle (Meat Pro- duc- tion)	Cattle (Milk Pro- duc- tion)	Vine- yards	Fruit (Other than Vine)	Po- tatoes	Other and Mixed Vege- tables	Poultry	Pigs	Other		Multi- purpose	Sub- com- mer- cial		Unused, Special, etc.	
1-49	21	91	136	3	27	16	5	28	19	4	13	363	337	...	700
50-99	29	43	50	3	16	1	2	1	14	1	12	173	118	...	291
100-199	60	65	48	9	21	10	...	2	13	...	35	280	164	...	444
200-299	32	79	47	2	32	6	...	...	...	5	24	316	101	...	417
300-399	86	94	40	...	22	4	...	...	...	...	31	379	84	...	413
400-499	106	82	23	...	12	1	...	...	...	...	31	415	...	...	415
500-599	231	179	50	...	17	6	...	...	...	...	75	1,000	...	...	1,000
600-699	426	281	62	...	17	5	...	...	...	...	66	1,654	...	...	1,654
700-799	974	313	39	...	17	1	...	...	...	...	62	2,044	...	...	2,044
1,000-1,999	1,385	381	32	...	6	...	...	...	...	...	60	2,255	...	...	2,255
2,000-2,999	1,578	502	84	...	3	1	...	...	...	...	40	2,069	...	...	2,069
3,000-4,999	1,292	692	32	...	1	...	...	...	...	2	21	1,112	...	...	1,112
5,000-9,999	633	436	9	...	2	...	...	...	...	...	7	491	...	...	491
10,000-19,999	169	310	4	...	...	...	...	...	...	...	...	166	...	...	166
20,000-49,999	19	147	...	...	...	...	...	...	...	...	...	39	...	...	39
50,000 and over	5	34	...	...	...	...	...	...	...	...	...	1	...	...	1
Total	6,777	3,278	1,062	470	301	17	176	51	10	35	60	43	477	12,757	754	...	...	13,511

HOLDINGS WITH CATTLE (MILK PRODUCTION) HERDS (a) ACCORDING TO SIZE OF HERD AND TYPE OF ACTIVITY—SEASON 1965-66

Size of Cattle Herd (Milk Production) (numbers)	Type of Activity												Total Class- ified Holdings	Unclassified Holdings		All Holdings	
	Sheep— Cereal Grain	Sheep	Cereal Grain	Cattle (Meat Pro- duc- tion)	Cattle (Milk Pro- duc- tion)	Vine- yards (Other than Vine)	Fruit (Other than Vine)	Po- tatoes	Other Mixed Vege- tables	Poultry	Pigs	Other		Multi- purpose	Sub- com- mer- cial		Unused, Special, etc.
1-4	581	214	77	94	5	2	32	10	7	15	8	1	43	1,089	168	3	1,260
5-9	43	16	4	10	2	...	7	5	2	1	...	...	4	94	58	...	142
10-14	10	6	...	3	4	...	2	2	...	...	...	...	2	43	33	...	68
15-19	5	12	1	12	11	...	2	13	...	2	...	1	1	89	132	...	132
20-29	1	12	...	13	29	...	91	13	...	...	...	...	14	110	75	...	185
30-39	...	...	...	18	48	...	12	13	...	...	...	...	16	146	64	...	210
40-49	1	16	...	12	113	...	10	6	...	...	...	...	13	167	43	...	210
50-59	1	7	...	11	190	...	7	9	...	1	...	...	12	237	7	...	244
60-69	1	2	...	13	152	...	4	6	...	...	...	...	20	205	...	...	205
70-79	1	3	...	9	136	...	1	4	...	...	...	1	14	169	...	...	169
80-89	...	2	...	10	98	...	...	5	...	...	...	...	9	118	...	...	118
90-99	...	1	...	33	317	...	...	9	...	...	...	1	20	390	...	...	390
100-149	...	5	...	5	123	...	...	...	...	...	...	...	4	133	...	...	133
150-199	...	1	...	9	119	...	...	...	...	...	...	...	3	131	...	...	131
200 and over	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	644	304	85	243	1,420	2	113	104	15	22	8	4	137	3,156	526	3	3,685

(a) Excludes holdings with no cattle for milk production other than house cows.

HOLDINGS WITH CATTLE (MEAT PRODUCTION) HERDS ACCORDING TO SIZE OF HERD AND TYPE OF ACTIVITY—SEASON 1965-66

Size of Cattle Herd (Meat Production) (numbers)	Type of Activity												Total Class- ified Holdings	Unclassified Holdings		All Holdings	
	Sheep— Cereal Grain	Sheep	Cereal Grain	Cattle (Meat Pro- duc- tion)	Cattle (Milk Pro- duc- tion)	Vine- yards	Fruit (Other than Vine)	Po- tatoes	Other and Mixed Vege- tables	Poultry	Pigs	Other		Multi- purpose			
1-9	1,053	368	127	...	229	13	78	29	15	35	22	11	46	2,026	491	...	2,517
10-19	367	184	32	...	184	4	42	31	7	13	12	1	48	925	249	...	1,174
20-29	230	163	10	...	119	2	42	30	3	3	10	3	47	644	147	...	791
30-39	255	285	11	103	131	5	51	30	10	5	6	1	64	957	119	...	1,076
40-49	129	220	7	181	80	1	28	17	4	1	3	...	59	730	...	...	730
50-59	95	182	8	197	40	...	14	20	1	1	2	...	58	618	...	...	618
60-69	60	129	2	216	33	...	14	20	...	...	1	...	53	528	3	...	531
70-79	19	61	1	131	17	1	2	3	...	...	...	...	21	256	3	...	259
80-89	21	49	2	132	9	...	5	5	...	...	...	...	27	250	4	...	254
90-99	8	28	...	101	6	...	1	...	...	...	...	...	14	158	5	...	163
100-149	2	15	1	60	5	...	...	...	...	...	...	...	...	84	...	...	84
150-199	...	8	...	26	...	...	...	...	...	...	...	...	...	35	...	...	35
200-299	...	4	...	26	...	...	...	...	...	...	...	...	...	31	...	...	31
300-499	...	...	...	23	...	...	...	...	...	...	...	...	...	23	...	...	23
500-999	...	...	...	18	...	...	...	...	...	...	...	...	...	18	...	...	18
1,000-1,999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2,000-4,999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5,000-9,999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10,000 and over	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	2,240	1,696	201	1,224	853	26	265	170	40	58	56	16	438	7,283	1,021	...	8,304

EMPLOYMENT AND POPULATION

The permanent male work force on rural holdings in the State has decreased slightly during the past ten years. This has been due partly to the rapid development of power farming, which is indicated by the rise in the number of farm tractors from 22,908 in 1957 to 32,288 in 1966. The result has been that, in spite of greatly increased production, there has been little change in the permanent male work force which has decreased from 30,298 in 1957 to 30,209 in 1966. Permanent male workers in 1966 consisted of 20,530 owners, lessees, tenants and share-farmers, 1,173 farmers' relatives who were not receiving wages and 8,506 paid employees. The number of males who were temporarily employed, including contractors and their employees, was 2,817. Full information is not available regarding casual or seasonal employment, as figures relate only to the 31st March in each year. When considering the details which appear in the following table, allowance should be made for this and for the fact that female employment is excluded because of the difficulty in separating domestic from farm activities.

Population on rural holdings at the 31st March, 1966 totalled 91,707 or 11.0 per cent. of the State population.

MALE EMPLOYMENT, POPULATION AND TRACTORS ON RURAL HOLDINGS

As at 31st March—	Males Working Permanently Full-time on Holdings				Temporary Employees including Contractors and their Employees	Population of Rural Holdings			Farm Tractors
	Owners, Lessees, Tenants and Share-farmers	Relatives not Receiving Wages	Employees, including Paid Relatives	Total		Males	Females	Total	
1957	20,084	1,512	8,702	30,298	4,467	47,545	37,881	85,426	22,908
1958	20,087	1,530	8,936	30,553	5,037	47,874	38,490	86,370	23,963
1959	19,974	1,530	8,852	30,356	4,424	47,228	38,364	85,592	24,935
1960	20,231	1,433	8,916	30,580	4,713	47,378	39,025	86,903	25,612
1961	20,474	1,468	8,991	30,933	3,848	48,600	39,595	88,195	27,164
1962	20,555	1,367	9,305	31,227	2,956	48,868	39,888	88,756	28,006
1963	20,537	1,285	8,758	30,580	3,387	49,256	40,375	89,631	29,218
1964	20,548	1,317	8,607	30,472	3,568	50,093	41,295	91,388	30,879
1965	20,569	1,232	8,502	30,303	2,797	50,353	41,917	92,270	32,028
1966	20,530	1,173	8,506	30,209	2,817	50,126	41,581	91,707	32,288

VALUE OF PRODUCTION

For primary production the *gross value* is based on the wholesale price realized "at the principal market." Where primary products are consumed at the place of production or where they become raw material for secondary industry within the State, these points of consumption are taken as the "principal market." *Net Value* represents the return to the producer after the cost of all goods consumed in the process of production and the costs of marketing the product have been deducted from the gross value. It is consequently the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.

The following table shows the net values of production of the various primary industries in 1965-66. The "*local value*" which is quoted is the value at the source of production and is obtained by deducting marketing costs from the gross value. Marketing costs comprise freight, cost of containers, commission, and other charges incurred in marketing.

PRIMARY INDUSTRIES—VALUE OF PRODUCTION: 1965-66

Industry	GROSS VALUE (based on Principal Market Prices)	Marketing Costs	LOCAL VALUE (as at source of Production)	Cost of Goods Consumed in Process of Production	NET VALUE
	\$	\$	\$	\$	\$
Agriculture	215,949,046	29,678,760	186,270,286	31,776,581	154,493,705
Pastoral	157,249,008	10,933,602	146,315,406	16,542,835	129,772,571
Dairying	22,936,649	1,257,489	21,679,160	8,648,611	13,030,549
Poultry Farming	9,261,272	629,553	8,631,719	5,379,099	3,252,620
Bee Keeping	701,297	58,245	643,052	(a)	643,052
Trapping	835,775	173,332	662,443	(a)	662,443
Forestry	12,731,028	765,769	11,965,259	(a)	11,965,259
Fishing and Whaling	15,732,746	49,794	15,682,952	1,205,000	14,477,952
Mining and Quarrying	53,842,262	4,770,677	49,071,585	13,879,734	35,191,851
Total, Primary	489,239,083	48,317,221	440,921,862	77,431,860	363,490,002

(a) Not available.

Gross values of the principal items are shown in the next table for each of the years 1961-62 to 1965-66.

PRIMARY PRODUCTION—GROSS VALUES OF PRINCIPAL ITEMS
(\$'000)

Industry and Commodity	1961-62	1962-63	1963-64	1964-65	1965-66
Agriculture—					
Wheat	100,023	107,023	74,389	88,557	153,050
Oats	15,050	13,951	13,093	9,888	18,403
Barley	6,830	6,075	4,375	3,940	7,297
Hay	7,513	9,294	8,707	9,287	8,457
Pasture Seed (a)	952	1,458	3,108	* 2,677	4,247
Cotton	(b)	(b)	108	1,065	1,872
Vegetables	9,095	8,461	8,986	11,059	11,314
Fruit, Orchard (c)	6,985	9,583	7,984	10,323	8,834
Vine Fruits	1,230	938	1,343	1,395	1,172
Nursery Products (d)	758	791	777	805	925
Pastoral—					
Wool (Shorn and Dead) (e)	78,508	78,866	115,422	* 92,668	114,419
Livestock Slaughtered (f)	* 26,590	* 28,730	* 33,878	* 34,720	44,110
Dairying—					
Whole Milk (g)	14,143	13,967	14,333	15,819	16,220
Livestock Slaughtered (h)	* 5,740	* 6,064	* 5,949	* 6,752	6,674
Poultry Farming—					
Eggs (i)	3,402	3,522	3,719	3,884	4,735
Poultry Slaughtered	1,420	2,164	2,661	3,139	3,666
Bee Keeping (j)	537	564	895	562	701
Trapping	511	376	632	775	836
Forestry	11,104	10,877	11,462	12,093	12,731
Fishing—					
Crayfish	8,186	7,906	6,889	11,192	11,388
Prawns	48	219	459	592	1,053
Scale Fish	1,333	1,204	1,375	1,300	1,256
Pearls and Pearl-shell (k)	320	320	226	183	259
Mining and Quarrying—					
Gold (l)	28,547	28,136	26,458	23,466	22,285
Asbestos	3,070	3,386	2,406	2,212	2,032
Coal	3,361	3,962	3,970	4,679	4,410
Ilmenite Concentrates	1,471	1,587	1,854	2,812	4,332
Iron Ore	2,768	2,869	2,601	2,771	4,662
Manganese Ore	2,141	1,790	864	1,416	2,106
Pyritic Ore and Concentrates	855	848	974	1,109	1,048
Quarry Products	3,848	4,582	5,183	* 6,539	7,877
Tin Concentrate	471	669	816	1,241	1,559
Zircon Concentrates	149	80	261	485	687

(a) Comprises clover, medics, lupins, rye grass and other pasture seeds. (b) Not available for publication. (c) Includes plantation and berry fruits. (d) Value of seedlings, cut flowers, bulbs, trees, etc., produced. (e) The value of fellmongered wool and wool exported on skins is included in the value of livestock slaughtered which has been computed from prices of livestock "on hoof" and therefore includes a value for wool on skins. (f) Comprises cattle, sheep and lambs. (g) Includes Commonwealth Government subsidy. (h) Comprises calves and pigs. (i) Excludes value of non-commercial production. (j) Excludes value of production of bee keepers with less than five hives. (k) Excludes culture pearls. (l) Includes net subsidy payments by the Commonwealth Government and amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. * Revised.

It should be noted that both gross values and local values of primary production involve some duplication as they include the products of certain primary industries which are consumed as raw materials by other industries in the group, for example grain and hay consumed by livestock. Furthermore, many of the materials consumed by primary industries are the products of secondary industry, for example artificial fertilizers. However, duplication has been eliminated in calculating net values of primary production by deducting the value of both primary and secondary products consumed by primary industries. Therefore net value of primary production should be used when comparing or combining values for primary industries with those for secondary industry. Gross values do, however, provide a reliable measure of the value of production of any particular item or industry.

SEASONAL CALENDAR

The following calendar is intended to show the main periods when principal agricultural and pastoral activities are carried out in Western Australia. Operations are generally confined to the periods shown but are subject to variation according to such factors as geographical location within the State, the variety of seed sown (or trees and vines planted) and exceptional seasonal conditions.

SEASONAL CALENDAR

Item	Period	
	Sowing or Planting	Harvesting
Pastures—		
Clovers	April to June	December to April
Medics	April to June	December to April
Grain—		
Wheat	May to June	November to January
Oats	April to June	November to December
Barley	April to June	November to December
Rice:		
Wet Season Crop	November to December	May to June
Dry Season Crop	May	October
Rye	April to June	November to December
Hay—		
Wheaten	May to June	October to November
Oaten	May to August	October to November
Cotton	November to February	May to September
Flax—		
For Fibre	May to June	November to December
For Linseed	May to June	December to January
Vegetables—		
Beans, Runner:		
Carnarvon Area	March to September	May to November
Perth Division	August to March	November to June
Green Peas:		
For Processing	May to September	October to December
Fresh	May to October	August to December
Potatoes:		
Winter Planting:		
Perth and South-West	June to September	October to January
Summer Planting:		
Southern Agricultural	October to December	February to April
South-West	December to February	April to May
Onions	June to August	December to March
Tomatoes:		
Geraldton Area	February to April	May to November
Other Areas	June to December	October to May
Fruit—		
Apples	June to August	February to May
Apricots	July	December to January
Bananas	September	September to May
Lemons	July to August	July to June
Mandarins	July to August	May to September
Nectarines	July	January to February
Olives	July to August	March to April
Oranges, Navel	July to August	May to September
Oranges, Valencia	July to August	August to February
Peaches	July	December to February
Pears	June to July	January to March
Plums	June to July	December to March
Grapes—		
For Table Use	June to September	January to April
For Wine Making	June to September	February to April
For Drying	June to September	February to March
Shearing and Lambing—		
Shearing:		
Pastoral Areas	March to August	
Agricultural Areas	February to November	
Lambing:		
Pastoral Areas	April to July	
Agricultural Areas	April to September	

BUSHEL WEIGHTS

The production of cereals, fruit and certain other commodities is generally recorded in bushels. While the weight of a bushel varies according to the nature of the product, it is also subject to considerable variation on account of such factors as method of packing and size and variety within each kind of product. The average bushel equivalent weights set out below may be used to convert production to pounds weight avoirdupois.

Product	Weight per bushel	Product	Weight per bushel	Product	Weight per bushel
Apples	42	Lemons	48	Peaches	46
Apricots	48	Loquats	45	Pears	45
Bananas	56	Malze	56	Peas, Field	60
Barley	50	Mandarins	48	Plums	58
Cherries	48	Nectarines	50	Quinces	42
Clover Seed	60	Oats	40	Rice	42
Figs	44	Olives	56	Rye	60
Flax Seed (pure seed)....	56	Oranges	48	Tomatoes	44
Grapefruit	42	Passion Fruit	34	Wheat	60

SUMMARY OF AUSTRALIAN STATISTICS

The following table contains a selection of the principal statistics of primary production in each of the Australian States for 1965-66.

PRINCIPAL STATISTICS OF PRIMARY PRODUCTION—AUSTRALIA : 1965-66

Particulars	Unit	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Rural Holdings—								
Number		76,158	69,199	43,914	28,759	22,853	10,777	252,168
Area	'000 acres	171,161	37,844	380,325	159,394	270,054	6,496	1,201,492
Principal Crops—								
Wheat for grain—								
Area	'000 acres	4,577	3,074	954	2,745	6,150	14	17,515
Production	'000 bush.	39,117	60,591	17,429	39,976	102,156	368	259,666
Oats for grain—								
Area	'000 acres	1,033	966	45	455	1,240	28	3,768
Production	'000 bush.	12,607	17,784	735	5,622	23,279	677	60,739
Barley for grain—								
Area	'000 acres	236	192	338	1,098	413	20	2,298
Production	'000 bush.	3,802	3,217	9,137	18,514	6,481	684	41,835
Hay—All types—								
Area	'000 acres	733	1,150	155	299	291	148	2,780
Production	'000 tons	978	1,873	282	368	414	257	4,179
Pasture Seed	'000 acres	29	27	36	36	96	3	227
Cotton—								
Area	'000 acres	33	(b)	(c) 13		8		(d) 55
Production	'000 lb.	103,280	(b) (c)	(e) 10,138		20,431		(d) 133,850
Onions—								
Area	acre	999	2,955	2,748	1,148	331	69	(f) 8,250
Production	ton	8,764	17,115	17,728	10,069	3,948	500	(f) 58,124
Potatoes—								
Area	acre	21,913	34,333	16,080	5,743	6,229	11,993	96,311
Production	ton	104,623	240,736	97,744	56,471	62,865	76,400	638,976
Other Vegetables—								
Area	acre	43,996	54,319	44,074	9,668	8,528	23,970	184,818
Apples—								
Area	acre	19,062	22,247	13,144	5,943	16,041	18,389	94,865
Production	'000 bush.	2,924	4,206	1,375	1,303	1,603	8,364	19,733
Oranges—								
Area	acre	23,595	7,115	3,679	17,405	4,687		61,517
Production	'000 bush.	4,446	1,012	721	2,633	323		9,137
Other Fruit—								
Area	acre	49,555	45,639	30,892	20,638	5,987	4,037	156,825
Vineyards—								
Area	acre	21,292	48,617	3,268	58,730	8,215		140,122
Grapes for Table	ton	7,699	9,705	4,602	1,210	2,310		25,526
Wine Made	'000 gal.	6,439	2,982	24	23,884	627		33,956
Currents	ton	449	3,127		3,153	1,306		8,035
Sultanas and Raisins	ton	11,480	59,418		11,915	116		82,929
Livestock Numbers, 31st March, 1966—								
Sheep and Lambs	'000	61,396	30,968	18,384	17,993	24,427	4,127	157,563
Cattle	'000	4,153	3,397	6,888	690	1,271	492	17,936
Pigs	'000	480	384	417	224	144	96	(f) 1,746
Livestock Slaughtered for Human Consumption—								
Sheep	'000	6,119·1	8,128·3	2,406·6	1,981·4	1,677·4	566·7	20,933·0
Lambs	'000	4,948·0	5,203·2	362·2	1,492·7	857·6	597·2	13,501·8
Cattle	'000	1,242·8	1,185·2	1,514·9	183·7	298·5	107·7	4,611·7
Calves	'000	537·4	644·0	373·0	93·4	16·1	46·5	1,711·8
Pigs	'000	774·2	703·3	640·0	298·3	194·6	146·3	2,768·5
Wool Production	'000 lb.	579,475	366,943	192,773	232,296	247,530	41,858	1,662,336
Whole Milk Production—								
All Purposes	'000 gal.	300,740	750,915	221,086	98,398	61,865	87,890	1,522,013
Fisheries Production—								
Fish—live weight	'000 lb.	31,842	18,466	11,067	22,051	14,343	4,989	103,113
Crustaceans—								
gross weight	'000 lb.	4,608	1,693	6,649	6,063	20,313	3,939	43,270
Gold : Mine Production (g)	fine oz.	9,078	19,264	138,781	5	626,961	36,502	914,732
Gross Value of Production—								
Agriculture	\$'000	245,734	262,852	274,221	144,017	215,949	40,523	1,183,809
Pastoral	\$'000	468,443	413,558	256,027	152,224	157,249	37,350	1,498,335
Dairying	\$'000	158,338	190,141	71,409	39,293	22,937	25,300	507,973
Poultry Farming	\$'000	64,892	50,517	16,313	8,570	9,261	4,414	154,603
Bee Keeping	\$'000	998	1,458	155	911	701	92	4,323
Trapping	\$'000	6,005	5,785	1,561	941	836	374	15,570
Forestry	\$'000	33,663	34,146	18,043	9,729	12,731	15,990	125,044
Fishing and Whaling	\$'000	10,163	4,403	6,086	6,048	15,733	3,300	45,794
Mining and Quarrying (h)	\$'000	266,857	48,924	98,964	39,466	51,139	28,998	543,642

(a) Includes Northern Territory and Australian Capital Territory except where indicated; see note (f). (b) Not available for publication. (c) Sown 1964-65. (d) Incomplete; see note (b). (e) Harvested from crop sown in 1964-65. (f) Incomplete. Excludes Northern Territory and/or Australian Capital Territory. (g) Year, 1966. (h) Local Value. For definition, see letterpress preceding second table on page 266.

AGRICULTURE

Wheat

Although wheat has been grown from the earliest years of settlement, cultivation was confined to limited areas as late as 1890 when, of a total area of 33,820 acres, about one-third was located in the Toodyay-Northam area of the Avon Valley, about one-quarter in the Geraldton-Greenough district and a similar area in the York-Beverley region, with lesser areas at Williams and at places in what is now the South-West Statistical Division. During the 1890s, however, substantial development took place as a result of extensions to the Great Southern and Eastern Railways and the completion of the line from Midland Junction to Walkaway, and by 1910 wheat farming was being carried out in widespread areas in the southern part of the State and as far east as the Merredin district, an area with an average annual rainfall of only 13 inches. An outstanding factor in this development was the introduction and increasing use of phosphate fertilizer (superphosphate) to correct the widespread phosphorus deficiency of the wheat belt soils of Western Australia.

The decline in gold production which began in 1904 reduced employment in mining and caused people in increasing numbers to take up agricultural land. This contributed to a spectacular growth in wheat farming and 1,734,117 acres were sown to wheat for grain in 1915 compared with 195,071 acres ten years earlier. The first World War caused a serious reduction in acreage but recovery was fairly rapid from 1920, and by 1925 the area sown for grain had risen to more than two million acres.

Following the war, a policy of expanding land settlement was resumed. A soldiers' settlement scheme was initiated and a large-scale programme of assisted immigration, with financial aid provided by the British, Commonwealth and State Governments, was inaugurated. With adequate finance available, greater technical efficiency and a buoyant market for wheat, the area sown for grain increased threefold between 1920 and 1930. Among the technical advances contributing to the increase were the introduction of tractors and the development by the Department of Agriculture of early-maturing and drought and disease resistant wheat varieties.

Because of the relatively low yield per acre, mechanization was of great significance in the growth of wheat farming in Western Australia, but other aspects of the industry received early consideration and experimental farms were established by the Department of Agriculture in areas where particular difficulties were encountered. As a result, special wheat strains have been developed and farming techniques improved. An extensive programme of soil research and classification has been carried out by the Department and has revealed several mineral deficiencies which it has been possible to correct by the addition of trace elements, notably copper and zinc, to standard fertilizers. Experiments have also been made on methods of soil conservation in those areas which are subject to wind or water erosion, and some success has been achieved by the planting of certain grasses and fodder crops and by contour ploughing and the use of contour banks.

In 1930, an area of 3,955,763 acres was sown for grain and produced a previously unsurpassed total harvest of 53,504,149 bushels, which was not exceeded until 1958. Low prices subsequently caused a decline in acreage to 2,540,696 acres in 1935, but by 1938 the total had risen to 3,412,818 for a yield of 36,843,600 bushels. The sowing of wheat for grain was reduced during the second World War to one-half of the pre-war level, only 1,515,800 acres being sown in 1944. In the immediate post-war years it steadily increased and by 1950 had again risen above three million acres. Over the next six years it declined slightly, the smallest area sown in that period being 2,764,486 acres in 1956. Significant increases occurred in each of the following three years and in 1959 the area sown was 3,718,596 acres. Except in 1946, when the average yield per acre was only 9.8 bushels, seasonal conditions in the post-war years have generally been favourable and good yields have been maintained. In 1955 a record average yield of 18.4 bushels was obtained from 2,889,585 acres, the total production being 53,250,000 bushels or only a quarter of a million bushels less than the 1930 harvest which was produced from an area one million acres greater in extent. In 1956 and 1957, when seasonal conditions were less favourable than in 1955, average yields were 11.6 and 11.2 bushels per acre and only 32.1 and 33.1 million bushels were harvested. In each season from 1958 to 1962, increases occurred in both area sown and total production, and the average yield per acre varied from 17.5 bushels in 1958 to 15.0 bushels in 1961. Adverse seasonal conditions resulted in a decline in 1963 and 1964. In 1963, only 52.3 million bushels, the lowest since 1957, were harvested from 4,640,434 acres and in 1964, 63.1 million bushels were harvested from 5,151,267 acres. Favourable seasonal conditions in 1965 enabled an area of 6.1 million acres to be planted which produced a record harvest of 102.2 million bushels for an average yield of 16.6 bushels per acre.

Most of Western Australia's wheat production is exported as grain and flour and in the following table the fluctuations which have occurred in exports since 1910 are shown, together with figures giving the estimated total wheat equivalent. The United Kingdom has been the most consistent purchaser of the State's wheat, but since 1961-62 China (Mainland) and Japan have been the most important customers and in 1965-66 they took 22.2 million and 12.8 million bushels respectively, their purchases together accounting for over 50 per cent. of the State's total wheat exports. In that year other principal buyers, in order of importance, were the United Kingdom, the Union of Soviet Socialist Republics, India, Iran and Hong Kong. In the same year principal customers for flour were Ceylon, the Federation of South Arabia, the Trucial States and Malaysia. Further details of exports appear in Chapter IX, Part 1.

The rapid increase in the production and export of wheat between 1910 and 1920 caused problems of transport and storage, and proposals for the bulk handling of the grain led to the formation of a company for this purpose in 1920. This original undertaking was wound up before commencing operations because the technical difficulties then appeared too great and the saving in handling costs problematical. In 1930, however, the project was revived and a cheaper method was tested with storage bins at five railway sidings in the Wyalkatchem area during the 1931-32 season. The experiment was successful and all wheat produced in Western Australia for marketing is now handled in bulk.

EXPORTS OF WHEAT AND FLOUR

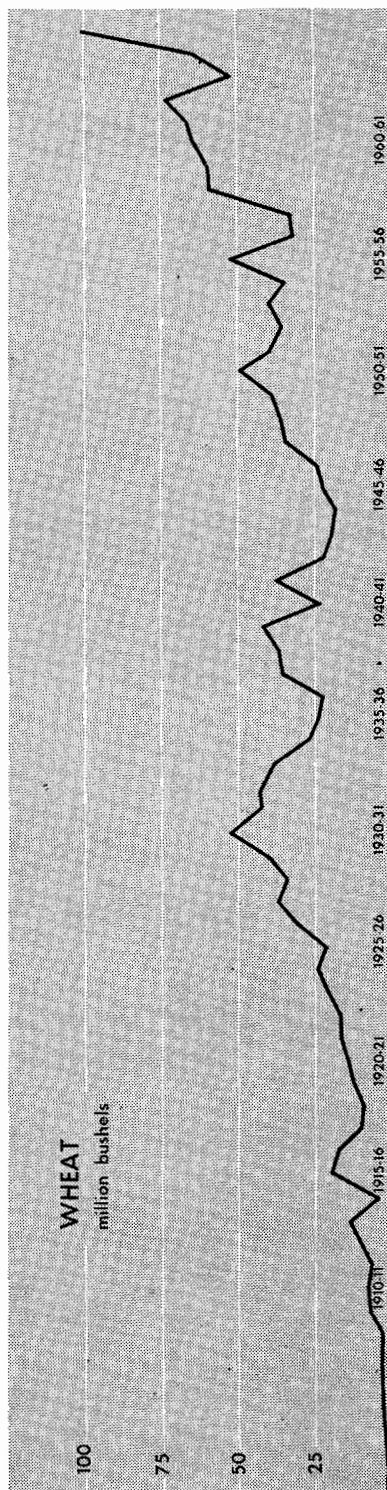
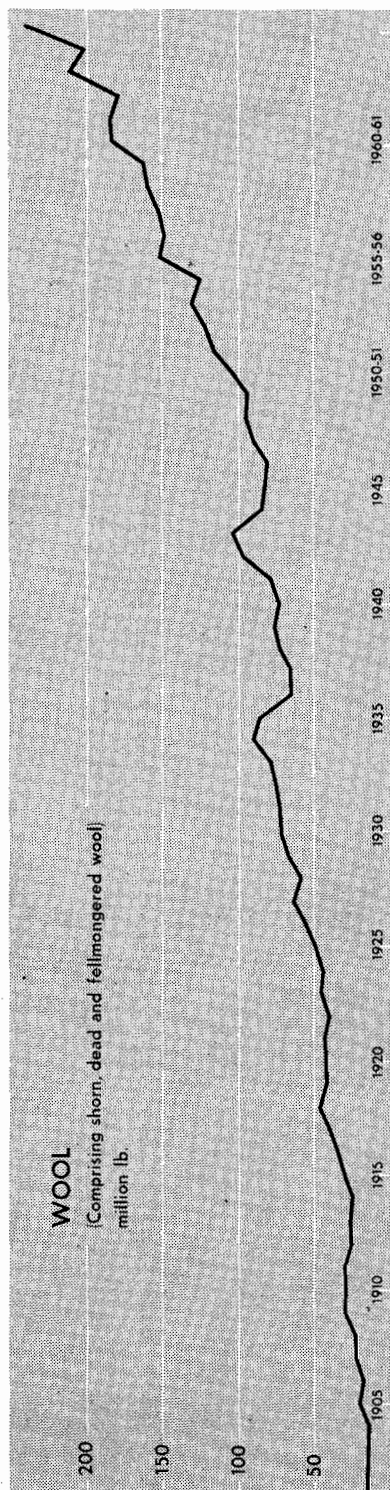
Year	Wheat	Flour (a)	Estimated Total Wheat Equivalent
	bushels	tons (b)	bushels
1910	2,014,552	3,082	2,159,406
1919-20	9,151,125	129,491	15,237,202
1929-30	24,953,238	69,274	28,209,116
1939-40	15,330,423	91,843	19,647,044
1949-50	21,510,390	116,199	26,971,743
1950-57	46,796,467	127,712	52,798,931
1957-58	26,643,941	111,946	31,905,403
1958-59	23,503,275	*104,559	* 28,417,548
1959-60	36,713,316	* 87,851	* 40,842,313
1960-61	52,480,005	*135,407	* 58,844,134
1961-62	73,882,791	* 97,983	* 78,487,992
1962-63	50,720,419	* 74,574	* 54,225,897
1963-64	55,021,794	* 69,090	* 58,269,024
1964-65	40,507,154	* 82,402	* 44,850,048
1965-66....	69,371,600	54,157	71,916,979

(a) Ships' stores are excluded from figures for 1959-60 and subsequent years. (b) Short ton = 2,000 lb. * Revised.

The Australian Wheat Board is the sole authority for the marketing of wheat within Australia and of wheat and flour for export. It derives its authority from the provisions of the Wheat Stabilization Plan 1963-64 to 1967-68, established under joint Commonwealth and State legislation to replace similar legislation which expired after the marketing of the 1962-63 crop. The principal object of the Plan is to ensure that, in the event of falling prices, growers receive a return for their wheat at least equal to the cost of production, and for this purpose a fund is established by levying a tax on exports for which a price in excess of the cost of production is received. Should the price obtained fall below that cost it is provided that the difference shall be paid from the fund or, if that source is exhausted, by the Commonwealth Government. A further provision with a stabilizing effect on the industry fixes the price at which wheat for home consumption may be sold and again provides that this must not be less than the cost of production.

Under the provisions of the Wheat Tax Act 1957-1966 (Commonwealth), a levy of $\frac{1}{4}$ c per bushel is made on wheat delivered to the Australian Wheat Board. This money, contributed by the growers, is spent by the Wheat Industry Research Council and State Wheat Research Committees set up under the provisions of the Wheat Research Act 1957. The Commonwealth Government has undertaken to supply additional funds, with a maximum of \$1 for every \$1 of growers' contributions and, in addition, the amount available for research work has been increased by \$568,000 made available, under the provisions of the Wheat Acquisition (Undistributed Moneys) Act 1958, from funds held by the Australian Wheat Board.

Wool and Wheat—Annual Production, 1901 to 1965-66



The following table gives details of areas sown and wheat produced since 1900.

WHEAT FOR GRAIN—AREA AND PRODUCTION

Season	Area Sown	Production		
		Total	Average Yield per acre	Gross Value
	acres	bushels	bushels	\$
1900-01	74,308	774,653	10·4	309,862
1905-06	195,071	2,308,305	11·8	851,188
1910-11	581,862	5,897,540	10·1	2,162,432
1915-16	1,734,117	18,236,355	10·5	6,534,604
1920-21	1,275,675	12,248,080	9·6	11,023,272
1925-26	2,112,032	20,471,177	9·7	12,837,134
1930-31	3,955,763	53,504,149	13·5	12,201,176
1935-36	2,540,696	23,315,417	9·2	9,747,282
1940-41	2,625,401	21,060,000	8·0	8,647,906
1945-46	1,835,780	20,929,000	11·4	15,870,742
1950-51	3,185,389	49,900,000	15·7	65,328,246
1955-56	2,889,585	53,250,000	18·4	68,839,722
1956-57	2,764,486	32,100,000	11·6	44,054,624
1957-58	2,957,206	33,100,000	11·2	45,912,434
1958-59	3,291,858	37,650,000	17·5	77,639,226
1959-60	3,718,596	58,670,000	15·8	82,361,386
1960-61	4,021,225	63,900,000	15·9	92,290,238
1961-62	4,379,751	65,700,000	15·0	100,023,062
1962-63	4,803,797	72,500,000	15·1	107,023,498
1963-64	4,640,434	52,340,000	11·3	74,388,786
1964-65	5,151,267	63,071,000	12·2	88,556,922
1965-66	6,149,727	102,156,000	16·6	153,049,650

The principal varieties of wheat sown in each of the seasons 1961-62 to 1965-66 are shown in the following table.

AREAS SOWN TO INDIVIDUAL VARIETIES OF WHEAT

Variety	1961-62		1962-63		1963-64		1964-65		1965-66	
	Area (acres)	Per cent. of Total	Area (acres)	Per cent. of Total	Area (acres)	Per cent. of Total	Area (acres)	Per cent. of Total	Area (acres)	Per cent. of Total
Bencubbin	251,834	5·7	249,835	5·2	249,557	5·3	200,305	3·8	178,555	2·9
Bencubbin 48	73,694	1·7	71,106	1·5	61,922	1·3	49,199	0·9	44,550	0·7
Bungulla	467,108	10·5	465,493	9·6	387,339	8·3	403,361	7·8	394,811	6·4
Eureka II	95,410	2·1	117,914	2·4	70,974	1·5	38,834	0·7	26,645	0·4
Gabo	1,654,838	37·3	1,889,257	38·9	1,804,027	38·5	1,557,750	30·0	1,137,865	18·4
Gamenya	60	...	1,826	...	35,472	0·8	433,601	8·3	1,545,590	24·9
Heron	2,465	0·1	9,712	0·2	21,097	0·4	54,739	1·0	155,903	2·5
Insignia	717,770	16·2	779,297	16·0	752,883	16·1	892,403	17·2	1,053,935	17·0
Insignia 49	497,206	11·2	545,008	11·2	579,766	12·4	653,356	12·6	665,907	10·7
Koda	2,322	0·1	12,686	0·3	22,830	0·5	35,948	0·7	31,111	0·5
Kondut	144,835	3·3	129,524	2·7	105,567	2·3	75,579	1·5	57,848	0·9
Mengavi	479	...	12,009	0·2	82,844	1·8	372,584	7·2	422,114	6·8
Olympic	25,563	0·6	31,798	0·7	36,172	0·8	40,882	0·8	59,975	1·0
Wongoodny	305,981	6·9	345,212	7·1	286,570	6·1	219,536	4·2	183,295	3·0
Other Varieties	193,979	4·4	198,455	4·1	182,178	3·9	171,990	3·3	237,744	3·9
Total	4,433,544	100·0	4,859,132	100·0	4,679,198	100·0	5,200,067	100·0	6,195,848	100·0

In the following tables, holdings growing wheat for grain in 1965-66, in size groups of the acreage sown, are classified according to the size of the holding and the size of the sheep flock on the holding. Of the 22,853 rural holdings of all types in the State, wheat for grain was grown on 9,267. Holdings of between 1,000 and 5,000 acres accounted for 76 per cent. of this number and holdings which sowed between 200 and 1,000 acres represented 59 per cent. Of the holdings growing wheat for grain all but 999 carried sheep and 55 per cent. had flocks of between 500 and 2,000 sheep.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF HOLDING—SEASON 1965-66

Size of Holding (acres)	Area of Wheat for Grain (acres)															Total All Rural Holdings
	Under 10	10-19	20-29	30-49	50-69	70-99	100-149	150-199	200-299	300-399	400-499	500-699	700-999	1,000- 1,999	2,000 and over		Total
1-49	3	2	3	3	3	...	...	...	...	...	...	...	...	...	...	11
50-99	...	3	3	3	3	...	...	...	...	...	...	...	...	...	...	11
100-149	1	6	1	3	3	...	...	...	...	...	...	...	...	...	...	15
150-199	2	2	5	5	2	3	6	...	...	...	...	...	...	...	...	15
200-299	4	2	3	5	3	5	7	...	1	...	...	...	...	...	...	33
300-399	7	2	2	4	3	5	7	...	2	...	...	...	...	...	...	33
400-499	...	3	1	7	3	3	11	...	3	...	...	...	...	...	...	33
500-599	...	2	3	3	6	6	11	...	7	...	...	...	...	...	...	35
600-699	2	6	3	6	6	4	13	...	12	...	...	2	...	...	...	61
700-799	2	4	4	7	10	13	13	...	23	...	...	2	...	...	...	66
800-899	2	3	4	4	10	12	17	...	35	...	...	1	...	...	...	69
900-999	4	5	5	5	8	12	23	...	142	...	...	6	...	...	...	108
1,000-1,999	21	18	12	32	30	23	79	...	142	...	...	7	...	...	...	163
2,000-2,999	14	23	19	35	35	51	95	...	176	...	...	44	...	...	...	408
3,000-3,999	12	24	15	51	54	59	110	...	213	...	...	308	...	...	...	1,501
4,000-4,999	10	12	10	16	24	25	54	...	73	...	...	102	...	...	...	2,082
5,000-5,999	4	5	7	6	9	13	20	...	118	...	...	562	...	...	...	3,143
6,000-6,999	5	5	4	6	6	8	18	...	46	...	...	145	...	...	...	3,445
7,000-7,999	...	1	1	...	4	1	4	...	41	...	...	112	...	...	...	1,584
8,000-8,999	...	...	...	...	4	1	...	...	6	...	...	5	...	...	...	1,085
9,000-9,999	...	...	...	...	4	1	...	...	6	...	...	5	...	...	...	1,303
10,000 and over	...	...	...	...	...	...	...	...	...	...	...	5	...	...	...	1,485
Total	97	126	104	203	217	242	462	365	834	905	867	1,488	1,414	1,579	364	9,267
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22,863

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF SHEEP FLOCK—SEASON 1965-66

Size of Sheep Flock (number)	Area of Wheat for Grain (acres)															Total All Rural Holdings
	Under 10	10-19	20-29	30-49	50-69	70-99	100-149	150-199	200-299	300-399	400-499	500-699	700-999	1,000- 1,999	2,000 and over		Total
Nil	5	14	8	19	34	29	66	43	146	122	117	135	122	111	28	999
1-49	3	4	2	1	3	3	1	1	2	5	2	2	3	1	....	33
50-99	2	1	1	4	6	2	1	3	3	4	2	4	2	7	....	40
100-199	4	4	3	8	6	5	7	4	12	10	6	11	10	6	1	94
200-299	3	2	6	6	6	5	13	9	32	18	11	19	11	12	2	135
300-399	1	5	5	8	9	6	14	18	27	28	15	23	26	17	1	172
400-499	2	1	2	4	7	13	19	18	30	38	24	33	21	16	....	227
500-599	7	8	7	15	10	13	30	29	77	85	76	123	91	51	....	622
600-699	7	8	7	20	24	17	45	38	91	133	153	254	227	139	10	1,203
700-999	15	17	14	29	32	28	71	52	98	133	154	337	306	271	29	1,570
1,000-1,999	11	18	16	34	34	39	72	54	143	143	154	288	284	376	47	1,698
2,000-2,999	16	25	25	41	35	45	86	62	115	108	103	146	207	338	94	1,446
3,000-4,999	10	15	14	20	20	33	59	33	64	57	44	65	78	186	88	1,112
5,000-9,999	11	4	3	5	10	1	7	12	23	20	5	15	23	44	51	242
10,000-19,999	....	....	....	....	....	1	1	1	1	1	1	3	2	4	8	168
20,000-49,999	....	....	....	....	....	....	....	....	....	....	....	....	....	....	23	59
50,000 and over	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	7
Total	97	126	104	203	217	242	462	365	834	905	867	1,488	1,414	1,579	364	9,267
Total	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	22,853

WHEAT FOR GRAIN—AREA AND PRODUCTION: AUSTRALIAN STATES

Season	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australian Capital Territory	Australia
AREA SOWN TO WHEAT FOR GRAIN ('000 ACRES)								
1961-62	4,498	2,849	750	2,229	4,380	16	1	14,723
1962-63	5,008	3,125	919	2,595	4,804	15	3	16,469
1963-64	4,964	3,109	938	2,302	4,640	18	3	16,474
1964-65	5,760	3,236	1,026	2,727	5,151	17	2	17,919
1965-66	4,577	3,074	954	2,745	6,150	14	1	17,515
PRODUCTION OF WHEAT ('000 BUSHEL)								
1961-62	78,350	56,879	12,018	33,854	65,700	345	32	247,178
1962-63	109,002	67,899	13,683	38,339	72,500	419	70	306,912
1963-64	122,472	76,302	22,275	53,971	52,340	483	69	327,912
1964-65	151,483	78,166	22,830	52,817	63,071	364	58	368,789
1965-66	39,117	60,591	17,429	39,976	102,156	368	28	259,666
YIELD PER ACRE (BUSHEL)								
1961-62	17.4	20.0	16.0	15.2	15.0	22.2	22.7	16.8
1962-63	21.8	21.7	20.3	14.8	15.1	27.3	29.3	18.6
1963-64	24.7	24.5	23.8	19.3	11.3	27.5	24.6	19.9
1964-65	26.3	24.2	22.3	19.4	12.2	21.7	27.6	20.6
1965-66	8.5	19.7	18.3	14.6	16.6	26.1	20.8	14.8

Oats

Although oats have been grown in Western Australia since the early development of wheat farming, cultivation was somewhat limited until stimulated by the introduction of large-scale sheep raising in the agricultural areas, when their high nutritional worth as stock feed made them a very valuable crop. The area sown to oats for grain increased from 193,486 acres in 1920 to 274,874 in 1930, to 429,177 in 1940, to 585,701 in 1950 and 1,329,804 in 1960. It then declined steadily until 1963 when the area sown was 1,124,890 acres, but a slight increase occurred in 1964, and again in 1965 when the area sown was 1,240,104 acres.

In addition to their importance as local stock feed, oats are exported in substantial quantities. In 1965-66 the total sold overseas was 9,602,231 bushels, the principal buyers being the Federal Republic of Germany, the United Kingdom, Italy, the Netherlands and Norway. Exports to other Australian States are negligible.

Although growers are free to market oats in any way they wish, in practice a large proportion of all sales, whether for export or the local market, is effected through the Western Australian State Voluntary Oats Pool, which is conducted by the Grain Pool of W.A. under the control of the Minister for Agriculture.

OATS FOR GRAIN—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average Yield per acre	Gross Value
	acres	bushels	bushels	\$
1961-62	1,230,651	20,186,436	16.4	15,049,808
1962-63	1,177,491	18,571,578	15.8	13,951,416
1963-64	1,124,890	17,840,740	15.9	13,092,980
1964-65	1,151,969	14,011,068	12.2	9,888,344
1965-66	1,240,104	23,278,721	18.8	18,402,831

Barley

Barley grows well on the lighter soils of the wheat belt. It is also successful as a first crop on newly-developed land, and the opening up of new areas for farming accounts partly for the remarkable increase in the area sown for grain from 56,574 acres in 1951-52 to a peak of 540,646 acres in 1960-61. It declined steadily over the next three seasons, the area sown in 1963-64 being 298,855 acres. A small increase occurred in 1964-65 and a further increase in 1965-66 when the area sown was 413,077 acres. Improved production in the latter year resulted partly from the significant increase in the yield per acre.

Both "two-row" and "six-row" barley is grown and, while a large amount of the grain produced is retained on farms for stock feed, a significant surplus is available for export. In 1965-66 the quantity exported overseas was 3,779,642 bushels, the principal buyers being Italy and Japan. Most "six-row" barley marketed is shipped overseas, while sales of "two-row" barley are mainly to local maltsters.

The marketing of barley, both for export and for local consumption, is controlled by the Western Australian Barley Marketing Board.

BARLEY FOR GRAIN—AREA AND PRODUCTION

Season	Two-Row				Six-Row			
	Area	Production			Area	Production		
		Total	Average Yield per acre	Gross Value		Total	Average Yield per acre	Gross Value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1961-62	59,167	982,043	16.6	1,306,248	431,405	6,299,490	14.6	5,523,906
1962-63	60,135	1,120,120	18.6	1,475,196	330,147	4,936,306	15.0	4,600,268
1963-64	65,730	935,191	14.2	1,223,992	233,125	3,141,618	13.5	3,151,340
1964-65	57,982	613,580	10.6	813,422	244,651	3,087,435	12.6	3,126,212
1965-66	71,847	1,263,055	17.6	1,711,846	341,230	5,217,879	15.3	5,585,578

Rice

Rice was produced commercially for several years at Camballin on the Liveringa flood plain, using irrigation water from the Fitzroy River. It was also grown on a commercial scale at Kununurra on the Ord River where experimental work on rice growing is being carried out at the Kimberley Research Station. No rice was grown in the 1966-67 season and only a small quantity was produced during 1965-66.

Other Grains and Pulse

Rye and field peas are the only other grain or pulse crops which are cultivated to any appreciable extent. Some maize is grown but not in significant quantities.

RYE AND FIELD PEAS FOR GRAIN—AREA AND PRODUCTION

Season	Rye				Field Peas			
	Area	Production			Area	Production		
		Total	Average Yield per acre	Gross Value		Total	Average Yield per acre	Gross Value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1961-62	9,572	60,471	6.3	60,380	4,186	34,692	8.3	81,816
1962-63	8,765	57,099	6.5	54,872	4,890	29,895	6.1	63,028
1963-64	9,040	70,338	7.8	67,918	3,889	38,706	10.0	76,122
1964-65	9,754	64,533	6.6	68,740	2,781	23,776	8.5	56,246
1965-66	10,052	74,877	7.4	80,838	4,356	30,669	7.0	128,810

Hay

The principal cereal hay crop is oats and 158,765 tons of oaten hay were cut in 1965-66 from 111,615 acres. Wheat is the only other cereal crop which is used extensively for this purpose and in 1965-66 the production was 47,354 tons from 37,681 acres. Large quantities of meadow hay are cut from clover and grass pastures, production in 1965-66 being 197,652 tons from 134,563 acres. Lucerne, barley, vetches, field peas, rye and sorghum are also used for hay making but they are of minor importance only.

HAY—AREA AND PRODUCTION

Season	Meadow		Oaten		Wheaten		Other (a)		Total	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	acres	tons	acres	tons	acres	tons	acres	tons	acres	tons
1961-62	103,532	154,313	144,399	185,298	40,302	49,208	5,316	7,133	293,549	395,952
1962-63	117,285	184,535	170,892	208,100	43,915	51,795	7,741	8,521	339,833	452,951
1963-64	127,941	182,040	121,316	159,006	31,951	39,634	7,449	8,733	288,657	399,413
1964-65	136,249	202,688	120,993	137,764	38,889	39,700	8,499	10,153	304,610	390,305
1965-66	134,563	197,652	111,615	158,765	37,681	47,354	6,938	10,646	290,797	414,417

(a) Mainly lucerne, barley, vetch and field pea hay.

Green Feed

Large areas of oats are grown for use as green feed for stock. Among other crops which are cultivated for this purpose, but to a far lesser extent, are barley, wheat, rye, field peas, lucerne and sudan grass. Although the total area of crops used for green fodder in 1964-65 was slightly higher than in 1963-64, it declined in 1965-66 to 413,945 acres, the lowest figure in the preceding decade.

GREEN FEED—AREA GRAZED AND CUT
(Acres)

Season	Oats	Barley	Wheat	Peas and Beans	Rye	Maize	All Other Kinds (a)	Total
1961-62	528,235	52,739	13,491	7,557	9,002	687	10,401	622,092
1962-63	576,182	49,069	11,420	7,405	10,744	833	12,265	667,918
1963-64	356,343	28,296	6,813	5,425	5,410	935	14,319	417,541
1964-65	378,466	24,796	9,931	7,306	9,991	765	14,784	446,039
1965-66	341,668	26,108	8,440	9,047	7,690	456	20,536	413,945

(a) Mainly sudan grass, lucerne, sorghum, millet, rape and vetches.

Pastures

The first established pastures in the State were cultivated to provide grazing for dairy cattle but, with the rapid increase in the number of sheep carried on wheat farms, by far the greater area is now located in the wheat-growing districts.

Subterranean clover was one of the first pasture species sown and it is still the most important, although other clovers and a variety of grasses including Wimmera rye grass and perennial rye grasses are also grown extensively. The present practice is to sow a mixture of two or more species, selected for their suitability to the type of soil and rainfall, to give a pasture of about equal parts of clover and grass.

The area under established pasture has increased remarkably from 1.9 million acres in 1945-46 to 11.4 million acres in 1965-66. More than three-quarters of the present acreage occurs in mixed cereal and sheep farming areas.

The top-dressing of pastures with superphosphate has developed to such an extent that this treatment is now general practice.

Production of all kinds of pasture seed in 1965-66 totalled a record 22.6 million lb. compared with a harvest of 15.6 million lb. in 1964-65. An increase also occurred in the production of subterranean clover seed which rose to 19.1 million lb. in 1965-66 in comparison with 13.2 million lb. in 1964-65. Production of other kinds of pasture seeds increased to 3.5 million lb. from 2.4 million lb. Corresponding figures for the principal kinds included in these totals were lupins, 749,200 lb. and 665,000 lb.; clover other than subterranean, 739,500 lb. and 443,000 lb.; cyprus barrel medic, 1,477,700 lb. and 541,000 lb.; and Wimmera rye grass 218,800 lb. and 214,000 lb. There is an important export trade in subterranean clover seed and in 1965-66 the total exported was 2,085,338 lb., almost all of which went to the other Australian States.

Tobacco

Although there were several earlier experiments in the cultivation of tobacco, the planting of exploratory plots at Manjimup in 1923 first revealed that leaf of a satisfactory quality could be produced in Western Australia and commercial production began in 1930, when 25 acres were planted for a yield of 12,500 lb. of cured leaf. Production rose gradually until wartime shortages of oversea supplies caused a rapid increase, and in 1942-43 there were 1,347 acres planted to tobacco for a yield of 1,336,832 lb. of leaf. Production then declined because of labour shortages and the demands of more essential forms of agriculture for service and civilian requirements, the area cropped in 1945-46 being only 296 acres.

Post-war recovery was slow, but by 1952-53 the area planted had risen to 1,525 acres. Subsequently it declined and in 1956-57 only 1,176 acres were planted. The area increased in each of the three following seasons and in 1959-60 had grown to 1,561 acres, which produced 1,369,810 lb. of leaf. Of this total 289,023 lb. remained unsold because it did not meet the requirements of manufacturers.

In 1960-61 an area of 1,478 acres produced 1,287,942 lb. but more than one-half of the leaf offered at the annual auction sales held at Fremantle in August, 1961 was not sold. This collapse of the market was a serious blow to the industry and only 194 acres were planted in 1961. Production was 196,026 lb., of which more than 110,000 lb. could not be sold. Since 1962, when the area was only 28 acres, no tobacco has been planted.

TOBACCO—AREA AND PRODUCTION

Season	Area	Production		
		Total (a)	Average Yield per acre	Gross Value
	acres	lb.	lb.	\$
1958-59	1,444	1,198,275	829.8	1,144,282
1959-60	1,561	1,369,810	877.5	906,356
1960-61	1,478	1,287,942	871.4	333,582
1961-62	194	196,026	1,010.4	51,416
1962-63	28	28,644	1,023.0	6,954

(a) Includes leaf which was unsold—in 1959-60, 239,023 lb.; in 1960-61, 654,706 lb.; in 1961-62, 110,057 lb. and in 1962-63, 17,969 lb.

Flax for Fibre

Although flax had previously been grown for fibre on a small scale, the first commercial production in Western Australia was begun in 1940, as a wartime measure, under the control of the Commonwealth Flax Production Committee. During that year 996 acres were cropped in the Shires of Waroona and Harvey and a mill was established at Yarloop. The area was rapidly extended to 6,206 acres in 1941-42 and two additional mills were installed, one at Beelerup in the Shire of Donnybrook and the other at Boyup Brook in the Shire of Upper Blackwood. In 1942-43, 8,775 acres were sown for a yield of 6,160 tons of straw and cultivation was maintained at about the same level throughout the remaining war years.

Production declined after the war and became centralized in the vicinity of Boyup Brook, where a mill was operated by a co-operative company which acquired it from the Commonwealth Government in 1949. Flax was grown as a rotational crop on mixed farms in the district and farmers owned shares in the mill, at which all flax straw was retted and scutched before being sent to Victoria for spinning and weaving. Part of the seed produced each year as a by-product of fibre production was retained for the next season's planting and the remainder was sold for milling into linseed oil and meal.

Because of the difficulty of producing fibres at competitive prices, it became necessary to provide government financial aid to the industry. Assistance was extended by the State Government in the form of grants and advances and by the Commonwealth Government by means of bounty payments as authorized by the Flax Fibre Bounty Act 1954-1957, which expired in 1960. In order to enable the industry to survive, increased government aid would have been required and, as sufficient financial support could not be obtained from this source, the flax mill ceased operations when straw from the 1964-65 crop had been processed. No flax for fibre has since been planted.

FLAX FOR FIBRE—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average Yield per acre	Gross Value
	acres	tons	tons	\$
1960-61	736	1,176	1.6	35,682
1961-62	91	183	2.0	4,986
1962-63	871	2,152	2.5	63,502
1963-64	171	318	1.9	9,004
1964-65	729	1,388	1.9	46,036

Flax for Linseed

During the war, attempts were made to cultivate those varieties of flax which yield linseed as the principal product, but they were largely unsuccessful and were abandoned. Efforts were renewed in 1947-48 but once again were short-lived, being discontinued after five years. Production recommenced in 1957-58 when 1,350 cwt. were harvested from 549 acres. Since then area and production have fluctuated widely, the lowest figures being recorded in 1965-66 when an area of 97 acres was cropped for a harvest of 303 cwt.

FLAX FOR LINSEED—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average Yield per acre	Gross Value
	acres	cwt.	cwt.	\$
1961-62	1,253	3,556	2.8	24,894
1962-63	626	2,719	4.3	19,022
1963-64	1,588	8,229	5.2	57,574
1964-65	2,135	11,338	5.3	77,922
1965-66	97	303	3.1	2,060

Cotton

The first commercial crop of cotton was grown at Kununurra in 1962-63 on land irrigated from the Ord River diversion dam at Bandicoot Bar. In 1965-66 a total area of 8,307 acres produced 182,421 cwt. of seed cotton, the yield per acre being 2,464 lb. A cotton ginnery to process the seed cotton was installed at Kununurra in 1963 and a second ginnery commenced operations in May, 1967.

Under the Raw Cotton Bounty Act 1963-66, the Commonwealth Government pays a bounty, up to a maximum amount of \$4 million in any year, on raw cotton of grade higher than "strict good ordinary" which is produced and sold for use in Australia. Bounty is paid at the rate of 13.4375 cents per lb. on cotton of "middling white" grade with a staple length of one inch. Provision is made for premiums and discounts on grades and staples above and below these standards. The bounty is payable for the period from the 1st January, 1964 to the 28th February, 1969.

COTTON—AREA AND PRODUCTION

Season	Area	Production of Seed Cotton		
		Total	Average Yield per acre	Gross Value
	acres	cwt.	lb.	\$
1963-64	1,526	13,371	1,385	215,358
1964-65	5,475	96,341	1,971	1,065,364
1965-66	8,307	182,421	2,464	1,871,722

Potatoes

The cultivation of potatoes, the State's principal vegetable crop, is largely confined to the higher rainfall areas of the south-west. Winter crops are planted during June and early July on the frost-free hillsides and drained flats of the coastal areas between Harvey and Donnybrook. Mid-season plantings are made from the middle of July to November on market garden land in the Perth Statistical Division, irrigation land in the Shires of Waroona, Harvey and Dardanup and summer-moist areas in the Shires of Donnybrook, Busselton, Manjimup and Albany. Late crops are planted between mid-November and the end of April in approximately the same districts as the mid-season crops.

The average yield of potatoes per acre in Western Australia is consistently very much greater than that for Australia as a whole, and in 1965-66 comparative yields were 10.1 tons and 6.6 tons per acre. This is due mainly to the favourable climatic conditions in Western Australia but an important factor is the reliability, under a wide range of conditions, of the Delaware variety which is grown almost exclusively. There is a substantial export surplus, the bulk of which usually goes to the other Australian States with smaller consignments being sent overseas, principally to Singapore.

Potato production in Western Australia is controlled, under the provisions of the Marketing of Potatoes Act, 1946-1966, by the Western Australian Potato Marketing Board, which is the sole marketing authority for potatoes produced in the State. The object of this provision is to ensure adequate supplies for local consumption and effective marketing of crops.

POTATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average Yield per acre	Gross Value
	acres	tons	tons	\$
1961-62	8,824	55,700	8.2	3,872,868
1962-63	6,499	56,900	8.8	3,590,810
1963-64	5,835	55,402	9.5	3,680,892
1964-65	5,797	60,739	10.5	5,371,932
1965-66	6,229	62,865	10.1	5,026,653

Onions

The production of onions is largely confined to the metropolitan and adjacent areas, Osborne Park and Spearwood being the main centres. In these districts onions are usually grown on light sandy soils and yields of up to 20 tons per acre are obtained. An increase in area occurred during each season from 1958-59 to 1962-63 when 509 acres were planted. Since then the area planted has decreased and in 1965-66 it was 331 acres for a production of 3,948 tons or 11.9 tons per acre.

Onions are imported annually into Western Australia during the winter but a surplus is produced locally during the summer months, much of it being exported to other Australian States although a substantial quantity is sent overseas, principally to Singapore and Malaysia. Sales were formerly controlled by the Western Australian Onion Marketing Board under the provisions of the Marketing of Onions Act, 1938-1965, but, following a referendum held in accordance with the provisions of the Act, the Board was dissolved and it ceased to function from the 18th August, 1967.

ONIONS—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average Yield per acre	Gross Value
	acres	tons	tons	\$
1961-62	479	6,290	13.1	473,296
1962-63	509	6,622	13.0	338,548
1963-64	446	6,814	15.3	443,572
1964-65	428	5,981	14.0	376,490
1965-66	331	3,948	11.9	392,870

Tomatoes

The main centres of production of tomatoes are at Geraldton and in the districts around Perth. At Geraldton, because of the warm winter climate, growers are able to produce early crops and take advantage of the high prices ruling on the Melbourne market during the winter and spring. They also supply substantial quantities to the Perth market and there is a consistent export trade with Malaysia. Production of early tomatoes is also important at Carnarvon.

Supplies to the Perth market from December to June are grown in and near the metropolitan area, principally in the Wanneroo and Osborne Park districts. Tomatoes are also grown in a number of districts in the South-West and a small area is planted annually at Kalgoorlie.

The total area under tomatoes reached a peak of 1,555 acres in 1944-45 but the yield per acre in that year was low and total production was only 7,424 tons. Since then, although the area has declined, yields per acre have improved and production in 1965-66 was 6,849 tons from 649 acres, an average of 10.6 tons per acre.

TOMATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average Yield per acre	Gross Value
	acres	tons	tons	\$
1961-62	968	9,510	9.8	1,335,678
1962-63	942	8,426	8.9	1,143,888
1963-64	866	8,086	9.3	1,174,028
1964-65	722	7,286	10.1	1,177,004
1965-66	649	6,849	10.6	1,719,009

Other Vegetables

In addition to the cultivation of potatoes, onions and tomatoes, previously mentioned, many other vegetables are produced, the bulk of them in or near the metropolitan area where growers benefit not only from proximity to the principal market but also from an abundant supply of water at relatively shallow depths. Small quantities are also produced in many country districts. An important early crop of beans is grown at Carnarvon and transported by road to Perth. If the price available is sufficient to compensate for the added cost, portion of this crop is railed or airfreighted to Adelaide and Melbourne. Exports of cauliflowers to Malaysia have become significant in recent years.

TURNIPS, CARROTS, PARSNIPS, BEETROOT—AREA AND PRODUCTION

Season	Turnips (Swede and White)			Carrots			Parsnips			Beetroot		
	Area	Production		Area	Production		Area	Production		Area	Production	
		Quantity	Gross Value		Quantity	Gross Value		Quantity	Gross Value		Quantity	Gross Value
	acres	cwt.	\$	acres	cwt.	\$	acres	cwt.	\$	acres	cwt.	\$
1961-62	158	18,656	55,304	324	64,016	328,616	116	15,813	141,526	125	19,526	64,598
1962-63	159	19,254	55,512	348	72,735	254,572	136	18,998	90,874	132	20,093	57,768
1963-64	166	19,996	95,232	381	82,379	229,514	127	19,288	105,132	117	17,834	93,726
1964-65	129	15,718	51,756	380	90,053	388,530	120	18,228	122,128	112	21,190	53,682
1965-66	134	16,225	49,842	403	99,523	248,517	124	20,588	113,563	95	16,792	78,519

PUMPKINS, BEANS, GREEN PEAS—AREA AND PRODUCTION

Season	Pumpkins			Beans						Green Peas		
	Area	Production		Area	Runner		Area	French		Area	Production	
		Quantity	Gross Value		Quantity	Gross Value		Quantity	Gross Value		Quantity	Gross Value
	acres	cwt.	\$	acres	cwt.	\$	acres	cwt.	\$	acres	cwt.	\$
1961-62	1,071	86,656	270,800	1,037	82,648	348,520	45	2,659	24,818	2,016	34,487	261,966
1962-63	1,060	85,902	214,040	969	93,573	960,682	52	2,813	23,630	1,496	39,738	282,542
1963-64	884	78,798	201,030	1,037	85,426	825,502	44	2,813	30,416	1,666	52,297	234,924
1964-65	937	88,655	344,276	981	86,443	878,596	57	3,406	60,400	2,120	81,956	311,484
1965-66	791	76,216	201,210	952	77,909	1,043,623	32	1,755	29,484	2,942	120,295	267,096

CABBAGES, CAULIFLOWERS, LETTUCE—AREA AND PRODUCTION

Season	Cabbages			Cauliflowers			Lettuce		
	Area	Production		Area	Production		Area	Production	
		Quantity	Gross Value		Quantity	Gross Value		Quantity	Gross Value
	acres	cwt.	\$	acres	cwt.	\$	acres	cwt.	\$
1961-62	349	75,979	147,500	669	120,443	368,104	397	64,070	381,218
1962-63	349	82,520	155,578	663	113,218	394,848	432	74,231	329,094
1963-64	350	102,056	285,254	618	106,329	602,116	416	69,283	420,290
1964-65	344	99,915	238,730	607	119,057	579,688	404	67,235	479,078
1965-66	368	104,633	260,172	663	284,850	686,698	433	77,655	598,423

Orchards

Fruit production is largely confined to the temperate regions between Gingin to the north of Perth and Albany on the south coast. The cool, wet winters and warm, dry summers of this area permit the successful cultivation of a wide variety of fruits. In the southern and south-western sections, apples, pears and stone fruits are grown extensively while in the districts around Perth the principal crops are stone fruits, citrus fruits and grapes. Outside this main fruit-growing area, banana plantations have been established at Carnarvon in the North-West.

The following table shows details of production of the principal groups of orchard fruit during the years 1961-62 to 1965-66.

FRUIT (a)—AREA AND GROSS VALUE OF PRODUCTION

Season	Pome (b)		Citrus (c)		Stone (d)		Other (e)		Total Fruit (a)	
	Area (f)	Gross Value of Production	Area (f)	Gross Value of Production	Area (f)	Gross Value of Production	Area (f)	Gross Value of Production	Area (f)	Gross Value of Production
	acres	\$	acres	\$	acres	\$	acres	\$	acres	\$
1961-62	15,598	4,510,492	5,598	1,299,234	2,479	862,454	812	313,176	24,487	6,985,356
1962-63	15,943	6,922,872	5,865	1,291,548	2,556	844,046	840	525,024	25,204	9,583,490
1963-64	16,222	4,915,282	5,987	1,423,352	2,430	878,414	1,031	767,340	25,670	7,984,388
1964-65	16,903	6,929,850	6,005	1,360,232	2,443	999,070	1,074	1,033,350	26,425	10,322,502
1965-66	17,200	5,418,650	5,964	1,262,268	2,514	957,298	1,037	1,195,402	26,715	8,833,618

(a) Excluding grapes. (b) Apples, pears and quinces. (c) Principally oranges, mandarins, lemons and grapefruit. (d) Apricots, peaches, nectarines, plums and cherries. (e) Bananas, loquats, figs, passion fruit, almonds and other minor fruits. (f) Includes area under young non-bearing trees.

Apples

Apples, which are the principal fruit crop, account for more than half the total orchard area. Manjimup, Bridgetown, Donnybrook and Mount Barker (based on number of bearing and non-bearing trees) are the most important centres but other districts in the south-west and in the Darling Range near Perth produce large quantities. In 1965-66 the total area of bearing trees was 11,760 acres which produced 1,603,040 bushels, the principal varieties being Granny Smith, Cleopatra, Yates, Jonathan and Delicious.

There is a valuable export trade and oversea shipments average about one million bushels annually. The United Kingdom is the most important market, with the Federal Republic of Germany, Malaysia and Sweden also buying significant quantities.

APPLES—AREA AND PRODUCTION

Season	Area		Production		
	Trees of Bearing Age	Young Trees not Bearing	Total	Average Yield per acre (a)	Gross Value
	acres	acres	bushels	bushels	\$
1961-62	10,657	3,896	1,137,400	106·7	4,049,290
1962-63	10,833	4,016	1,977,300	182·5	6,453,350
1963-64	10,889	4,237	1,287,310	118·2	4,375,928
1964-65	11,511	4,231	2,355,160	204·6	6,476,414
1965-66	11,760	4,281	1,603,040	136·3	4,808,375

(a) Calculated on the area of bearing trees only.

Pears

Pears are usually grown in conjunction with apples but the area planted and the quantity produced are much less, the total area of bearing trees in 1965-66 being 800 acres and the production 189,979 bushels. The bulk of the crop is consumed locally but significant quantities are exported, principally to the United Kingdom, Singapore and Malaysia.

PEARS—AREA AND PRODUCTION

Season	Area		Production		
	Trees of Bearing Age	Young Trees not Bearing	Total	Average Yield per acre (a)	Gross Value
	acres	acres	bushels	bushels	\$
1961-62	790	237	153,400	194·2	458,318
1962-63	799	275	171,740	214·9	466,450
1963-64	783	297	155,817	199·0	537,002
1964-65	799	349	190,915	238·9	451,488
1965-66	800	344	189,979	237·5	608,701

(a) Calculated on the area of bearing trees only.

Citrus Fruit

While the Shire of Chittering is the chief citrus fruit producer, there are other important areas in the Darling Range near Perth and in the Shires of Swan-Guildford, Capel, Harvey, Donnybrook and Murray (in order according to number of trees bearing and non-bearing). Although oranges are by far the most important crop and account for almost four-fifths of the total area, substantial quantities of lemons, grapefruit and mandarins are also produced.

Production is largely for local consumption but there is some export trade, mainly with Singapore, Malaysia and Mauritius.

The following tables give details of production of each type for the years 1961-62 to 1965-66.

ORANGES AND MANDARINS—AREA AND PRODUCTION

Season	Oranges				Mandarins			
	Area		Production		Area		Production	
	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1961-62	3,574	873	356,398	1,044,092	205	152	20,099	96,330
1962-63	3,655	976	413,912	1,054,936	224	175	25,229	115,870
1963-64	3,636	1,083	391,047	1,110,412	231	231	27,252	126,462
1964-65	3,710	1,024	480,422	1,096,744	251	248	26,611	112,060
1965-66	3,670	1,017	322,866	974,768	262	288	23,935	122,865

LEMONS AND OTHER CITRUS FRUIT—AREA AND PRODUCTION

Season	Lemons				Other Citrus (a)			
	Area		Production		Area		Production	
	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1961-62	511	157	84,537	131,900	119	7	17,267	26,912
1962-63	522	182	107,160	94,666	119	12	18,789	26,072
1963-64	511	164	123,697	151,968	114	17	21,053	34,510
1964-65	505	126	97,669	121,422	113	28	18,614	30,006
1965-66	505	97	117,604	137,906	108	17	16,060	26,729

(a) Principally grapefruit.

Stone Fruits

Plums, peaches, apricots, nectarines and cherries are grown in the hills districts in the Darling Range near Perth, in the Swan Valley and in many districts in the South-West. The total area under stone fruit in 1965-66 was 2,514 acres, comprising 1,090 acres of plums, 956 of peaches, 305 of apricots, 118 of nectarines and 45 of cherries. The bulk of the stone fruit crop is consumed locally but shipments of plums are sent overseas, mainly to Malaysia and Singapore.

The following tables give details of production of the principal stone fruits for the five years 1961-62 to 1965-66.

PLUMS AND PEACHES—AREA AND PRODUCTION

Season	Plums and Prunes				Peaches			
	Area		Production		Area		Production	
	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1961-62	785	261	72,974	331,936	660	245	88,937	302,386
1962-63	822	262	89,943	377,636	700	240	78,975	253,774
1963-64	814	231	95,152	428,012	706	198	84,228	223,374
1964-65	821	230	101,828	528,556	727	197	87,371	272,230
1965-66	840	250	103,744	384,576	744	212	120,605	379,219

APRICOTS AND NECTARINES—AREA AND PRODUCTION

Season	Apricots				Nectarines			
	Area		Production		Area		Production	
	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value	Trees of Bearing Age	Young Trees not Bearing	Quantity	Gross Value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1961-62	288	50	38,650	164,046	127	23	16,187	57,914
1962-63	288	56	35,314	151,064	126	24	13,559	49,366
1963-64	270	46	35,586	153,064	112	16	12,307	51,770
1964-65	256	53	23,996	147,168	104	17	10,525	44,672
1965-66	244	61	28,606	117,758	96	22	14,255	54,360

Bananas

Production of bananas is confined almost entirely to a narrow strip of land along the Gascoyne River at Carnarvon. The plantations are dependent on water pumped from bores which tap a subterranean flow in the sands of the usually dry river bed. As a surface flow in the river channel results

only from heavy rains, which do not occur every year, a problem is presented in the falling-off of water supplies and in the increase in the salt content of the underground water during long dry periods. These conditions and also periodic damage from cyclones cause fluctuations in the area of the plantations and in production.

The crop is transported by road to Perth and sold locally in competition with bananas imported from other Australian States.

BANANAS—AREA AND PRODUCTION

Season	Area		Production		
	Plants of Bearing Age	Young Plants not Bearing	Total	Average Yield per acre (a)	Gross Value
	acres	acres	bushels	bushels	\$
1961-62	191	68	48,115	251.9	224,536
1962-63	222	83	76,573	344.9	437,384
1963-64	311	86	140,643	452.2	672,454
1964-65	369	100	145,095	393.2	949,984
1965-66	345	101	198,693	575.9	1,117,695

(a) Calculated on the area of bearing plants only.

Vineyards

Almost three-quarters of the State's 8,215 acres of grape vines are in the Shire of Swan-Guildford, other important centres being Chittering, Wanneroo, Toodyay, Gosnells and Northam.

The area of vines for the production of dried currants, sultanas and table raisins has declined from a post-war peak of 5,830 acres in 1947-48 to 3,191 acres in 1965-66 but it still represents almost two-fifths of the total area under grapes. Currants are the main item of production and a high proportion of the crop is exported overseas, the United Kingdom and Canada being the principal buyers in 1965-66. Small quantities are exported to other Australian States. Production of sultanas and table raisins is of minor importance and exports are negligible.

Table grapes are grown for the local market and for export overseas, mainly to Malaysia. More than half a million gallons of beverage wine have also been produced annually for the past five years, mostly for local consumption although small amounts are exported to the other Australian States and overseas.

GRAPES—AREA AND PRODUCTION

Season	Fresh Grapes for Table Use and Wine Making				Dried Vine Fruits				Production of Beverage Wine
	Area		Production		Area		Production		
	Vines of Bearing Age	Young Vines not Bearing	Quantity	Gross Value	Vines of Bearing Age	Young Vines not Bearing	Quantity (Packed Weight)	Gross Value	
	acres	acres	tons	\$	acres	acres	tons	\$	gallons
1961-62	4,378	1,015	7,628	730,232	3,502	122	2,007	499,392	669,293
1962-63	4,454	818	7,207	649,386	3,277	136	1,276	289,014	636,026
1963-64	4,449	799	8,246	749,104	3,276	105	2,287	594,040	666,443
1964-65	4,339	626	7,591	724,962	3,238	107	2,439	669,912	612,756
1965-66	4,453	571	7,542	687,670	3,078	113	1,422	484,890	626,686

PASTORAL

Throughout this section, where mention is made of the "pastoral areas" the portion of the State referred to comprises the Kimberley, Pilbara, North-West and Central Statistical Divisions together with the Shires of Coolgardie, Kalgoorlie, Laverton, Leonora and Menzies, which form part of the Eastern Goldfields Division. The balance of the State, referred to as the "agricultural areas", comprises the Perth, South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Divisions together with the Shires of Dundas, Esperance, Ravensthorpe and Yilgarn in the Eastern Goldfields Division.

In the early days of settlement, pastoral activities in Western Australia were confined largely to what are now the agricultural areas and were usually associated with the cultivation of crops. However, beginning with Captain George Grey's visit in 1838 to the area now known as the West Kimberley, explorers increasingly drew attention to the pastoral possibilities of large sections of the present Kimberley, Pilbara, North-West and Central Statistical Divisions.

In 1857 and 1858, F. T. Gregory noted the existence of good pastoral country in the Murchison and the Gascoyne districts and in the course of a journey further to the north in 1861 he discovered the Ashburton, Fortescue, De Grey and Oakover Rivers. His reports of good grazing lands in the area led to the establishment of sheep stations by pastoralists from the south, the first of such ventures, in 1863, being in the De Grey district of what is now the Pilbara Statistical Division. Graziers were also turning their attention to the south-east and in the 1870s pastoral lands were being taken up in the coastal areas to the south of the Nullarbor Plain. Another development in the extension of pastoral activity began with Alexander Forrest's journey through the Kimberley in 1879 and his favourable reports on the suitability of the country for grazing. Leases along the Fitzroy and the Ord Rivers were stocked not only with livestock shipped from the south and from the other Australian Colonies but also with cattle brought overland to the area, principally from Queensland and New South Wales, by remarkable feats of droving.

Pastoral production, comprising the production of meat as well as wool, in 1965-66 contributed almost 36 per cent. of the total net value of Western Australian primary production.

Sheep

The present distribution of sheep in the State is the result of two opposite trends operating over many years. In the pastoral, or station areas where the industry is based on long-term pastoral leases, severe droughts led to a decline in the number of sheep, although some recovery has taken place in recent years. In the agricultural, or farming areas, however, the sheep population has steadily risen. Factors contributing to this rise, particularly since the war, have been the increasing use of subterranean clover in the wheat belt, the provision in many areas of more assured water supplies, a taxation policy which, by the provision of special concessions to primary producers, has encouraged farmers to clear and develop new land, the War Service Land Settlement Scheme which has developed new areas and the stimulating effect of buoyant wool prices in the post-war period.

The overall result has been a marked upward trend in sheep numbers since the war, and at the 31st March, 1966, the State total was 24.4 million, compared with 9.8 million at the same date in 1946. Numbers in the agricultural areas increased from 7 million, or 72 per cent. of the State total, to 20.7 million or more than 84 per cent. They also increased in the pastoral areas from 2.7 million to 3.7 million, but as a percentage of the State total this represents a decline from 28 per cent. to little more than 15 per cent.

SHEEP NUMBERS AND DISTRIBUTION

As at 31st March—	In Agricultural Areas		In Pastoral Areas		State Total
	Number	Proportion of State Total (per cent.)	Number	Proportion of State Total (per cent.)	
1946	7,029,761	72.0	2,736,222	28.0	9,765,983
1947	6,990,756	71.4	2,796,246	28.6	9,787,002
1948	7,417,053	71.0	3,026,745	29.0	10,443,798
1949	7,509,710	69.1	3,362,830	30.9	10,872,540
1950	7,518,456	68.8	3,404,711	31.2	10,923,167
1951	8,269,814	72.8	3,092,094	27.2	11,361,908
1952	9,174,640	75.3	3,013,112	24.7	12,187,752
1953	9,304,681	74.6	3,169,991	25.4	12,474,672
1954	9,921,867	75.8	3,165,241	24.2	13,087,108
1955	10,273,780	76.6	3,137,502	23.4	13,411,282
1956	10,976,121	77.7	3,152,047	22.3	14,128,168
1957	11,845,409	79.6	3,041,140	20.4	14,886,549
1958	12,704,210	80.8	3,019,753	19.2	15,723,963
1959	13,070,754	80.6	3,144,490	19.4	16,215,244
1960	13,395,527	81.6	3,016,062	18.4	16,411,589
1961	13,940,614	81.3	3,210,770	18.7	17,151,384
1962	14,951,185	81.6	3,262,694	18.4	18,313,879
1963	15,403,902	82.3	3,323,222	17.7	18,727,124
1964	16,608,300	82.4	3,556,568	17.6	20,164,868
1965	18,670,759	83.4	3,721,075	16.6	22,391,834
1966	20,695,040	84.7	3,731,768	15.3	24,426,808

SHEEP FLOCKS AS AT 31st MARCH, 1966, CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF FLOCK

Size of Holding (acres)	Size of Sheep Flock (numbers)																Total Flocks	Total All Rural Holdings
	1-49	50-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000-9,999	10,000-19,999	20,000-49,999	50,000 and over		
1-99	279	60	45	14	2	5	1	1	...	...	...	...	...	...	...	...	407	4,553
100-199	93	53	78	47	30	9	10	3	...	...	...	...	...	...	...	...	324	1,251
200-299	79	42	39	65	29	23	30	16	...	...	...	...	...	...	...	...	329	1,058
300-399	71	20	44	36	45	33	41	35	...	...	...	...	...	...	...	...	344	1,887
400-499	33	16	31	29	30	22	49	33	...	...	...	...	...	...	...	...	276	632
500-599	24	11	26	27	20	26	43	50	...	...	...	...	...	...	...	...	275	523
600-799	39	17	40	29	37	44	75	108	...	...	...	...	...	...	...	...	542	907
800-999	14	20	24	22	38	44	85	100	...	...	...	...	...	...	...	...	786	584
1,000-1,999	30	13	27	42	44	60	164	208	...	...	...	...	...	...	...	...	1,229	1,501
2,000-2,999	15	8	18	24	39	44	183	374	...	...	...	...	...	...	...	...	1,832	2,082
3,000-3,999	9	7	35	35	43	52	170	393	...	...	...	...	...	...	...	...	2,682	3,143
4,000-4,999	10	20	32	33	42	39	116	245	...	...	...	...	...	...	...	...	2,666	3,306
5,000-9,999	3	4	11	11	12	7	26	74	...	...	...	...	...	...	...	...	1,323	1,435
10,000-19,999	...	...	1	...	...	...	2	9	...	...	...	...	...	...	...	...	1,250	264
20,000-49,999	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	47	57
50,000 and over	...	...	...	...	...	...	3	4	...	...	...	...	...	...	...	...	1	401
Total	700	291	444	417	413	415	1,000	1,854	2,044	2,255	2,069	1,112	401	166	39	1	13,511	22,853

SHEEP FLOCKS AS AT 31st MARCH, 1966, CLASSIFIED ACCORDING TO SIZE OF FLOCK AND AREA OF ESTABLISHED PASTURE

Area of Established Pasture (acres)	Size of Sheep Flock (numbers)											Total All Rural Holdings					
	1-49	50-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000-9,999	10,000-19,999	20,000-49,999	50,000 and over	Total Flocks
1-9	150	45	83	79	103	116	286	435	411	335	185	107	148	129	32	...	2,644
10-19	70	8	4	...	...	...	...	...	...	...	...	...	...	...	...	...	81
20-29	47	7	6	...	...	...	...	...	...	...	...	...	...	...	...	...	441
30-39	26	15	9	...	...	...	...	...	...	...	...	...	...	...	...	...	33
40-49	38	33	29	12	2	4	7	20	13	...	...	...	...	...	...	...	88
50-59	34	21	29	13	2	5	11	17	12	...	...	...	...	...	...	...	162
60-69	44	22	34	31	15	10	25	28	16	...	...	...	...	...	...	...	182
70-79	56	38	61	69	35	21	62	68	44	...	...	...	...	...	...	...	164
80-89	50	38	41	38	48	36	48	49	39	...	...	...	...	...	...	...	174
90-99	51	27	37	38	72	57	135	178	128	...	...	...	...	...	...	...	222
100-149	63	29	41	48	50	59	113	171	157	...	...	...	...	...	...	...	503
150-199	71	17	37	38	50	59	113	171	157	...	...	...	...	...	...	...	1,136
200-299	46	27	37	38	50	59	113	171	157	...	...	...	...	...	...	...	493
300-399	20	19	16	23	28	35	106	241	345	...	...	...	...	...	...	...	900
400-499	20	13	13	23	28	35	106	241	345	...	...	...	...	...	...	...	1,115
500-599	15	6	8	7	18	20	38	179	326	...	...	...	...	...	...	...	789
600-699	9	4	...	3	11	10	38	98	330	...	...	...	...	...	...	...	920
700-799	...	...	...	2	...	...	2	5	31	...	...	...	...	...	...	...	1,316
800-899	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,534
900-999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,665
1,000-1,999	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,719
2,000 and over	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,150
Total	700	291	444	417	413	415	1,000	1,654	2,044	2,255	2,069	1,112	491	166	39	1	22,853

In the preceding tables sheep flocks at the 31st March, 1966, in size groups, are classified according to the size of the holding and to the area of established pasture. Of the 22,853 holdings of all types, sheep were carried on 13,511. Holdings of between 1,000 and 5,000 acres accounted for 62 per cent. of the flocks and holdings which carried between 500 and 2,000 sheep for 51 per cent. of the flocks. Of the holdings carrying sheep 10,867, or 80 per cent., had some established pasture and 9,136, or 68 per cent., had 200 acres and over.

An analysis of collected data relating to breeds of sheep as at the 31st March, 1965 showed that Merinos accounted for 92 per cent. of the total. Corriedales, Polwarths and British breeds, the most important of which are Romney Marsh, Dorset Horn, South Down, Border Leicester and Suffolk, comprised 3 per cent. and the remaining 5 per cent. was made up of Crossbreds, including Merino Comebacks. With low wool prices operating during the ten years prior to the war, some farmers turned to the production of fat lamb carcasses for export, mainly to the United Kingdom. The industry which developed as a result was based on the use of Corriedale and British breeds of rams, which in 1965 comprised about 16 per cent. of the rams in the State. As a result of the high wool prices offering after the war the "fat lamb" industry declined sharply in 1950-51 and 1951-52 but recovered in 1952-53. Since then exports of lamb have fluctuated between 4.08 million lb. in 1953-54 and 11.5 million lb. in 1960-61, the total in 1965-66 being 5.32 million lb.

The following table shows the numbers of each breed of sheep in the State at the 31st March, 1965.

BREEDS OF SHEEP AT 31st MARCH, 1965

Breed	Rams (One Year and Over)	Other Sheep	Total
Merino	237,107	20,295,998	20,533,105
Other Recognized Breeds—			
Corriedale	11,779	514,767	526,546
Polwarth	2,552	62,755	65,307
Romney Marsh	3,893	41,792	45,685
Dorset Horn	9,482	34,333	43,815
South Down	11,177	31,625	42,802
Border Leicester	4,959	37,605	42,564
Suffolk	2,208	5,575	7,783
English Leicester	472	3,882	4,354
Cheviot	390	1,616	2,006
Other British Breeds	2,078	4,951	7,029
Total, Other Recognized Breeds	48,990	738,901	787,891
Merino Comeback (a)	482	286,086	286,568
Crossbreds (b) and Other Mixed Breeds	955	783,315	784,270
Total, All Sheep	287,534	22,104,300	22,391,834

(a) More than half Merino.

(b) British breed to the extent of one-half or more.

Wool

Total wool production in 1965-66 amounted to 247.5 million lb., the highest ever recorded, compared with 156.4 million lb. ten years earlier. Shorn wool in 1965-66 accounted for 234.9 million lb. It was shorn from 25.6 million sheep and lambs, the average weight per fleece being 9.2 lb., compared with 8.6 lb. in the previous season. The balance of the 1965-66 production comprised 3.5 million lb. of dead and fellmongered wool, and 9.2 million lb. of wool exported on skins.

During the war years wool was compulsorily acquired by the Commonwealth Government in accordance with an agreement with the United Kingdom. The scheme was administered by the Central Wool Committee and the price paid was determined by a system of appraisalment which, however, operated within limits agreed upon by the two Governments. During this period large stocks of wool were accumulated and after the war an organization was formed with the object of selling this surplus with the least possible disturbance to ruling prices. Government control of wool ceased after the war and wool auctions operated by members of the National Council of Wool Selling Brokers of Australia were resumed in Perth

in 1946. These sales are attended by Australian and overseas buyers who bid for individual lots. Some wool is auctioned at sales conducted independently of the National Council and a significant portion of the clip is purchased on farms by wool dealers who buy direct from producers. In September, 1957, auctions were held at Albany for the first time. Sales in Perth were discontinued in 1960 and the selling centre was transferred to Fremantle.

SHEEP SHORN AND WOOL PRODUCTION

Year	Sheep Shorn (a)			Average Weight per Fleece (a)	Wool Production (in the grease)			
	Sheep	Lambs	Total		Shorn (a)	Dead and Fellmongered (b)	Exported on Skins (c)	Total
	'000	'000	'000	lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
1957	12,768	3,158	15,926	9.2	145,797	2,577	8,028	156,402
1958	13,317	3,182	16,499	9.0	149,125	1,901	7,255	158,281
1959	13,916	3,349	17,265	9.0	154,661	2,697	9,164	166,522
1960	14,423	3,541	17,964	8.8	157,929	2,963	9,550	170,442
1961	14,801	3,623	18,424	9.7	178,600	3,617	9,136	191,353
1962	15,461	4,055	19,516	9.2	180,000	3,334	8,827	192,161
1963	16,287	3,790	20,077	8.7	174,000	3,176	6,947	184,123
1964	17,021	4,191	21,212	9.8	207,235	2,320	7,019	216,574
1965	18,437	4,742	23,179	8.6	198,200	2,795	6,040	207,035
1966	20,458	5,177	25,635	9.2	234,850	3,506	9,174	247,530

(a) Up to and including 1965, figures are for the year ended 31st March. The figures for 1966 relate to the year ended 30th June. (b) Up to and including 1965, figures comprise dead wool for the year ended 31st March, and fellmongered wool for the year ended 30th June. The figure for 1966 relates entirely to the year ended 30th June. (c) Year ended 30th June.

GROSS VALUES OF WOOL PRODUCTION

Year	Shorn Wool (a)	Dead Wool and Fellmongered Wool (b)	Wool Exported on Skins (c)	Total
	\$	\$	\$	\$
1957	89,361,784	921,462	3,646,714	93,929,960
1958	74,711,074	517,096	3,190,284	78,418,454
1959	58,645,222	762,136	2,421,974	61,829,332
1960	74,331,794	969,788	3,365,718	78,667,300
1961	72,760,148	1,102,674	2,761,472	76,624,294
1962	78,472,488	810,096	3,237,842	82,520,426
1963	78,816,308	1,255,098	2,916,286	82,987,692
1964	115,345,048	985,922	3,531,734	119,862,704
1965	92,281,812	993,102	2,528,336	95,803,250
1966	114,048,957	1,133,992	3,014,818	118,197,767

(a) See note (a) to table above.

(b) See note (b) to table above.

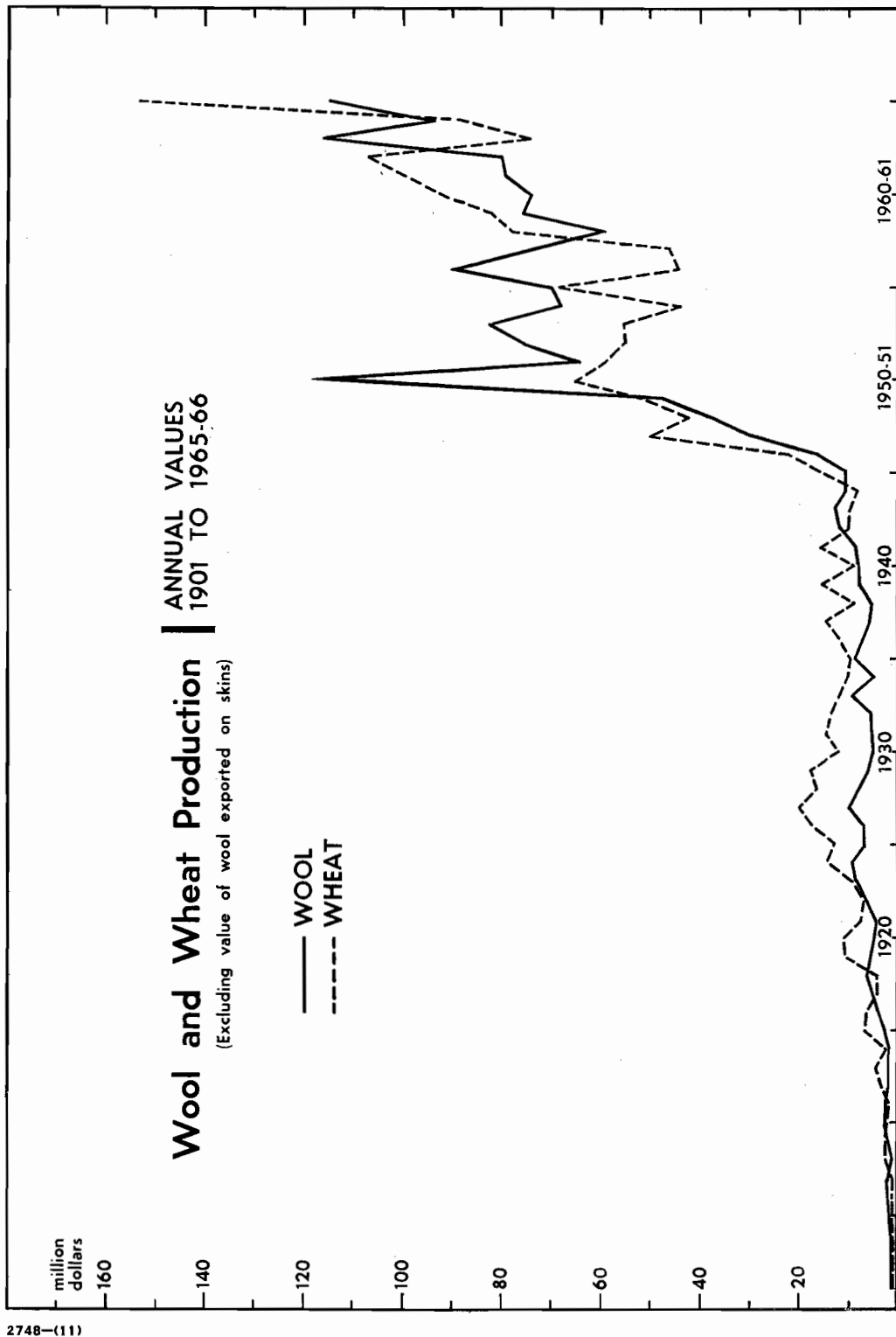
(c) Year ended 30th June.

Although the greater proportion of the woolclip is exported in the grease, scouring is done in the State and scoured wool is an appreciable item in the external wool trade. During 1965-66 exports of greasy and scoured wool were 193.7 million lb. and 21.7 million lb. respectively. The most important buyers of greasy wool were Japan, the United Kingdom, the Federal Republic of Germany, France, Australian States, Italy, the United States of America, the Union of Soviet Socialist Republics, Belgium-Luxembourg, Poland and Mexico. Principal purchasers of scoured wool were the United States of America, the Federal Republic of Germany, the United Kingdom, Australian States, France, Italy and Canada.

Cattle

Following an investigation into the adequacy of the wording and arrangement of the cattle sections of the forms used in collecting agricultural and pastoral statistics, certain changes have been made in the classification of cattle as at the 31st March in 1964 and later years.

Prior to 1964, informants were asked to classify their stock as either "beef cattle" or "dairy cattle." These two terms tended to cause confusion between breed and purpose. For example, in cases where vealer production was carried on in association with dairying the informant was in doubt as to how to classify part or all of the herd. From 1964, informants have been asked to classify cattle according to



the two main purposes of "meat production" and "milk production," irrespective of breed, and to report separately the numbers of cows and heifers kept for their own domestic milk supply. Consequently, detailed statistics of cattle for 1964 and later are not comparable with those for earlier years.

The table below shows the numbers of cattle for meat production kept on rural holdings at the 31st March, 1965 and 1966. The table on page 294 shows, for the same dates, the numbers kept for milk production. Cattle numbers in each State and Territory at the 31st March, 1966 are given in the third table on page 296.

In 1966 the Kimberley Statistical Division carried 523,499 head of cattle for meat production, or 49 per cent. of the State total. Other pastoral areas carried 87,206 head and agricultural areas 451,062.

The cattle which were originally shipped or driven overland from the other Australian Colonies to start the industry in the northern pastoral areas were preponderantly shorthorn breeds, and these still form the great bulk of all cattle kept for meat production in those areas. Carcass weights, however, have been increased by importing better-type bulls and by improving watering facilities, both on the cattle stations and on the stock routes.

Killing and freezing works operate at the ports of Wyndham, Broome and Derby. To minimize loss of weight in droving to ports some cattle were formerly slaughtered inland at Glenroy Station and the carcasses transported to freezing works at Derby. Slaughtering at Glenroy ceased in August, 1965 and since then live cattle from the station have been trucked to Derby where abattoir operations commenced in May, 1966.

Frozen and chilled beef consigned from Wyndham, Broome and Derby goes mainly to oversea destinations. Some of it is sent south for consumption in the metropolitan area and live cattle are also shipped from northern ports to be slaughtered for the metropolitan market. However, by far the greater proportion of beef consumed in the southern part of the State is supplied from the agricultural areas, much of it being from stock culled from dairy herds.

The following table shows the numbers and proportions of cattle for meat production in agricultural areas and in pastoral areas at the 31st March, 1965 and 1966. The agricultural areas have become an increasingly important source of meat production in recent years, and now contain over two-fifths of the cattle kept for this purpose, compared with less than one-quarter ten years earlier.

CATTLE FOR MEAT PRODUCTION—NUMBERS AND DISTRIBUTION

Particulars	At 31st March—	
	1965	1966
Number of Head—		
In Agricultural Areas	411,142	451,062
In Pastoral Areas	627,262	610,705
Total	1,038,404	1,061,767
Proportion of Total—		
In Agricultural Areas	per cent. 39·6	per cent. 42·5
In Pastoral Areas	60·4	57·5

In the tables on page 291 herds of cattle kept for meat production at the 31st March, 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for meat production were carried on 8,304. Holdings of between 1,000 and 5,000 acres accounted for 41 per cent. of the herds, and holdings which carried less than 50 cattle for meat production for 67 per cent. of the herds. Of the holdings carrying cattle for meat production 7,266, or 88 per cent., had some established pasture and 5,231, or 63 per cent., had 200 acres and over.

Slaughtering

Beef from cattle slaughtered at Wyndham, Broome and Derby in the Kimberley Division is principally for export. The local market for meat is supplied mainly from abattoirs at Midland, Fremantle, Waroona, Harvey, Bunbury, Albany and Kalgoorlie but these establishments, with the exception of Kalgoorlie, also slaughter for the export trade. Small establishments operating in country towns also contribute substantially to total production, and most stations and many farms slaughter sufficient for all or part of their own requirements.

CATTLE FOR MEAT PRODUCTION AS AT 31st MARCH, 1966, ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of Holding (acres)	Size of Cattle Herd (numbers)														Total All Rural Holdings		
	1-9	10-19	20-29	30-49	50-69	70-99	100-149	150-199	200-299	300-499	500-999	1,000-1,999	2,000-4,999	5,000-9,999		10,000 and over	Total Herds
1-99	384	130	53	41	11	6	....	....	....	....	....	....	....	....	....	625	4,553
100-199	203	139	82	106	49	24	12	....	....	....	....	....	....	....	....	615	1,251
200-299	144	103	78	105	74	52	26	....	....	....	....	....	....	....	....	590	1,058
300-399	97	88	56	90	44	47	42	14	6	....	....	....	....	....	....	485	837
400-499	71	45	42	62	64	48	39	34	11	....	....	....	....	....	....	402	682
500-599	38	40	34	49	42	39	44	32	15	3	....	....	....	....	....	326	526
600-799	82	58	49	77	68	52	58	30	27	11	....	....	....	....	....	515	907
800-999	169	76	49	80	69	52	43	30	30	12	....	....	....	....	....	610	1,786
1,000-1,999	189	111	76	90	79	69	49	36	23	11	....	....	....	....	....	781	2,081
2,000-2,999	262	111	70	76	69	52	49	36	23	11	....	....	....	....	....	908	2,318
3,000-3,999	383	134	100	122	79	72	46	22	33	16	....	....	....	....	....	1,019	3,148
4,000-4,999	365	129	85	113	78	81	53	16	33	23	....	....	....	....	....	1,078	3,906
5,000-5,999	173	46	46	62	29	35	34	24	19	11	....	....	....	....	....	592	1,435
6,000-6,999	36	7	3	19	7	9	8	4	4	14	....	....	....	....	....	123	284
7,000-7,999	6	1	1	1	1	1	3	....	....	....	....	....	....	....	....	25	57
8,000-8,999	21	10	12	27	11	7	17	....	17	19	....	....	....	....	....	285	513
9,000-9,999	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
10,000 and over	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	2,517	1,174	791	1,076	730	618	531	259	254	163	84	35	31	23	18	8,304	22,853

CATTLE FOR MEAT PRODUCTION AS AT 31st MARCH, 1966, ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE

[illegible]

The following table gives details of slaughtering in abattoirs, butcheries and on stations and farms. A table showing particulars of pigs slaughtered and pigmeat produced appears on page 296.

LIVESTOCK SLAUGHTERED AND MEAT PRODUCED

Year ended 30th June—	Livestock Slaughtered (a)								Meat Produced (b)	
	Sheep		Lambs		Cattle		Calves		Mutton and Lamb	Beef and Veal
	Number	Gross Value (c)	Number	Gross Value (c)	Number	Gross Value (c)	Number	Gross Value (c)		
	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000	tons	tons
1957	1,237	7,368	677	4,801	176	11,172	18	261	33,303	38,267
1958	1,167	4,907	697	4,739	188	10,533	31	690	31,942	39,517
1959	1,612	5,129	817	4,431	222	13,711	31	727	40,875	45,390
1960	1,816	6,345	850	4,310	218	15,445	26	737	44,385	45,962
1961	1,713	7,313	954	5,717	194	15,173	17	537	46,560	41,972
1962	1,482	6,204	1,017	5,528	222	14,858	20	571	42,697	47,406
1963	1,618	6,486	863	5,174	283	17,070	27	653	41,236	55,934
1964	1,288	7,819	859	6,196	341	19,863	34	831	36,690	66,025
1965	1,280	7,010	787	6,332	300	21,376	28	837	35,839	56,983
1966	1,696	9,293	858	7,293	299	27,524	16	721	44,695	58,089

(a) Mainly slaughtering for human consumption but also includes small numbers of livestock slaughtered for boiling down. Details of pigs slaughtered and production of pigmeat are shown on page 296. (b) Dressed carcass weight; excludes offal. (c) Value "on hoof" at principal market.

DAIRYING

Compared with the wheat, wool and meat producing industries, dairying as a major well-organized rural activity is of fairly recent origin. Its growth was retarded initially by the difficulty of clearing heavily-timbered country in the South-West and the need for special methods of pasture establishment, but these problems have been progressively overcome and dairying is now a significant feature of primary production, although only limited development has taken place in recent years.

Until the establishment of the first butter factory at Busselton in 1898, dairy farming in Western Australia was essentially for the production of whole milk, although small quantities of farm butter were marketed. As more factories commenced processing, the industry steadily developed and its growth was further stimulated by the establishment of irrigation areas, the first at Harvey in 1916, and by the introduction of the Group Settlement Scheme in 1921. Another important factor in increasing production was the successful establishment of subterranean clover which resulted in a marked improvement in pastures.

The industry has been assisted by the extensive experimental work carried out by the Department of Agriculture and the advisory service which it provides on all aspects of dairy farming. The Department also established in May, 1956 an artificial insemination centre at its Wokalup Research Station and dairy herds, which consist mainly of Australian Illawarra Shorthorn, Jersey, Guernsey and Friesian breeds, are now being served from eight distributing centres.

Price instability has been one of the major difficulties of the industry and in 1926 the "Paterson Plan," which was a voluntary scheme of price stabilization, was introduced. It met with considerable success but weaknesses finally became apparent and it was abandoned in 1934 in favour of the Dairy Products Marketing Regulation Act passed by the State Parliament. On the 1st April, 1946, Western Australia entered the voluntary butter price equalization scheme, operated since 1936 by the Commonwealth Dairy Produce Equalization Committee Ltd., and in January, 1947 the State extended its participation to include cheese. The Committee, which comprises certain members of the State Dairy Products Boards and other persons representing the industry, enters into agreements with manufacturers to secure to them equal rates from sales of butter and also of cheese, and for this purpose may fix basic prices at which these products sold in Australia or abroad are to be taken into account. The effect is that local and export trade are distributed among manufacturers in equitable proportions. The Committee fixes basic prices and equalizes returns to factories through an Equalization Fund. In addition, subsidies provided by the Commonwealth Government are distributed by the Committee, through factories to dairy farmers, by payments on butter and cheese manufactured. The fourth five-year stabilization plan, which came into operation on the 1st July, 1967, provides a fixed bounty of \$27,000,000 annually for the Australian industry. The average subsidy rates per cwt. in 1965-66 were \$6.01 on butter and \$2.36 on cheese.

CATTLE FOR MILK PRODUCTION (a) AS AT 31st MARCH, 1966, ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of Holding (acres)	Size of Cattle Herd (numbers)															Total All Rural Holdings
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-149	150-199	200 and over	Total Herds
1-19	58	12	3	1	2	2	3	2	6	2	5	3	1	1	75	2,799
20-29	15	11	1	7	4	5	2	2	21	8	11	11	1	1	30	586
30-49	28	6	5	2	3	2	3	6	32	16	51	21	1	1	50	530
50-69	16	7	8	7	12	10	26	20	73	59	37	19	80	19	48	320
70-99	20	8	5	8	30	42	31	27	44	39	37	17	68	25	80	318
100-149	23	9	5	7	31	24	43	52	44	39	37	17	68	25	205	661
150-199	35	10	5	9	31	24	43	52	44	39	37	17	68	25	258	590
200-299	48	3	9	8	24	29	58	27	73	59	51	21	80	19	516	1,058
300-399	35	4	3	9	18	22	32	47	27	35	37	19	68	25	837	1,039
400-499	28	3	1	4	8	11	17	21	18	23	24	23	90	29	384	1,039
500-599	62	3	1	2	10	10	17	18	27	35	18	23	90	29	264	1,177
600-699	62	6	1	3	6	8	14	12	12	11	12	11	52	26	17	1,501
700-999	76	13	1	5	3	3	4	2	9	5	6	8	20	12	187	1,501
1,000-1,399	152	11	5	5	1	1	2	2	1	3	2	5	6	4	217	2,082
1,400-1,999	454	25	6	1	1	1	2	1	1	1	2	3	3	3	516	6,454
2,000-4,999	160	11	4	1	1	1	1	1	1	1	1	1	1	3	184	2,269
5,000 and over																
Total	1,260	142	68	68	152	185	210	210	244	205	169	118	390	133	131	3,685
																22,853

(a) Excludes herds with no cattle for milk production other than house cows.

CATTLE FOR MILK PRODUCTION (a) AS AT 31st MARCH, 1966, ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE

Area of Established Pasture (acres)	Size of Cattle Herd (numbers)															Total All Rural Holdings
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-149	150-199	200 and over	
1-9	227	20	11	4	3	9	6	3	9	5	4	1	3	4	1	310
10-19	31	3	3	2	2	2	2	1	1	1	1	1	1	1	1	36
20-29	28	15	6	3	1	1	1	1	1	1	1	1	1	1	1	54
30-49	21	10	12	11	13	13	2	...	2	2	...	...	...	1	...	47
50-69	33	10	12	11	13	13	3	...	3	5	...	1	3	...	...	94
70-99	34	6	12	13	24	13	6	...	6	1	1	...	1	...	...	117
100-149	69	7	3	13	37	41	23	...	41	10	3	1	1	3	...	186
150-199	28	11	2	7	32	71	77	...	77	56	12	1	11	...	...	508
200-299	68	11	2	4	32	41	44	...	44	58	43	18	29	6	...	449
300-399	34	3	2	4	13	13	29	...	29	65	64	40	124	19	5	945
400-499	75	4	2	7	13	13	8	...	8	24	32	26	98	33	14	532
500-599	66	7	...	1	10	4	7	...	7	3	11	9	58	25	17	1,494
600-699	61	1	2	2	5	4	4	...	4	3	6	7	41	30	24	1,116
700-799	98	1	3	2	4	4	4	...	4	3	3	7	14	9	30	920
800-899	88	8	3	2	4	4	2	...	2	4	3	4	11	25	34	215
900-999	126	16	1	3	...	...	2	...	3	3	3	7	41	30	24	257
1,000-1,999	220	13	1	3	...	...	2	...	3	4	3	4	14	9	24	1,665
2,000 and over	109	8	2	...	1	...	1	...	...	1	...	...	5	2	3	212
Total	1,260	142	68	68	152	185	210	210	244	205	169	118	390	133	131	3,685
Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22,863

(a) Excludes herds with no cattle for milk production other than house cows.

From 1942 until the 30th June, 1948, and again from the 1st July, 1949 to the 30th June, 1952, a subsidy was paid by the Commonwealth Government on milk supplied for the manufacture of processed milk products. By means of the Processed Milk Products Bounty Act 1962, the Commonwealth provided for payment of a maximum amount of \$700,000 as a bounty on exports of processed milk products during the year ended 30th June, 1963. For the purpose of the Act, processed milk products are goods containing butter fat and produced from cow's milk, but excluding butter, cheese and certain other specified goods. By later amendments to the Act, bounty was continued up to a maximum of \$1,000,000 in respect of exports during 1963-64 and of \$800,000 on those for 1964-65. Subsequent amendments extend the operations of the Act until the 30th June, 1972, the maximum amount of bounty payable each year being maintained at \$800,000.

CATTLE FOR MILK PRODUCTION AND MILK PRODUCED (a)

Particulars	Cattle at 31st March—		Milk Produced (b)		
	1965	1966	Year (c)	Quantity	Gross Value (d)
	No.	No.		gallons	\$
Bulls of dairy breeds used or intended for service—			1952-53	49,769,166	11,182,640
Aged one year and over	4,848	4,438	1953-54	49,173,673	11,591,988
Calves (aged under one year)	1,671	1,429	1954-55	52,918,308	12,099,762
Total	6,519	5,867	1955-56	55,373,097	12,384,800
Cattle used or intended for production of—			1956-57	56,934,772	12,801,150
Milk or cream for sale—					
Cows : in milk	43,917	42,777	1957-58	54,729,735	12,681,938
dry	69,098	66,514	1958-59	50,966,678	12,202,318
Heifers : Springing (within 3 months of calving)	25,662	24,290	1959-60	55,669,001	13,447,336
Other (aged one year and over)	30,211	27,778	1960-61	58,544,118	14,242,930
Calves (aged under one year)	33,479	32,051	1961-62	58,239,606	14,142,824
Milk or cream for use on rural holdings—					
House cows and heifers	11,137	10,182	1962-63	56,028,616	13,966,620
Total	213,504	203,592	1963-64	57,162,219	14,332,514
Total Cattle for Milk Production	220,023	209,459	1964-65	61,883,453	15,819,162
			1965-66	61,864,819	16,219,542

(a) Details of butter and cheese production appear in Part 2 of this chapter. (b) Includes milk used for processing into butter, cheese and condensery products. (c) For 1959-60 and earlier, year ended 31st March; for 1960-61 and later, year ended 30th June. (d) Includes subsidy paid by Commonwealth Government.

In the tables on page 293, herds of cattle kept for milk production at the 31st March, 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for milk production were carried on 3,685. Holdings of between 1,000 and 5,000 acres accounted for 25 per cent. of the herds but 79 per cent. of these herds had less than 10 head each. All holdings with less than 10 head accounted for 38 per cent. of the herds in the State. Of the holdings carrying cattle for milk production 3,375, or 92 per cent., had some established pasture and 1,971, or 53 per cent., had 200 acres and over.

Pig Raising

For many years the rearing of pigs has been carried on in conjunction with the production of butter-fat as cream, thus providing a practical means of utilizing the skim milk obtained. They are also raised on grain-growing holdings and in 1966 more than two-thirds of the pigs in the State were in the wheat belt. There are also a number of farmers in the districts around Perth who specialize in pig raising but the number of pigs on these properties is not now significant compared with the total number in the State.

The principal breeds in Western Australia are the Berkshire, Large White and Landrace and crosses of these breeds. Pigs are reared for bacon and ham as well as pork and, although the greater proportion of production is consumed locally, there is some export trade, mainly to other Australian States. In 1965-66 a total of 737,998 lb. of pork was shipped interstate and 188,084 lb. overseas, mainly to Christmas Island (Indian Ocean) and Malaysia.

In the tables on page 295 pig herds at the 31st March, 1966, in size groups, are classified according to the size of the holding and the size of the herd of cattle for milk production on the holding. Of the 22,853 rural holdings of all types, pigs were carried on 3,537. Holdings with between 1,000 and 5,000 acres of land accounted for 54 per cent. of the pig herds and those which carried less than 15 head for 34 per cent. of the herds. Of the holdings carrying pigs 1,033, or 29 per cent., had some cattle for milk production and 629, or 18 per cent., had 10 or more cattle for milk production.

PIG HERDS AS AT 31st MARCH, 1966, CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

[illegible]

PIG HERDS AS AT 31st MARCH, 1966, ACCORDING TO SIZE OF HERD OF CATTLE FOR MILK PRODUCTION AND SIZE OF PIG HERD

[illegible]

PIG NUMBERS

As at 31st March—	Boars	Breeding Sows	Baconers and Porkers	Suckers, Weaners, Slips	Other Pigs	Total
1957	3,311	20,059	41,130	60,340	15,142	139,982
1958	3,322	18,600	50,818	59,118	18,925	150,783
1959	2,673	14,634	38,917	45,478	13,744	115,446
1960	2,984	18,814	42,307	53,054	13,774	130,933
1961	3,882	25,193	55,819	72,369	18,912	175,675
1962	3,893	23,938	(a)	(a)	(b) 146,351	174,182
1963	3,041	17,849	(a)	(a)	(b) 109,901	130,791
1964	2,951	17,947	(a)	(a)	(b) 107,242	128,140
1965	3,098	19,250	(a)	(a)	(b) 114,844	137,192
1966	3,110	20,696	(a)	(a)	(b) 120,216	144,022

(a) Not recorded separately; included with "Other Pigs." (b) Includes baconers, porkers, suckers, weaners and slips.

PIGS SLAUGHTERED(a) AND MEAT PRODUCED

Year ended 30th June—	Pigs Slaughtered		Pigmeat Produced	Bacon and Ham Produced
	Number	Gross Value (b)	(c)	(d)
		\$	'000 lb.	'000 lb.
1957	157,534	4,673,350	19,094	6,840
1958	219,712	4,680,482	25,547	6,612
1959	197,095	4,435,526	22,379	6,619
1960	168,563	5,012,270	20,227	7,117
1961	194,625	5,170,314	23,630	7,085
1962	264,444	5,169,058	29,523	7,839
1963	237,422	5,410,636	26,276	8,594
1964	185,222	5,118,290	22,066	8,468
1965	182,822	5,915,118	*22,089	8,921
1966	195,439	5,952,967	23,395	9,605

(a) Comprises slaughterings in abattoirs, butcheries and on stations and farms. (b) Value "on hoof" at principal market or at factory door. (c) Dressed carcass weight; excludes offal but includes quantities used to produce bacon and ham. (d) Factory production. * Revised.

LIVESTOCK IN AUSTRALIA

The following table gives details of livestock numbers in each State and Territory of Australia at the 31st March, 1966.

LIVESTOCK NUMBERS AT 31st MARCH, 1966—AUSTRALIA

(Thousands)

State or Territory	Sheep	Cattle				Pigs	Horses
		Bulls (1 year and over) Used or Intended for Service	For Production of Milk or Cream	Mainly for Meat Production	Total		
New South Wales	61,396	83	1,097	2,972	4,153	480	151
Victoria	30,968	71	1,867	1,458	3,397	384	(e)
Queensland	18,384	122	937	5,829	6,888	417	190
South Australia	17,993	16	245	429	690	224	(e)
Western Australia	24,427	25	204	1,042	1,271	144	35
Tasmania	4,127	9	244	239	492	96	(e)
Northern Territory	(a) 9	(a) 24	(b) 1	(a) 1,007	(c) 1,032	(a) 2	(a) 39
Australian Capital Territory	258	(d)	2	11	13	(f)	1
Australia	157,563	351	4,598	12,987	(e) 17,936	(g) 1,747	(e)

(a) At 30th June, 1966. (b) At 30th September, 1965. (c) See footnotes (a) and (b). (d) Less than 500. (e) Not available. (f) Not available for publication. (g) Incomplete. Excludes Australian Capital Territory.

POULTRY FARMING

Poultry farming in Western Australia is now mainly a specialist industry and a large proportion of the egg production is on holdings which carry sufficient birds to make the activity the sole or predominant source of income. Most of the commercial poultry farms are situated in the Perth Statistical Division, within a 30-mile radius of Perth, but birds are also kept for commercial production on orchards, dairy farms and wheat farms throughout the agricultural areas.

On specialist poultry farms modern developments in breeding, sexing and nutrition have resulted in considerably higher egg production per bird. Egg-producing birds are largely first-cross hens, bred mainly from White Leghorn cocks and Australorp hens. Production of poultry meat has increased considerably in recent years. It is now predominantly a specialized industry using strains of birds which have been developed specifically for meat production.

Under the Marketing of Eggs Act, 1945-1965, all producers are required to market their eggs either through the Western Australian Egg Marketing Board or under the permit system which is administered by the Board. The principal purpose of this legislation is to ensure satisfactory disposal of eggs, including that surplus over local requirements which is consistently produced and which must be sold overseas at prices which usually do not offer a reasonable return to the producer. In order to provide a fund with which to equalize returns from local and export sales the Board, prior to the 1st July, 1965, made a charge on all eggs sold locally. This charge has now been replaced by a levy imposed by Commonwealth legislation which came into operation on the 1st July, 1965.

The Poultry Industry Levy Act 1965-1966 provides for the imposition throughout Australia of a levy on hens not less than six months old kept for commercial purposes. Special exemptions are made in respect of "broiler breeder hens," being hens used to produce chickens for table purposes. The levy, which does not apply to flocks of fewer than 21 hens, nor to the first 20 hens in any flock, is payable fortnightly and may not exceed \$1 annually per bird. It commenced on the 1st July, 1965 at a rate of 2.71c per fortnight for each hen. This rate was increased to 2.80c on the 23rd February, 1966. Following upon recommendations by the Council of Egg Marketing Authorities of Australia, an increase in the levy to 3.50c per fortnight was approved, operative from the 13th July, 1966. As from the 19th April, 1967 the levy was increased to 5.00c per fortnight for the remainder of the financial year 1966-67. This had the effect of raising the total levy for the year to the maximum permitted by the Act of \$1.00 per hen per year.

Under the Poultry Industry Levy Collection Act 1965-1966 the authority responsible for the collection of the levy in this State is the Western Australian Egg Marketing Board. The Poultry Industry Assistance Act 1965-1966 establishes a Poultry Industry Trust Fund for the receipt of the amount of the levy and other moneys. The Act provides for payment from the Fund to a State, by way of financial assistance, of such amounts as the Minister may determine upon the recommendation of The Council of Egg Marketing Authorities of Australia.

Although the Commonwealth levy replaces the egg equalization levies formerly imposed by the several State authorities for the purpose of equalizing returns from local markets and export sales, the State authorities continue to make charges necessary to defray the costs of handling, grading and marketing of eggs.

In 1965-66 Kuwait, the United Kingdom, Qatar, the Trucial States, the Bahrain Islands and Saudi Arabia were the most important oversea markets for eggs in the shell. Exports of egg pulp were not significant in 1965-66.

POULTRY NUMBERS

As at 31st March—						Fowls	Ducks	Turkeys	Geese
1957	....	....	....	....	....	955,069	11,845	11,671	1,557
1958	....	....	....	....	....	901,659	12,129	7,453	1,079
1959	....	....	....	....	....	872,258	11,560	5,891	1,416
1960	....	....	....	....	....	951,284	12,785	8,740	1,079
1961	....	....	....	....	....	1,059,116	15,527	7,335	1,031
1962	....	....	....	....	....	1,225,061	17,853	9,145	1,203
1963	....	....	....	....	....	1,443,516	12,328	8,327	896
1964	....	....	....	....	....	1,613,079	10,094	7,495	749
1965	....	....	....	....	....	2,006,988	7,851	10,005	643
1966	....	....	....	....	....	1,914,759	15,729	15,621	1,190

EGG PRODUCTION AND POULTRY SLAUGHTERED FOR TABLE PURPOSES

Year ended 31st March—		Egg Production (a)		Poultry Slaughtered for Table Purposes
		Quantity	Gross Value	Gross Value
		doz.	\$	\$
1957	....	7,443,878	3,247,334	509,742
1958	....	7,810,668	3,194,648	701,814
1959	....	7,563,740	3,228,154	718,938
1960	....	7,165,979	3,069,358	977,250
1961	....	7,055,794	3,129,460	1,403,904
1962	....	7,480,180	3,401,884	1,420,098
1963	....	7,644,484	3,522,394	2,164,142
1964	....	8,091,811	3,718,814	2,661,430
1965	....	8,626,618	3,884,458	3,138,992
1966	....	10,062,805	4,735,012	3,666,247

(a) Excludes non-commercial production.

BEE KEEPING

Commercial producers of honey in Western Australia may be divided into three categories. There are a comparatively small number of specialist apiarists, engaged solely or mainly in honey production, who operate on a large scale and transport their hives from district to district. There are also some substantial producers who are engaged in agricultural activities and use their farms as a central site from which they may transport their hives to other areas as necessary. Finally there are the many farmers and orchardists who keep a few hives and produce honey as a minor supplementary activity. This pattern of production is illustrated by the following table.

BEE KEEPERS, BEEHIVES AND HONEY PRODUCTION (a)—1965-66

Classification of Hives (a)	Bee Keepers (b)		Productive Beehives (c)		Honey Production	
	Number	Proportion of Total (per cent.)	Number	Proportion of Total (per cent.)	Quantity	Proportion of Total (per cent.)
5-19	206	45.5	1,104	2.6	lb. 58,959	0.5
20-49	92	20.3	1,922	4.6	140,476	1.3
50-99	43	9.5	2,050	4.9	207,415	1.9
100-199	36	7.9	4,086	9.8	599,414	5.5
200-299	18	4.0	3,827	9.2	904,237	8.3
300-499	29	6.4	9,669	23.2	2,806,466	25.7
500-799	21	4.6	11,036	26.4	3,979,382	36.4
800 and over	8	1.8	8,055	19.3	2,226,279	20.4
Total	453	100.00	41,749	100.0	10,922,628	100.0

(a) Excludes details of bee keepers with less than five hives. (b) At 30th June, 1966. (c) Represents the number of hives at 30th June, 1966 from which honey was taken during the year and excludes hives kept for production but from which no honey was taken, nuclei, pollination hives, etc.

In 1965-66 exports of honey totalled 7,021,450 lb., the export value being \$738,815. The principal buyers were the United Kingdom, which purchased 5,078,300 lb., the Federal Republic of Germany 650,710 lb., and Japan 328,837 lb.

BEEHIVES AND HONEY AND BEES-WAX PRODUCTION (a)

Year	Beehives (b)		Honey Production		Bees-wax Production	
	Productive (c)	Unproductive (d)	Quantity	Gross Value	Quantity	Gross Value
	No.	No.	lb.	\$	lb.	\$
1961-62	37,813	7,450	7,982,377	505,550	93,802	31,892
1962-63	37,380	8,800	6,098,795	536,578	79,026	27,830
1963-64	39,924	9,480	8,510,479	860,338	102,501	34,240
1964-65	39,323	9,539	8,066,310	520,150	106,125	41,610
1965-66	41,749	8,782	10,922,628	649,783	138,173	51,514

(a) Excludes particulars of bee keepers with less than five hives. (b) Number at 30th June. (c) Hives from which honey was taken during the year. (d) Includes hives kept for production but from which no honey was taken during the year, nuclei, pollination hives, etc.

THE DEPARTMENT OF AGRICULTURE

Brief references have been made earlier in this Chapter to the important services rendered to rural producers by the Department of Agriculture. The Department is the branch of the State Government Service responsible for bringing scientific advice to farmers and pastoralists, for carrying out research into a wide range of technical problems and for administering Acts of Parliament dealing with agricultural and pastoral matters. Its activities can be classified under the four headings: investigation or research; advisory, now more commonly called "extension" functions; provision of certain services for the assistance of the man on the land; and regulatory work which consists of carrying out the provisions of some of the numerous laws relating to agriculture.

The operations of the Department are organized under a series of Divisions and Branches, the heads of which are responsible to the Director of Agriculture. The Divisions are Animal (including Animal Health and Nutrition Laboratory and sections for Veterinary Services, Animal Husbandry, Apiculture, Poultry and Brands), Wheat and Sheep (including the Cereal Products and Fleece Testing Laboratories), Dairying, Horticultural (covering Fruit and Vegetables), Soils (including Soil Conservation and Irrigation), Plant Research, Biological Services (including Plant Pathology, Entomology, Botany, Seed Certification and Weed Control), and North-West. In addition there are Branches for Vermin Control and Abattoirs and separate sections covering Rural Economics and Marketing, Information and Library. Muresk Agricultural College is also controlled and staffed by the Department.

Sections of government administration known as Departments of Agriculture usually originated in the demands of farmers for government assistance in coping with their technical problems. The Western Australian Department of Agriculture had its origin in a Bureau of Agriculture which was formed in 1894. In 1898 the Department of Agriculture was established and absorbed the staff of the Bureau. Up to this time, some 70 years after the first settlement, agriculture in Western Australia had made little progress. The area of cleared arable land was less than two per cent. of the present area. Superphosphate had not been used on Western Australian farms and wheat varieties suitable for the drier districts to the east of Northam were not then available. There was little comprehension of the many problems associated with land development and not much public appreciation of the part that science might play in solving them.

From small beginnings the Department's responsibilities and activities extended as agriculture developed. In the first quarter of a century of its existence, expansion and consolidation of farming in the wheat belt overshadowed other activities. That was only natural, as the acreage of wheat for grain expanded from 200,000 in 1905 to nearly four million acres in 1930, and for much of that time the State's development was synonymous with wheat belt expansion.

State Farms and Research Stations

Perhaps the most important work in the Department's first ten or fifteen years was that concerned with the establishment of experiment farms, or "State farms" as they were at first called. The first of these had its origin in plots which were established at Hamel in 1896. Valuable work was carried on at this centre for nearly twenty years in connexion with the growing of potatoes, fruit, cereals, hops, fodder crops and pasture, and some success was achieved with wheat breeding.

Government farms were opened at Narrogin in 1901 and at Nabawa, 25 miles north of Geraldton, in 1902. In 1907 a farm at Nangeenan, near Merredin, was taken over from the Lands Department and is now the Merredin Research Station. In the same year a farm was established in the South-West at Brunswick in order to provide object lessons in dairying, as it was felt that there were great possibilities of expanding the dairying industry. After functioning for several years this farm was closed and the land was subsequently used for closer settlement purposes.

In 1911 a change was made in the policy of the government farms in the wheat belt and their character changed from "experimental" to "experiment" farms. Instead of being conducted mainly with the object of producing revenue they were to be used primarily for collecting information concerning local conditions that would be of value to the district. In addition, pure pedigree seed wheat, oats and barley were bred. It would be difficult to over-estimate the subsequent value of the farms in this new role, which is still one of their most important functions. In later years more "research stations", as the experiment farms came to be called, were established and they now number 22.

Research stations at Nabawa, Badgingarra, Wongan Hills, Merredin, Beverley, Newdegate, Salmon Gums and Esperance deal with agriculture in the cereal-growing and sheep-raising districts and stations at Denmark, Bramley and Wokalup serve the dairying districts. Vegetable research stations are situated

at Medina and Manjimup and a new pig research unit has been established at Medina. The poultry industry is served by a station at Herdsman Lake. A viticultural research station has been established at Upper Swan and a horticultural research station at Stoneville in the Darling Range to the east of Perth.

The Kimberley Research Station, operated in conjunction with the Commonwealth Scientific and Industrial Research Organization, is concerned with problems of irrigation in relation to agriculture in the tropics, with particular reference to the agricultural settlement now taking place on the Ord River. The Fitzroy Pastoral Research Station in West Kimberley is in an early stage of development. At Abydos, near Port Hedland, regeneration of overgrazed pastoral country and a study of sheep breeding problems are the main concerns. At the Gascoyne Research Station at Carnarvon, problems of growing tropical fruits and winter vegetables are being investigated. The Wiluna Groundwater Research Station is for the study of the controlled use of underground water supplies.

Advisory Services

Extension work is perhaps the Department's most important function and has exercised a powerful influence in publicizing and accelerating the adoption of better farming methods. It is difficult to assess the results of any educational undertaking in terms of money, but the desirability of having a well-informed farming community, receptive to new ideas, is obvious. Although the best method of taking advice to farmers is for the technical officer to visit farms for discussion with the farmer on his own property, this is unfortunately not always possible as an officer may have between 500 and 1,000 farms in his district. Individual visits often have to be restricted to cases where a specific request has been made or where some urgent action is required.

Extension officers support and foster the formation of farmers' organizations such as Pasture Groups and attend meetings and field days where talks can be given to groups of farmers. It is estimated that in the past year over 4,000 farmers attended nearly 150 field days with which the Department was associated. Film evenings provided by the Department's mobile film units are of great assistance in this respect. Field experiments, both at the stations and on farmers' properties, form an excellent basis for demonstrations and talks. The various competitions in which extension officers act as judges provide another means of bringing farmers together for discussion. These competitions are generally concerned with crops and pastures but may include other types such as those conducted by Junior Farmers' Clubs for show exhibits and for debates. Extensive use is made of the radio which, in Western Australia, probably reaches more people than does any other medium. Between 200 and 300 broadcasts are given by departmental officers each year and a weekly press service is maintained to supply information through press and radio. In addition, the Department produces several publications including a monthly *Journal of Agriculture*, which has a circulation of about 19,000, special quarterly publications for dairy farmers and bee keepers, and bulletins covering a wide range of subjects.

Advisory work is not concentrated in a single Division but is carried out by several Divisions and Branches of the Department. In recent years a move has been made to decentralize the Department's work and groups of officers have been stationed at Albany, Bridgetown, Bunbury, Busselton, Denmark, Derby, Esperance, Geraldton, Harvey, Katanning, Kununurra, Manjimup, Merredin, Moora, Narrogin, Northam, Wiluna and at the Kimberley and the Gascoyne Research Stations. An officer is also stationed at each of the following places: Armadale, Broome, Camballin, Gosnells, Kalamunda, Kalgoorlie, Kellerberrin, Lake Grace, Margaret River, Mount Barker, Mundaring, Pinjarra, Port Hedland and Three Springs.

Research Activities

In the field of investigation and research, problems which have been dealt with would comprise a lengthy list and only a few of the more important can be mentioned here. The value to the State of cereal-breeding activities is well known. Cereal varieties produced by the Department have increased the income of farmers by many millions of pounds over the years in which they have been grown. The introduction of new plant species and varieties, the evaluation of their suitability for local conditions and the determination of rotations for improving yields and maintaining soil fertility are important features of the work in cereal-growing districts.

Research into plant diseases and deficiencies forms another important section of the Department's investigational work. Considerable success has been achieved in the recognition and remedying of deficiencies of trace elements in soils, notably of copper, zinc and molybdenum. As a result of this work, fertilizers containing trace elements have been applied in recent years to extensive areas of the State's farming land. These investigations, together with allied work on superphosphate and the establish-

ment of subterranean clover pastures, constitute the technical factors which have made possible the rapid post-war expansion of light land development.

In the pastoral areas of the north-west the sheep-carrying capacity of large tracts of country has been seriously reduced by drought and overgrazing. Recent work by officers of the Department has shown that much of this country can be reclaimed by adopting systems of grazing management different from those employed in the past.

Nutritional disorders and diseases of farm animals cause considerable loss to farmers and pastoralists. Some of the Department's most notable successes have been achieved when dealing with problems in this field, which include enzootic ataxia, enterotoxaemia, toxic paralysis, and clover disease in sheep, copper and cobalt deficiencies in cattle, Kimberley horse disease, plant poisoning of stock and infertility in dairy cows. Problems of sheep infertility, of lupinosis and of mastitis in dairy cows are among investigations at present in progress.

A soil conservation service was established in the Department in 1947. Since then a great deal of information about the incidence and nature of erosion has been collected and many farmers have been assisted with their erosion problems. Considerable attention has also been given to the salt problem in the agricultural districts.

In somewhat more restricted fields the use of a hormone spray instead of cincturing, for currant vines, is a noteworthy change in agricultural practice resulting from investigations by the Department. The selection of the rust-resistant runner bean variety, "Westralia," has greatly reduced one of the hazards with which the bean grower has to contend.

Agriculture Protection

For the control, prevention and eradication of noxious weeds and vermin, there is an Agriculture Protection Board which operates in collaboration with the Department of Agriculture.

The Board, which was established in 1951 following recommendations by a Royal Commission, is constituted under the provisions of the Agriculture Protection Board Act, 1950-1964, and comprises the Director of Agriculture or his deputy, as Chairman; the Chief Vermin Control Officer of the Department of Agriculture; an officer of the State Treasury; two representatives of the agricultural industry; one representative of the pastoral industry; and five representatives of local government authorities.

The income of the Board consists of appropriations from the Consolidated Revenue Fund and other moneys as prescribed by the Agriculture Protection Board Act.

For the purposes of the Agriculture Protection Board Act, the term "noxious weeds" means those plants which are so proclaimed or declared under the Noxious Weeds Act, 1950-1965. "Vermin" means any animal, bird or insect proclaimed to be vermin as provided by the Vermin Act, 1918-1965, and includes rabbits, foxes, dingoes, sparrows, starlings, Argentine ants and grasshoppers.

The Board formulates policies for the control, prevention and eradication of noxious weeds and vermin, advises on methods, directs and assists in general operations, provides services to help local government authorities and landholders in destruction work and conducts scientific research and investigations for the improvement of control techniques and policies. Control work extends to Crown lands, including reserves, for the benefit of adjoining landholders.

Improvements in the control of both noxious weeds and vermin have resulted from the activities of the Agriculture Protection Board and there have been some notable successes, including a great reduction in rabbit numbers effected by the use of myxomatosis virus and by organized drives for their destruction, mainly by poisoning.

Other Services

The Department operates certain services which assist the producer to increase his efficiency. Probably the best known is the production of pure pedigree varieties of seed wheat, oats and barley. These are of value to the cereal grower, who is able to obtain his requirements at moderate cost. Sponsoring and supervising the production of approved lines of seed, notably potatoes and beans, has led to the wide use of these specialized lines with a resulting increased yield, and certification of pure lines of pasture seed gives farmers a guarantee of quality in the seed they buy. Assistance to dairy farmers to form herd-testing units, thus enabling them to gauge the performance of their herds, is another service of similar nature. Assistance and technical advice is given to farmers concerned with the installation of irrigation schemes and the preparation of land for irrigation. An artificial insemination centre for dairy stock has been established at the Wokalup Research Station. In 1965 the State Parliament enacted the Artificial Breeding Board Act providing for the constitution of an Artificial Breeding Board which, in

effect, assumed control of such centres, and responsibility for promotion of artificial breeding. The Act came into operation by proclamation on the 16th December, 1966.

The producers who benefit from the services mentioned in this section pay something for them, but not necessarily the full amount of the cost of providing them.

Administration of Acts

The Department of Agriculture is responsible for administering some fifty Acts concerning a wide range of subjects. Some of the more important relate to animal and plant diseases and insect pests, industry trust funds, soil conservation, vermin control, marketing of agricultural products and registration of feeding stuffs, fertilizers and stock brands.

TRAPPING

Although trapping has been carried on from the first years of settlement, it has never been an important industry. In 1965-66 the recorded gross value was only \$835,775 but reliable and complete information is difficult to obtain and this amount could therefore be deficient.

Kangaroos have been destroyed in great numbers from the earliest days, the principal reason for the organized destruction being the damage done to pastures and fencing. As early as 1849 the export of kangaroo skins for the year was no less than 12,387. In 1965-66, 52,829 skins of marsupials (comprising kangaroo, wallaby and opossum skins) valued at \$53,054 were exported. A small quantity is also used in local factories. Kangaroo meat is used as pet food but estimates included in the gross value of trapping are considered too unreliable to publish separately.

The earliest recorded export of rabbit skins relates to the year 1900 and the meat and skins of these animals have been a source of income to trappers ever since. In an attempt to reduce the damage done to crops and pastures, various methods of control have been adopted and since the second World War an intensive campaign, using myxomatosis virus, poisons and warren ripping, has met with considerable success. As a result, the quantity of rabbit meat produced and the number of skins exported and treated locally have declined greatly and are now insignificant.

Wild goat meat valued at \$217,697 was exported during 1965-66.

The skins of animals other than marsupials and rabbits, together with exports of Western Australian fauna, account for the balance of the value of the trapping industry.

FORESTRY

The Prime Indigenous Forests

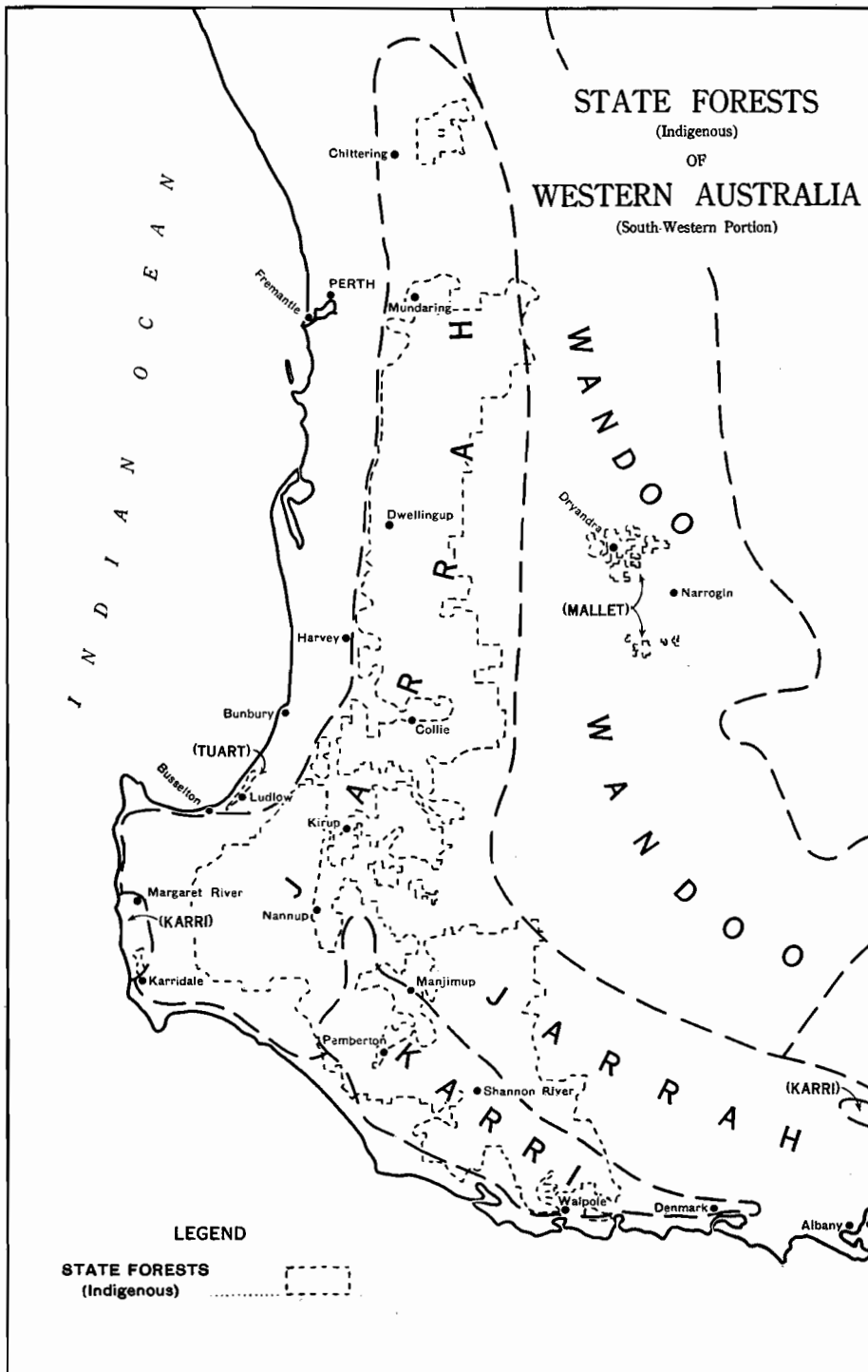
Although the prime indigenous forests of Western Australia cover only a small percentage of the area of the State, they are of considerable economic importance. This is not only on account of the durability, strength and general-purpose nature of their hardwood timbers, but also because of their occurrence on the water catchment areas in the high-rainfall and closely-populated section of the State. Being easy to regenerate after cutting, they form a natural and effective protection against soil erosion. Nearly 4.5 million acres have been permanently dedicated as State Forests and approximately 2.5 million acres have been established as Timber Reserves under the Forests Act and the Land Act.

Jarrah (*Eucalyptus marginata*) is the State's principal timber and the prime forest covers over three million acres of the State Forests. Karri (*E. diversicolor*) is next in importance and is distributed over some 800,000 acres but only about 20 per cent. of it is in pure stands. Wandoo (*E. redunca*) accounts for a smaller portion of the dedicated area and Tuart (*E. gomphocephala*), another valuable timber, has a restricted area of about 6,000 acres. Marri (*E. calophylla*) and Blackbutt (*E. patens*), which occur through the jarrah and karri forests, are important milling timbers, but the present output is comparatively small.

Other eucalypts and many trees of different genera occur within the prime forest belt but they are not of major economic importance. The main distribution of the prime forests, which are practically confined to the south-western portion of the State, is shown on the accompanying map.

The Inland Forests

Beyond the area of prime forest is an inland forest of sclerophyllous woodland, within which are a number of eucalypts (both tree and mallee form), as well as several types of *Acacia*, such as the wattles and mulgas, tea tree (*Melaleuca spp.*) and casuarinas. Sandalwood (*Santalum spicatum*), indigenous to the wheat belt and semi-arid areas of the State, is still exported to Asian countries but is now obtained only from the semi-arid regions.



While none of the inland forest can be classed as suitable for sawmilling in the ordinary sense, it forms an important source of timber for mining and agricultural purposes. During recent years, soil conservation in the regions of low rainfall has received increasing attention and the importance of controlling clearing, grazing and firewood cutting has been recognized. The Forests Department maintains a staff to exercise these controls and to advise on tree planting.

Forestry Administration

Scientific forestry was given considerable impetus in Western Australia with the passing of the Forests Act in 1918. Extensive cutting over the previous fifty years had seriously depleted the State's timber resources and adequate provision had not been made for protection and regeneration. Under the Act, however, wide powers are conferred on the Forests Department, which is granted nine-tenths of the net annual government revenue from forestry sources. The sum received, together with various other grants, is used for regeneration, fire control and associated purposes.

The forests are now managed on a long-range working plan to ensure continuity of the industry, trees being approved for cutting and marked accordingly by trained foresters, who work under the direction of the Conservator of Forests and closely control both the indigenous forest and the mallet and pine plantations. The future productivity of the forests is also safeguarded by ensuring that cutting is carried out in such a way as to protect immature growth and to encourage natural regeneration, which is a very important feature of the Department's policy.

Brown Mallet (*Eucalyptus astringens*), the bark of which is an important source of tannin, once covered large areas on the fringe of the inland forests but was practically exterminated by clearing for farms and by excessive exploitation. Regenerated areas and plantations of mallet now total 19,111 acres.

Plantation methods are being employed to grow pines, principally *Pinus pinaster* and *Pinus radiata*, as the State has no indigenous softwoods of commercial significance. The average annual planting rate over the last seven years has been less than 3,000 acres. However, financial assistance granted by the Commonwealth in terms of the *Softwood Forestry Agreements Act* 1967 will enable the State to double the rate and it is expected that, from 1968, 6,000 acres per annum will be planted. Thirteen plantations with a planted area of 48,833 acres have been established and it is planned to provide, ultimately, 240,000 acres of pine forest. Most of the land selected for pine planting is of limited value for agriculture but when used for pines it constitutes a valuable long-term investment, with the prospective development of industries for the manufacture of paper, wallboard and similar products.

Because of the hot, dry summers experienced in most of the areas covered by State Forests, there is a considerable risk of damage by fire and intensive precautions are taken by the Department to minimize this danger. Look-out towers, provided with radio or telephone communication, are manned at strategic points and controlled burning of approximately 900,000 acres per year is carried out during spring and, to a lesser extent, in autumn. Restrictions are placed on all burning operations by farmers and other persons when the fire hazard is high and at such times warnings are issued emphasizing the danger.

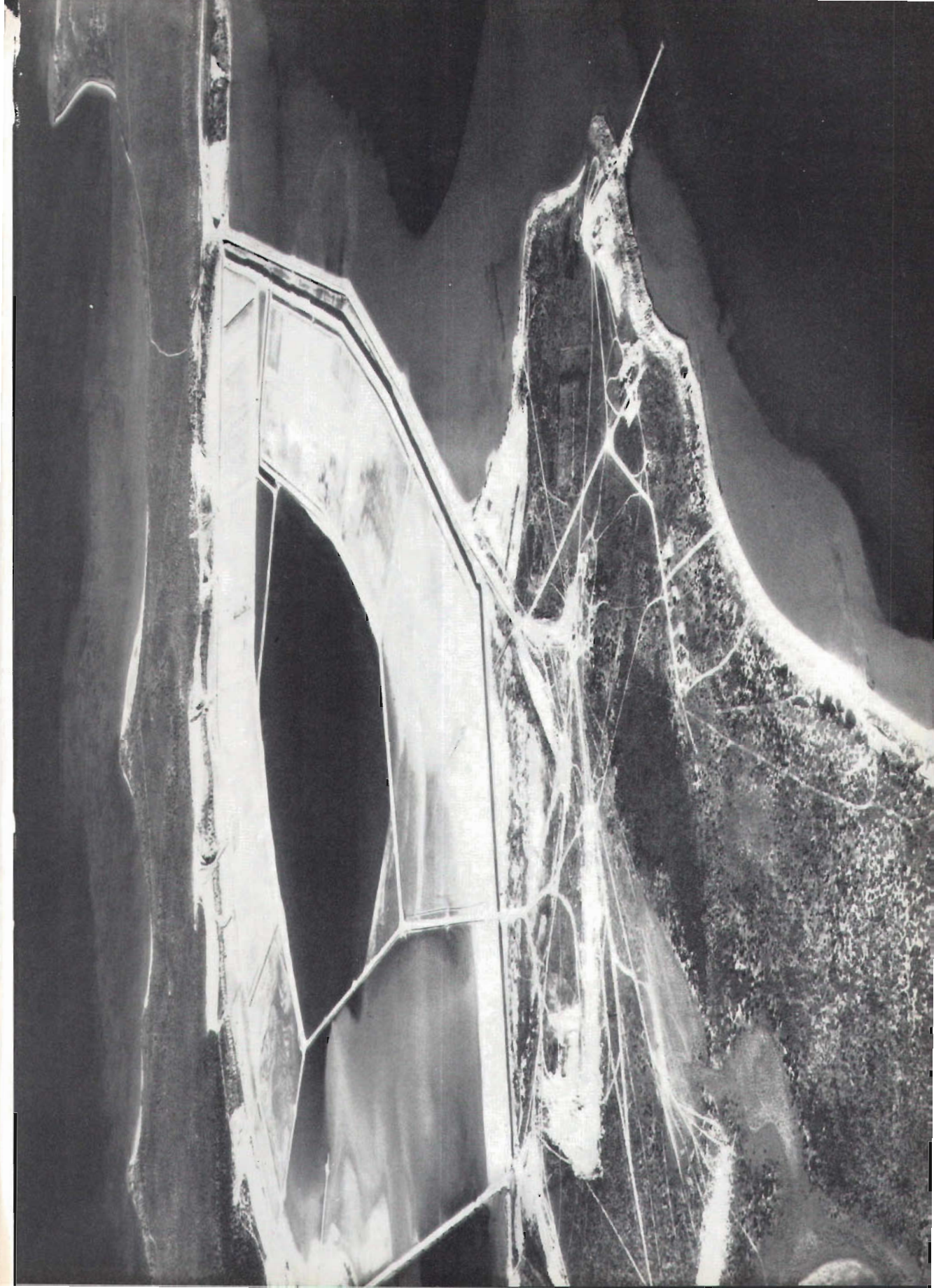
In association with the system of cutting control, various royalties, licence and permit fees are collected as part of the Consolidated Revenue of the State.

Information concerning forest tenures, the issuing of licences and permits, etc., is given under the heading "Forests Department" in the section *Methods of Leasing* in Chapter VII, Part 1 of the *Western Australian Year Book*, No. 6—1967 and earlier issues.

Principal Forest Products

Sawn timber is the principal form of forest production, but there has been a rapid increase in the local use of logs for plywood manufacture during recent years. Karri and, to a lesser extent, locally-grown pine logs are used for this purpose, together with imported logs. Particle board, manufactured from small-size thinnings from coastal plantations of *Pinus pinaster*, is becoming an increasingly important product.

In addition to these major products, the State's forest wealth includes wandoo (the whole tree) and mallet bark for tannin extract, sandalwood for export and as a source of sandalwood oil, firewood for general purposes, manna gum (from *Acacia* sp.) and various seeds and plants for propagation both in Australia and abroad. Wandoo and jarrah are used as a source of charcoal for the high-grade charcoal pig-iron produced at Wundowie. The karri, wandoo, marri and some inland species are important nectar producers for apiarists, who move their bees to various forest sites in following the nectar flow.



SOLAR SALT INDUSTRY, SHARK BAY

The north-west of Western Australia offers ideal climatic conditions for the production of salt by solar evaporation of sea water, and salt is found in great abundance in maritime lagoons. The photograph shows a solar salt farm at Useless Loop in Shark Bay. The industrial salt produced is exported to Japan.

IRON ORE MINE, KOOLANOOKA

Aerial view of the mine site at Koolanooka Hills, near Morawa. The ore is crushed and screened before transportation by rail to the port of Geraldton, 100 miles distant.



BARROW ISLAND
OILFIELD

Aerial view of the
terminal oil storage
tank installation at
Barrow Island, 60 miles
north-east of Onslow



The following table gives details of sawn and round timber production from 1956-57 to 1965-66. After reaching a figure of 211·8 million super. feet in 1958-59, sawn timber production then fell substantially and did not again reach this level until 1965-66 when production was 214·0 million super. feet. During the ten-year period covered by the table, the output of round timber, which consists mainly of mining timber, piles, poles, fencing posts and rails, ranged between a maximum of 31·5 million super. feet in 1957-58 and a minimum of 20·0 million super. feet in 1962-63.

TIMBER PRODUCTION (a)
(Thousand super. feet)

Item	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66
Timber—Sawn	204,475	201 664	211,832	198,903	186,911	192,789	185,809	195,724	207,304	214,015
Timber—Round	23,952	31,509	25,947	26,558	23,405	21,159	20,026	23,187	25,950	22,109

(a) From local logs and includes railway sleepers and plywood veneers in terms of super. feet.

Sawmilling is dealt with in greater detail under *Secondary Industry* in Part 2 of this Chapter.

In 1965-66 exports of railway sleepers totalled 8·0 million super. feet, of which 3·9 million went to other Australian States and 4·1 million to oversea markets, principally New Zealand, the United Kingdom, the Republic of South Africa, and Kenya. In the same year 15·5 million super. feet of other timber was exported to other Australian States and 5·7 million was shipped overseas, the principal markets being New Zealand, the United Kingdom, the Republic of South Africa and the Netherlands.

FISHERIES (INCLUDING WHALING AND PEARLING)

The fishing industry in Western Australia consists of three distinct activities, the catching of edible species, whaling and pearl-shell production. In addition, pearl culture has been successfully established in recent years.

General Fisheries

The principal species of edible fish are shown in the following table with the quantities of each species caught in the years 1961-62 to 1965-66.

PRODUCTION OF FISH (a)

Species—Common Name	1961-62	1962-63	1963-64	1964-65	1965-66
Crustaceans—	lb.	lb.	lb.	lb.	lb.
Crabs	59,041	35,685	29,751	27,992	34,526
Crayfish	19,772,000	21,380,000	17,972,537	16,378,120	17,794,139
Prawns	238,937	1,016,751	2,118,317	1,829,490	2,484,785
Total	20,069,978	22,432,436	20,120,605	18,235,602	20,313,450
Other—					
Bream, Black	21,813	27,526	32,242	37,733	32,608
Bream, Buffalo	29,586	17,309	38,898	29,361	16,647
Bream, Western Yellowtail	48,229	46,261	36,795	49,829	25,302
Cobbler	771,129	495,478	486,091	255,461	206,306
Cod	19,794	18,981	43,688	49,283	57,049
Flathead	15,641	17,019	22,600	17,446	19,723
Garfish, Sea	43,536	34,931	73,576	51,780	62,612
Groper	17,976	21,080	19,447	27,445	31,714
Herring, Perth	87,674	106,803	184,238	311,204	469,810
Jewfish, Westralian	236,493	292,830	321,386	253,467	273,679
Mackerel, Scaly	25,266	92,277	107,347	257,103	373,729
Mackerel, Spanish	82,819	139,299	192,821	229,641	226,872
Mullet, Sea	835,994	902,137	902,142	984,206	1,216,315
Mullet, Yellow-eye	408,874	443,532	373,788	431,508	772,999
Mulloway (River Kingfish)	17,289	5,804	28,024	39,471	46,448
Pilchard	45,586	161,492	39,065	20,659	336,704
Ruff (Sea Herring)	777,823	839,012	529,006	880,922	939,281
Salmon, Australian	5,543,426	3,156,585	4,614,914	3,401,307	6,508,108
Samson Fish (Sea Kingfish)	54,524	72,488	80,164	62,821	118,464
Shark	501,376	681,838	687,660	802,478	969,574
Snapper	1,072,141	1,385,711	1,543,052	1,083,244	548,589
Tailor	187,249	196,542	163,201	191,768	196,210
Tarwhine	2,660	5,359	9,885	4,325	10,439
Travally, Silver (Skipjack)	59,306	80,269	81,388	104,475	106,466
Tuna	51,646	121,321	52,909	32,902	47,465
Whiting, King George	63,792	59,358	45,896	37,314	45,361
Whiting, Western Sand	505,673	559,977	542,131	413,993	399,964
Other Species (b)	300,089	321,843	993,001	1,589,752	1,559,287
Total	11,827,109	10,306,012	12,246,255	11,680,928	15,617,295
GRAND TOTAL	31,897,087	32,738,448	32,366,860	29,916,530	35,930,745

(a) Estimated live weight.

(b) Includes turtles.

Since the end of the second World War, crayfish has become the most important item of production of that section of the industry which is concerned with the catching of edible species. Prior to the war there was a small local market for fresh crayfish, but in 1941 production was stimulated by canning for the armed forces. Although canning continued until 1950, it had become far less important by 1947 than another development, the freezing of crayfish tails for export, mainly to the United States of America. The overseas demand, which developed rapidly in post-war years, gave great impetus to the industry and the take increased almost eightfold between 1947 and 1960-61, when total production of live crayfish was 18.0 million lb., valued at \$6.01 million to the fishermen. The highest catch ever recorded was in 1962-63 when production reached 21.4 million lb., the value being \$7.91 million. Production in 1965-66 was 17.8 million lb. and the value of \$11.4 million was the highest ever attained. Oversea exports of crayfish tails in 1965-66 totalled 7.0 million lb., with an f.o.b. value of \$13.8 million.

The most important commercial species of crayfish in Western Australian waters is *Panulirus cygnus*, which occurs off the south-west coast between Geraldton and Hamelin Bay. The principal localities around which crayfish are caught are the Abrolhos Islands, Geraldton, Dongara, Beagle Island, Green Head, Jurien Bay, Cervantes, Lancelin, Ledge Point and Fremantle. The industry is protected from overfishing by such measures as the declaration of closed seasons; the proclamation of fishing zones; the prohibition of the taking of fish of less than a prescribed size or of female crayfish having berry (*i.e.*, eggs) attached; requiring that every crayfish pot shall have an escape gap of specified dimensions; the granting only in special circumstances of new licences for boats for crayfishing; and limiting the number of pots that a boat may carry or use at any one time. The catch is processed either on specially equipped freezer boats or at shore stations.

The large catches of Australian salmon (*Arripis trutta*), which school in the bays on the south and lower south-western coasts, yield a large proportion of the production of inshore and beach fishing and are used almost exclusively for canning. The remainder of the catch from this type of fishing comprises chiefly tailor (*Pomatomus saltator*), sea herring or ruff (*Arripis georgianus*), transparent whiting (*Sillago bassensis*), Western sand whiting (*Sillago schomburgkii*), sand whiting (*Sillago ciliata*), sea mullet (*Mugil cephalus*) and trevally or skipjack (*Usacaranx georgianus*). This is sold mainly as wet fish on the local market, but large quantities of sea herring are canned and there are some exports, principally of whiting, to the other Australian States.

The coastal waters northward from the mouth of the Murchison River to North West Cape and Exmouth Gulf are the source of several species of commercial importance. Snapper (*Chrysophrys auratus*) are caught between the Murchison River and North West Cape, during the northern schooling season from May to August. Cod and groper, though in smaller quantities, are also caught between the Murchison River and North West Cape. The waters northward from the Murchison River to Bernier Island, west of Carnarvon, yield heavy catches of Westralian jewfish (*Glaucosoma hebraicum*). At Shark Bay a prawn-fishing industry has been successfully established in recent years, the catch being processed at Carnarvon. The species caught are the Western king prawn (*Penaeus latisulcatus*) and the tiger prawn (*P. esculentus*). A prawn fishery has also been established at Exmouth Gulf, the principal species being the banana prawn (*P. merguensis*) and the tiger prawn. The catch is processed at Learmonth and on freezer boats. As a conservation measure the number of fishing boats licensed to operate has been limited to 30 at Shark Bay and 18 at Exmouth Gulf. From a catch of 238,937 lb. in 1961-62, the production of prawns increased more than ten-fold to 2,484,785 lb. in 1965-66. Production is expected to increase still further, however, due to the establishment of commercial prawn fishing in the Nickol Bay area, near Roebourne, and because of promising experimental trawling being carried out in other areas along the north-west coast.

The first fishing grounds to be exploited were the estuaries and rivers and, although they are not now as important as other grounds, they still provide substantial quantities of fish of a fairly wide variety. The principal species are cobbler (*Cnidogobius macrocephalus*) and yellow-eye mullet (*Aldrichetta forsteri*), most of which are caught in the estuaries of the Murray, Serpentine, Harvey and Swan Rivers. Other species include garfish (*Hemirhamphus australis*), Perth herring or gizzard shad (*Fluvialosa vlaminghi*), sea mullet, tailor, sand whiting, King George whiting (*Sillaginodes punctatus*), and flathead. Crabs (*Portunus pelagicus*), king prawns and other prawns are also caught commercially in these waters.

There are no indigenous inland or freshwater fish of commercial value. A small crustacean, the marron (*Cherax tenuimanus*), occurs in the streams of the lower south-west. Brown trout, rainbow trout and English perch have been introduced into the streams of the southern districts.

Research work on crayfish, Australian salmon, prawns, tuna, whiting and whales in Western Australian marine waters is being carried out by the Commonwealth Scientific and Industrial Research Organization in association with other Commonwealth and State Government authorities, including the Western Australian Department of Fisheries and Fauna, for whom a new marine research centre is being built at Waterman, about ten miles north of Fremantle. The centre will incorporate eleven separate laboratories and a large aquarium, with circulating water, for experiments and studies of fish behaviour.

GENERAL FISHERIES

As at 31st December—	Boats Licensed	Value of Boats and Equipment	Fishermen Licensed (a)	Year ended 30th June—	Production			
					Crayfish		Other Fish (b)	
					Quantity (c)	Value	Quantity (d)	Value
	No.	\$	No.		cwt.	\$	cwt.	\$
1956	706	3,124,260	1,285	1957	96,099	2,710,776	85,347	1,155,024
1957	812	3,717,090	1,348	1958	118,994	3,442,882	87,459	1,265,238
1958	871	4,311,296	1,503	1959	156,400	4,598,174	90,302	1,335,838
1959	960	5,202,924	1,673	1960	174,513	6,026,510	91,562	1,219,814
1960	1,053	6,880,810	1,923	1961	160,886	6,006,402	84,681	1,199,950
1961	1,119	7,421,056	2,039	1962	176,536	8,186,000	104,075	1,332,994
1962	1,325	8,588,200	2,483	1963	190,893	7,906,000	90,482	1,203,602
1963	1,456	9,780,520	2,526	1964	160,469	6,889,472	102,623	1,374,882
1964	1,438	9,246,590	2,299	1965	146,233	11,191,714	92,509	1,299,552
1965	1,458	8,795,976	2,346	1966	158,876	11,388,247	128,061	1,256,267

(a) Comprises employees and working proprietors. (b) Excludes oysters, crabs, prawns and scallops. (c) Live weight of whole crayfish. (d) Estimated live weight.

Whaling

Whaling has been conducted along the Western Australian coast from the first years of settlement and whale oil and whale bone were among the earliest exports from the Colony. Activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949, when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. A treatment plant was established by the Australian Whaling Commission at Babbage Island, near Carnarvon, in 1951 and a plant at Frenchman Bay near Albany was enlarged in the following year. In 1956, the company operating from Point Cloates purchased the Australian Whaling Commission's station at Babbage Island and transferred its activities to that base.

During the 1963 season the two whaling companies operating in Western Australia took only 87 humpback whales, compared with a quota of 550 allocated under the procedure laid down by the International Whaling Commission. At a meeting held in London in July, 1963 the Commission decided that more stringent measures should be adopted to prevent further depletion of numbers. Accordingly it imposed a total ban on the taking of humpback whales for an indefinite period in all waters of the Southern Hemisphere. The company operating from Carnarvon, which relied mainly on the taking of humpbacks, ceased whaling activities at its Carnarvon base early in August, 1963.

Before the 1962 season the whales taken were predominantly humpbacks. The only station now operating is at Frenchman Bay where sperm whaling has been carried on since 1955.

The figures in the following table have been derived from information provided by the Fisheries Branch of the Commonwealth Department of Primary Industry.

WHALING

Year	Humpback		Sperm	
	Whales Taken (a)	Oil Produced (b)	Whales Taken	Oil Produced (b)
		tons		tons
1957	1,120	9,422	139	910
1958	972	8,007	279	1,782
1959	713	5,476	137	977
1960	547	4,238	282	1,886
1961	582	4,482	454	3,137
1962	549	4,042	501	4,026
1963	88	638	654	4,028
1964	....	....	801	5,060
1965	....	....	668	4,379
1966	....	....	606	4,042

(a) Figures include one fin whale in 1956, two blue and three bryde whales in 1958, one fin and 12 blue whales in 1959, two blue whales in 1960, two bryde whales in 1961, four blue and two sei whales in 1962, and one blue whale in 1963. (b) 1 ton = 6 barrels (approximately). (c) Includes three sei whales.

Pearl-shell Fishing and Pearl Culture

Pearl and pearl-shell fishing has been a valuable industry for many years, the main centre being Broome. The pearls obtained were once an important feature of production but the success of the industry now depends almost entirely on the shell produced and the price obtainable for it. Activities were suspended following the outbreak of war with Japan, when valuable luggers and equipment were lost. After the war recovery of the industry was slow because of a shortage of suitable boats and the difficulty in obtaining experienced divers. In 1953 the rate of progress improved when the services of trained Japanese divers again became available. By 1957 production of shell had reached the pre-war level of about 1,000 tons but due to the depressed state of the market it fell to 753 tons in 1958. Except for a slight recovery in 1960, production declined in each year from 1959 until 1964, when 138 tons of shell were raised. In 1965 and 1966 quantities increased slightly to 160 tons and 185 tons respectively due to the increased demand for shell for pearl culture.

In 1956 a licence was granted to a company to culture pearls at Kuri Bay in Brecknock Harbour, 130 miles north-east of Derby. The initial harvest of pearls was gathered in 1957 and thereafter from 1958 to 1966 the quantity harvested increased each year. Practically the whole of the output was marketed overseas. Licences have since been issued for the establishment of pearl culture farms in Samson Inlet, Hiro Bay and Mura Bay and in King Sound and at Exmouth Gulf near Giralda Landing. Pearls were harvested at Exmouth Gulf for the first time in 1965. During 1966 approximately 50,000 live shells were shipped from Western Australia to Papua, where they were used to establish the pearl culture industry at Fairfax Harbour. It is anticipated that these shipments will increase. Figures in the following table do not include details of culture pearl production.

PEARL AND PEARL-SHELL FISHERIES

(Excluding Pearl Culture)

Item	Year ended 31st December—									
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966

VESSELS OPERATING

Number	48	42	29	27	17	16	13	10	11	13
Aggregate Tonnage	1,100	987	739	675	449	424	338	256	252	301
Value (including Equip- ment) \$	530,080	437,000	360,578	302,400	165,000	148,000	134,000	108,000	96,600	106,000

NUMBER OF PERSONS ENGAGED

European	23	17	14	12	9	10	6	10	5	7
Australian Aboriginal	80	64	55	61	27	35	19	19	25	17
Asian—										
Chinese	110	102	74	53	13	6	6	4	2	2
Filipino	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Japanese	117	116	96	101	74	68	45	30	28	34
Koe pangars	31	27	15	9	6	4	2	1	2	2
Malay	119	93	54	64	56	48	42	38	44	60
Other .....	.....	.....	4	2	2	.....	.....	1	1	1
Total	379	338	243	229	151	126	95	74	77	99
Total Persons Engaged	482	419	312	302	187	171	120	103	107	123

PEARL-SHELL AND PEARLS PRODUCED

Pearl-shell— Quantity tons	990	753	508	567	358	349	242	138	160	185
Value \$	1,209,602	695,830	573,408	539,572	311,360	312,148	217,700	182,080	258,394	278,608
Value of Pearls \$	19,786	41,738	13,940	14,420	8,600	8,210	8,640	1,092	980	1,329

MINING AND QUARRYING

The development of mining as a major industry in Western Australia began with the discovery of gold in the Kimberley in 1885, although some forty years earlier coal had been found at the Irwin River and copper and lead in the Northampton district. The impetus given to prospecting by the Kimberley finds led to other gold strikes between 1887 and 1891 and the rich discoveries at Coolgardie in 1892 and at Kalgoorlie in 1893.

The mining industry has been for many years of considerable significance in the Western Australian economy and it has recently increased in importance due to the exploitation of iron ore, nickel, oil and other minerals. The mineral resources of the State are extremely varied in character and are widely distributed geographically. Extensive exploratory work is being undertaken to evaluate the known deposits and also to locate other reserves of minerals. The geology of the State is described in Chapter II Part 1—*Physical Features and Geology*, and reference is made there to the occurrence of mineral deposits.

Developments in recent years have led to a great increase in the value of mineral production. Beach sands in the lower south-west of the State are being exploited for their ilmenite content and bauxite deposits in the Darling Range near Perth are being worked as a source of alumina which is exported interstate and overseas. Vast reserves of high-grade iron ore in the Pilbara and elsewhere are being mined, the first commercial shipments to overseas destinations commencing in 1966. Commercial production of crude oil from Barrow Island and of nickel ore from Kambalda has also begun.

The following table gives details of mine and quarry production during the calendar years 1964 to 1966.

RECORDED MINE AND QUARRY PRODUCTION

Item	1964		1965		1966	
	Quantity	Value	Quantity	Value	Quantity	Value
	fine oz.	\$	fine oz.	\$	fine oz.	\$
Gold (a)	715,481	23,465,576	656,355	22,284,899	627,052	23,242,512
Silver (b)	224,573	263,282	234,280	274,473	232,292	272,544
Asbestos—	tons		tons		tons	
Crocidolite	10,614	2,124,200	9,280	1,974,246	11,465	2,414,905
Chrysotile	536	87,362	402	57,678	119	19,326
Barytes	172	1,366	751	6,006	1,810	26,660
Beryl	80	18,076	14	2,891	13	2,992
Clays—all kinds (c)	583,471	534,552	541,200	534,304	577,217	536,039
Coal	987,420	4,678,934	993,741	4,409,972	1,061,095	4,562,087
Copper Ore	4,619	558,068	2,052	258,517	3,189	490,692
Cupreous Ore (d)	2,197	251,970	1,079	99,234	962	87,954
Felspar	1,386	19,526	1,384	19,488	1,282	18,050
Gypsum	44,998	107,556	46,607	89,154	41,884	79,873
Ilmenite Concentrates	297,322	2,811,812	430,455	4,331,784	497,848	4,801,929
Iron Ore	1,357,715	2,770,930	2,313,434	4,662,022	6,737,297	33,771,718
Lead, Silver-lead and Silver-lead-zinc Ore and Concentrates	3,354	198,868	4,878	401,978	2,681	104,408
Leucoxene Concentrates	656	26,660	380	16,858	756	31,273
Limestone and Shell (including road-making stone but excluding building stone)	749,062	490,130	949,358	*905,324	902,469	1,430,519
Magnesite	1,574	20,040	199	3,176	135	1,959
Manganese Ore	60,182	1,415,788	97,901	2,106,058	183,209	4,091,257
Monazite Concentrates	1,126	97,294	1,447	155,040	1,346	162,778
Ochre	324	3,884	187	2,240	207	4,140
Pyritic Ore and Concentrates	58,396	1,109,078	59,180	1,048,425	76,136	1,070,135
Rutile Concentrates	669	42,150	225	15,990	576	40,515
Stone, Building and Monumental—Sandstone, Limestone, Granite, etc.	148,939	349,420	*185,588	*443,522	161,383	483,772
Stone, Crushed and Broken (e)—Granite, Diorite, Quartzite, Basalt	1,750,351	5,117,416	*2,078,940	*5,938,418	2,142,634	6,301,634
Talc	5,432	150,004	7,088	205,410	9,155	231,625
Tantalite Concentrates (including Tantalite-Columbite)	32,637	26,574	24,807	23,055	13,440	24,729
Tin Ore and Concentrates	637	1,240,782	679	1,558,770	973	2,072,176
Zircon Concentrates	21,511	435,402	23,410	687,310	25,159	899,263
Other (Value only) (f) ....	....	888,970	....	1,326,020	....	2,207,191
Total Value ....	....	49,305,670	....	*53,842,262	....	89,484,655

(a) Values are in terms of Australian currency and include amounts realized by the Gold Producers' Association Ltd. on sales of Western Australian gold—in 1964, \$23,418; in 1965, \$114,640; in 1966, \$96,657. They also include Commonwealth net subsidy paid to gold producers—in 1964, \$1,083,374; in 1965, \$1,659,163; in 1966, \$3,550,439. (b) By-product from treatment of auriferous ore and excludes silver contained in silver-lead and copper ores and concentrates exported, for which see table on page 312. (c) Includes production of bentonite. (d) For fertilizer. (e) Excludes limestone. (f) Includes production of bauxite and salt. * Revised.

During the war years employment in mining and quarrying decreased considerably and, although there was some recovery after 1945, the number of men engaged in 1965 was only 7,161 compared with 16,530 in 1939. This decline in employment occurred mainly in the gold-mining industry and further comment on it appears on page 311.

MEN WORKING AT MINES AND QUARRIES (a)

Description	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Gold Mining (b)	5,628	5,385	5,352	5,273	4,992	4,945	4,963	4,901	(c)4,883	4,094
Coal Mining	1,219	1,136	1,072	1,011	984	582	757	757	765	760
Other Mining and Quarrying	1,187	1,349	1,321	1,638	1,698	1,866	1,819	1,837	2,255	2,307
Total	8,034	7,870	7,745	7,922	7,674	7,393	7,539	7,495	7,403	7,161

(a) Average over the whole year. (b) Includes alluvial diggers. (c) Decrease due mainly to cessation of operations during 1963 at a number of mines situated in the Coolgardie, Mount Margaret and Yilgarn Goldfields.

The mining laws of the State have been designed to encourage as well as to control activity in the industry. This policy and the experience of other countries were given due consideration in framing them and they are regarded as equitable and offering all reasonable incentives to mining development. The various tenures are described in detail in Chapter VII, Part 1 of the *Western Australian Year Book*, No. 6—1967 and earlier issues.

Gold

Although specimens of gold had been found in earlier years at several places in the Colony, it was first discovered in payable quantities in the Kimberley in 1885. This find led to widespread prospecting activity, resulting in further gold strikes between 1887 and 1891 in the Yilgarn, Pilbara, Ashburton and Murchison districts. These were followed by spectacular discoveries in 1892 at Coolgardie and in 1893 at Kalgoorlie where the famous Golden Mile was developed. The Golden Mile is still the principal source of gold in the State and accounts for about one-half of Australia's total production. By 1900 all the present proclaimed goldfields, ranging from Kimberley in the north to Phillips River in the south, had been opened up.

The production of each of these fields, as reported to the Department of Mines, for each year from 1956 to 1965 is shown in the following table.

MINE PRODUCTION OF GOLD (a) CLASSIFIED ACCORDING TO GOLDFIELD (Fine ounces)

Goldfield	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Kimberley	179	68	50	38	18	16	31	160	15	11
Pilbara	2,074	785	1,004	1,071	2,944	4,639	1,603	1,764	968	508
West Pilbara	1	57	15	11	5	4	9	....	....	....
Ashburton	1	1	....	....	1	....	....	....	1	....
Gascoyne ....	....	....	6	43	141	452	274	242	311	260
Peak Hill	16	260	638	436	501	330	269	87	18	101
East Murchison	272	206	817	732	381	373	353	278	848	1,244
Murchison	85,914	85,627	81,984	95,361	91,970	91,877	94,679	83,700	71,414	55,477
Yalgoo ....	....	112	9	61	1	85	153	102	....	....
Mount Margaret	29,851	32,519	31,010	34,192	34,106	33,977	27,186	31,982	909	257
North Coolgardie	27,646	23,525	21,027	22,458	20,250	15,849	17,567	18,357	17,858	13,879
Broad Arrow	1,957	2,928	2,385	1,663	1,543	2,455	935	1,285	3,027	3,057
North-East Coolgardie	105	115	322	385	141	161	138	231	173	335
East Coolgardie (b)	474,590	510,830	529,768	510,382	531,981	540,473	526,478	531,102	509,984	477,900
Coolgardie	17,839	19,267	14,867	17,393	12,342	13,834	11,888	10,139	4,008	4,627
Yilgarn	84,090	80,995	81,740	73,302	70,689	64,301	65,138	17,904	2,784	2,238
Dundas	89,069	92,071	108,331	101,643	101,555	98,890	110,252	102,951	100,864	95,393
Phillips River	1	359	812	1,366	1,331	2,720	2,987	(c)2,542	(c)2,210	(c)1,064
Outside Proclaimed Goldfields (d)	12	16	34	432	66	222	99	34	89	4
Total	813,617	849,741	874,819	860,969	869,966	870,658	860,039	802,860	715,481	656,355

(a) As reported to the Department of Mines. (b) Includes Golden Mile, Kalgoorlie; see letterpress preceding table.
(c) Produced mainly from copper concentrates. (d) Includes South-West Mineral Field. (e) See footnote (c) to table above.

Production reached a maximum of 2,064,800 fine ounces in 1903 but there followed a gradual and continuous decline, due mainly to exhaustion of surface deposits, until in 1929 the yield was only 377,176 fine ounces. In succeeding years various economic factors stimulated activity in the industry and there

was a well-maintained improvement until 1939 when production reached 1,214,238 fine ounces. The second World War brought about a decline which was accelerated by the outbreak of hostilities with Japan, gold mining being one of the first industries to be affected by the introduction early in 1942 of a rigid system of manpower control. The average annual production as reported by gold mines for the ten-year period 1956-1965 was 817,450 fine ounces.

The figures given in the following table relate to refinery production and comprise gold refined at the Mint and gold contained in gold-bearing materials exported. Particulars for individual years do not agree with those for mine production, quoted in earlier tables, because of the delay between production at the mine and refining at the Mint. Values are in Australian currency and include amounts, totalling \$2,760,182 for the years 1952 to 1965, distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. The amounts shown as "Commonwealth Net Subsidy" represent payments made to gold producers under the Gold-Mining Industry Assistance Act passed by the Commonwealth Parliament in 1954. The values exclude amounts, totalling \$488,664 paid by the Commonwealth under the Gold Mines Development Assistance Act 1962 in the form of a development allowance to approved producers not receiving the subsidy. This Act expired on the 30th June, 1965 and was not renewed, as the result of an amendment made in 1965 to the Gold-Mining Industry Assistance Act liberalizing the conditions applying to subsidy payments and continuing the operation of the Act until the 30th June, 1970.

It will be seen that refinery production of gold from 1886 to 1965 amounted to 65.5 million fine ounces. The total value was \$1,022.5 million but it should be noted that this figure has been derived by the aggregation of annual valuations made at prices *current at the time of production*, which ranged between \$8.49542 per fine ounce in 1886 and \$31.25 per fine ounce in 1965, and the addition of premiums paid by the Gold Producers' Association Ltd. and of government subsidies.

REFINERY PRODUCTION OF GOLD FROM 1886

Period	Quantity (a)			Value			
	Refined Outside the State (b)	Refined at Perth Mint	Total	Mint Value	Payments by Gold Producers' Association Ltd.	Commonwealth Net Subsidy	Total
	fine oz.	fine oz.	fine oz.	\$	\$	\$	\$
Prior to 1956	11,568,448	45,768,206	57,336,653	750,604,154	2,315,514	(c) 393,258	753,317,926
1956	2,331	810,049	812,380	25,386,854	24,308	993,638	26,404,800
1957	2,042	894,639	896,681	28,021,272	55,098	1,025,416	29,101,786
1958	1,811	865,377	867,188	27,099,576	10,292	1,246,788	28,356,656
1959	2,322	864,287	866,609	27,081,524	2,334	1,304,532	28,388,390
1960	2,069	853,690	855,759	26,742,456	866	1,396,484	28,139,806
1961	2,943	868,902	871,845	27,245,154	168,626	1,170,612	28,584,392
1962	4,539	854,829	859,368	26,855,252	16,208	1,243,146	28,114,606
1963	4,665	795,546	800,212	25,006,614	28,758	1,339,566	26,374,938
1964	3,071	709,776	(d) 712,847	22,276,468	23,418	1,083,374	23,383,260
1965	2,997	656,440	659,437	20,607,404	114,760	1,659,163	22,381,327
From 1886 to 31st December, 1965	11,597,237	53,941,741	65,538,978	1,006,926,728	2,760,182	12,860,977	1,022,547,887

(a) Figures do not in all cases add to the totals shown owing to rounding to the nearest fine ounce. (b) Comprises gold in ores and concentrates exported. (c) Subsidy operative from 1955. (d) See footnote (c) to first table on page 310.

Except for minor fluctuations, a general increase in the quantity of ore treated annually occurred between 1946 and 1960. Although there has been a consistent decline since that year, the quantity treated in 1965, 2.53 million tons, was nevertheless considerably greater than the amount of 2.19 million tons treated in 1946. The higher tonnage of ore treated annually in post-war years has been achieved with a decreasing work force by the introduction of new methods and improved tools and machinery, the number of men employed (including alluvial diggers) having declined from 6,961 in 1946 to 4,094 in 1965.

The Department of Mines operates batteries for the treatment of ore which is mined by prospectors or other small producers, and various concessions are made in order to encourage work which is exploratory or too limited in extent to warrant the installation of major plant. Figures for the State Batteries are included in the following table.

GOLD MINING—SUMMARY OF OPERATIONS (a)

Year	Leases in Force at 31st December (b)		Gold-mining Machinery in use at 31st December						Total Value of Gold- mining Machinery	Ore Treated	Employment at Mines (c)		Alluvial Diggers
	Leases	Area	Batteries		Other Crush- ing Mills	Cyaniding		Above Ground			Under Ground		
			Num- ber	Head of Stamps		Leach- ing and Agitat- ing Vats	Vacuum Filters and Presses						
1956	No.	acres	No.	No.	No.	No.	\$	tons	No.	No.	No.		
1957	1,190	21,739	50	376	317	262	79	13,793,588	2,870,273	2,694	2,918	16	
1958	1,168	21,265	53	346	201	255	60	14,042,710	2,951,011	2,568	2,804	13	
1959	1,131	20,777	49	326	184	231	62	14,540,286	3,021,072	2,499	2,840	13	
1960	1,129	20,799	50	351	179	202	57	15,323,922	2,959,202	2,481	2,780	12	
	1,051	19,306	50	324	178	219	63	15,939,534	3,056,445	2,394	2,586	12	
1961	1,026	18,756	43	255	190	195	66	15,795,326	2,984,458	2,388	2,541	16	
1962	983	18,025	44	262	173	199	66	17,293,740	2,989,653	2,388	2,552	23	
1963	989	18,253	38	252	166	197	63	17,777,490	2,770,166	2,346	2,527	28	
1964	953	17,716	37	237	201	155	84	14,615,846	2,645,956	(d)2,111	(d)2,243	29	
1965	960	18,032	32	215	213	133	61	14,535,960	2,530,165	1,982	2,091	21	

(a) Includes Government Batteries. (b) Includes leases taken up on private property. (c) Average over whole year. Excludes workers on sick, accident, annual and long service leave. (d) See footnote (c) to first table on page 310.

Silver

Western Australia had produced over 11·2 million ounces of silver up to the 31st December, 1965, by far the greater part of it as a by-product in the recovery of gold. The other silver production is from silver-lead, silver-lead-zinc and copper ores and concentrates exported for treatment outside the State.

PRODUCTION OF SILVER

Year	From Treatment of Auriferous Ore		Silver Content of Silver-lead, Silver-lead-zinc and of Copper Ores and Concentrates Exported		Year	From Treatment of Auriferous Ore		Silver Content of Silver-lead, Silver-lead-zinc and of Copper Ores and Concentrates Exported	
	Quantity	Value	Quantity	Value		Quantity	Value	Quantity	Value
	fine oz.	\$	fine oz.	\$		fine oz.	\$	fine oz.	\$
1956	207,478	176,548	9,769	5,398	1961	201,491	168,110	8,156	6,630
1957	188,204	148,340	8,910	7,042	1962	213,987	202,662	4,379	4,158
1958	195,975	155,542	4,792	3,760	1963	213,878	245,560	6,886	7,728
1959	183,850	152,062	9,711	7,764	1964	224,573	263,282	17,159	19,916
1960	190,386	158,480	6,370	5,188	1965	234,280	274,473	11,102	13,007

Asbestos

Several types of asbestos occur in the State but only two have been produced in significant quantities. Blue asbestos (crocidolite) is found at Wittenoom Gorge in the West Pilbara district and, in 1965, production was 9,280 tons, valued at \$1,974,246. The production of chrysotile, which occurs at a number of places in the Pilbara and West Pilbara districts, was only 402 tons in 1965, valued at \$57,678. Production of both types of asbestos ceased in 1966.

PRODUCTION OF ASBESTOS

Year	Crocidolite		Chrysotile		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1956	7,286	1,601,420	761	50,732	8,047	1,652,152
1957	11,105	2,391,268	1,389	84,134	12,494	2,475,402
1958	11,887	2,609,448	1,378	77,304	13,265	2,686,752
1959	14,680	3,222,586	632	34,498	15,312	3,257,084
1960	12,922	2,837,534	61	3,204	12,983	2,840,738
1961	14,087	3,065,080	156	5,258	14,243	3,070,338
1962	15,617	3,383,866	52	2,206	15,669	3,386,072
1963	11,095	2,404,004	10	1,566	11,105	2,405,570
1964	10,614	2,124,200	536	87,362	11,150	2,211,562
1965	9,280	1,974,246	402	57,678	9,682	2,031,924

Bauxite

Following a survey of bauxite deposits, which occur over a large area in the Darling Range, trial shipments of bauxite totalling 36,741 tons were sent to Tasmania and Japan in 1959 and 1960. In 1961 the Alumina Refinery Agreement Act was passed by the State Parliament ratifying an agreement between the Government and Western Aluminium No Liability for the construction of a refinery at Kwinana to produce alumina from bauxite mined in the Darling Range and for the export of bauxite. A summary of the main provisions of the Act appears on page 104 of *Official Year Book of Western Australia, No. 4-1964*. The refinery commenced production of alumina towards the end of 1963, the alumina being shipped to Victoria and Japan for reduction to aluminium. Following an announcement by the company in March, 1965 additional processing equipment has been installed to increase the annual output of alumina from 210,000 to 410,000 metric tons, to provide for shipment of 200,000 metric tons annually to the United States of America. Further expansion of the plant to increase production to 620,000 metric tons by mid-1968 and to 830,000 metric tons by late 1969 is also planned. Of this total, 80,000 metric tons will continue to be shipped to Victoria for reduction to aluminium and the balance of production will be exported overseas.

Extensive deposits of bauxite were discovered in 1965 in the Admiralty Gulf area in the Kimberley and an exploration programme is continuing in order to determine more precisely the size of the deposits.

Beryllium Ore

Beryl occurs in many localities throughout the State but is obtained mainly from the Pilbara and Gascoyne districts. Production was negligible until, as a result of the wartime demand for beryllium-copper alloys, 548 tons were produced in 1943 and 387 tons in 1944. It then declined but later recovered to some extent, reaching a post-war peak of 350 tons in 1957. Production subsequently fluctuated considerably but declined from 261 tons in 1961 to only 14 tons in 1965.

PRODUCTION OF BERYL

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	310	350	170	267	181	261	195	82	80	14
Value (\$)	114,226	128,468	63,602	96,104	66,048	80,158	64,904	22,204	18,076	2,891

Coal

The first reports of coal discoveries, in the Murray district and on the Irwin River, were made in 1846 but the only commercial production in Western Australia occurs at Collie where the Collie River Coal Mining District was proclaimed in 1896. The coal is sub-bituminous in rank and there are substantial reserves in the area.

Annual production exceeded one million tons for the first time in 1954, but in 1956 it fell to 830,007 tons. It increased in each of the next four years and in 1960 production totalled 922,393 tons. A major producer closed its mines on the termination in December, 1960 of its contract for the supply of coal to the State Government, and production declined to 765,740 tons in 1961. There was a substantial recovery in 1962, when 919,112 tons were produced. Production in 1965 was 993,741 tons, the highest recorded since 1954.

COAL PRODUCTION

Year	Quantity			Value
	From Deep Mines	From Open Cuts	Total	
	tons	tons	tons	\$
1955	599,662	304,130	903,792	6,178,622
1956	621,465	208,542	830,007	5,447,962
1957	689,882	148,779	838,661	5,105,314
1958	779,396	91,486	870,882	4,561,298
1959	800,856	110,579	911,435	4,713,068
1960	798,184	124,209	922,393	4,878,390
1961	506,306	259,434	765,740	3,360,518
1962	598,501	320,611	919,112	3,961,556
1963	600,934	301,561	902,495	3,970,120
1964	644,107	343,313	987,420	4,678,934
1965	508,260	485,481	993,741	4,409,972

Open-cut mining was commenced at Collie in 1943 and the amount produced by this means increased rapidly until in 1952 almost one-half of the total production came from open cuts. In each year from 1953 to 1960 the proportion of open-cut coal ~~was~~ less than in 1952, and in 1960 was little more than one-eighth of all coal produced. New contracts for government requirements, which came into operation at the beginning of 1961, provided for an increase in supplies from open-cuts, and in 1965 almost one-half of all coal produced came from this source.

For some years after the war, employment in coal mining rose steadily and reached 1,560 in 1954. It then declined and in 1960 had fallen to 984. There was a sharp decrease in 1961 when the total was only 582, of whom one-third were employed above ground compared with about one-fifth in each of the three previous years. In each year from 1962 to 1965, the number of men employed exceeded 750, the proportion of those working above ground having risen to almost two-fifths in 1965.

MEN WORKING AT COAL MINES (a)

Description	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Above Ground	443	377	230	207	206	198	257	240	246	293
Under Ground	776	759	842	804	778	384	500	517	519	467
Total	1,219	1,136	1,072	1,011	984	582	757	757	765	760

(a) Average number employed over the whole year.

Copper Ore

Copper ore in commercial quantities was discovered in 1849 in the Northampton district. High-grade ore was found in 1855 at Bowes River in the same area and in 1872 one of the richest deposits was discovered in the West Pilbara near Roebourne. Considerable quantities of copper have been produced at the mines in the Northampton district, where it occurs in association with lead, and also in the Ravensthorpe area, in association with gold. Another important producer has been the Murrin Murrin district in the Mount Margaret area.

Due to low prices, rising costs of mining and treatment and the exhaustion of rich secondary ores near the surface, production was on a very small scale between 1925 and 1956. It then increased substantially and in 1961 reached 6,290 tons valued at \$651,392. In the succeeding years production declined and in 1965 amounted to 2,052 tons worth \$258,517.

PRODUCTION OF COPPER ORE (a)

(For Smelting to Copper)

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	212	1,804	1,802	4,409	3,584	6,290	5,277	6,266	4,619	2,052
Value (\$)	25,782	120,022	111,194	467,068	403,566	651,392	414,766	615,804	558,068	258,517

(a) For production of cupreous ore for fertilizer see following section.

Cupreous Ore (For Fertilizer)

The demand for copper to remedy trace element deficiencies in soils created a market for low-grade ores for use in chemical fertilizers. Until this development, the production of ores having a low copper content was uneconomical because of high costs of transport and smelting. Production for use in fertilizers commenced in 1947 and increased to 7,731 tons in 1955. After reaching a peak of 11,859 tons in 1959, it declined in 1960 and 1961 but improved to 9,275 tons in 1962. In the next three years production decreased substantially and in 1965 amounted to only 1,079 tons.

The Pilbara and Peak Hill areas are the principal sources of supply.

PRODUCTION OF CUPREOUS ORE FOR FERTILIZER

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	7,713	4,639	7,644	11,859	7,727	7,384	9,275	3,235	2,197	1,079
Value (\$)	226,884	164,254	229,340	368,012	280,504	314,976	189,138	272,400	251,970	99,234

Ilmenite, Leucoxene, Monazite, Rutile and Zircon

Although beach sands being treated near Bunbury, Busselton and Capel also contain leucoxene, monazite, rutile and zircon, the ilmenite content is of particular importance because it is virtually chrome-free and little difficulty is experienced in producing a concentrate of high quality. Operations began in 1956, when the recorded production of ilmenite concentrates was 3,293 tons valued at \$30,300. Output has risen rapidly and in 1965, production amounted to 430,455 tons valued at \$4,331,784.

PRODUCTION OF ILMENITE CONCENTRATES

Item	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	70,029	69,817	83,347	105,283	163,849	174,579	195,008	297,322	430,455
Value (\$)	824,938	716,718	691,720	916,638	1,470,848	1,586,718	1,854,244	2,811,812	4,331,784

Concentrates containing leucoxene, monazite, rutile and zircon are recovered as by-products from the treatment of the beach sands and the first shipments were made in 1958, when 513 tons of concentrates valued at \$33,518 were exported. In 1965 recorded production totalled 25,462 tons valued at \$875,198.

PRODUCTION OF LEUCOXENE, MONAZITE, RUTILE AND ZIRCON CONCENTRATES

Year	Leucoxene		Monazite		Rutile		Zircon		Total	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$	tons	\$	tons	\$
1958 ....	.....	.....	110	14,422	297	16,846	106	2,250	513	33,518
1959	276	7,860	90	12,000	100	5,530	6,787	143,382	7,253	168,772
1960	89	3,010	242	18,638	515	25,632	4,018	82,942	4,864	130,222
1961	535	15,212	1,255	66,644	916	39,392	7,361	148,532	10,067	269,780
1962	627	17,832	600	38,072	523	24,766	3,731	80,046	5,481	160,716
1963	547	13,892	1,320	105,688	763	45,460	12,542	261,292	15,172	426,332
1964	656	26,660	1,126	97,294	669	42,150	21,511	435,402	23,962	601,506
1965	380	16,858	1,447	155,040	225	15,990	23,410	687,310	25,462	875,198

Iron

Iron-ore deposits are widely distributed throughout Western Australia and the State's iron-ore reserves have been assessed at over 15,000 million tons of high-grade ore. Since 1951 large quantities of hematite have been produced at Cockatoo Island (Yampi Sound) in the West Kimberley district for shipment to other Australian States. The first shipment of ore from the deposits on the adjacent Koolan Island was made in January, 1965, following the completion of mining and loading facilities which had been under development since 1960.

PRODUCTION OF IRON ORE

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	336,890	416,236	572,928	727,084	928,463	1,359,548	1,403,752	1,333,138	1,357,715	2,313,434
Value (\$)	675,072	857,740	1,182,408	1,511,450	1,944,586	2,767,794	2,869,476	2,690,508	2,770,930	4,662,022

In recent years there have been a number of developments in connexion with iron-ore deposits which has lead to greatly expanded production.

As a result of the passage in 1960 of the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, which ratifies an agreement between the State Government and the Company relating to the establishment of an integrated iron and steel industry in Western Australia, developmental work was undertaken in the Koolyanobbing Range area which greatly increased production from these deposits. The announcement in December, 1960 of the Commonwealth Government's decision to modify its embargo on oversea exports, which had been in force since 1938, caused increased interest in Western Australian deposits. The subdivision of the deposits (other than those reserved for the domestic iron and steel industry under the Commonwealth's revised export policy) into three categories was announced by the State Government in March, 1961. The first category includes known high-grade deposits, not

covered by lease agreements, which are to be retained by the Crown to ensure supplies for the State's steel requirements or for export. The second category, being known medium and low-grade deposits, and the third category, comprising deposits as yet undiscovered, may be made the subject of temporary reservations granting the right to explore, each such reservation being limited to a maximum area of 50 square miles.

The State Parliament ratified a number of agreements between the Government and private companies for the mining and export of iron ore and, in certain instances, for secondary processing of the ore as a later development and, ultimately, for the establishment of integrated iron and steel works. The provisions of these agreements are referred to on pages 106 and 110 of *Official Year Book of Western Australia*, No. 4-1964, in the section *Legislation during 1963 and 1964* in Chapter III of the succeeding issue, and on page 114 of the *Western Australian Year Book*, No. 6-1967. The ore is now being exported overseas, mainly to Japan. A number of contracts between leading Japanese steel mills and certain of the mining companies resulted in large-scale mining operations which commenced in 1966. Ore from Koolanooka Hills, near Morawa, is being transported by rail to the port of Geraldton, 100 miles distant. From Mount Goldsworthy, about 70 miles east of Port Hedland, the ore is being railed to a deep-water port on Finucane Island, just off Port Hedland. Ore mined at Mount Tom Price, in the Hamersley Range area south-west of Port Hedland, is being railed 179 miles to the port of Dampier in King Bay, which is west of Roebourne. The first shipments of iron ore under these contracts were made from Geraldton on the 17th March, 1966; from Port Hedland on the 2nd June, 1966; and from Dampier on the 22nd August, 1966. Development of the deposits at Mount Whaleback in the Ophthalmia Range about 260 miles south of Port Hedland has commenced and the first shipment of ore to Japan is expected to leave Port Hedland in April, 1969. The volume of potential exports of iron ore and pellets to Japan was estimated in December, 1967 to be over 395 million tons with an f.o.b. value of \$3,440 million. By October, 1967, more than \$280 million had been spent by the companies on mine development, railways, townships, deep water ports and pelletising facilities. At that date, additional planned expenditure by the companies on their projects exceeded \$720 million.

Pig-iron production in Western Australia began in 1948. It is at present smelted only at Wundowie in the Darling Range east of Perth using charcoal produced from local eucalypts. Originally, brown iron ore (limonite) mined near Wundowie was used in the smelting process, but has now been replaced by ore obtained from Koolyanobbing, east of Bullfinch in the Yilgarn district. The extensive deposits in the Koolyanobbing area are mainly high-grade hematite ores with some limonite. The production of pig-iron at Wundowie for each of the five years in the period ended 30th June, 1966 is shown on page 331.

Lead Ore

Lead ore was discovered near the lower Murchison River in 1848, at what became known as the Geraldine Mine. It has since been found in other localities, principally in the Pilbara, Ashburton and West Kimberley districts, and half a million tons have been raised, the great bulk of it from the mineral field around Northampton, the area of the first finds. Production fluctuated very widely and ceased almost entirely during the war, but a substantial increase occurred in the post-war years and in 1956 it rose to 7,613 tons. After 1956 it declined rapidly and in 1963 only 185 tons were produced. Recently there has been a revival of lead mining in the West Kimberley mineral field which has resulted in greatly expanded production. Total output in 1965 amounted to 4,878 tons valued at \$401,978.

Although the ore from the Northampton field is almost free from silver, that from other areas further north, notably the Ashburton, Pilbara and West Kimberley, has a silver content which may be as much as ten ounces per ton. Production of such ores is included in the following table.

PRODUCTION OF LEAD, SILVER-LEAD, AND SILVER-LEAD-ZINC ORES (a)

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	7,613	4,180	2,493	1,903	2,264	597	443	185	3,354	4,878
Value (\$)	1,291,608	632,930	279,798	178,860	239,684	51,766	30,502	13,070	198,868	401,978

(a) Including concentrates.

Manganese Ore

Deposits of manganese ore occur in several parts of the State but up to the end of 1947 only 252 tons had been mined. After 1947 production increased rapidly and in 1961 totalled 83,660 tons valued

at \$2,141,390. After a decline to 34,808 tons in 1963, production rose in 1964 and again in 1965 to a record output of 97,901 tons in that year, valued at \$2,106,058. Two-thirds of the quantity produced in 1965 came from the Pilbara field, the remainder being obtained from the Peak Hill field.

PRODUCTION OF MANGANESE ORE

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	56,234	73,191	47,543	75,733	53,842	83,660	67,871	34,808	60,182	97,901
Value (\$)	1,475,138	2,324,804	1,388,712	2,111,346	1,480,260	2,141,390	1,789,758	864,268	1,415,788	2,106,053

Pyrites

The mining of iron pyrites was developed during the war to provide a substitute for oversea supplies of sulphur required for the manufacture of sulphuric acid for superphosphate. Production at Norseman, which is the principal source of supply, commenced in 1942. All ore is now concentrated at the mine before being railed to superphosphate works in the metropolitan area for extraction of the sulphur. A second source of supply was developed in 1956 when a metropolitan works commenced using concentrates from a gold mine at Kalgoorlie. Gold is obtained as a by-product following the extraction of the sulphur from these concentrates.

PRODUCTION OF IRON PYRITES (ORE AND CONCENTRATES)

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	60,969	57,918	49,389	53,030	53,299	52,397	49,461	58,472	58,396	59,180
Value (\$)	840,104	765,134	703,694	743,978	733,478	855,244	848,380	974,496	1,109,078	1,048,425

Tin Ore

Tin ore was first discovered at Greenbushes in 1888. It has since been found at several other places, but the Greenbushes and Pilbara fields have been the only major producers. Output declined during the war but increased substantially after 1949 and reached a peak in 1956 when 358 tons of ore and concentrates valued at \$416,546 were produced. In 1958 it declined to 138 tons valued at \$154,638, the decrease being due mainly to contraction of operations in the Greenbushes field. After 1958 production again increased and in 1965 total output was 679 tons valued at \$1,558,770.

PRODUCTION OF TIN ORE AND CONCENTRATES

Item	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Quantity (tons)	358	270	138	250	281	341	465	576	637	679
Value (\$)	416,546	310,158	154,638	309,458	337,550	471,160	668,538	816,046	1,240,782	1,558,770

Nickel

The discovery of nickel deposits at Kambalda, 30 miles south of Kalgoorlie, was announced in March, 1966. The company developing the deposits reported the presence of more than 2,300,000 tons of high-grade nickel sulphide ore and has contracted to export nickel concentrates to oversea buyers. Production commenced in June, 1967 and the first shipment was made to Canada in August, 1967, treatment of ore at the rate of 10,000 tons per month being achieved by the end of that year. The concentrates are being transported 25 miles by road to Widgiemooltha and railed to the port of Esperance for shipment.

Deposits of nickel have also been discovered in the Wingellina area of the Blackstone Range, about 40 miles west of the border between Western Australia and South Australia. Investigations of these deposits are proceeding.

Petroleum

An extensive programme of oil exploration was commenced in 1951 but, although flow oil was found in the Exmouth Gulf area of the Carnarvon Basin in 1953, no commercial development resulted. After 1953 the search was intensified and a large area of the State has been scientifically examined and geological

and geophysical surveys are still being carried out. In 1964, gas and oil were produced from wells at Yard-arino about eight miles east of Dongara on the west coast. Oil and gas were discovered in the same year on Barrow Island, 60 miles north-east of Onslow, and gas was obtained from a well drilled in the Bonaparte Gulf Basin in the extreme north of the State. In February, 1965, a show of gas was obtained in a well at Gingin, 50 miles north of Perth, and subsequent tests confirmed the find. In the same month gas flowed from a well drilled 25 miles south of Dongara. No commercial development of these discoveries has yet been undertaken except at Barrow Island which, in May, 1966, was declared a commercial oil-field, after prolonged testing. Oil production commenced in 1967 and the first shipment of oil from this field was made on the 25th April, 1967. Recoverable reserves at Barrow Island are estimated at 114 million barrels and production, which at the end of 1967 was at the average rate of 25,000 barrels per day, is expected to exceed 30,000 barrels per day in the first quarter of 1968.

Other Minerals

In addition to the other minerals listed in the table on page 309 there are some which have a high potential value but are not produced in large quantities at present. Zinc is associated with many of the silver-lead ores and some of the copper ores and has been mined as the carbonate with a zinc content of 38 per cent. Arsenious oxide and antimonial concentrates were produced commercially for some years as by-products in the treatment of auriferous ores. Small amounts of bismuth concentrates assaying as high as 73 per cent. bismuth have also been produced. Production of tantalum ores and concentrates has fluctuated with demand, but a large part of world requirements has been met from the State's resources. Tungsten ores have been produced in small quantities for some years with a slight increase during the war. Since then, output has been spasmodic, but in 1952 was valued at \$99,420. Lithium, yttrium, cerium, thorium, vanadium, niobium and molybdenum-bearing minerals are known to occur in commercial quantities and small amounts of minerals containing uranium, rubidium and caesium have been found. Deposits of bentonite, barytes, graphite, mica, kyanite, sillimanite, spodumene and vermiculite are also known and small amounts have been produced.

Quarrying

The following table gives details of the production of certain quarry products from 1957 to 1966. It should be noted that gravel, sand and clays, for which reliable and complete information cannot be obtained, are not included.

SELECTED ITEMS OF QUARRY PRODUCTION

Year	Building and Monumental Stone (a)	Other Stone	
		Granite, Diorite, Quartzite, Basalt, etc. (b)	Limestone and Shell (c)
	tons	tons	tons
1957	55,331	504,282	427,286
1958	76,159	463,983	436,531
1959	71,648	743,595	481,604
1960	112,110	755,172	557,022
1961	131,046	763,155	515,576
1962	127,971	930,891	762,108
1963	210,770	1,206,388	687,163
1964	148,939	1,750,351	749,062
1965	185,588	2,078,940	949,358
1966	161,383	2,142,634	902,469

(a) Calcareous sandstone (including limestone) and granite. (b) Principally for roads, concrete aggregate, filling, etc.
(c) Principally for the manufacture of lime and cement and for road making.

CHAPTER VIII—continued

PART 2—SECONDARY INDUSTRY

EXPLANATORY NOTES AND DEFINITIONS

Unless otherwise stated the figures quoted in this Part cover all industrial establishments conforming to the definition of a factory, including power stations and gas works.

Factory

For statistical purposes a factory is defined as any establishment which is engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons are employed during any period of the year or power other than manual is used.

Employment

Average employment figures may be expressed as an average "over the period worked" or as an average "over the whole year." Thus, a factory which operates for only six months of the year and employs 20 persons throughout that period has an average employment of 20 "over the period worked" but an average of only 10 "over the whole year." Where seasonal industries, such as meat and fish preserving, whaling or fruit packing, are involved there can consequently be a considerable difference between figures covering the same field if different bases are used in their computation. In this Part, unless otherwise stated, figures quoted are the average "over the whole year." It should also be noted that they include working proprietors, but exclude all persons engaged in obtaining raw materials (e.g., fallers and haulers employed by sawmills) and all persons engaged in selling and distribution.

Salaries and Wages

Salaries and wages quoted exclude amounts drawn by working proprietors.

Value of Output

The value of output is the selling value "at the factory" (i.e., the value at the point of sale less all selling and distribution costs) of all goods made or processed during the year and includes the amount received for other work done, such as repair work, assembling and making-up for customers. Any bounty or subsidy received on finished products is included.

Net Production

"Net Production" is the value added in the course of manufacture and is the sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. It is obtained by deducting from the value of output the cost of goods consumed in the process of production. The costs deducted are those of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing.

Confidential Information

The Acts under which these statistics are collected require that information supplied on any individual return must be treated as confidential. For this reason it has not been possible to publish some items and in other cases it has been necessary to combine details for publication. As these confidential provisions apply throughout Australia separate details have, in some instances, been withheld in order to prevent disclosure of confidential information in respect of another State. The tables affected carry appropriate footnotes.

HISTORICAL REVIEW

While secondary industry in Western Australia has grown considerably since 1900 the greatest advance both in the number and the size of factories operating has occurred since 1945. One of the factors contributing to this growth has been the provision of adequate power in the south-western portion of the State by the expansion of electricity supplies provided by generating stations linked in a grid system.

In 1900 there were 632 factories operating in Western Australia. By 1910 the number had risen to 822 and by 1920 to 998. Progress during the first World War was comparatively slow, mainly because the more advanced manufacturing facilities already existing in other States were better suited to rapid development. During the decade 1921-1930, however, efforts were made to foster Western Australian secondary industry and considerable success was achieved during the latter years of this period, the number of factories increasing from 1,170 in 1926 to 1,466 in 1930. Although some decline occurred in the depression years of 1930 to 1933, there were 1,658 factories in operation in 1935 and by 1940 the number had reached 2,129.

No immediate stimulus to the State's manufacturing activity followed the outbreak of the second World War, but the more direct threat to Australia which resulted from the fall of Singapore called for a total use of industrial potential, and from 1942 onwards an increasing volume of war contracts was placed in Western Australia. The greatest demand was for processed foodstuffs but other forms of war production which were especially developed included munitions manufacture, shipbuilding (principally of wooden coastal craft) and marine engineering. Although fewer factories operated because of the decline in those classes of production which were purely for civilian purposes, employment and output increased substantially.

Production which had been developed largely to meet the demands of the armed services declined sharply at the conclusion of the war and this was reflected particularly in the decreased manufacture of processed foodstuffs, the full production of which considerably exceeded civilian requirements. However, secondary industry as a whole benefited greatly from the engineering skills and equipment acquired in wartime activities and their transfer to civilian uses facilitated the expansion of the metal industries in the State and influenced the production of small to medium-sized machine tools and the establishment of a factory producing several types of tractors and farm machinery.

Such advances enlarged the scope of Western Australian secondary industry and by 1965-66 the number of factories had increased to 4,906. However, net production per head of population still remains higher in all the other States except Queensland. This applies particularly to New South Wales and Victoria which have consistently increased their lead in industrial production. Manufacturing net production per head of population in each of the States and in Australia as a whole during 1965-66 was as follows: New South Wales, \$640.7; Victoria, \$635.3; Queensland, \$329.6; South Australia, \$489.4; Western Australia, \$350.1; Tasmania, \$461.8; and Australia, \$552.4.

The average number of persons employed in Western Australian factories from 1900 to 1966 was as follows: 1900, 11,166 persons; 1905, 13,481; 1910, 14,894; 1915, 15,882; 1920, 16,942; 1925-26, 20,667; 1929-30, 19,643; 1934-35, 17,769; 1939-40, 22,967; 1944-45, 29,146; 1949-50, 40,733; 1954-55, 49,314; 1959-60, 49,651; 1964-65, 58,097; and 1965-66, 60,282. These figures indicate the moderate increase which occurred in factory employment between 1900 and 1920, the continued expansion in the 1920's, the decline in the early 1930's and the accelerated development during and after the second World War. They do not show the levels to which it fell during the first World War and during the depression years but these movements can be seen from the annual averages appearing in the *Statistical Summary from 1829* preceding the *Appendix*.

The large increase between 1944-45 and 1949-50 was due in part to the establishment of many smaller types of factory, such as motor-repair workshops, dry-cleaning works and bakeries, resulting from the return to civilian life of service personnel and from unusually large population gains by natural increase and from immigration. This high level of population increase was maintained in the following five years and in 1954-55 average factory employment reached 49,314. In 1955-56 the number of persons engaged in factories exceeded 50,000 for the first time but then declined in each of the three succeeding years and in 1958-59 had fallen to 48,417. An improvement in 1959-60, when the average for the year rose to 49,651, was maintained over the next six years and by 1965-66 employment in factories had risen to 60,282.

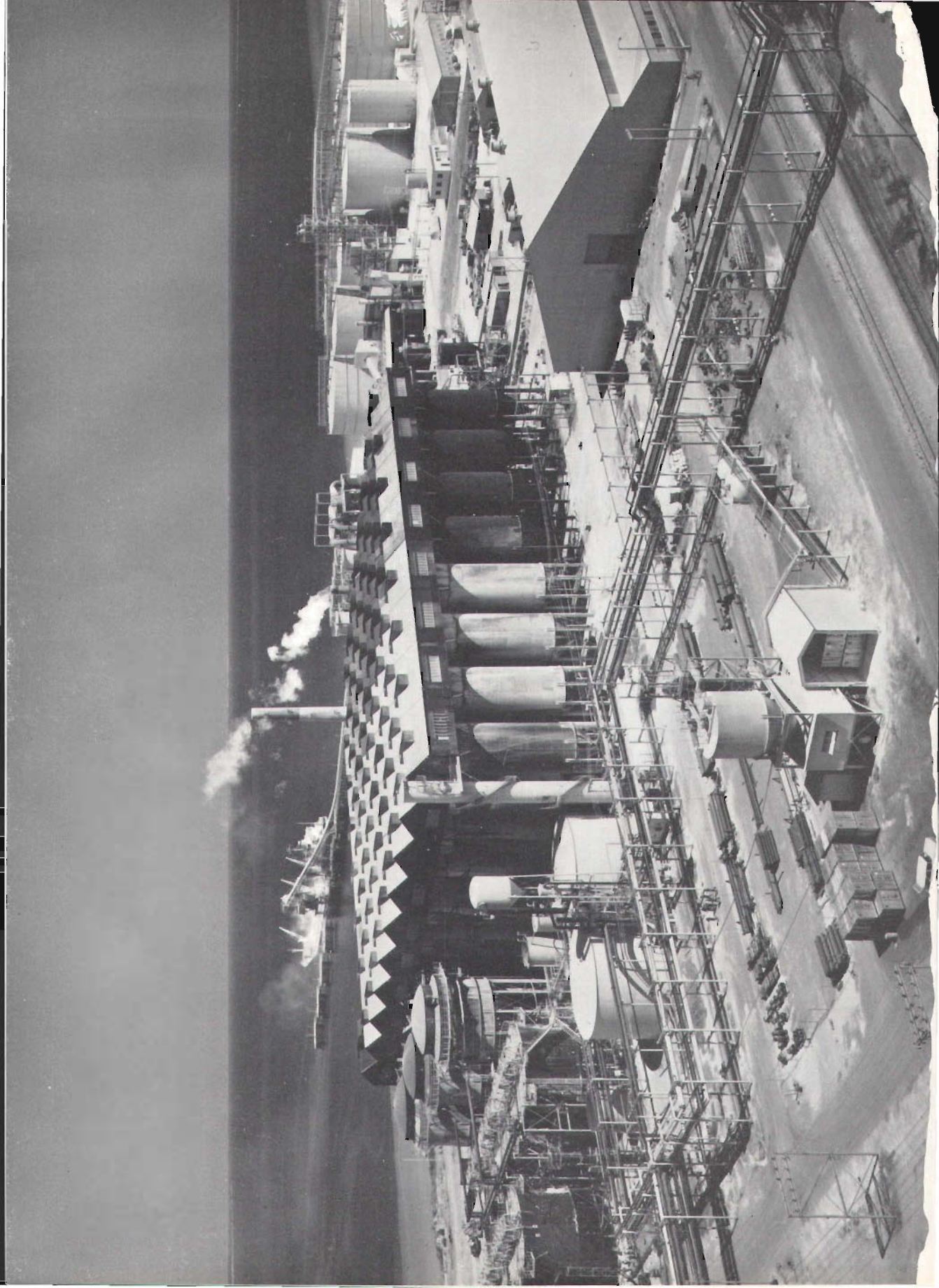
Several relatively large concerns began to operate during the post-war years. Sharp rises in the total horsepower of engines used to drive machinery are indicative of this growth in the number of highly-mechanized works. Increases in net production and the enhanced values of land and buildings and of plant and machinery are also significant, but when considering these figures allowances should be made for price changes which occurred during the period.

In 1948 a blast furnace, using charcoal made in an associated wood-distillation plant, began producing high-grade charcoal-iron. Additions have since been made to the plant and its original capacity of 10,000 tons per annum has been expanded to approximately 50,000 tons. Major developments have included the establishment in 1955 of an oil refinery (expanded in 1963 to produce lubricating oils) and a second portland cement factory and a steel rolling mill in 1956. In 1960 the State Parliament passed legislation to ratify agreements made by the Government with the Broken Hill Proprietary Company Limited relating to the establishment of an integrated iron and steel works in Western Australia and with Australian Paper Manufacturers Limited for the establishment and operation of a mill to produce paper and paper board. Reference is made to this legislation on pages 92 and 95 of the *Official Year Book of Western Australia*, No. 3-1962. In 1963, a factory near Bunbury commenced extraction of titanium oxide pigment from ilmenite, a refinery at Kwinana commenced production of alumina from bauxite



PORT OF FREMANTLE (OUTER HARBOUR)

Aerial view of Cockburn Sound and Kwinana. In the foreground is the expanding industrial complex at Kwinana, south of Fremantle.



ALUMINA REFINERY AT KWINANA

Alumina is produced at the plant from bauxite mined in the Darling Range. The alumina is shipped to Victoria and Japan for reduction to aluminium.

LOADING BAUXITE AT JARRAHDAL

The bauxite is railed to the refinery at Kwinana for the production of alumina. The deposits at Jarrahdale form part of the extensive areas of bauxite laterites occurring along the western scarp of the Darling Range in the south-west of Western Australia. These deposits extend for more than 200 miles in a strip about 25 miles wide running parallel to the coast from the vicinity of New Norcia southward, about 20 miles inland. The thickness of the deposits varies between 3 feet and 30 feet, with an average of about 10½ feet.

MINING ILMENITE AT CAPEL

Extensive and valuable deposits of mineral beach sands occur along the south-western coast of Western Australia. Ilmenite is the most abundant constituent of the minerals in the sands and its mining, by sluicing, is a relatively simple process because of the shallow overburden and the generally unconsolidated nature of the deposits. In 1963 a factory at Australind, near Bunbury, commenced manufacture of titanium oxide pigment from the ilmenite.





MUJA GENERATING STATION

Situated 13 miles from Collie, the nearest town, and adjacent to a source of open-cut coal, the site occupies approximately 350 acres. The station is planned to be on a full load in December, 1968 when the last of the four 60,000 kilowatt units is expected to be commissioned.

mined in the Darling Range, and a cotton ginny at Kununurra, in the Kimberley Statistical Division, commenced processing seed cotton grown in the Ord Irrigation District. In 1964, two factories commenced the manufacture of rubber tyres and in 1966 the paper mill established by Australian Paper Manufacturers Limited commenced production.

A summary of selected items of factory activity from 1900 is given in the following table.

SELECTED ITEMS OF FACTORY ACTIVITY

Year	Number of Factories	Persons Employed (a)			Book Values of—		Engines and Electric Motors used to drive Machinery (b)	Net Production (c)
		Males	Females	Total	Land and Buildings	Plant and Machinery		
					\$	\$	rated h.p.	\$
1900	632	10,261	905	11,166	2,408,652	2,505,854	7,270	(d)
1905	777	11,829	1,652	13,481	3,579,224	3,739,506	11,151	(d)
1910	822	12,404	2,490	14,894	3,645,536	3,878,546	11,378	5,472,140
1915	983	13,453	2,429	15,882	5,271,046	5,467,164	21,997	6,467,870
1920	998	14,311	2,631	16,942	7,127,554	6,822,496	26,481	9,708,150
1925-26 (e)	1,170	17,393	3,274	20,667	9,710,322	10,961,810	37,631	19,222,226
1929-30	1,466	15,921	3,722	19,643	11,246,428	12,181,972	37,754	14,976,120
1934-35	1,658	14,248	3,521	17,769	11,846,922	11,526,856	42,520	12,569,846
1939-40	2,129	18,331	4,636	22,967	13,726,936	15,916,990	66,925	18,055,456
1944-45	1,931	22,404	6,742	29,146	15,308,374	16,503,462	80,667	25,920,018
1949-50	3,023	33,711	7,022	40,733	22,110,004	22,913,534	120,380	52,088,052
1954-55	3,727	42,294	7,020	49,314	60,459,826	109,916,410	204,848	121,911,658
1959-60	4,279	42,957	6,694	49,651	87,145,524	128,449,900	261,660	172,746,624
1961-62	4,418	44,193	6,840	51,033	98,336,636	123,432,768	276,186	196,082,836
1962-63	4,492	46,252	7,183	53,435	102,856,394	132,635,014	292,425	216,422,104
1963-64	4,609	48,163	7,542	55,705	118,812,882	155,514,314	327,425	230,511,312
1964-65	4,734	50,065	8,032	58,097	131,739,180	163,526,092	345,586	260,637,078
1965-66	4,906	51,464	8,818	60,282	151,047,390	197,209,623	371,888	288,802,710

(a) Includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills. (b) Excludes engines used in electricity generating stations and motors driven by electricity of own generation. (c) See *Explanatory Notes and Definitions* on page 319. (d) Figures not available. (e) Period of 18 months ended 30th June, 1926.

During the period reviewed, population censuses were taken in the years 1901, 1911, 1921, 1933, 1947, 1954, 1961 and 1966. In the following table factory employment in each of those years except 1966, for which the necessary information is not yet available, is compared with the "total work force" as recorded at the census and also as adjusted to give comparable components for the two sets of figures. The "adjusted total work force" shown includes employers, self-employed persons and wage and salary earners but excludes persons who were not actually employed at the time of the census, whether this was due to inability to secure work, to sickness or industrial disputes, or to any other cause. It also excludes helpers not receiving wage or salary. Although it includes a small number of employers who were not themselves actively engaged, this is insufficient to affect the validity of the comparison.

FACTORY EMPLOYMENT IN RELATION TO TOTAL WORK FORCE

Year	Census Date	Average Number of Factory Workers during the Year	Total Work Force at Census Date	Adjusted Total Work Force at Census Date	Proportion of Factory Workers to Adjusted Total Work Force
1901	1901—31st March	(a) 12,198	98,145	91,600	per cent.
1911	1911—3rd April	(a) 16,754	133,253	125,886	13.3
1921	1921—4th April	(a) 18,151	140,296	129,641	14.0
1932-33	1933—30th June	(b) 14,810	187,636	159,222	9.3
1946-47	1947—30th June	(b) 33,806	206,400	197,825	17.1
1953-54	1954—30th June	(b) 47,459	258,401	253,270	18.7
1960-61	1961—30th June	(b) 50,666	279,784	267,997	18.9

(a) Figures for calendar year. Includes fallers and haulers employed by sawmills. (b) For year ended 30th June.

GENERAL SUMMARY

Location of Secondary Industry

The greatest population, both in number and in density, occurs in the Perth Statistical Division and two-thirds of the State's factories are located there including the establishments contained in the rapidly developing industrial complex at Kwinana. The South-West Division ranks next to the Perth Division in total population and number of factories.

These two Divisions together contain approximately three-quarters of the total population of the State. Other factors influencing the concentration of manufacturing industry in the area are the easier availability of raw materials and the provision of adequate power and fuel supplies and transport facilities. Electric power is distributed over most of the area through a grid system established by the State Electricity Commission, and a map showing the distribution of supplies by the Commission as at the 30th June, 1966 appeared in the *Western Australian Year Book*, No. 6—1967. The only coal deposits in the State at present being worked are in the South-West Division near Collie, some 120 miles to the south of Perth. These Divisions also contain well-developed road and railway systems, the State's principal port at Fremantle and other ports at Bunbury and Busselton.

Reference to manufacturing activity in the several Statistical Divisions of the State is also made in the section *Geographical Distribution of Industry* which appears at the beginning of this Chapter. The boundaries of each Statistical Division are shown on the map of the State following the Index.

PRINCIPAL ITEMS ACCORDING TO STATISTICAL DIVISIONS, 1965-66

Statistical Division	Number of Factories	Book Values of—		Persons Employed (including Working Proprietors) (a)		Salaries and Wages (excluding Amounts drawn by Working Proprietors)	
		Land and Buildings	Plant and Machinery	Males	Females	Males	Females
Perth (b)	3,246	\$ 119,320,524	\$ 135,409,663	41,679	7,768	\$ 101,132,909	\$ 9,939,883
Percentage of State Total	66.16	79.00	68.66	80.99	88.09	82.21	89.16
Other Divisions—							
South-West	510	16,766,517	38,785,770	4,344	352	9,730,078	409,164
Southern Agricultural	290	3,970,532	4,277,876	1,575	338	3,496,202	413,122
Central Agricultural	334	3,164,410	3,913,643	1,535	111	3,057,495	113,504
Northern Agricultural	236	2,737,446	2,425,172	934	112	1,889,353	122,863
Eastern Goldfields	172	1,963,353	6,200,357	759	73	1,568,564	70,761
Central	16	74,878	237,414	41	2	94,584	548
North-West	27	330,616	435,105	139	37	422,211	45,518
Pilbara	27	257,866	721,363	105	3	352,425	3,026
Kimberley	48	2,461,248	4,803,260	353	22	1,278,265	30,534
Total, Other Divisions	1,660	31,726,866	61,799,960	9,785	1,050	21,889,177	1,209,040
Percentage of State Total	33.84	21.00	31.34	19.01	11.91	17.79	10.84
STATE TOTAL	4,906	151,047,390	197,209,623	51,464	8,818	123,022,086	11,148,923

Statistical Division	Value of Output	Cost of—				Net Production (c)
		Power, Fuel and Light (including Water and Lubricants)	Repairs to Buildings, Plant and Machinery	Materials Used (including Containers)	Total	
Perth (b)	\$ 549,626,744	\$ 17,162,771	\$ 9,279,430	\$ 288,545,011	\$ 314,987,212	\$ 234,639,532
Percentage of State Total	80.98	62.84	74.21	82.41	80.78	81.25
Other Divisions—						
South-West	55,613,610	5,392,835	1,535,098	21,811,380	28,739,313	26,874,297
Southern Agricultural	20,472,439	440,723	433,591	11,358,126	12,232,440	8,239,999
Central Agricultural	15,539,792	1,647,738	310,981	7,540,506	9,499,225	6,040,567
Northern Agricultural	18,288,330	410,477	302,356	12,687,745	13,400,578	4,887,752
Eastern Goldfields	7,952,622	1,421,771	301,884	2,579,953	4,303,608	3,649,014
Central	496,713	178,502	29,964	47,998	256,464	240,249
North-West	1,799,623	74,281	62,532	900,380	1,037,193	762,430
Pilbara	1,349,632	238,907	23,672	420,898	683,477	666,155
Kimberley	7,611,294	345,936	223,956	4,238,687	4,808,579	2,802,715
Total, Other Divisions	129,124,055	10,151,170	3,224,034	61,585,673	74,960,877	54,163,178
Percentage of State Total	19.02	37.16	25.79	17.59	19.22	18.75
STATE TOTAL	678,750,799	27,313,941	12,503,464	350,130,684	389,948,089	288,802,710

(a) Average over the whole year. (b) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions (see letterpress *Urban and Rural Populations* on pages 120-1). (c) See *Explanatory Notes and Definitions* on page 319.

FACTORIES AND EMPLOYMENT IN EACH STATISTICAL DIVISION

Statistical Division	Year				
	1961-62	1962-63	1963-64	1964-65	1965-66
NUMBER OF FACTORIES					
Perth (a)	2,831	2,884	2,975	3,091	3,246
South-West	513	519	506	503	510
Southern Agricultural	288	282	290	291	290
Central Agricultural	324	324	336	337	334
Northern Agricultural	208	222	227	232	236
Eastern Goldfields	167	173	171	172	172
Central	19	17	18	17	16
North-West	17	22	22	23	27
Pilbara	17	14	16	22	27
Kimberley	34	35	48	46	48
Whole State	4,418	4,492	4,609	4,734	4,906

PERSONS EMPLOYED (b)					
Perth (a)	40,909	43,214	45,401	47,405	49,447
South-West	4,472	4,374	4,414	4,598	4,696
Southern Agricultural	1,687	1,719	1,758	1,861	1,913
Central Agricultural	1,571	1,593	1,628	1,677	1,646
Northern Agricultural	955	1,022	999	1,019	1,046
Eastern Goldfields	857	872	808	851	832
Central	46	48	45	42	43
North-West	121	170	175	167	176
Pilbara	70	58	69	85	108
Kimberley	345	365	408	392	375
Whole State	51,033	53,435	55,705	58,097	60,282

(a) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions (see letterpress *Rural and Urban Populations* on pages 120-1) (b) Average over the whole year and inclusive of working proprietors.

Size Classification of Factories

In the following table factories are grouped according to the average number of persons employed during the period of operation, inclusive of working proprietors. Although there were 4,906 factories operating in 1965-66, only 90 or less than two per cent. had an average employment in excess of 100 persons, while 3,818 factories, or nearly 78 per cent. of the total, employed 10 persons or less.

In 1965-66 the six largest factories were responsible for almost 10 per cent. of total factory employment. By contrast, however, the 2,421 factories employing under four persons, while constituting over 49 per cent. of the total number of factories in the State, accounted for little more than seven per cent. of employment, including a considerable number of working proprietors.

FACTORIES CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED

Year	Factories Employing on the Average (a)							
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	Total
NUMBER OF FACTORIES								
1961-62	2,201	1,308	420	315	101	70	3	4,418
1962-63	2,235	1,305	440	328	111	70	3	4,492
1963-64	2,298	1,325	447	342	115	79	3	4,609
1964-65	2,308	1,394	460	368	124	75	5	4,734
1965-66	2,421	1,397	494	381	123	84	6	4,906
PERSONS EMPLOYED (a)								
1961-62	4,053	7,811	6,027	9,847	6,900	13,005	4,233	51,876
1962-63	4,130	7,873	6,333	10,317	7,653	13,619	4,399	54,324
1963-64	4,222	8,001	6,473	10,737	7,968	14,806	4,656	56,863
1964-65	4,173	8,405	6,607	11,485	8,796	13,958	5,785	59,209
1965-66	4,440	8,495	7,092	11,930	8,525	15,036	6,076	61,594

(a) Average over period of operation including working proprietors.

Factories operating during 1965-66 are classified in the following table according to the average number of persons employed over the period of operation in each class of industry, inclusive of working proprietors.

FACTORIES ACCORDING TO CLASS OF INDUSTRY AND PERSONS EMPLOYED, 1965-66

Class of Industry	Number of Persons Employed (a)							Total
	Less than 4	4 to 10	11 to 20	21 to 50	51 to 100	101 to 500	Over 500	
I Treatment of Non-metalliferous Mine and Quarry Products	105	432	231	398	286	531	....	1,983
II Bricks, Pottery, Glass, etc.	26	73	64	295	485	651	....	1,594
III Chemicals, Dyes, Explosives, Paints, Oils, Grease	42	188	157	320	540	885	812	2,944
IV Industrial Metals, Machines, Implements, Conveyances	2,522	3,820	3,137	4,680	3,020	6,647	4,226	28,052
V Precious Metals, Jewellery, Plate	110	96	46	....	....	....	....	252
VI Textiles and Textile Goods (Inclusive of Knitted Goods)	21	50	88	125	71	502	....	857
VII Skins and Leather (not Clothing or Footwear)	14	17	77	201	122	154	....	585
VIII Clothing (except Knitted)	302	582	400	679	912	316	....	3,191
IX Food, Drink and Tobacco	527	1,100	910	2,134	873	2,634	502	8,680
X Sawmilling, Woodworking and Basketware	320	992	800	1,427	1,292	965	....	5,796
XI Furniture of Wood, Bedding, etc.	153	378	341	431	146	132	....	1,581
XII Paper, Stationery, Printing, Bookbinding, etc.	73	336	478	876	481	765	536	3,545
XIII Rubber	59	97	76	83	113	130	....	558
XIV Musical Instruments	4	19	....	....	....	....	....	23
XV Miscellaneous Products	83	225	154	173	108	....	....	743
Total, Classes I to XV	4,361	8,405	6,959	11,822	8,449	14,312	6,076	60,384
XVI Heat, Light and Power	79	90	133	108	76	724	....	1,210
TOTAL, ALL CLASSES	4,440	8,495	7,092	11,930	8,525	15,036	6,076	61,594

(a) Average over period of operation including working proprietors.

Employment and Wages

For statistical purposes, secondary industry is divided into the 16 classes shown in the previous table. The largest volume of employment is provided in Class IV—Industrial Metals, Machines, Implements and Conveyances. In 1965-66 the industries which comprise this class employed an average over the whole year of 27,722 persons, including 3,088 in government workshops engaged in constructing and repairing railway rolling stock. The next largest employer of labour was the class Food, Drink and Tobacco with 8,163 persons, of whom 2,302 were engaged in meat and fish preserving and 1,289 in bakeries. In the class Sawmilling, Woodworking and Basketware, 3,535 persons were employed in sawmills and 1,682 in joinery works. Paper, Stationery, Printing, Bookbinding, etc., accounted for 3,371 persons, of whom 1,415 were employed in general printing and 932 in the printing of newspapers and periodicals. Persons employed in the manufacture of clothing numbered 3,063. In chemical fertilizer works, within the class Chemicals, Dyes, Explosives, Paints, Oils and Grease, 901 workers were employed.

The first table on page 325 gives detailed employment data in each class for June, 1966, and as a total for June in each year from 1962 to 1966. For the purpose of this table, figures for June have been chosen in order to show the incidence of junior employment, particulars of which are collected for that month only.

In 1945, towards the end of the war, the ratio of male to female employment was 3·3 : 1. Within the next five years it increased to 4·6 : 1 and by June, 1955, it had risen to 6·1 : 1. It then rose slowly to 6·4 : 1 in June, 1961, but has since declined, the ratio in June, 1966, being slightly over 5·5 : 1.

The proportion of male employees aged under 21 years to total male employment fell consistently between 1945 and 1952. Since then it has shown a gradual increase and in 1966 reached 17·3 per cent., or slightly more than in 1948. The trend in junior female employment followed a somewhat similar pattern apart from the abrupt increase which occurred in the proportion in 1946, immediately after the war. However, this was due to a considerable decrease in the number of adult female employees and not to an increase in the number of juniors. The proportion then fell substantially until 1955 but increased fairly consistently during the next ten years. In 1966, the last year under review, although an increase occurred in the number of junior females employed, the proportion fell because of a much greater rise in the number

of adult female employees. The changes which have occurred during the five years from 1962 to 1966 in the age grouping of workers in secondary industry are illustrated in the second table below where the numbers of males and females in each age group are expressed as a percentage of total factory employment for each sex.

FACTORY EMPLOYMENT FOR THE MONTH OF JUNE, 1966
(Excluding Working Proprietors)

Class of Industry	Number of Factories	Employees			Age Group					
		Male	Female	Total	Under 16 years		16 years and under 21		21 years and over	
					M.	F.	M.	F.	M.	F.
I Treatment of Non-metaliferous Mine and Quarry Products	156	1,805	122	1,927	22	....	159	30	1,624	92
II Bricks, Pottery, Glass, etc.	49	1,431	153	1,584	12	4	123	23	1,296	126
III Chemicals, Dyes, Explosives, Paints, Oils, Grease	87	2,648	252	2,900	8	6	193	96	2,447	150
IV Industrial Metals, Machines, Implements, Conveyances	2,449	24,839	1,640	26,479	544	41	4,476	545	19,819	1,054
V Precious Metals, Jewellery, Plate	93	140	25	165	5	....	33	16	102	9
VI Textiles and Textile Goods (inclusive of Knitted Goods)	34	406	466	872	16	29	55	165	335	272
VII Skins and Leather (not Clothing or Footwear)	24	406	118	524	16	8	50	43	340	67
VIII Clothing (except Knitted)	338	553	2,189	2,742	21	178	100	814	432	1,197
IX Food, Drink and Tobacco	623	5,630	2,142	7,772	89	55	620	629	4,921	1,458
X Sawmilling, Woodworking and Basketware	449	5,109	283	5,392	86	5	719	70	4,304	208
XI Furniture of Wood, Bedding, etc.	190	1,133	249	1,382	55	15	291	55	787	179
XII Paper, Stationery, Printing, Bookbinding, etc.	160	2,608	846	3,454	51	65	445	338	2,112	443
XIII Rubber	60	441	80	521	4	3	69	34	368	43
XIV Musical Instruments	6	21	....	21	1	....	4	....	16	....
XV Miscellaneous Products	100	461	246	707	9	21	103	87	349	138
Total, Classes I to XV	4,818	47,631	8,811	56,442	939	430	7,440	2,945	39,252	5,436
XVI Heat, Light and Power	88	1,193	15	1,208	5	....	68	6	1,120	9
TOTAL, ALL CLASSES—June, 1966	4,906	48,824	8,826	57,650	944	430	7,508	2,951	40,372	5,445
June, 1965	4,734	47,646	7,982	55,628	962	409	7,185	2,855	39,499	4,718
June, 1964	4,609	45,713	7,387	53,100	919	397	6,746	2,613	38,048	4,377
June, 1963	4,492	43,844	7,034	50,878	1,016	432	6,187	2,404	36,641	4,198
June, 1962	4,418	42,082	6,584	48,666	1,031	411	5,562	2,242	35,489	3,931

PERCENTAGE OF FACTORY EMPLOYEES IN CERTAIN AGE GROUPS

Month of June	Under 16 years	16 years and under 21	Total under 21 years	21 years and over	All Ages
MALES					
1962	2.45	13.22	15.67	84.33	100.00
1963	2.32	14.11	16.43	83.57	100.00
1964	2.01	14.76	16.77	83.23	100.00
1965	2.02	15.08	17.10	82.90	100.00
1966	1.93	15.38	17.31	82.69	100.00
FEMALES					
1962	6.24	34.05	40.29	59.71	100.00
1963	6.14	34.18	40.32	59.68	100.00
1964	5.38	35.37	40.75	59.25	100.00
1965	5.12	35.77	40.89	59.11	100.00
1966	4.87	35.44	38.31	61.69	100.00

The average amount of salary and wages paid to both male and female employees in secondary industry has increased each year since 1946-47. In the following table details are shown for each class of industry in each of the ten years from 1956-57 to 1965-66, together with comparative totals for Australia as a whole, excluding the Northern Territory and Australian Capital Territory.

AVERAGE ANNUAL AMOUNT OF SALARY AND WAGES PAID PER EMPLOYEE (a)

(\$)

Class of Industry	Year ended 30th June—									
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966

MALES										
I Treatment of Non-metalliferous Mine and Quarry Products	1,740	1,742	1,804	1,912	2,046	2,132	2,214	2,348	2,460	2,643
II Bricks, Pottery, Glass, etc.	1,744	1,852	1,826	1,910	1,988	2,074	2,152	2,290	2,458	2,612
III Chemicals, Dyes, Explosives, Paints, Oils, Grease	2,002	2,122	2,130	2,222	2,348	2,432	2,532	2,590	2,793	3,035
IV Industrial Metals, Machines, Implements, and Conveyances	1,670	1,712	1,752	1,836	1,948	1,982	2,040	2,140	2,298	2,503
V Precious Metals, Jewellery, Plate	1,790	1,780	1,738	1,882	2,004	2,124	2,066	2,042	2,143	2,306
VI Textiles and Textile Goods (inclusive of Knitted Goods)	1,862	1,908	1,986	2,100	2,052	2,020	2,130	2,206	2,286	2,553
VII Skins and Leather (not Clothing or Footwear)	1,828	1,824	1,900	2,080	2,104	2,152	2,100	2,130	2,331	2,544
VIII Clothing (except Knitted)	1,588	1,668	1,656	1,726	1,822	1,794	1,826	1,858	1,983	2,113
IX Food, Drink and Tobacco	1,778	1,874	1,904	2,000	2,104	2,176	2,242	2,296	2,395	2,577
X Sawmilling, Woodworking and Basketware	1,554	1,596	1,646	1,722	1,830	1,860	1,892	2,010	2,120	2,334
XI Furniture of Wood, Bedding, etc.	1,476	1,590	1,640	1,712	1,808	1,846	1,882	1,976	2,068	2,227
XII Paper, Stationery, Printing, Bookbinding, etc.	1,868	1,938	2,040	2,192	2,272	2,282	2,330	2,432	2,487	2,690
XIII Rubber	1,688	1,742	1,720	1,832	2,060	2,054	2,058	2,054	2,286	2,389
XIV Musical Instruments	1,638	1,472	1,574	1,550	1,896	1,638	1,652	1,722	1,935	2,233
XV Miscellaneous Products	1,530	1,600	1,628	1,698	1,814	1,832	1,912	2,040	2,146	2,294
XVI Heat, Light and Power	2,154	2,090	2,152	2,316	2,448	2,524	2,580	2,670	2,732	2,982
ALL CLASSES—										
Western Australia	1,714	1,770	1,810	1,902	2,010	2,052	2,110	2,200	2,337	2,538
Australia (b)	1,942	2,003	2,062	2,224	2,318	2,356	2,425	2,542	2,744	2,841

FEMALES										
VI Textiles and Textile Goods (inclusive of Knitted Goods)	964	982	1,054	1,074	1,140	1,158	1,154	1,114	1,169	1,261
VII Skins and Leather (not Clothing or Footwear)	992	1,014	976	988	978	1,058	1,108	1,078	1,109	1,200
VIII Clothing (except Knitted)	928	958	956	1,020	1,060	1,076	1,086	1,106	1,157	1,210
IX Food, Drink and Tobacco	914	918	964	1,034	1,110	1,126	1,184	1,236	1,291	1,377
XII Paper, Stationery, Printing, Bookbinding, etc.	874	956	994	1,074	1,096	1,154	1,156	1,118	1,195	1,226
XV Miscellaneous Products	840	768	854	934	1,052	1,002	1,054	1,002	1,069	1,205
All other Classes	980	998	1,012	1,038	1,144	1,170	1,162	1,202	1,281	1,338
ALL CLASSES—										
Western Australia	934	958	980	1,034	1,100	1,124	1,142	1,164	1,228	1,295
Australia (b)	1,116	1,156	1,183	1,267	1,303	1,342	1,369	1,406	1,496	1,564

TOTAL EMPLOYEES										
I Treatment of Non-metalliferous Mine and Quarry Products	1,716	1,716	1,776	1,878	2,004	2,090	2,172	2,292	2,406	2,571
II Bricks, Pottery, Glass, etc.	1,674	1,780	1,758	1,852	1,934	2,020	2,088	2,214	2,370	2,488
III Chemicals, Dyes, Explosives, Paints, Oils, Grease	1,918	2,028	2,036	2,118	2,258	2,334	2,428	2,482	2,663	2,888
IV Industrial Metals, Machines, Implements and Conveyances	1,636	1,678	1,716	1,794	1,906	1,938	1,992	2,090	2,242	2,434
V Precious Metals, Jewellery, Plate	1,734	1,716	1,692	1,846	1,952	2,016	1,960	1,926	2,042	2,150
VI Textiles and Textile Goods (inclusive of Knitted Goods)	1,460	1,498	1,582	1,646	1,626	1,622	1,674	1,692	1,711	1,856
VII Skins and Leather (not Clothing or Footwear)	1,674	1,684	1,734	1,866	1,892	1,958	1,932	1,942	2,083	2,243
VIII Clothing (except Knitted)	1,108	1,152	1,148	1,212	1,260	1,266	1,258	1,276	1,341	1,396
IX Food, Drink and Tobacco	1,586	1,660	1,700	1,792	1,880	1,940	1,994	2,036	2,111	2,250
X Sawmilling, Woodworking and Basketware	1,548	1,588	1,638	1,712	1,820	1,848	1,876	1,992	2,096	2,283
XI Furniture of Wood, Bedding, etc.	1,408	1,512	1,550	1,604	1,714	1,738	1,768	1,840	1,936	2,069
XII Paper, Stationery, Printing, Bookbinding, etc.	1,640	1,718	1,804	1,942	2,014	2,034	2,074	2,140	2,197	2,340
XIII Rubber	1,612	1,660	1,642	1,718	1,900	1,936	1,818	1,888	2,092	2,176
XIV Musical Instruments	1,594	1,486	1,578	1,550	1,896	1,638	1,652	1,722	1,935	2,233
XV Miscellaneous Products	1,318	1,344	1,368	1,436	1,556	1,560	1,646	1,676	1,751	1,905
XVI Heat, Light and Power	2,144	2,078	2,138	2,300	2,436	2,506	2,560	2,654	2,723	2,962
ALL CLASSES—										
Western Australia	1,604	1,658	1,696	1,780	1,884	1,926	1,976	2,056	2,180	2,351
Australia (b)	1,744	1,801	1,854	1,992	2,073	2,114	2,170	2,265	2,433	2,521

(a) Excludes working proprietors and amounts drawn by them.
Capital Territory.

(b) Excluding Northern Territory and Australian

Capital Employed

BOOK VALUES AND RENTALS OF LAND AND BUILDINGS, PLANT AND MACHINERY

Year	Land and Buildings				Plant and Machinery			
	Owned by User (a)	Rented		Total Value	Owned by User (a)	Rented		Total Value
		Annual Rental	Estimated Capital Value			Annual Rental	Estimated Capital Value	
	\$	\$	\$	\$	\$	\$	\$	\$
1956-57	55,636,008	1,026,884	15,403,260	71,039,268	125,329,230	121,514	1,215,140	126,544,370
1957-58	57,795,418	1,059,720	15,895,800	73,691,218	126,477,070	120,308	1,203,080	127,680,150
1958-59	64,583,922	1,119,702	16,795,530	81,379,452	130,672,330	152,324	1,523,240	132,195,570
1959-60	68,898,354	1,216,478	18,247,170	87,145,524	126,925,040	152,486	1,524,860	128,449,900
1960-61	71,846,482	1,291,584	19,373,760	91,220,242	126,370,704	224,102	2,241,020	128,611,724
1961-62	76,829,696	1,433,796	21,506,940	98,336,636	121,274,748	215,802	2,158,020	123,432,768
1962-63	80,399,984	1,497,094	22,456,410	102,856,394	130,035,794	259,922	2,599,220	132,635,014
1963-64	93,757,692	1,670,346	25,055,190	118,812,882	152,741,074	277,324	2,773,240	155,514,314
1964-65	102,945,990	1,919,546	28,793,190	131,739,180	160,165,672	336,042	3,360,420	163,526,092
1965-66	119,068,425	2,131,931	31,978,965	151,047,390	193,610,993	359,863	3,598,630	197,209,623

(a) As at end of year.

Motive Power and Fuel Consumed

RATED HORSEPOWER OF ENGINES (a) EMPLOYED TO DRIVE MACHINERY

Year	Steam		Internal Combustion			Motors driven by—		Total (b)
	Reciprocating	Turbine	Gas	Light Oil	Heavy Oil	Electricity Purchased	Electricity of own Generation	
1956-57	11,167	10,638	1,393	15,788	9,973	190,000	5,170	238,959
1957-58	11,318	11,002	1,302	13,362	9,707	196,028	4,931	242,719
1958-59	10,912	11,640	3,495	15,736	9,203	203,409	5,282	254,395
1959-60	10,070	11,665	3,505	19,292	6,145	210,983	5,558	261,660
1960-61	10,226	11,665	3,401	17,251	7,846	218,566	6,526	268,955
1961-62	9,430	11,615	3,395	17,269	7,271	227,206	6,235	276,186
1962-63	9,645	13,444	3,395	21,674	5,699	238,568	5,957	292,425
1963-64	9,734	13,559	3,395	23,088	4,205	273,444	7,470	327,425
1964-65	9,680	13,559	3,395	22,300	5,883	290,769	8,651	345,586
1965-66	8,230	13,599	(c) 32,843			317,216	7,941	371,888

(a) Excludes engines held in reserve or idle and engines used in electricity generating stations. (b) Excludes horsepower of motors driven by electricity of own generation. (c) Separate details not available.

POWER, FUEL AND LIGHT USED IN FACTORIES (a)

Year	Coal		Coke		Wood		Fuel Oil		Electricity	Other (Gas, Tar Fuel, etc.)
	tons	\$	tons	\$	tons	\$	'000 gal.	\$	\$	\$
1956-57	537,464	5,292,732	23,460	433,406	322,222	841,528	52,209	6,642,740	3,867,650	539,092
1957-58	562,456	5,070,308	20,101	392,858	312,532	831,860	53,579	6,994,292	3,982,804	678,560
1958-59	581,979	5,074,142	18,464	425,518	281,841	756,454	64,861	7,066,000	4,105,862	768,338
1959-60	606,566	5,136,886	17,920	444,036	271,083	761,936	70,738	7,183,288	4,487,418	1,100,742
1960-61	493,993	4,211,276	17,975	445,574	306,982	880,550	97,195	8,824,074	4,576,816	1,152,764
1961-62	621,322	4,704,576	18,319	444,020	249,847	766,762	92,953	7,848,458	4,579,908	1,161,634
1962-63	673,726	5,178,534	17,463	438,168	238,927	768,354	99,177	7,957,038	5,009,674	1,116,256
1963-64	670,025	5,172,560	13,390	358,876	226,337	744,748	118,139	9,059,414	5,658,426	1,452,132
1964-65	732,424	5,709,288	12,394	349,326	211,554	681,938	132,347	9,701,472	6,352,482	1,826,012
1965-66	827,399	6,041,156	12,247	393,454	190,264	599,982	133,929	9,732,284	6,861,210	2,096,130

(a) Excludes coal, coke and fuel oil used in gas works as materials in gas making, electricity generated and used in generating stations, and gas produced and used in own works.

Electricity is the most economical and convenient source of power in the principal manufacturing areas of the State and most factories have plants designed for its use. This position has become more pronounced as the installation of new major generating stations has extended the area in which adequate

electric power is available. Electric motors are consequently the main source of motive power in factories. Oil engines are next in order of total horsepower produced and are still used in those country districts which are not yet supplied with power from the central generating stations.

The tables on page 327 show the various types of motive power used during the ten years from 1956-57 to 1965-66 and the quantities and cost of fuel used. The fuels consumed are used for such heating purposes as brick and pottery firing, lime burning and the heating of bakers' ovens, as well as for steam generation and the operation of engines.

Value of Output and Net Production

The basis on which each of these values is computed is defined in the section *Explanatory Notes and Definitions* on page 319. The annual values of output and net production and of net production per person employed are shown in the following table for the years 1956-57 to 1965-66.

VALUE OF OUTPUT AND NET PRODUCTION

Year	Value of Output	Net Production		Year	Value of Output	Net Production	
		Total	Average per Person Employed(a)			Total	Average per Person Employed(a)
1956-57	\$ 375,272,008	\$ 146,883,898	\$ 3,014	1961-62	\$ 486,987,770	\$ 196,082,336	\$ 3,842
1957-58	392,525,266	150,624,500	3,108	1962-63	517,899,020	216,422,104	4,050
1958-59	392,405,396	157,524,318	3,254	1963-64	555,057,634	230,511,312	4,138
1959-60	431,164,952	172,746,624	3,480	1964-65	616,421,684	260,637,078	4,486
1960-61	481,140,030	193,261,602	3,814	1965-66	678,750,799	288,802,710	4,791

(a) Based on average employment (including working proprietors) over the whole year.

In the following table net production per employee is shown for each class of industry for the years 1961-62 to 1965-66.

NET PRODUCTION PER PERSON EMPLOYED (a)

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
I Treatment of Non-metalliferous Mine and Quarry Products	\$ 4,876	\$ 5,184	\$ 5,728	\$ 6,145	\$ 6,530
II Bricks, Pottery, Glass, etc.	3,710	3,880	4,264	4,581	4,877
III Chemicals, Dyes, Explosives, Paints, Oils, Grease	11,140	12,324	11,998	12,659	13,313
IV Industrial Metals, Machines, Implements and Conveyances	3,102	3,296	3,388	3,775	4,073
V Precious Metals, Jewellery, Plate	2,946	3,046	3,122	3,234	3,388
VI Textiles and Textile Goods (inclusive of Knitted Goods)	2,834	3,074	2,788	2,708	3,576
VII Skins and Leather (not Clothing or Footwear)	3,146	3,306	3,158	3,489	3,477
VIII Clothing (except Knitted)	1,884	1,888	1,930	2,023	2,209
IX Food, Drink and Tobacco	4,178	4,332	4,456	4,646	5,137
X Sawmilling, Woodworking and Basketware	3,274	3,246	3,418	3,793	4,055
XI Furniture of Wood, Bedding, etc.	2,844	2,908	3,054	3,275	3,621
XII Paper, Stationery, Printing, Bookbinding, etc.	3,844	4,102	4,302	4,488	4,397
XIII Rubber	4,956	4,456	4,070	3,908	4,310
XIV Musical Instruments	2,240	2,190	2,262	2,577	2,769
XV Miscellaneous Products	2,624	2,890	2,854	3,143	3,401
Classes I to XV	3,742	3,940	4,030	4,361	4,660
XVI Heat, Light and Power	7,940	8,774	9,180	10,652	11,167
ALL CLASSES	3,842	4,050	4,138	4,486	4,791

(a) Based on average employment (including working proprietors) over the whole year.

Summary According to Class of Industry

The following table gives number of factories, employment and summarized financial data for 1965-66 for each of the 16 classes of secondary industry.

PRINCIPAL ITEMS ACCORDING TO CLASS OF INDUSTRY, 1965-66

Class of Industry	Number of Factories	Book Values of—		Persons Employed (including Working Proprietors) (a)		Salaries and Wages (excluding Amounts drawn by Working Proprietors)	
		Land and Buildings	Plant and Machinery	Males	Females	Males	Females
		\$	\$			\$	\$
I Treatment of Non-metalliferous Mine and Quarry Products	156	7,501,341	8,794,026	1,829	120	4,675,879	169,952
II Bricks, Pottery, Glass, etc.	49	3,266,040	3,339,018	1,440	152	3,719,578	198,963
III Chemicals, Dyes, Explosives, Paints, Oils, Grease	87	14,399,953	42,227,074	2,668	255	8,051,667	345,873
IV Industrial Metals, Machines, Implements and Conveyances	2,449	57,311,409	49,814,412	26,099	1,623	61,382,860	2,153,432
V Precious Metals, Jewellery, Plate	93	662,986	166,067	224	28	334,346	33,269
VI Textiles and Textile Goods (inclusive of Knitted Goods)	34	1,257,537	1,140,925	399	458	988,203	572,315
VII Skins and Leather (not Clothing or Footwear)	24	919,641	461,090	457	128	1,134,499	151,228
VIII Clothing (except Knitted)	338	4,077,626	1,486,404	825	2,238	1,193,797	2,632,005
IX Food, Drink and Tobacco	623	27,442,962	20,666,637	6,006	2,157	14,538,966	2,908,384
X Sawmilling, Woodworking and Basketware	449	5,605,971	5,561,658	5,477	255	12,184,413	307,362
XI Furniture of Wood, Bedding, etc.	190	2,768,427	729,460	1,297	255	2,499,061	329,775
XII Paper, Stationery, Printing, Bookbinding, etc.	160	9,293,057	13,171,561	2,574	797	6,663,609	954,965
XIII Rubber	60	1,753,343	1,840,476	474	83	1,108,414	79,877
XIV Musical Instruments	6	80,954	6,980	23	....	44,653	....
XV Miscellaneous Products	100	1,728,488	976,873	479	253	995,542	290,392
Total, Classes I to XV	4,818	138,069,735	150,382,661	50,271	8,802	119,515,487	11,127,792
XVI Heat, Light and Power	88	12,977,655	46,826,962	1,193	16	3,506,599	21,131
TOTAL, ALL CLASSES	4,906	151,047,390	197,209,623	51,464	8,818	123,022,086	11,148,923

Class of Industry	Value of Output	Cost of—				Net Production (b)
		Power, Fuel and Light (including Water and Lubricants)	Repairs to Buildings, Plant and Machinery	Materials Used (including Containers)	Total	
	\$	\$	\$	\$	\$	\$
I Treatment of Non-metalliferous Mine and Quarry Products	26,185,470	1,521,804	622,968	11,313,373	13,458,145	12,727,325
II Bricks, Pottery, Glass, etc.	11,488,067	1,417,452	582,003	2,042,905	4,042,360	7,445,707
III Chemicals, Dyes, Explosives, Paints, Oils, Grease	127,637,830	5,249,170	2,681,657	80,794,351	88,725,178	38,912,652
IV Industrial Metals, Machines, Implements and Conveyances	232,531,730	5,043,334	3,485,370	111,081,040	119,609,744	112,921,986
V Precious Metals, Jewellery, Plate	1,154,895	40,713	20,874	239,634	301,221	853,674
VI Textiles and Textile Goods (inclusive of Knitted Goods)	9,115,407	116,714	177,904	5,755,784	6,050,402	3,065,005
VII Skins and Leather (not Clothing or Footwear)	4,285,384	153,724	102,638	1,994,989	2,251,351	2,034,033
VIII Clothing (except Knitted)	11,299,744	179,736	121,158	4,232,395	4,533,289	6,766,455
IX Food, Drink and Tobacco	132,750,363	2,634,505	1,796,147	86,383,736	90,814,388	41,935,975
X Sawmilling, Woodworking and Basketware	46,757,457	769,461	1,272,515	21,470,431	23,512,407	23,245,050
XI Furniture of Wood, Bedding, etc.	12,433,756	66,813	101,454	6,645,937	6,814,204	5,619,552
XII Paper, Stationery, Printing, Bookbinding, etc.	27,536,989	316,482	317,524	12,082,127	12,716,133	14,820,856
XIII Rubber	5,905,732	158,110	124,210	3,222,830	3,505,150	2,400,582
XIV Musical Instruments	76,769	854	113	12,110	13,077	63,692
XV Miscellaneous Products	4,559,138	75,303	74,125	1,920,213	2,069,641	2,489,497
Total, Classes I to XV	653,718,731	17,744,175	11,480,660	349,191,855	378,416,690	275,302,041
XVI Heat, Light and Power	25,032,068	9,569,766	1,022,804	938,829	11,531,399	13,500,669
TOTAL, ALL CLASSES	678,750,799	27,313,941	12,503,464	350,130,684	389,948,089	288,802,710

(a) Average over the whole year.

(b) See Explanatory Notes and Definitions on page 319.

Government Factories

The activities of factories operated by the Commonwealth and State Governments and by government instrumentalities, which are included in all tables appearing elsewhere in this Part are shown in summary form in the following table. Factories operated by local government authorities are not regarded as "Government" factories for the purpose of this table and are therefore excluded. They are, however, included in all other tables.

The figures shown relate to work done in the repair and maintenance of government plant and equipment; other factory activities, associated with meat treatment, charcoal-iron production, printing and sawmilling; and the operations of the principal electricity and gas undertakings, which are conducted by the State Government. The activities of the trading concern formerly known as State Building Supplies, which produced bricks, sawn timber and joinery, and the Western Australian Government Railways sawmill at Banksiadale are included in the table for the years 1956-57 to 1960-61. These undertakings were sold to private interests on the 30th June, 1961.

SUMMARY OF GOVERNMENT FACTORY ACTIVITY

Year	Number of Factories	Persons Employed (Average over whole year)			Salaries and Wages Paid		
		Males	Females	Total	Males	Females	Total
1956-57	118	8,124	165	8,289	\$ 13,663,174	\$ 157,914	\$ 13,821,088
1957-58	119	8,298	170	8,468	14,183,710	168,850	14,352,560
1958-59	141	8,674	176	8,850	15,407,338	175,910	15,583,248
1959-60	142	8,378	178	8,556	15,769,740	184,090	15,953,830
1960-61	151	8,228	172	8,400	16,329,996	189,998	16,519,994
1961-62	129	7,167	177	7,344	14,635,678	218,046	14,853,724
1962-63	129	7,299	172	7,471	15,129,544	207,630	15,337,174
1963-64	133	7,209	183	7,482	15,848,368	222,202	16,070,570
1964-65	185	7,351	198	7,549	16,630,004	252,048	16,882,052
1965-66	134	7,332	222	7,554	17,981,341	271,860	18,253,201

Year	Value of Output	Cost of—			Net Production (b)	Book Values of—	
		Power, Fuel, Light, Water and Lubricants Used	Materials Used and Repairs to Buildings and Plant, etc. (a)	Total		Land and Buildings	Plant and Machinery
1956-57	\$ 38,720,868	\$ 5,995,746	\$ 12,016,722	\$ 18,012,468	\$ 20,708,400	\$ 11,729,040	\$ 34,378,908
1957-58	39,024,160	5,753,872	11,686,358	17,440,230	21,583,930	11,661,998	38,742,132
1958-59	42,199,728	6,056,876	12,753,718	18,810,594	23,389,134	15,283,044	38,725,098
1959-60	45,017,450	6,522,824	13,465,720	19,988,544	25,028,906	16,364,298	38,641,230
1960-61	46,390,310	6,871,076	13,434,260	20,305,336	26,084,374	16,910,248	39,108,044
1961-62	42,194,248	6,836,910	12,130,506	18,467,416	23,726,832	16,789,576	35,770,680
1962-63	44,145,430	6,703,196	12,401,206	19,104,402	25,041,028	16,306,550	34,160,250
1963-64	45,253,254	7,307,212	11,913,610	19,280,822	25,972,432	15,908,304	32,866,612
1964-65	48,522,778	8,046,354	12,188,520	20,234,874	28,287,904	15,402,890	30,185,908
1965-66	52,243,182	8,802,151	13,318,936	22,121,087	30,122,095	20,272,688	44,375,864

(a) Including non-returnable containers.

(b) See *Explanatory Notes and Definitions* on page 319.

Articles Produced

The following table lists some of the principal products of secondary industry in the State and shows the quantities produced in each of the five years from 1961-62 to 1965-66. As the list does not include all items manufactured, it should not be regarded as a complete assessment of factory development as a whole. However, as production is expressed in terms of physical units, individual items may be compared over the years reviewed without considering price changes.

Items in which production increased during these years include aerated waters which rose by 57 per cent.; bacon and ham, 23 per cent.; boots, shoes and sandals, 33 per cent.; cordials and syrups, 45 per cent.; electricity, 48 per cent.; lime (quicklime), 60 per cent.; soft-filled mattresses, 117 per cent.; ready-mixed paints and enamels (excluding water paints), 43 per cent.; pickles and chutneys, 62 per cent.; fabricated constructional steel, 118 per cent.; sulphuric acid, 70 per cent.; superphosphate, 59 per cent.; raw and refined tallow (including dripping), 36 per cent.; men's and youths' sports trousers, 31 per cent.; and tyre retreads, 27 per cent. However, there have been many fluctuations over the

period reviewed and there are numerous examples of declining production and of peak production occurring in intermediate years. Consequently a more accurate assessment of trends will be obtained by considering each of the five years shown rather than by comparing two years only.

PRODUCTION OF SELECTED COMMODITIES (a)

Commodity (b)	Unit	1961-62	1962-63	1963-64	1964-65	1965-66
Aerated Waters	gal.	5,607,775	5,690,530	6,462,323	6,917,932	8,796,448
Bacon and Ham	lb.	7,839,387	8,594,473	8,468,073	8,921,238	9,604,695
Bath Heaters—Solid Fuel	number	5,076	5,018	4,717	4,621	4,498
Batteries—Automotive (c)—6 Volt	number	†	9,774	†	8,086	8,456
12 Volt	number	†	8,607	†	21,486	23,041
Boots, Shoes and Sandals (d)	pair	*640,010	*729,999	*748,992	*850,548	847,907
Bran	ton (2,000lb.)	28,005	26,474	27,502	25,452	21,524
Bread (2 lb. loaf) (e)	'000	55,147	56,522	58,172	57,731	57,333
Bricks (f)	'000	119,868	131,176	156,792	146,057	140,611
Butter	'000 lb.	16,762	15,596	15,491	17,387	18,133
Cardigans, Pullovers (all types)	dozen	10,091	9,935	11,323	†	†
Cases—Fruit, Vegetable, etc. (Includ- ing Shooks)	number	1,984,974	2,031,319	1,986,555	1,795,209	1,946,971
Cheese	lb.	3,065,856	3,223,011	3,372,811	4,051,243	2,711,774
Coats—Sports—Men's and Youths'	number	1,195	827	1,067	877	792
Coke (Including Coke Breeze)	ton	20,885	19,130	13,928	12,822	14,036
Cordials and Syrups	gal.	295,595	277,269	281,730	337,629	428,007
Electricity (g)	'000 kWh.	1,110,407	1,219,492	1,318,199	1,474,277	1,639,114
Fibrous Plaster Sheets	sq. yd.	1,446,494	1,578,030	1,641,742	1,596,687	1,715,597
Flour—Plain (h)	ton (2,000lb.)	141,103	135,911	143,296	134,378	113,665
Self-raising	cwt.	79,553	78,952	82,548	74,206	70,515
Gas (Town) (i)	'000 cub. ft.	1,403,223	1,400,705	1,435,478	1,458,064	1,483,455
Hot Water Systems—Domestic (j)— Electric	number	2,806	3,565	4,188	4,824	4,135
Other	number	2,541	3,954	5,881	7,507	9,016
Ice	ton	10,629	9,444	8,604	8,424	8,225
Iron—Pig-Iron	ton	49,786	45,095	46,769	47,355	45,864
Jelly Crystals	lb.	996,516	939,231	867,317	992,212	972,828
Lime (Quicklime)	ton	28,653	30,387	30,024	41,280	†
Macaroni, Spaghetti, Vermicelli	cwt.	20,524	18,252	17,289	15,437	15,654
Mattresses—Soft-filled (k)	number	30,756	37,249	47,855	59,491	66,756
Paints and Enamels (l)	gal.	410,289	458,212	521,590	546,549	585,137
Pickles and Chutneys	pint	320,593	297,652	271,486	438,066	518,540
Plaster of Paris	ton	17,933	20,469	20,929	22,263	20,994
Pollard	ton (2,000lb.)	21,417	22,007	21,732	18,975	16,210
Pyjamas—Men's and Boys' (m)	dozen	10,106	11,029	13,063	12,555	10,582
Sauce (all types)	pint	826,127	657,457	488,120	483,594	316,818
Shirts (all types)—Men's and Boys'	dozen	56,084	55,515	58,952	66,480	64,905
Sleepers, Railway—Sawn	'000 sup. ft.	51,704	46,606	46,489	53,189	58,817
Slippers	pair	119,521	122,106	143,471	109,818	140,034
Soap and Soap Substitutes (n)	cwt.	58,072	59,713	65,488	54,231	65,413
Steel, Constructional—Fabricated	ton	23,996	32,380	34,348	39,995	52,357
Stock and Poultry Foods— Meat and Bone Meal	cwt.	220,296	253,148	218,832	191,662	246,040
Suits—Men's and Youths'— 2 and 3 piece	number	13,020	10,886	10,570	10,869	9,932
Sulphuric Acid	ton	237,860	262,538	306,889	326,103	404,848
Superphosphate	ton	672,256	751,574	863,628	867,205	1,070,455
Tallow (Raw and Refined) (o)	cwt.	171,989	217,702	223,081	242,347	234,099
Tiles (Acoustic)—Plaster	sq. yd.	28,143	21,846	30,140	32,052	24,595
Timber (from local logs)—Sawn (p)	'000 sup. ft.	192,789	185,809	195,724	207,304	211,638
Trousers—Men's and Youths'—Sports Work	number	100,757	106,313	126,243	150,910	131,860
„	„	140,069	124,445	130,022	124,454	134,924
Tyres (Retreaded and Recapped)	„	177,173	195,085	193,872	218,146	225,168
Vinegar (including bulk)	gal.	151,819	132,973	152,920	158,457	144,597
Wire, Barbed	ton	1,289	1,533	1,615	1,559	1,615
Wool—Scoured	'000 lb.	31,878	29,348	27,478	26,543	26,690

(a) Some major items of production are not available for publication. (b) Includes quantities produced and used in own works. (c) Includes rebuilt batteries. (d) Excludes sandshoes, rubber thongs and other footwear wholly of rubber. (e) Includes loaves other than 2lb. size, and bread rolls, etc., in terms of 2lb. loaf equivalent. (f) For years up to and including 1963-64, figures include all types of standard size bricks. For later years figures represent clay bricks only (all sizes). (g) Total generated—see page 340 for electricity distributed. (h) Includes quantities used for making self-raising flour. (i) Total made—see page 340 for gas distributed. (j) Excludes solar absorber units. (k) Includes rubber, plastic foam and sponge. (l) Ready-mixed, excluding water paints. (m) Woven fabric. (n) Includes detergents. (o) Includes dripping. (p) Includes railway sleepers (see separate item above) and plywood veneers in terms of super. feet. † Not available for publication. * Revised.

INDIVIDUAL INDUSTRIES

The tables on pages 332-8 deal with factory activity in selected industries for each of the ten years from 1956-57 to 1965-66. When considering employment, salaries and wages, value of output and net production, reference should be made to the section *Explanatory Notes and Definitions* on page 319.

It has been possible to include particulars of only a limited number of items of materials used and commodities produced (see reference to *Confidential Information* on page 319).

INDIVIDUAL INDUSTRIES LIME, PLASTER AND PLASTER SHEETS

Year	Num- ber of Fac- to- ries	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Em- ployed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Containers and Materials Used	Value of Output	Net Pro- duction	Materials Used			Production (d)	
										Sisal Hemp and Substitutes	Limestone	Fibrous Plaster Sheets	Lime (Quicklime) (e)	
		\$	rated h.p.		\$	\$	\$	\$	\$	tons	\$	sq. yds.	\$	tons
1956-57	54	946,328	1,326	482	736,862	166,874	1,397,424	2,890,478	1,326,180	832	148,904	56,436	1,491,998	25,759
1957-58	51	1,003,728	1,759	478	746,150	185,868	1,366,954	2,969,564	1,416,742	737	137,640	53,139	1,505,789	27,900
1958-59	54	1,142,610	2,231	453	761,442	177,698	1,446,378	3,194,930	1,446,378	691	128,450	43,701	1,349,280	22,983
1959-60	57	1,365,304	2,236	483	821,164	160,302	1,545,452	3,252,164	1,546,410	710	158,626	46,836	1,422,618	23,280
1960-61	58	1,506,898	2,859	457	830,932	181,852	1,754,196	3,532,928	1,596,880	789	187,782	62,122	1,494,263	28,045
1961-62	58	1,591,050	3,114	456	869,030	199,312	1,763,928	3,687,330	1,724,090	750	176,954	64,053	1,446,494	28,653
1962-63	57	1,532,936	3,392	478	915,602	237,362	1,907,050	4,032,242	1,887,830	805	215,478	66,573	1,578,030	30,387
1963-64	53	1,690,084	3,851	460	946,842	247,660	2,054,546	4,291,584	1,989,378	826	264,836	60,177	1,641,742	30,024
1964-65	51	1,775,360	3,895	457	964,484	267,982	2,080,868	4,481,738	2,133,088	839	257,784	81,886	1,566,687	41,280
1965-66	50	1,850,935	4,320	458	1,005,270	285,712	2,425,729	4,969,982	2,258,521	866	245,414	†	1,715,597	†
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(a) Book values at end of year.
(b) Excludes motors driven by electricity of own generation.
(c) Includes water and lubricants.
(d) Includes quantities produced in factories classified to other industries.
(e) Excludes quantities produced and used in own works.
† Not available for publication.

CEMENT AND CEMENT GOODS (INCLUDING ASBESTOS CEMENT SHEETS)

Year	Num- ber of Fac- to- ries	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Em- ployed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Containers and Materials Used	Value of Output	Net Pro- duction	Materials Used		Cement Produced (e)			
										Reinforcing Steel	Cement (d)	*000	\$		
1956-57	48	5,308,808	13,148	898	1,548,256	1,026,880	2,977,492	7,829,094	3,824,722	1,613	160,818	29,686	706,234	5,716	431,874
1957-58	48	5,138,980	13,099	877	1,494,176	897,754	3,076,510	8,021,548	4,077,234	1,233	124,772	31,881	772,660	6,792	446,080
1958-59	53	5,306,790	13,009	899	1,565,534	811,632	3,394,296	8,456,592	4,250,674	1,239	133,940	42,174	973,134	5,740	391,350
1959-60	55	5,414,550	13,348	929	1,735,382	759,538	3,610,518	8,722,154	4,352,098	1,533	159,408	47,257	1,119,950	5,599	347,588
1960-61	64	6,528,564	14,242	957	1,910,534	767,798	4,238,200	10,118,144	5,112,146	1,826	189,336	58,944	1,408,952	4,086	310,902
1961-62	63	6,933,408	14,641	1,012	2,107,288	776,754	4,454,874	10,905,828	5,674,200	2,377	245,698	63,619	1,474,572	3,987	328,208
1962-63	75	6,877,480	15,638	1,099	2,424,252	966,836	5,734,346	13,279,216	6,578,034	2,882	311,606	86,624	2,050,264	†	†
1963-64	76	7,101,090	16,509	1,113	2,568,494	998,792	6,128,996	14,429,454	7,390,666	2,703	297,548	89,944	2,244,168	†	†
1964-65	76	11,777,638	21,689	1,246	3,035,750	1,157,640	7,261,960	16,829,356	8,409,756	3,023	312,868	114,979	2,788,822	†	†
1965-66	84	13,354,484	22,163	1,256	3,275,777	1,163,465	8,617,914	19,068,102	9,286,723	3,194	339,980	135,157	3,205,433	†	†

(a) Book values at end of year.
(b) Excludes motors driven by electricity of own generation.
(c) Includes water and lubricants.
(d) Excludes quantities used in pro-
duction of asbestos cement sheets.
(e) Includes quantities produced in factories classified to other industries.
† Not available for publication.

BRICKS, TILES, EARTHENWARE, PORCELAIN, ETC. (a)

Year	Number of Factories	Land, Buildings, Plant and Machinery (b)	Engines and Electric Motors Used (c)	Persons Employed	Salaries and Wages	Power, Fuel and Light Used (d)	Repairs, Containers and Materials Used	Value of Output	Net Production	Bricks (Clay) Produced (e)
		\$	rated h.p.		\$	\$	\$	\$	\$	No.
1956-57	34	4,024,976	9,200	1,017	1,698,046	776,792	710,228	4,382,918	2,895,898	90,542,000
1957-58	32	3,946,970	9,637	1,092	1,942,746	876,844	800,052	5,036,752	3,359,856	101,070,000
1958-59	31	3,768,864	9,551	1,084	1,811,338	792,134	739,440	4,713,242	3,181,668	93,194,000
1959-60	30	3,484,550	9,637	1,013	1,857,012	787,130	736,036	5,018,972	3,495,806	100,462,000
1960-61	30	3,524,770	9,714	1,069	2,075,500	899,836	856,626	5,498,404	3,741,942	105,993,000
1961-62	31	2,794,142	10,826	1,028	2,122,938	836,812	860,098	5,537,988	3,841,078	†
1962-63	28	3,586,258	11,805	1,068	2,200,430	913,348	970,900	6,116,996	4,232,748	†
1963-64	26	4,464,798	12,349	1,139	2,519,735	1,137,066	1,092,698	7,064,832	4,835,068	†
1964-65	26	4,525,030	13,287	1,110	2,663,804	1,232,638	1,250,728	7,707,748	5,224,382	146,057,000
1965-66	25	4,926,310	13,495	1,078	2,727,190	1,201,748	1,382,575	7,987,491	5,402,868	140,611,000

(a) Excludes cement bricks and cement roofing tiles; see preceding table.

(b) Book values at end of year. (c) Excludes motors driven by electricity of own generation.

(d) Includes water and lubricants. (e) Clay bricks of standard size only for years prior to 1964-65. For later years, figures represent clay bricks of all sizes. † Not available for publication.

CHEMICAL FERTILIZERS

Year	Number of Factories	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Employed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Containers and Materials Used	Value of Output	Net Production	Materials Used		Superphosphate Produced	
										Phosphate Rock	Sulphur	\$	tons
		\$	rated h.p.		\$	\$	\$	\$	\$	tons	tons	\$	tons
1956-57	6	7,723,908	8,180	942	1,678,456	390,122	10,856,422	15,203,088	4,047,544	307,102	4,603,166	1,405,614	482,049
1957-58	6	7,516,404	8,050	1,004	2,016,556	350,384	12,826,100	17,578,108	4,321,624	368,521	6,020,066	1,963,024	578,781
1958-59	6	7,603,072	8,819	875	1,911,556	304,060	10,788,226	15,035,252	3,943,026	335,237	4,769,164	1,514,034	529,799
1959-60	6	7,298,940	9,334	827	1,696,556	338,882	11,985,692	17,288,104	4,963,530	398,656	5,681,712	1,760,942	629,040
1960-61	6	7,400,226	9,932	984	2,091,166	325,356	12,707,050	18,268,742	5,226,336	413,544	5,682,380	1,714,904	660,501
1961-62	7	7,735,398	9,676	986	2,182,810	307,322	12,970,394	18,406,996	5,189,280	423,001	5,805,808	1,803,970	672,256
1962-63	8	8,569,364	11,412	1,008	2,214,546	327,078	14,002,776	20,173,624	5,843,770	470,853	6,707,034	1,982,270	751,574
1963-64	8	11,397,086	11,512	977	2,258,700	364,218	16,336,390	21,513,696	5,814,088	543,189	7,714,554	2,029,160	863,628
1964-65	8	14,022,720	12,207	958	2,458,258	367,162	17,023,698	23,076,098	5,684,988	547,099	8,472,230	2,129,076	867,205
1965-66	8	13,407,596	13,475	901	2,620,944	397,515	21,827,476	29,272,117	7,340,826	680,486	10,440,581	3,463,829	1,070,455

(a) Book values at end of year.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water and lubricants.

* Revised.

ENGINEERING, METAL WORKING, CONSTRUCTION AND REPAIR OF VEHICLES AND MACHINES

Year	Number of Factories	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Employed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Containers and Materials Used	Value of Output	Net Production
1956-57	...	1,504	65,267	19,490	30,060,372	2,016,562	41,104,990	89,672,478	46,550,986
1957-58	...	1,609	67,817	19,649	30,900,752	2,092,658	44,860,482	95,701,672	48,748,532
1958-59	...	1,754	69,505	19,880	31,212,018	2,204,370	44,585,162	96,665,094	49,875,562
1959-60	...	1,869	73,456	20,494	34,409,424	2,771,738	54,852,354	113,034,986	56,410,894
1960-61	...	1,924	75,887	21,124	37,859,036	2,933,750	60,998,066	126,389,444	62,457,628
1961-62	...	2,006	77,802	21,528	39,236,448	2,914,844	67,654,164	137,366,292	66,797,284
1962-63	...	2,080	80,185	23,249	43,613,956	3,072,932	77,933,202	157,611,656	76,605,472
1963-64	...	2,160	99,737	24,924	49,140,626	3,764,446	85,676,644	173,906,418	84,465,928
1964-65	...	2,305	104,111	26,403	55,826,532	4,461,360	100,246,860	204,381,018	99,672,798
1965-66	...	2,449	107,044	27,722	63,536,292	5,043,334	114,566,410	232,531,730	112,921,986

(a) Book values at end of year.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water and lubricants.

BOOTS AND SHOES

Year	Num-ber of Fac-tories	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Em-ployed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Con-tainers and Materials Used	Leather Used		Production (d)	
								Purchased by Weight	Purchased by Area	Boots, Shoes and Sandals	Slippers
								lb.	\$	sq. ft.	
1956-57	11	597,624	600	592	766,760	13,978	878,574	817,516	236,622	1,273,551	pairs \$
1957-58	11	532,122	563	503	670,358	13,064	805,584	692,465	212,968	1,190,615	378,138
1958-59	12	615,178	575	512	665,592	13,172	897,492	755,213	241,558	1,294,116	490,278
1959-60	11	681,984	499	523	741,696	12,968	1,059,114	739,649	268,604	1,245,599	371,704
1960-61	12	819,232	715	457	664,360	14,358	982,980	658,985	237,582	1,240,112	283,762
1961-62	13	663,980	668	502	704,842	16,538	1,127,840	543,931	196,926	1,580,589	183,040
1962-63	13	764,683	650	440	570,874	13,608	1,007,572	459,472	159,332	1,315,318	251,618
1963-64	12	+	+	+	+	+	+	501,282	169,974	1,342,027	378,138
1964-65	14	+	+	+	+	+	+	461,010	163,266	1,414,492	449,278
1965-66	14	+	+	+	+	+	+	467,643	165,290	1,521,450	371,704

(a) Book values at end of year, in factories classified to other industries.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water and lubricants.

(d) Includes quantities produced

* Revised.

(d) Includes quantities produced

FLOUR MILLING

Year	Num-ber of Fac-tories	Land, Buildings, and Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Em-ployed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Con-tainers and Materials Used	Value of Output		Net Pro-duction	Wheat Ground		Production (d)				Pollard
								\$	\$		bushels	\$	tons (f)	\$	tons (f)	\$		tons (f)	\$
1956-57	20	2,820,660	5,407	504	844,304	229,454	12,559,829	14,307,196	1,517,910	8,318,043	11,356,044	169,535	10,473,910	39,178	1,534,682	29,274	1,148,010
1957-58	19	2,658,866	5,537	455	789,234	207,882	11,817,766	13,120,574	1,594,926	7,325,484	10,317,924	148,148	9,488,284	34,073	1,362,390	26,061	1,040,824
1958-59	20	2,611,456	5,280	428	771,578	201,452	11,071,570	12,819,802	1,546,430	7,195,484	10,205,356	139,702	9,098,630	32,203	1,255,988	24,320	940,164
1959-60	18	2,558,764	5,151	396	810,890	218,632	12,025,028	13,815,804	1,572,146	7,577,149	11,113,254	150,774	9,933,192	33,436	1,313,974	25,539	1,006,614
1960-61	18	2,341,680	5,149	433	842,490	217,618	12,589,390	14,506,594	1,699,586	7,612,425	11,406,034	168,237	11,698,712	34,055	1,339,394	25,838	1,032,528
1961-62	16	2,279,238	5,049	379	753,246	182,084	10,662,338	12,447,098	1,602,676	6,295,090	9,703,042	141,103	10,091,428	28,005	1,093,594	21,417	864,662
1962-63	15	2,044,238	4,596	345	736,474	179,500	10,444,892	12,154,124	1,559,732	6,101,377	9,523,628	135,911	9,887,150	26,474	1,023,782	22,007	891,096
1963-64	12	1,884,588	4,758	354	736,492	174,878	10,172,290	11,936,198	1,589,040	6,358,589	9,207,176	143,296	9,786,750	27,502	979,960	21,732	807,418
1964-65	13	1,810,488	4,401	332	812,322	163,084	9,633,108	11,520,638	1,724,446	5,931,983	8,633,620	134,378	9,487,225	25,452	910,496	18,975	709,238
1965-66	13	1,511,173	4,122	291	739,355	142,667	8,472,107	10,346,538	1,731,764	5,056,415	7,551,561	113,665	8,483,827	21,524	787,199	16,210	617,611

(a) Book values at end of year.

(b) Excludes motors driven by electricity of own generation.

(c) Includes quantities used to make self-raising flour.

(f) Short ton = 2,000 lb.

(d) Includes water and lubricants.

(e) Includes quantities produced and used in own works.

CONFECTIONERY

Year	Num-ber of Fac-tories	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Employed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Con-tainers and Materials Used	Value of Output	Net Production
1956-57	6	318,836	469	299	353,274	31,508	930,882	1,576,550	614,160
1957-58	7	350,204	420	297	370,178	32,634	1,005,910	1,693,862	635,318
1958-59	6	355,206	496	264	358,922	30,968	1,103,032	1,859,172	725,172
1959-60	6	344,732	501	268	370,232	36,464	1,176,874	1,969,326	746,188
1960-61	6	394,602	501	292	413,366	45,564	1,188,874	1,923,650	680,212
1961-62	6	383,924	529	259	392,652	39,712	1,167,956	1,936,078	729,110
1962-63	6	366,662	533	269	407,122	40,736	1,154,616	1,808,940	613,588
1963-64	6	343,840	532	277	445,988	42,252	1,131,844	1,833,358	656,462
1964-65	6	360,692	544	279	477,076	38,126	1,204,394	2,043,078	800,558
1965-66	7	+	+	+	+	+	+	+	+

(a) Book values at end of year.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water and lubricants.

(d) Not available for publication.

JAMS, PICKLES, SAUCES AND VINEGAR

Year	Num-ber of Fac-tories	Land, Build-ings, Plant and Ma-chinery	Engines and Electric Motors Used (b)	Persons Em-ployed	Salaries and Wages	Power, Fuel, and Light Used (c)	Repairs, Con-tainers and Ma-terials Used	Materials Used				Production (e)																	
								Fruit	Vegetables		Pickles and Chutneys	Sauces		Vinegar (including bulk)															
									cwt.	\$		cwt.	\$		pints	\$	pints	\$											
1956-57	9	370,986	337	151	196,778	15,150	797,590	1,223,932	416,192	15,901	39,268	22,005	131,296	475,287	137,044	699,700	157,402	191,413	57,356										
1957-58	9	425,030	349	124	166,846	13,400	590,113	981,186	377,648	31,783	66,584	12,098	97,996	500,802	132,150	753,172	151,152	166,588	56,976										
1958-59	9	427,076	378	118	170,278	17,270	573,364	1,082,036	391,402	21,982	51,180	4,689	26,242	499,759	129,808	730,498	176,322	215,254	68,346										
1959-60	9	443,536	370	129	185,064	16,948	639,626	1,051,454	424,910	23,330	37,932	8,039	35,510	474,789	157,078	802,536	201,104	189,273	66,404										
1960-61	9	456,268	450	147	235,038	20,254	891,884	1,356,788	426,050	53,407	133,408	13,243	76,212	462,020	152,708	906,562	180,348	195,513	74,640										
1961-62	9	533,760	437	158	239,892	18,580	971,388	1,523,670	533,702	28,341	83,962	11,539	75,914	320,593	103,330	826,127	138,988	151,819	54,272										
1962-63	9	513,998	439	150	234,532	21,536	944,972	1,470,588	504,080	43,591	103,018	8,259	46,176	297,652	92,318	657,457	112,532	132,973	66,165										
1963-64	9	968,358	754	122	213,024	21,986	859,044	1,305,262	424,222	49,895	120,258	15,913	79,788	271,486	92,186	458,120	102,592	152,920	70,089										
1964-65	8	1,089,824	1,125	149	249,588	27,458	791,574	1,312,648	493,536	44,915	120,602	24,284	99,594	433,066	151,020	453,594	91,156	138,457	77,182										
1965-66	8	1,186,458	1,143	142	251,278	32,677	854,479	1,563,553	676,397	38,911	100,315	35,663	220,274	518,540	195,001	316,818	64,899	144,597	77,000										
(a) Book values at end of year.																				(c) Includes water and lubricants.				(d) Excludes tomatoes.				(e) Pro-	

(a) Book values at end of year.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water and lubricants.

(d) Excludes tomatoes.

(e) Pro-

duction of jams is not available for publication.

BACON CURING

Year	Num-ber of Fac-tories	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Em-ployed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Containers and Materials Used	Value of Output	Net Pro-duction	Pigs Killed (d)				On Com-mission	Bacon and Ham Produced (e)
										On own Account			Cost at Works		
										For Curing	For other purposes	Quantity			
1956-57	4	340,998	841	254	390,112	70,228	4,884,220	5,629,466	675,018	94,686	No.	No.	\$	No.	\$
1957-58	4	387,384	1,133	268	481,406	78,942	5,133,696	6,008,326	795,688	121,891	24,287	146,178	3,646,906	510	6,612,477
1958-59	4	468,348	1,125	301	463,716	78,560	4,899,772	5,586,608	608,276	101,893	19,651	121,544	3,164,468	276	6,619,106
1959-60	5	557,456	1,238	288	483,762	72,624	5,457,514	6,309,080	778,942	77,444	29,776	107,220	3,650,666	102	7,117,467
1960-61	4	568,560	1,314	320	593,644	74,816	6,042,024	7,158,568	1,041,728	66,216	49,894	116,110	3,614,372	133	7,084,789
1961-62	4	592,568	1,303	339	638,824	82,660	6,057,202	7,407,412	1,267,550	70,613	71,859	142,472	3,329,458	172	7,839,387
1962-63	4	688,538	1,339	332	643,266	83,142	6,010,180	7,562,534	1,469,212	65,901	51,043	117,034	3,231,836	94	8,594,473
1963-64	4	696,922	1,416	339	664,064	84,076	6,151,098	7,500,566	1,265,392	+++++	+++++	+++++	+++++	++++	8,468,073
1964-65	4	797,506	1,439	343	717,352	91,326	6,259,328	8,041,612	1,690,958	+++++	+++++	+++++	+++++	++++	8,921,238
1965-66	4	1,021,134	1,488	329	744,848	87,489	6,633,157	8,227,738	1,507,092	+++++	+++++	+++++	+++++	++++	9,604,695
															4,756,042

(a) Book values at end of year.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water and lubricants.

(d) Excludes pigs condemned.

(e) Includes quantities produced in factories classified to other industries.

* Revised.

BUTTER, CHEESE AND CONDENSED AND PROCESSED MILK

Year	Num- ber of Fac- to- ries	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used(b)	Persons Em- ployed	Salaries and Wages	Power, Fuel and Light Used(c)	Repairs, Containers and Materials Used	Value of Output	Net Pro- duction	Materials Used		Production	
										Butter Fat Content of Cream	Total Whole Milk (d)	Butter	Cheese
		\$	rated h.p.		\$	\$	\$	\$	\$	lb.	gal.	lb.	\$
1956-57	18	1,184,246	2,393	312	497,928	140,394	6,849,486	8,040,502	1,059,626	13,702,685	38,381,870	16,715,523	5,893,482
1957-58	18	1,229,994	2,345	302	507,734	128,944	6,116,654	7,179,804	934,006	12,456,776	4,400,298	15,247,884	5,091,008
1958-59	19	1,651,742	3,078	325	553,754	125,096	6,065,762	7,420,448	1,229,590	11,266,489	4,193,244	13,812,718	5,025,866
1959-60	19	1,665,244	3,524	315	539,950	132,160	7,279,326	8,479,114	1,067,628	13,463,763	37,281,495	16,521,619	6,116,398
1960-61	19	1,728,436	3,844	332	590,396	148,544	7,233,656	8,641,578	1,259,378	14,119,248	5,290,968	17,160,334	6,147,072
1961-62	18	2,214,672	4,012	339	616,536	147,064	6,890,204	8,214,816	1,177,548	13,761,693	5,059,322	16,761,850	5,955,978
1962-63	18	2,286,250	4,969	344	633,824	149,576	6,898,470	8,169,964	1,121,918	12,762,503	4,814,806	15,596,382	5,445,772
1963-64	17	2,213,064	4,267	344	674,196	151,402	7,091,374	8,587,302	1,344,526	12,706,218	4,868,950	15,490,685	5,805,470
1964-65	18	2,155,568	4,351	337	715,212	177,646	7,987,872	9,613,282	1,447,764	14,232,500	5,418,656	17,386,724	6,296,514
1965-66	19	2,257,863	4,611	321	742,380	193,339	7,802,093	9,571,931	1,576,499	14,838,789	5,369,399	18,192,833	6,211,255
													2,711,774
													788,266
													3,055,856
													3,252,011
													3,372,811
													834,994
													1,073,710
													738,363

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants. (d) Includes whole milk equivalent of cream used.

AERATED WATERS, CORDIALS, ETC.

Year	Number of Factories	Land, Buildings, Plant and Machinery Used (a)	Engines and Electric Motors Used (b)	Persons Employed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Containers and Materials Used	Value of Output	Net Production	Sugar Used (70 lb. bags)	Production (d)				
											Aerated Waters		Cordials and Syrups		
		\$	rated h.p.		\$	\$	\$	\$	\$	No.	\$	gal.	\$	gal.	\$
1956-57	44	951,076	1,139	271	345,092	28,854	1,032,468	1,868,596	807,274	63,317	316,036	3,850,610	1,674,206	270,301	420,360
1957-58	45	1,013,522	1,200	274	358,226	35,954	1,166,434	2,142,990	940,602	63,317	316,068	4,291,794	1,834,352	283,141	439,774
1958-59	42	1,020,458	1,173	265	383,502	43,510	1,282,576	2,145,378	869,295	85,767	393,548	4,382,570	1,943,350	323,078	483,074
1959-60	43	1,052,414	1,257	269	388,146	41,326	1,227,878	2,058,398	789,194	74,521	382,592	4,323,485	1,944,910	283,150	438,170
1960-61	42	1,313,342	1,205	317	495,386	47,572	1,524,356	2,676,508	1,107,580	88,891	503,494	5,143,068	2,491,922	250,620	383,106
1961-62	41	1,390,464	1,290	311	519,562	51,476	1,740,750	3,010,264	1,218,038	98,217	544,636	5,607,775	2,777,393	295,595	430,926
1962-63	40	1,570,358	1,311	320	530,522	59,048	1,676,148	3,171,882	1,440,736	99,250	552,042	5,690,532	2,940,068	277,269	404,234
1963-64	39	1,798,800	1,427	335	558,808	59,948	2,245,510	3,500,128	1,284,670	109,096	610,050	6,462,323	3,346,310	281,730	404,314
1964-65	39	2,120,272	1,535	346	626,776	63,922	2,846,602	4,501,434	1,504,910	122,149	679,060	6,917,932	4,219,094	337,629	500,138
1965-66	39	2,179,622	1,611	412	839,681	70,781	3,999,272	5,835,706	1,765,653	144,239	811,506	8,796,443	5,491,923	425,007	635,316

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants. (d) Includes quantities produced in factories classified to other industries.

SAWMILLING (MILLS OPERATING ON LOGS) (a)

Year	Num- ber of Saw- mills	Land, Buildings, Plant and Machinery (b)	Engines and Electric Motors Used (c)	Persons Em- ployed	Salaries and Wages	Power, Fuel and Light Used (d)	Repairs, Con- tainers and Materials Used	Value of Output	Net Pro- duction	Logs (Local), Sawm (e)				Sawn Timber Produced from Local Logs (f)			
										Hardwoods		Softwoods		Hardwoods		Softwoods	
										'000 sup. ft. (g)	\$	'000 sup. ft. (g)	\$	'000 sup. ft.	\$	'000 sup. ft.	\$
1956-57	232	5,062,824	34,324	3,505	5,150,496	463,224	7,287,002	17,078,724	9,328,498	619,635	6,495,160	13,916	177,742	198,679	16,342,898	5,796	324,014
1957-58	217	4,408,954	33,235	3,391	5,111,056	474,506	7,487,662	17,058,396	9,096,228	615,163	6,792,764	14,387	206,318	195,773	16,542,024	5,892	323,436
1958-59	215	4,097,890	33,574	3,460	5,354,048	500,406	7,874,500	18,039,042	9,864,136	650,775	7,042,988	15,569	209,158	205,458	18,108,032	6,346	325,720
1959-60	208	4,474,396	33,212	3,189	5,116,718	494,668	7,643,480	18,443,468	10,305,320	601,770	6,677,858	15,133	222,980	193,429	18,069,836	5,474	429,796
1960-61	193	4,422,278	34,436	3,147	5,414,542	493,130	7,697,472	18,192,214	10,001,612	600,535	6,510,964	14,942	225,836	181,568	17,303,860	5,363	488,200
1961-62	190	3,641,480	35,458	3,080	5,338,026	493,202	7,862,030	18,946,614	10,591,832	601,111	6,721,178	18,059	298,072	186,333	18,287,578	6,455	432,306
1962-63	181	3,736,554	37,487	2,885	5,143,870	461,812	7,739,896	18,116,684	9,914,976	554,125	6,599,828	18,421	310,540	178,175	17,171,216	7,634	680,932
1963-64	183	3,939,984	36,463	2,832	5,439,988	435,924	8,290,370	19,153,822	10,427,628	575,928	6,994,648	22,826	375,226	188,048	18,305,528	7,876	654,430
1964-65	168	4,020,522	39,415	2,832	5,691,488	472,896	8,867,726	21,209,490	11,868,868	597,040	7,294,536	25,138	425,030	198,988	20,429,802	8,316	731,892
1965-66	163	4,274,737	41,527	2,800	6,443,090	474,409	10,073,923	23,472,393	12,924,061	597,767	7,721,988	22,465	431,713	208,517	21,572,778	8,121	763,374

(a) Excluding particulars of felling and hauling.
(b) Includes logs used by plywood mills.(c) Book values at end of year.
(d) Excludes motors driven by electricity of own generation.(e) Excludes railway sleepers and plywood veneers in terms of super. feet.
(f) True Volume (Full Round).(g) Includes water and lubricants.
(h) Includes quantities produced in factories classified to other industries.

CABINET AND FURNITURE MAKING AND UPHOLSTERY

Year	Number of Factories	Land, Buildings, Plant and Machinery (a)	Engines and Electric Motors Used (b)	Persons Employed	Salaries and Wages	Power, Fuel and Light Used (c)	Repairs, Con- tainers and Materials Used	Value of Output	Net Production	Wooden Furniture Produced (d)
1956-57	151	1,507,570	3,310	1,025	1,247,770	36,868	2,206,494	4,263,466	2,020,104	3,954,594
1957-58	150	1,479,720	3,363	1,009	1,307,974	35,932	2,418,116	4,593,652	2,139,604	4,610,238
1958-59	150	1,536,880	3,628	1,010	1,351,018	36,192	2,576,892	4,773,524	2,160,440	4,627,430
1959-60	153	1,662,550	3,568	1,069	1,485,414	38,544	3,100,440	5,658,912	2,519,928	5,865,422
1960-61	153	1,765,878	3,806	1,072	1,574,390	39,366	3,104,946	5,813,668	2,669,356	5,709,652
1961-62	152	1,828,678	3,647	1,042	1,494,914	38,446	3,136,988	5,834,282	2,658,848	6,103,392
1962-63	149	1,897,410	3,384	1,042	1,580,428	44,690	3,593,816	6,449,226	2,810,720	6,791,096
1963-64	162	1,756,944	3,509	1,117	1,652,008	42,202	3,806,184	6,898,838	3,050,452	7,504,724
1964-65	155	2,094,298	3,513	1,117	1,857,902	44,140	4,538,544	8,044,248	3,461,564	8,623,000
1965-66	167	2,624,885	3,860	1,152	2,075,902	50,818	4,664,493	8,773,078	4,057,767	9,755,743

(a) Book values at end of year.
(b) Excludes motors driven by electricity of own generation.

(c) Excludes furniture of wicker, etc., and of metal or partly of metal.

(d) Includes water and lubricants.
(e) Includes quantities produced in factories classified to other industries.

ELECTRICITY AND TOWN GAS UNDERTAKINGS

Electricity Generation and Transmission

Prior to the establishment of the State Electricity Commission in 1946, electricity was generated and distributed by a large number of independent power stations. A government-owned steam power station at East Perth supplied the metropolitan area, and small units of the same type, but privately-owned, operated in the major mining centres of Collie and Kalgoorlie. With other minor exceptions the country areas were dependent on internal combustion equipment, owned privately or by local government authorities and supplying either alternating or direct current at various voltages. Since 1946 a number of power stations have been absorbed into the Commission's network and, although there are still some independent operators generating electricity for sale or for their own industrial requirements, the Commission now supplies most of the electricity used in the State and all electricity sold in the metropolitan area. The Commission functions under the State Electricity Commission Act, 1945-1966 and consists of nine members, including the Chairman, appointed by the Governor. Four of the Commissioners are representatives of consumers, one for the metropolitan area, two for the rest of the State and one representing commercial consumers. Of the remaining five, one is the Under Treasurer of the State or his deputy, one represents employees of the Commission and three are required to be qualified engineers.

In Western Australia, electricity is now supplied principally by steam power stations, with internal combustion equipment next in importance and a small quantity provided by a hydro-electric installation. Steam power stations accounted for 54 per cent. of installed generator capacity in 1937-38 but by 1965-66 the proportion had risen to 80 per cent. Coal is the most important source of energy for electricity generation but substantial quantities of fuel oil are also used.

In the metropolitan area the Commission has modernized the 55,000 kilowatt plant at the East Perth power station and, in 1954, completed a new station at South Fremantle, with a capacity of 100,000 kilowatts. These are linked with a power station at Bunbury, consisting of four units, each of 30,000 kilowatt capacity and to a station being built at Muja, to which reference is made below.

One of the responsibilities undertaken by the State Electricity Commission was the administration of the South-West State Power Scheme Act, 1945, designed to develop electrification in the south-western portion of the State. As a first stage in this development, it acquired the Collie power station and increased its capacity from 5,000 to 12,500 kilowatts. In 1956 it installed at Wellington Dam, near Collie, a hydro-turbine which is connected to the Collie power station and operated from it by remote control. Completion of the raising of the wall of the dam in 1960 has made it possible to operate the unit at the head of water for which it was designed. A new power station is being constructed at Muja near Collie, adjacent to a source of open-cut coal. The first major contracts for this station were let in 1961, and the first unit of 60,000 kilowatts went on load in July, 1965. Another unit of the same capacity was commissioned in November, 1966. Contracts for a further two 60,000 kilowatt units were let in 1964, and the station is planned to be on full load in December, 1968 increasing the installed capacity of the interconnected system by 240,000 kilowatts.

The Commission is also constructing a major power station at Cockburn Sound. It will supply the rapidly growing industrial demand in the Kwinana and adjacent localities and will use a residual fuel from the nearby refinery. The first 120,000 kilowatt unit will be required in commercial operation late in 1969.

The main interconnexions are two 132,000 volt transmission lines from the Bunbury power station and two 132,000 volt lines from the Muja power station to terminal substations in the metropolitan area, and a 132,000 volt line from Muja to the Bunbury power station.

In December, 1959 an amendment to the State Electricity Commission Act was passed to enable consumers to contribute towards the extension of mains beyond the distance that can be supplied economically by the Commission. Some 4,500 consumers have been connected in country and metropolitan areas under this Contributory Extension Scheme.

ELECTRICITY GENERATING (a)

Year	Generating Stations	Land, Buildings, Plant and Machinery (b)	Engines Used to Drive Generators	Persons Employed	Salaries and Wages	Power, Fuel and Light Materials Used (c)	Repairs and Materials Used	Value of Output	Net Production	Fuels Used			Electricity (d)	
										Coal	Fuel Oil	Gener-ated	Distributed	
						\$	\$	\$	\$	tons	gal.	'000 kwh.	'000 kwh.	\$
1956-57	87	34,969,430	406,482	971	2,104,930	6,877,204	583,088	13,291,384	5,831,092	464,243	4,516,904	11,044,893	2,018,332	17,091,186
1957-58	87	38,918,138	410,906	1,070	2,240,722	6,804,410	574,030	14,075,378	6,636,338	501,171	4,433,622	10,413,223	2,072,638	18,181,770
1958-59	88	40,472,746	452,673	1,106	2,362,346	7,059,032	667,460	14,712,922	6,986,430	526,575	4,501,984	11,399,167	2,204,153	19,258,760
1959-60	91	41,460,946	500,680	1,080	2,457,546	7,220,956	655,212	15,708,714	7,832,548	551,858	4,609,252	12,118,145	2,229,574	20,647,964
1960-61	89	41,573,138	544,592	1,065	2,597,262	7,540,036	855,940	16,939,520	8,540,544	445,068	3,702,584	30,423,810	3,449,206	22,623,234
1961-62	89	40,023,554	547,972	1,052	2,631,518	7,244,932	803,466	16,982,316	8,983,918	572,701	4,260,672	20,727,106	2,578,930	23,021,734
1962-63	92	39,702,854	566,167	1,053	2,691,318	7,560,452	747,364	18,227,744	9,919,928	622,725	4,703,480	20,740,238	2,493,714	25,080,252
1963-64	94	41,117,256	544,648	1,020	2,681,358	7,981,562	925,204	18,359,184	9,948,418	622,203	4,718,928	31,161,308	2,933,660	26,361,896
1964-65	85	38,124,562	544,546	1,015	2,750,092	8,709,100	875,556	21,104,654	11,516,998	692,208	5,313,208	34,983,955	3,046,228	28,219,413
1965-66	85	56,442,126	632,030	1,082	3,239,870	9,339,860	1,047,644	23,065,259	12,677,755	802,044	5,785,864	34,983,604	3,129,765	30,883,372

(a) Excluding particulars of transmission and distribution.

(b) Book values at end of year.

(c) Includes water and lubricants.

(d) Includes quantities produced in factories classified to other industries.

GAS WORKS (a)

Year	Gas Works	Land, Buildings, Plant and Machinery (b)	Engines and Electric Motors Used (c)	Persons Employed	Salaries and Wages	Power, Fuel and Light Materials Used (d)	Repairs, Containers and Materials Used	Value of Output	Net Production	Materials Used			Gas Distributed	Coke (including Coke Breeze) Produced (e)
										Coal (Carbonized)	Oil			
			rated h.p.			\$	\$	\$	\$	tons	gal.	\$	'000 cu. ft.	tons
1956-57	4	3,569,654	1,185	175	316,758	349,858	1,132,778	2,030,198	547,562	821,184	1,469,998	241,808	1,245,789	26,769
1957-58	3	3,525,612	1,204	184	334,942	207,442	1,235,694	2,124,152	681,016	912,180	1,532,775	264,284	1,222,981	23,907,794
1958-59	3	3,651,584	1,204	182	359,250	272,044	1,204,966	2,149,932	672,922	860,878	1,618,740	275,652	1,237,531	19,631
1959-60	3	3,572,068	1,356	176	380,744	266,844	1,161,350	2,147,086	52,436	793,848	1,697,103	287,698	1,238,906	19,603
1960-61	3	3,421,982	1,356	177	383,670	265,004	1,169,614	2,132,824	698,206	773,048	1,478,931	235,410	1,246,847	22,228
1961-62	3	3,886,614	1,356	169	376,396	264,274	1,006,006	2,031,732	761,452	790,020	1,575,304	136,796	1,217,163	20,885
1962-63	3	3,736,922	1,442	164	374,130	228,458	972,624	1,957,902	756,850	763,582	1,683,066	134,352	1,211,785	23,955,026
1963-64	3	3,374,072	1,432	145	352,066	194,254	866,244	1,807,482	746,984	593,496	2,411,132	169,174	1,218,170	19,130
1964-65	3	3,519,578	1,396	138	340,432	207,020	901,606	1,874,628	765,102	587,796	2,506,479	177,262	1,236,945	13,928
1965-66	3	3,362,491	1,396	127	287,860	229,906	913,959	1,966,809	822,914	614,356	2,436,861	174,697	1,238,680	12,822

(a) Excluding particulars of distribution.

(b) Book values at end of year.

(c) Excludes motors driven by electricity of own generation.

(d) Includes water and lubricants.

(e) Includes quantities produced and used in own works.

Minor systems which are privately-owned or controlled by local government authorities are being absorbed as the transmission lines extend into the country areas and when this work is completed all except the more sparsely-populated areas of the State will be provided with electric power of standard frequency and voltage.

Town Gas Production

Town gas production in Western Australia is now limited to three establishments. Two works, situated at Perth and Albany, are operated by the State Electricity Commission and the third, at Fremantle, is operated privately.

DEPARTMENT OF INDUSTRIAL DEVELOPMENT

At the end of the first World War the State Government, with the object of fostering secondary industry, established a Council of Industrial Development which has since been succeeded by the Department of Industrial Development.

The functions of this Department are to assist the expansion of existing industry, foster the establishment of new industries, encourage exports, organize exhibitions and publicize Western Australian trade and industry. It also conducts investigations and research into the commercial possibilities of using indigenous raw materials for industrial purposes. In carrying out these functions the Department establishes and maintains liaison with industry and with Government Departments responsible for the provision of necessary services, information and finance.

SUMMARY OF AUSTRALIAN STATISTICS

Details of the number of factories in Australia in 1965-66, classified according to the average number of persons employed, are given in the following table in respect of each State and Territory. The relative importance of large and small factories is illustrated in the second part of the table by the classification of the average number of persons employed by the size of factory in which they were engaged.

FACTORIES AND PERSONS EMPLOYED—AUSTRALIA: 1965-66

Classification According to Number of Persons Employed (a)

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
NUMBER OF FACTORIES									
Factories with employment numbering (a)—									
Less than 4	10,267	5,935	2,043	2,924	2,421	753	74	65	24,482
4	1,956	1,497	547	456	394	137	18	15	5,020
5-10	5,504	4,393	1,601	1,180	1,003	434	67	65	14,247
11-20	3,028	2,553	815	681	494	229	14	40	7,854
21-50	2,160	2,006	576	464	381	145	11	24	5,767
51-100	818	807	216	191	123	52	1	3	2,211
101-200	428	439	117	90	57	20	....	3	1,154
201-300	137	145	51	29	20	9	....	1	392
301-400	68	65	13	15	7	1	....	....	169
401-500	45	41	13	8	....	4	....	....	111
501-750	51	53	10	10	3	1	....	1	129
751-1,000	29	18	4	5	1	3	....	....	60
Over 1,000	40	28	4	12	2	4	....	....	90
TOTAL—FACTORIES	24,531	17,980	6,010	6,065	4,906	1,792	185	217	61,686
PERSONS EMPLOYED (a)									
In factories with employment numbering (a)—									
Less than 4	18,761	11,591	4,194	5,107	4,440	1,447	153	137	45,830
4	7,824	5,988	2,188	1,824	1,576	548	72	60	20,080
5-10	38,269	30,627	10,981	8,116	6,919	3,003	453	476	98,844
11-20	44,118	37,581	11,791	9,965	7,092	3,841	202	596	114,686
21-50	68,010	63,066	18,208	14,959	11,930	4,629	360	721	181,883
51-100	57,170	57,050	14,938	13,437	8,525	3,854	69	245	155,288
101-200	60,534	62,410	16,689	13,029	7,714	2,911	....	418	163,705
201-300	33,235	34,930	12,698	6,999	4,908	2,117	....	241	95,128
301-400	24,053	22,813	4,456	5,423	2,414	326	....	....	59,488
401-500	19,925	18,146	5,827	3,499	....	1,849	....	....	49,246
501-750	30,947	32,160	6,261	6,197	1,543	639	....	626	78,273
751-1,000	25,056	14,959	3,532	4,156	812	2,651	....	....	51,066
Over 1,000	94,480	51,009	6,187	26,037	8,721	7,472	....	....	188,906
TOTAL—PERSONS EMPLOYED	522,382	442,333	117,950	118,748	61,594	34,587	1,309	3,520	1,302,423

(a) Average number of persons employed during the period of operation, and inclusive of working proprietors.

The following table gives details of the principal statistics covering the operations of factories in each of the Australian States and Territories for 1965-66.

FACTORIES—SUMMARY OF OPERATIONS: AUSTRALIA, 1965-66

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Factories	24,531	17,980	6,010	6,065	4,906	1,792	185	217	61,686
Persons employed (a)	519,364	439,149	117,581	118,343	60,282	34,315	1,294	3,495	1,293,823
Salaries and Wages (b)	\$ mill.	\$ mill.	\$ mill.	\$ mill.	\$ mill.	\$ mill.	\$ mill.	\$ mill.	\$ mill.
Value of—	1,303.7	1,077.2	268.0	283.0	184.2	83.0	3.9	9.9	3,162.8
Output (c)	6,184.3	4,624.9	1,511.2	1,270.5	678.8	404.6	13.5	31.5	14,719.3
Power, Fuel, Light, etc. (d)	223.5	127.9	43.8	44.1	27.3	19.2	0.9	0.8	487.3
Materials Used (e)	3,267.5	2,469.4	924.4	699.0	362.6	214.8	5.5	13.3	7,956.6
Net Production (f)	2,693.3	2,027.7	543.0	527.5	288.8	170.6	7.1	17.4	6,275.4
Land and Buildings (g)	1,658.6	1,176.9	273.6	276.5	151.0	211.9	6.2	21.9	3,776.7
Plant and Machinery (g)	1,672.7	1,209.0	477.5	423.5	197.2	158.7	7.6	10.1	4,156.3

(a) Average over the whole year and inclusive of working proprietors.

(b) Excludes amounts drawn by working proprietors.

(c) Value at the factory of goods produced, including amounts received for work done.

(d) Includes water and lubricants.

(e) Includes containers, etc., tools replaced and repairs to plant.

(f) Value added in process of manufacture (i.e., value of output less value of materials and fuel used).

(g) Depreciated or book value at end of year, including estimated value for rented premises and machinery.

CHAPTER IX – TRADE, TRANSPORT AND COMMUNICATION

PART 1 – TRADE

Constitutional Provisions and Legislation

By the Commonwealth of Australia Constitution Act, section 51 (1), the power to make laws with respect to trade and commerce with other countries was conferred on the Commonwealth Parliament. Under section 86 of the Constitution, the collection and control of customs and excise passed to the Executive Government of the Commonwealth on the 1st January, 1901.

Commonwealth legislation affecting overseas trade includes the Customs Act, the Customs Tariff and the Customs Tariff (Dumping and Subsidies) Act. The Customs Act is the administrative Act under which the Department of Customs and Excise operates. The Customs Tariff provides the statutory authority for imposing the actual rates of duty operative from time to time, while the Customs Tariff (Dumping and Subsidies) Act provides protection for Australian industry against various forms of unfair trading.

The Tariff Board Act constitutes a Tariff Board of eight members to advise the Government on matters relating to the protection and encouragement of Australian industry and on the general effect of the working of the Customs and Excise Tariffs. The Tariff Board conducts public hearings in connexion with any revision of the Tariff, proposals concerning bounties, or complaints that a manufacturer is taking undue advantage of the protection afforded by the Tariff.

Sources of Statistics

Overseas trade statistics are compiled from documents obtained under the Customs Act and supplied to the Commonwealth Bureau of Census and Statistics by the Department of Customs and Excise. Particulars of Western Australia's overseas trade, as presented in this Chapter, have been prepared from tabulations furnished by the Commonwealth Bureau of Census and Statistics, Canberra.

Statistics of Western Australia's trade with other Australian States are compiled by the Western Australian Office of the Bureau of Census and Statistics from information contained in documents collected under authority of the Census and Statistics Act 1905-1966 from importers, exporters, and other persons concerned with the distribution of goods.

Classification of Commodities

Overseas trade statistics for years up to and including 1964-65 were compiled according to a Statistical Classification of Imports and Exports which, in 1964-65, contained approximately 3,700 items of import and 1,300 items of export.

On the 1st July, 1965 a new Australian Customs Tariff was introduced. The nomenclature used in the Tariff is that of the Convention on Nomenclature for the Classification of Goods in Customs Tariffs, an international agreement signed at Brussels on the 15th December, 1950. The system of naming established by the Convention has come to be known as the "Brussels Nomenclature".

From the 1st July, 1965, imports into Australia have been classified according to an *Australian Import Commodity Classification* of some 5,000 items based on the *United Nations Standard International Trade Classification, Revised*, which closely follows the Brussels tariff nomenclature.

Although the basis of the classification of exports remained unchanged for 1965-66, the export section of the Statistical Classification of Imports and Exports was published separately, with some minor revisions, as the *Australian Export Commodity Classification*. A new Australian Export Commodity Classification of some 2,000 items, based on the Standard International Trade Classification, was introduced on the 1st July, 1966.

The Standard International Trade Classification consists of 10 broad commodity categories designated "Sections" and comprising 56 commodity "Divisions" which are further divided into 177 commodity "Groups". The structure of the classification serves to provide a summary of data relating to 1,312 basic items of international trade.

For the purpose of recording details of Western Australia's trade with other Australian States, a revised Interstate Trade Classification based on the new Australian Commodity Classifications, has been prepared in the Western Australian Office of the Bureau. In compiling this document, the basic items of the Australian Classifications have been compressed or expanded, according to their significance in

Western Australia's trade. The Interstate Trade Classification comprises some 860 items of import and 370 items of export within the structure of commodity Sections, Divisions and Groups referred to previously. The revised Interstate Trade Classification was first used in compiling details of Western Australia's trade with other Australian States in respect of the year 1965-66.

The commodity descriptions appearing in some of the tables in this Part are, in some cases, abbreviations of the full text, which is available in the *Australian Import Commodity Classification* and the *Australian Export Commodity Classification*.

Valuation of Items of Trade

All values are recorded in Australian currency. The basis of valuation used, except in the case of imports from other Australian States, is *f.o.b.*, or its equivalent, at the port of shipment. Statistics of imports from other Australian States are recorded in terms of landed cost.

Direction of Trade

The term *Country of Origin*, as used in recording statistics of overseas trade, means the country of production; *Country of Destination* means the country to which goods were consigned at the time of export. In compiling statistics of Western Australia's interstate imports and exports, goods are classified according to the State or Territory from which or to which they were consigned.

SUMMARY OF TRADE

Statistics of Western Australia's external trade are presented in the following series of tables. Particulars relate, in all cases, to the year ended 30th June. The figures shown for exports do not include ships' stores, details of which are given in the table on page 354.

The following table shows the value of Western Australia's overseas and interstate imports and exports during each year from 1962-63 to 1966-67.

VALUE OF OVERSEA AND INTERSTATE TRADE OF WESTERN AUSTRALIA
(\$'000)

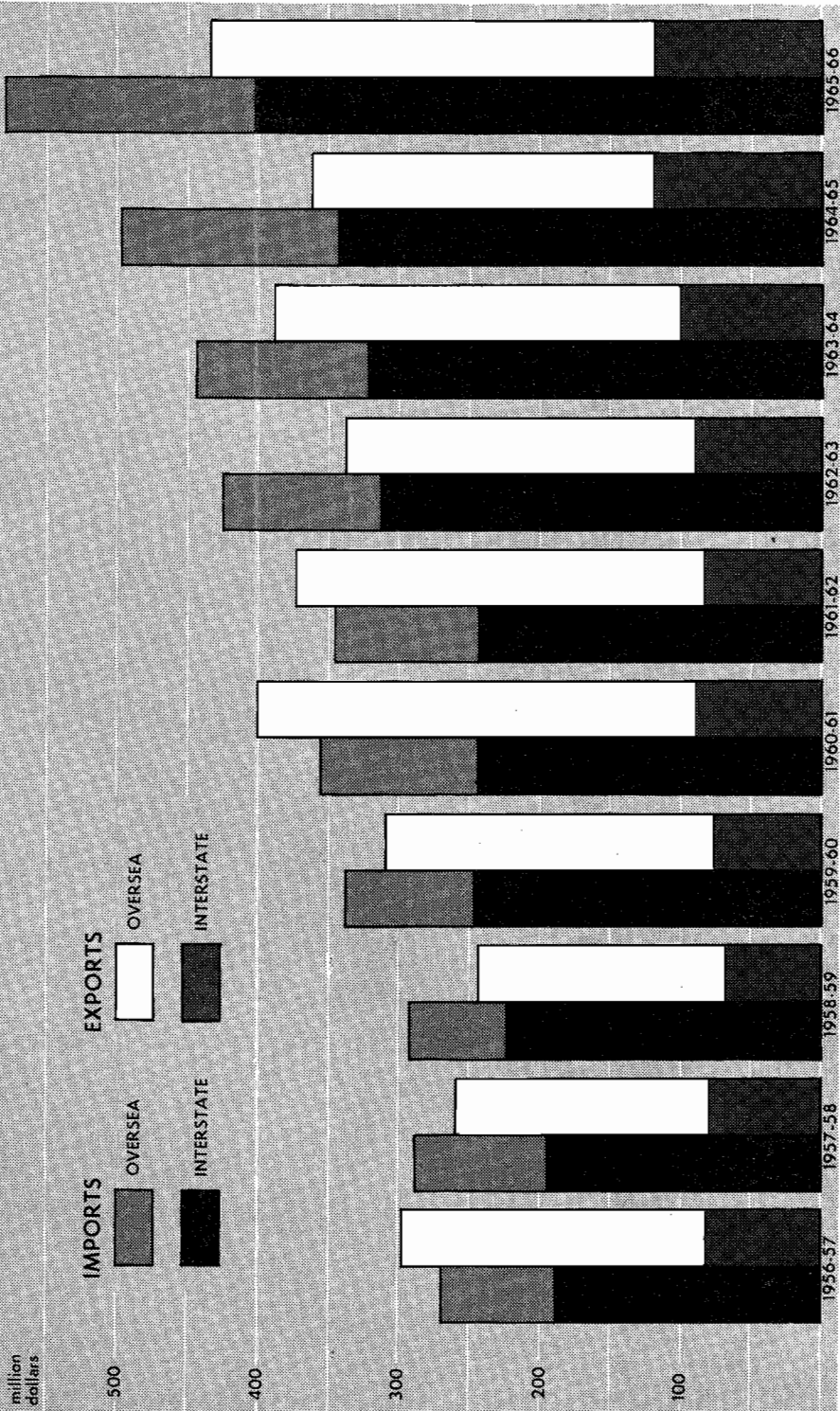
Direction of Trade	1962-63	1963-64	1964-65	1965-66	1966-67
OVERSEA—					
Imports	112,640	121,677	153,540	175,690	159,390
Exports	247,438	286,714	243,078	314,404	421,325
Excess of—					
Exports over Imports	134,799	165,037	89,538	138,714	261,935
INTERSTATE—					
Imports	313,712	323,176	343,899	403,054	472,959
Exports	91,021	101,229	119,954	119,619	116,030
Excess of—					
Imports over Exports	222,691	221,948	223,945	283,435	356,930
TOTAL—					
Imports	426,351	444,854	497,439	578,744	632,350
Exports	338,459	387,943	363,033	434,023	537,355
Excess of—					
Imports over Exports	87,892	56,911	134,407	144,721	94,995

The following table shows the total value of Australia's overseas imports and exports, together with the proportion handled at Western Australian ports, during each of the years 1962-63 to 1966-67.

EXTERNAL TRADE OF AUSTRALIA—TOTAL VALUE AND PROPORTION HANDLED
AT WESTERN AUSTRALIAN PORTS

Year	Value of Australian Trade (\$'000)			Proportion Handled at Western Australian Ports (per cent.)		
	Imports	Exports	Total	Imports	Exports	Total
1962-63	2,162,669	2,151,811	4,314,480	5.21	11.50	8.35
1963-64	2,372,658	2,782,460	5,155,118	5.13	10.30	7.92
1964-65	2,904,703	2,651,449	5,556,152	5.29	9.17	7.14
1965-66	2,939,492	2,720,953	5,660,445	5.98	11.55	8.66
1966-67	3,049,235	3,035,473	6,084,708	5.23	13.88	9.54

Imports and Exports, 1956-57 to 1965-66



DIRECTION OF TRADE

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA
CLASSIFIED ACCORDING TO ORIGIN OR DESTINATION
(\$'000)

Origin or Destination	Imports			Exports		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
OVERSEA						
Belgium-Luxembourg	1,744	824	991	3,364	3,694	5,376
Canada	3,364	3,886	6,042	1,336	1,202	1,569
Ceylon	1,320	1,461	1,264	1,764	1,792	944
China (mainland)	464	518	616	22,329	30,549	46,100
China, Republic of (Formosa)	90	99	100	58	926	1,370
Christmas Island (Indian Ocean)	1,266	1,811	1,711	1,154	1,199	1,265
Czechoslovakia	222	204	238	1,992	987	3,369
Fiji	3	28	7	14	822	708
France	1,654	1,654	1,481	9,133	12,086	12,666
Germany (East)	57	60	61	889	357	923
Germany, Federal Republic of	4,378	6,185	5,577	13,144	19,424	16,217
Gilbert and Ellice Islands	161	450	822	14	102	.....
Hong Kong	890	769	4,330	3,415	3,952	6,074
Hungary	71	68	57	175	148	800
India	3,416	2,882	2,793	7,202	6,153	17,206
Indonesia	1,726	859	157	772	246	119
Iran	14,486	13,507	6,773	848	3,402	534
Iraq	1,102	964	2,873	267	157	45
Ireland	59	67	115	117	1,755	2,411
Italy	1,810	1,825	2,628	8,157	12,029	14,095
Japan	13,101	21,717	16,605	52,471	67,981	115,893
Jordan	.....	.....	1	17	11	1,531
Korea (North)	.....	.....	.....	6	1,590	2,865
Kuwait	12,287	13,128	8,950	1,325	1,144	1,126
Lebanon	9	12	4	4	553	2,177
Malaysia (a)	3,760	2,421	1,891	11,607	5,479	4,464
Mexico	457	119	1,415	1,262	1,501	2,067
Mozambique	5	80	42	769	763	885
Nauru	1,922	1,361	2,759	1	.....	10
Netherlands	1,136	1,588	1,226	1,136	2,106	6,373
New Caledonia	.....	.....	.....	1,440	2,020	1,897
New Zealand	1,109	1,938	1,761	4,470	3,817	4,699
Norway	403	1,027	703	92	760	119
Pakistan	1,517	2,685	2,309	276	521	16,133
Poland	45	50	48	705	2,483	2,228
Qatar	8,683	8,888	8,657	243	232	249
Singapore (b)	(b)	756	2,194	(b)	5,886	9,904
South Africa	799	999	823	4,668	2,651	3,480
South Arabia, Federation of	2,741	3,693	3,026	857	1,505	1,232
Spain	284	1,027	322	524	548	1,117
Sweden	1,669	2,346	1,726	1,544	1,288	555
Switzerland	451	1,247	1,363	202	136	95
Syria	1	1	1	3	.....	1,102
Togo	.....	1,416	1,379	.....	.....	.....
Trucial States, Muscat and Oman	.....	.....	2,314	863	932	1,266
Turkey	13	8	9	504	1,057	1,252
Union of Soviet Socialist Republics	3	5	7	10,524	16,194	7,467
United Arab Republic	2	2	.....	597	1,963	1,551
United Kingdom	36,918	37,719	35,383	33,456	47,460	46,290
United States of America	23,794	29,787	20,729	30,266	36,310	41,852
Zambia	.....	.....	.....	.....	329	1,061
Other	4,151	3,550	5,206	7,101	6,202	8,592
Total, Oversea	153,540	175,690	159,390	243,078	314,404	421,325
INTERSTATE						
State or Territory (c)—						
New South Wales (c)	145,648	167,363	195,133	46,225	54,061	46,170
Victoria	137,185	162,573	194,909	38,655	36,531	35,741
Queensland	12,192	14,464	16,607	4,875	2,795	3,573
South Australia	43,978	52,703	59,259	24,529	19,655	23,240
Tasmania	4,657	5,649	6,707	2,629	3,385	3,199
Northern Territory	239	302	343	3,041	3,193	4,107
Total, Interstate	343,899	403,054	472,959	119,954	119,619	116,030
GRAND TOTAL	497,439	578,744	632,350	363,033	434,023	537,355

(a) To 30th September, 1965, includes Singapore. (b) Included with Malaysia to 30th September, 1965. (c) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales.

The following table shows the proportional distribution of Western Australia's trade with overseas countries and with Australian States and Territories during each of the years 1964-65 to 1966-67.

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA
PROPORTIONS ACCORDING TO ORIGIN OR DESTINATION
(per cent. of total)

Origin or Destination	Imports			Exports		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
OVERSEA						
Belgium-Luxembourg	1.14	0.47	0.02	1.38	1.18	1.28
Canada	2.19	2.21	3.79	0.55	0.38	0.37
Ceylon	0.86	0.83	0.79	0.73	0.57	0.22
China (mainland)	0.30	0.29	0.39	9.19	9.72	10.94
China, Republic of (Formosa)	0.06	0.06	0.06	0.02	0.29	0.33
Christmas Island (Indian Ocean)	0.82	1.03	1.07	0.47	0.38	0.30
Czechoslovakia	0.14	0.12	0.15	0.82	0.31	0.80
Fiji		0.02		0.01	0.26	0.17
France	1.08	0.94	0.93	3.76	3.84	3.01
Germany (East)	0.04	0.03	0.04	0.37	0.11	0.22
Germany, Federal Republic of	2.85	3.52	3.50	5.41	6.18	3.85
Gilbert and Ellice Islands	0.10	0.26	0.52	0.01	0.03	
Hong Kong	0.58	0.44	2.72	1.40	1.26	1.44
Hungary	0.05	0.04	0.04	0.07	0.05	0.19
India	2.22	1.64	1.75	2.96	1.96	4.08
Indonesia	1.12	0.49	0.10	0.32	0.08	0.03
Iran	9.43	7.69	4.25	0.35	1.08	0.13
Iraq	0.72	0.55	1.80	0.11	0.05	0.01
Ireland	0.04	0.04	0.07	0.07	0.56	0.57
Italy	1.18	1.04	1.59	3.36	3.83	3.35
Japan	8.53	12.36	10.42	21.59	21.62	27.51
Jordan				0.01		0.36
Korea (North)					0.51	0.68
Kuwait	8.00	7.47	5.62	0.55	0.36	0.27
Lebanon	0.01	0.01			0.18	0.52
Malaysia (a)	2.45	1.38	1.19	4.78	1.74	1.06
Mexico	0.30	0.07	0.89	0.52	0.48	0.49
Mozambique		0.05	0.03	0.32	0.24	0.21
Nauru	1.25	0.77	1.73			
Netherlands	0.74	0.90	0.77	0.47	0.67	1.51
New Caledonia				0.59	0.64	0.45
New Zealand	0.72	1.10	1.10	1.84	1.21	1.12
Norway	0.26	0.58	0.44	0.04	0.24	0.03
Pakistan	0.99	1.53	1.45	0.11	0.17	3.83
Poland	0.03	0.03	0.03	0.29	0.79	0.53
Qatar	5.65	5.06	5.43	0.10	0.07	0.06
Singapore (b)	(b)	0.43	1.38	(b)	1.87	2.35
South Africa	0.52	0.57	0.52	1.92	0.84	0.83
South Arabia, Federation of	1.79	2.10	1.90	0.35	0.48	0.29
Spain	0.19	0.58	0.20	0.22	0.17	0.27
Sweden	1.09	1.34	1.08	0.64	0.41	0.13
Switzerland	0.29	0.71	0.86	0.08	0.04	0.02
Syria						0.26
Togo		0.81	0.87			
Trucial States, Muscat and Oman			1.45	0.36	0.30	0.30
Turkey	0.01		0.01	0.21	0.34	0.30
Union of Soviet Socialist Republics				4.33	5.15	1.77
United Arab Republic				0.25	0.62	0.37
United Kingdom	24.04	21.47	22.20	13.76	15.10	10.99
United States of America	15.50	16.95	13.01	12.45	11.55	9.93
Zambia					0.10	0.25
Other	2.71	2.02	3.27	2.92	1.97	2.04
Total, Oversea	100.00	100.00	100.00	100.00	100.00	100.00
INTERSTATE						
State or Territory (c)—						
New South Wales (c)	42.35	41.52	41.26	38.54	45.19	39.79
Victoria	39.89	40.34	41.21	32.22	30.54	30.80
Queensland	3.55	3.59	3.51	4.06	2.34	3.08
South Australia	12.79	13.08	12.53	20.45	16.43	20.03
Tasmania	1.35	1.40	1.42	2.19	2.83	2.76
Northern Territory	0.07	0.07	0.07	2.54	2.67	3.54
Total, Interstate	100.00	100.00	100.00	100.00	100.00	100.00

(a) To 30th September, 1965, includes Singapore. (b) Included with Malaysia to 30th September, 1965. (c) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales.

IMPORTS

The following table shows the value of the principal items of oversea and interstate imports into Western Australia during 1965-66 and 1966-67.

VALUE OF PRINCIPAL IMPORTS INTO WESTERN AUSTRALIA—SELECTED COMMODITIES (\$'000)

Division	Commodity	1965-66			1966-67		
		Oversea	Interstate	Total	Oversea	Interstate	Total
00	Sheep, live .....	....	3,484	3,484	....	3,885	3,885
	Food—						
01	Meat and meat preparations	27	1,203	1,229	25	2,155	2,180
02	Milk and cream .....	....	1,932	1,932	2	3,464	3,467
03	Fish and fish preparations	1,936	422	2,358	1,685	653	2,338
04	Cereals and cereal preparations	172	3,156	3,328	243	4,068	4,311
05	Fruit and vegetables—						
	Fruit—						
	Fresh	2	559	561	3	907	910
	Other	63	2,901	2,965	78	3,231	3,309
	Vegetables, fresh or preserved	326	1,970	2,297	338	3,395	3,733
06,07	Confectionery	77	3,511	3,588	127	5,591	5,718
	Other food	3,140	17,915	21,054	3,253	21,259	24,512
11	Beverages, alcoholic	564	2,733	3,297	598	3,702	4,300
12	Tobacco and tobacco manufactures	170	10,037	10,207	212	11,742	11,954
27	Fertilizers, crude	5,344	1	5,345	7,330	32	7,362
33	Petroleum and petroleum products	43,388	2,773	46,161	36,200	3,026	39,226
51	Chemical elements and compounds	3,432	2,948	6,380	5,392	4,034	9,426
54	Medicinal and pharmaceutical products	479	9,161	9,640	436	11,010	11,446
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—						
	Soap and cleansing preparations	116	3,620	3,736	111	4,430	4,541
	Toilet preparations (except soaps)	39	4,546	4,585	41	5,416	5,457
58	Plastic materials, regenerated cellulose and artificial resins	1,577	3,428	5,005	1,083	4,654	5,737
59	Insecticides, fungicides and similar products	317	1,852	2,168	415	3,056	3,472
62	Tyres and tubes	2,629	9,101	11,731	1,933	10,750	12,683
64	Paper, paperboard and manufactures thereof	3,124	10,620	13,744	2,951	9,471	12,422
65	Textile yarn, fabrics, made-up articles and related products	9,597	16,000	25,597	9,500	18,616	28,115
	Metals—						
67	Iron and steel—						
	Pig, ingot and other primary forms	182	13,460	13,642	98	10,349	10,448
	Other	10,147	27,367	37,514	3,113	34,878	37,991
68	Non-ferrous	159	8,373	8,533	138	9,744	9,882
69	Manufactures of metal, n.e.i.—						
	Household equipment of base metals	195	2,019	2,214	216	2,993	3,208
	Tools	1,571	3,082	4,652	1,349	4,111	5,460
	Other	2,302	15,957	17,359	2,211	15,838	18,048
71	Machinery—						
	Other than electric—						
	Agricultural, except tractors	824	10,047	10,871	703	11,776	12,479
	Excavating, levelling, tamping and boring, for earth, minerals or ores	7,220	4,745	11,965	3,954	5,619	9,574
	Internal combustion engines	4,938	2,505	7,444	3,968	2,009	5,978
	Tractors	6,767	2,311	9,079	5,063	2,069	7,132
	Other	15,461	20,119	35,580	13,280	22,255	35,535
72	Electrical machinery, apparatus and appliances—						
	Domestic electrical—						
	Cooking and heating	35	2,783	2,818	23	3,536	3,559
	Refrigerators and parts	76	3,265	3,341	58	4,315	4,373
	Washing machines and parts	9	2,636	2,645	24	2,927	2,950
	Other	106	2,091	2,197	238	1,980	2,218
	Electric power machinery and switch-gear	2,885	4,732	7,617	2,861	4,951	7,811
	Telecommunication apparatus	1,141	9,453	10,594	1,426	10,611	12,037
	Wire and cable, insulated	317	2,747	3,064	197	4,702	4,900
	Other	1,799	5,020	6,819	1,286	6,125	7,411
73	Transport equipment—						
	Road motor vehicles and components	9,312	59,679	68,991	10,200	61,188	71,387
	Other	6,706	3,397	10,103	4,256	8,956	13,211
82	Furniture	158	2,073	2,230	202	2,682	2,883
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	405	31,164	31,569	471	37,546	38,017
85	Footwear, gaiters and similar articles and parts therefor	185	6,516	6,701	319	8,003	8,323
86	Scientific, medical, optical and photographic equipment	2,104	2,624	4,728	1,631	5,102	6,732
89	Plastic articles, n.e.i.	181	3,812	3,992	209	4,856	5,065
	All other commodities	23,987	38,101	62,088	29,942	45,491	75,433
	TOTAL	175,690	403,054	578,744	159,390	472,959	632,350

VALUE OF PRINCIPAL IMPORTS FROM AUSTRALIAN STATES—SELECTED COMMODITIES
(\$'000)

Division	Commodity	1965-66	1966-67						Total
		Total	N.S.W.	Vic.	Qld.	S.A.	Tas.	N.T.	
00	Sheep, live	3,484	430	265	....	3,085	106	....	3,885
01	Food—								
02	Meat and meat preparations	1,203	592	1,233	137	130	32	31	2,155
04	Milk and cream	1,932	600	2,858	....	7	....	....	3,464
05	Cereals and cereal preparations	3,156	2,229	1,484	175	178	(a)	1	4,088
	Fruit—								
	Dried	657	27	81	....	688	8	....	804
	Fresh	559	769	(a)	13	123	2	....	907
	Other	2,244	185	802	841	521	79	....	2,427
06,07	Confectionery	3,511	1,999	1,880	....	187	1,524	....	5,591
	Other food	19,377	6,300	10,061	6,221	1,912	799	15	25,308
11	Beverages, alcoholic	2,734	577	805	16	2,293	10	2	3,702
12	Tobacco and tobacco manufactures	10,037	3,477	8,260	....	6	....	....	11,742
32	Petroleum and petroleum products	2,773	248	2,636	4	135	....	3	3,026
51	Chemical elements and compounds	2,948	1,783	1,081	53	757	361	....	4,034
53	Pigments, paints, varnishes, etc.	2,813	2,018	799	66	314	(a)	....	3,197
54	Medicinal and pharmaceutical products								
	.....	9,161	8,127	2,408	17	458	1	(a)	11,010
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—								
	Soap and cleansing preparations	3,620	3,027	1,362	1	40	....	....	4,430
	Toilet preparations (except soaps)	4,546	3,943	1,322	16	135	....	....	5,416
58	Plastic materials, regenerated cellulose and artificial resins	3,428	1,963	2,442	169	80	(a)	....	4,654
59	Insecticides, fungicides and similar products	1,852	2,385	547	73	51	(a)	....	3,056
62	Tyres and tubes	9,101	3,304	7,146	2	298	....	....	10,750
64	Paper, paperboard and manufactures thereof	10,620	3,386	3,060	276	664	2,085	....	9,471
65	Textile yarn, fabrics, made-up articles and related products—								
	Fabrics	7,895	2,653	4,595	93	533	193	....	8,067
	Floor coverings and the like	3,842	1,204	2,764	4	14	26	....	4,012
	Other	4,263	2,147	3,343	6	983	58	....	6,537
66	Glass and glassware	1,672	855	1,257	6	69	(a)	....	2,186
	Metals—								
67	Iron and steel—								
	Pig, ingot and other primary forms	13,460	5,067	2	....	5,281	....	....	10,349
	Other	27,367	29,805	1,929	36	2,908	(a)	....	34,678
68	Non-ferrous	8,373	6,789	1,961	40	258	696	(a)	9,744
69	Tools	3,082	2,002	1,885	27	89	108	....	4,111
	Machinery—								
71	Other than electric—								
	Agricultural, except tractors	10,047	1,240	7,640	123	2,773	....	....	11,776
	Excavating, levelling, tamping and boring, for earth, minerals or ores	4,745	2,326	2,812	65	417	....	....	5,619
	Tractors	2,311	375	1,599	37	58	....	....	2,069
	Other	22,625	10,224	10,334	893	2,790	24	....	24,264
72	Electrical machinery, apparatus and appliances—								
	Batteries	1,325	1,599	481	(a)	60	....	....	2,140
	Domestic electrical—								
	Cooking and heating	2,783	1,830	1,313	6	386	(a)	....	3,536
	Refrigerators and parts	3,265	2,067	1,152	....	1,096	....	....	4,315
	Washing machines and parts	2,636	1,608	200	....	1,119	....	....	2,927
	Electric power machinery and switchgear	4,732	1,911	1,866	385	788	1	....	4,951
	Telecommunication apparatus—								
	Radio broadcast receivers	1,454	1,097	359	6	263	....	....	1,724
	Television receivers	3,977	2,206	1,327	....	424	....	....	3,957
	Other	4,023	2,844	1,426	9	651	....	....	4,930
	Wire and cable, insulated	2,747	1,715	2,678	22	287	....	....	4,702
	Other	5,786	3,297	2,432	4	208	24	....	5,964
73	Transport equipment—								
	Road motor vehicles and components	59,679	13,019	29,049	248	18,762	109	(a)	61,188
	Other	3,397	3,676	1,223	3,540	515	2	....	8,956
82	Furniture	2,073	886	831	(a)	953	11	....	2,682
84	Clothing and clothing accessories and articles of knitted, etc., fabric	31,164	13,663	22,413	804	626	40	....	37,546
85	Footwear, gaiters and similar articles and parts thereof	6,516	2,179	5,144	168	507	6	....	8,003
86	Scientific, medical, optical and photographic equipment	2,624	2,251	2,709	25	112	6	....	5,102
	All other commodities	55,436	27,230	29,655	1,981	4,271	399	290	63,827
	TOTAL	403,054	(b)195,183	194,909	16,607	59,259	6,707	343	472,959

(a) Less than \$500.

(b) Includes the value of imports from the Australian Capital Territory.

VALUE OF OVERSEA IMPORTS FROM PRINCIPAL COUNTRIES OF ORIGIN
SELECTED COMMODITIES, 1966-67
(\$'000)

Division	Commodity	Canada	Germany, Fed. Rep. of	India	Japan	United Kingdom	United States of America	Other	Total
03	Fish, fresh, chilled, or frozen	24	62	(a)	50	303	1	426	866
07	Tea ....	.....	.....	447	(a) 1	1	1	1,246	1,695
11	Beverages, alcoholic	2	2	.....	495	20	79	598	598
24	Timber	13	1	.....	2	165	1,377	1,558	1,558
25	Pulp and waste paper	138	.....	.....	.....	20	374	531	531
27	Crude fertilizers and crude minerals—	.....	.....	.....	.....	.....	.....	.....	.....
	Fertilizers ....	.....	.....	.....	.....	181	7,149	7,330	7,330
	Sulphur and unroasted iron pyrites	2,292	.....	.....	.....	605	1,411	4,308	4,308
33	Petroleum and petroleum products	.....	7	32	4	73	187	(b)35,896	36,200
51	Chemical elements and compounds—	.....	.....	.....	.....	.....	.....	.....	.....
	Inorganic	133	144	.....	939	794	34	537	2,582
	Organic	48	158	.....	1,501	652	127	314	2,800
56	Fertilizers, manufactured	2	202	.....	478	367	391	40	1,481
57	Explosives and pyrotechnic products	.....	3	.....	(a)	12	596	19	631
58	Plastic materials, regenerated cellulose and artificial resins	83	140	.....	104	524	120	112	1,083
62	Tyres and tubes	(a)	10	58	137	901	323	504	1,933
64	Paper and paperboard—	.....	.....	.....	.....	.....	.....	.....	.....
	Newsprint	679	.....	.....	.....	.....	.....	1,361	2,040
	Other	76	30	.....	76	162	62	288	694
65	Textile yarn, fabrics, made-up articles and related products—	.....	.....	.....	.....	.....	.....	.....	.....
	Fabrics	13	132	701	1,352	709	100	989	3,995
	Floor coverings and the like	89	1	87	53	434	378	237	1,278
	Sacks and bags ....	.....	.....	1,074	229	(a)	2,260	3,563	3,563
66	Glass and glassware	7	55	.....	84	271	82	324	822
67	Iron and steel—	.....	.....	.....	.....	.....	.....	.....	.....
	Bars, rods, angles, shapes and sections	1	1	31	61	383	4	30	511
	Tubes, pipes and fittings	9	73	45	1,272	355	186	52	1,992
69	Manufactures of metal, n.e.i.—	.....	.....	.....	.....	.....	.....	.....	.....
	Cutlery	111	26	(a)	115	121	6	18	398
	Tools	18	95	(a)	68	428	318	423	1,349
71	Machinery—	.....	.....	.....	.....	.....	.....	.....	.....
	Other than electric—	.....	.....	.....	.....	.....	.....	.....	.....
	Excavating, levelling, tamping and boring, for earth, minerals or ores	91	40	.....	855	626	2,154	187	3,954
	Lifting, handling, loading or un- loading	3	23	.....	271	210	316	115	939
	Metal working ....	.....	142	.....	150	586	14	114	1,005
	Office	8	402	1	63	458	223	176	1,330
	Power generating machinery—	.....	.....	.....	.....	.....	.....	.....	.....
	Internal combustion engines	71	20	.....	66	3,266	441	104	3,968
	Other	275	5	.....	1,165	16	341	1,803	1,803
	Taps, cocks, valves and similar appliances	1	19	.....	6	424	136	38	624
	Textile and leather ....	.....	71	.....	53	147	161	118	550
	Tractors ....	.....	78	.....	194	1,423	2,835	533	5,063
72	Electrical machinery, apparatus and appliances—	.....	.....	.....	.....	.....	.....	.....	.....
	Electric power machinery and switchgear—	.....	.....	.....	.....	.....	.....	.....	.....
	Generators	(a)	291	.....	36	426	120	337	1,210
	Motors	(a)	15	.....	9	431	81	3	538
	Other	2	28	.....	26	759	72	226	1,113
	Telecommunication apparatus	.....	163	.....	121	497	495	151	1,426
73	Transport equipment—	.....	.....	.....	.....	.....	.....	.....	.....
	Aircraft and parts, n.e.i.	(a)	.....	.....	.....	610	95	48	754
	Railway and tramway vehicles ....	.....	19	.....	1,577	113	644	3	2,356
	Road motor vehicles	187	760	.....	3,100	4,312	1,259	581	10,200
	Road vehicles, other than motor vehicles	456	34	(a)	64	72	72	24	722
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	(a)	5	(a)	63	220	37	144	471
86	Scientific, medical, optical and photo- graphic equipment	12	112	2	151	782	313	259	1,631
89	Miscellaneous manufactured articles, n.e.i.—	.....	.....	.....	.....	.....	.....	.....	.....
	Books, newspapers, journals and the like	(a)	24	1	9	1,197	275	148	1,655
	Toys	4	7	(a)	153	186	16	158	524
93	Outside packages, n.e.i.	60	126	22	393	607	602	4,121	0,132
	All other commodities	1,132	2,060	291	2,721	9,678	6,446	8,870	31,187
	Total	6,042	5,577	2,793	16,605	35,883	20,729	(b)72,261	159,390

(a) Less than \$500. (b) Includes an amount of \$24.35 million, representing the value of imports of crude petroleum from Iran (\$6.74 million), Kuwait (\$8.95 million) and Qatar (\$8.66 million).

EXPORTS

VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA—SELECTED COMMODITIES
1966-67

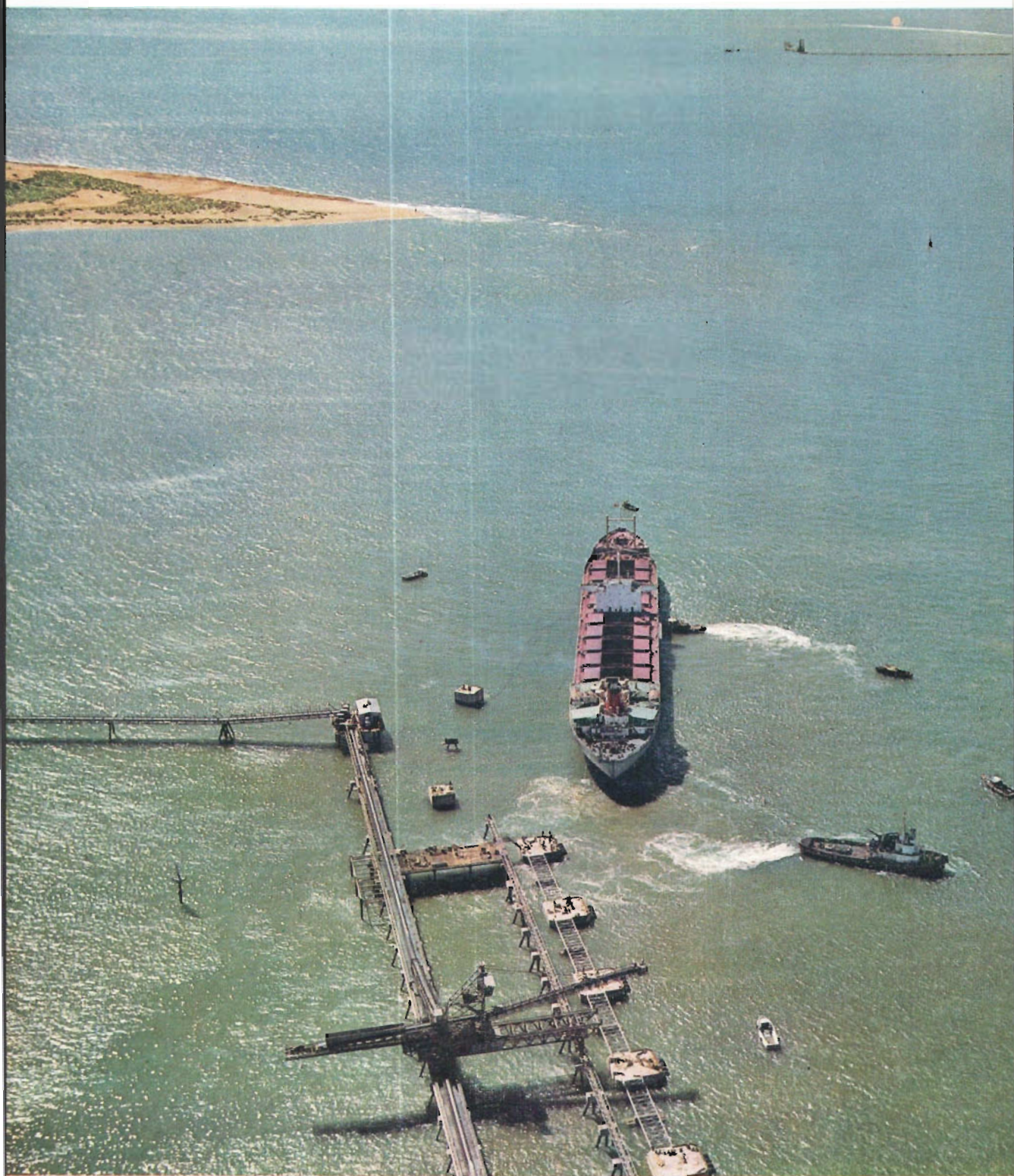
Division	Commodity	Value (\$'000)			Proportion of Total (per cent.)		
		Oversea	Interstate	Total	Oversea	Interstate	Total
00	Live animals—						
	Cattle	69	312	381	0·02	0·27	0·07
	Sheep	1,750	21	1,771	0·42	0·02	0·33
	Food—						
01	Meat, fresh, chilled, or frozen—						
	Beef and veal	11,949	38	11,987	2·84	0·03	2·23
	Lamb	482	127	609	0·11	0·11	0·11
	Mutton	3,093	22	3,114	0·73	0·02	0·58
	Pigmeat	145	325	470	0·03	0·28	0·09
	Other	1,274	147	1,422	0·30	0·13	0·26
03	Fish, fresh, chilled, or frozen—						
	Crayfish tails	13,871	2	13,873	3·29	0·00	2·58
	Other	2,624	373	2,997	0·62	0·32	0·56
04	Cereals and cereal preparations—						
	Barley, unmilled	5,464	(a)	5,464	1·30	0·00	1·02
	Flour of wheat	2,396	111	2,507	0·57	0·10	0·47
	Oats, unmilled	8,606	2	8,608	2·04	0·00	1·60
	Wheat, unmilled	126,914	4	126,918	30·12	0·00	23·62
	Other	1,462	257	1,719	0·35	0·22	0·32
05	Fruit and vegetables—						
	Fruit, fresh—						
	Apples	4,992	11	5,003	1·18	0·01	0·93
	Other	690	11	701	0·16	0·01	0·13
	Vegetables, fresh	1,324	685	2,009	0·51	0·59	0·87
	Other food	2,236	2,571	4,807	0·53	2·22	0·89
21	Hides, skins and fur skins, undressed—						
	Bovine	883	491	1,374	0·21	0·42	0·26
	Sheep and lamb	3,733	29	3,762	0·89	0·02	0·70
	Other	184	58	242	0·04	0·05	0·05
24	Timber—						
	Sleepers, railway	3,114	871	3,985	0·74	0·75	0·74
	Other	1,015	2,475	3,490	0·24	2·13	0·65
26	Textile fibres and their waste—						
	Wool—						
	Degreased (washed, scoured, etc.)	11,887	1,056	12,943	2·82	0·91	2·41
	Greasy (including slupe)	109,058	4,993	114,052	25·88	4·30	21·22
	Other	2,668	326	2,994	0·63	0·28	0·56
	Cotton fibre .....	...	1,572	1,572	...	1·35	0·29
27	Asbestos, crude	645	584	1,229	0·15	0·50	0·23
28	Metalliferous ores and metal scrap—						
	Ores, metalliferous—						
	Ilmenite	3,916	523	4,440	0·93	0·45	0·83
	Iron, including pyritic cinders	44,827	6,063	50,890	10·64	5·23	9·47
	Manganese	3,733	428	4,161	0·89	0·37	0·77
	Tin	1,234	980	2,214	0·29	0·84	0·41
	Other	2,083	31	2,114	0·49	0·03	0·39
	Metal waste and scrap—						
	Ferrous	468	196	664	0·11	0·17	0·12
	Non-ferrous	270	1,710	1,979	0·06	1·47	0·37
33	Petroleum and petroleum products	12,251	24,302	36,553	2·91	20·94	6·80
41	Tallow	1,509	35	1,544	0·36	0·03	0·29
51	Chemical elements and compounds	9,403	8,716	18,119	2·23	7·51	3·37
53	Pigments, paints, varnishes and related materials	1,575	259	1,834	0·37	0·22	0·34
62	Rubber manufactures, u.e.i.	34	1,050	1,084	0·01	0·90	0·20
63	Veneers, plywood boards and reconstituted wood	21	1,133	1,154	0·00	0·98	0·21
67	Iron and steel	3,160	12,499	15,658	0·75	10·77	2·91
	Machinery—						
71	Other than electric—						
	Agricultural, except tractors	59	2,198	2,257	0·01	1·89	0·42
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	566	598	1,164	0·13	0·52	0·22
	Tractors	141	4,482	4,623	0·03	3·86	0·86
	Other	1,464	3,021	4,485	0·35	2·60	0·83
72	Electric power machinery and switchgear	49	404	452	0·01	0·35	0·08
73	Transport equipment	795	1,502	2,297	0·19	1·29	0·43
82	Furniture	93	1,171	1,264	0·02	1·01	0·24
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	23	1,014	1,036	0·01	0·87	0·19
85	Footwear, gaiters and similar articles and parts therefor	1	1,395	1,396	0·00	1·20	0·26
99	Gold bullion .....	...	15,107	15,107	...	13·02	2·81
	All other commodities	11,123	9,739	20,863	2·64	8·39	3·88
	TOTAL	421,325	116,030	537,355	100·00	100·00	100·00

(a) Less than \$500.

VALUE OF PRINCIPAL EXPORTS TO AUSTRALIAN STATES—SELECTED COMMODITIES
(\$'000)

Division	Commodity	1965-66	1966-67						
		Total	N.S.W.	Vic.	Qld	S.A.	Tas.	N.T.	Total
00	Live animals—								
	Cattle	67	...	...	...	14	...	298	312
	Sheep	3	2	...	...	19	...	...	21
	Food—								
01	Meat and meat preparations—								
	Fresh, chilled, or frozen	623	206	67	...	18	...	367	659
	Other	242	...	15	...	14	...	158	187
02	Butter	105	...	...	...	...	...	186	186
03	Fish and fish preparations—								
	Fresh, chilled, or frozen	128	51	230	...	87	...	6	375
	Canned or bottled n.e.i., and fish preparations	323	322	304	39	168	...	11	843
05	Vegetables, fresh—								
	Beans	315	...	8	...	317	(a)	...	325
	Other	1,236	58	141	7	104	(a)	50	360
06	Confectionery, excluding chocolate	380	133	208	90	51	22	1	505
	Other food	908	268	257	7	299	3	414	1,247
21	Hides, skins and fur skins, undressed—								
	Bovine	669	208	199	...	85	...	...	491
	Sheep and lamb	25	...	29	...	...	...	...	29
	Other	8	46	4	...	8	...	...	58
24	Timber—								
	Sleepers, railway	465	...	...	...	841	...	29	871
	Other	1,831	183	316	3	1,840	...	133	2,475
26	Textile fibres and their waste—								
	Wool—								
	Degreased (washed, scoured, etc.)	652	1	583	...	472	...	...	1,056
	Greasy (including slip)	7,266	37	2,817	...	1,810	329	...	4,993
	Other	49	...	196	...	130	...	...	326
	Cotton fibre	456	334	611	...	126	...	...	1,572
27	Asbestos, crude	913	255	180	71	79	...	...	584
28	Metalliferous ores and metal scrap—								
	Ores, Metalliferous—								
	Ilmenite	417	...	...	...	...	523	...	523
	Iron, including pyritic cinders	4,984	6,063	...	...	...	...	...	6,063
	Manganese	812	(a)	...	...	...	428	...	428
	Tin	1,218	980	...	...	...	...	...	980
	Other .....	...	31	...	...	...	...	...	31
	Metal waste and scrap—								
	Ferrous	242	177	(a)	...	...	...	19	196
	Non-ferrous	1,076	1,028	433	1	248	...	...	1,710
29	Crude animal and vegetable materials, n.e.i.—								
	Animal casings (sausage), etc....	226	331	41	17	137	...	(a)	526
	Clover seed	336	83	164	...	236	...	...	483
33	Petroleum and petroleum products	29,239	7,981	7,230	(a)	6,418	1,417	1,256	24,302
51	Chemical elements and compounds	5,234	1,515	6,726	257	211	...	7	8,716
62	Rubber manufactures, n.e.i.	372	417	320	59	229	18	7	1,050
63	Wood and cork manufactures (b)—								
	Veneers, plywood boards, etc ..	690	124	533	...	413	24	39	1,133
	Cork manufactures	483	192	191	89	8	...	1	482
	Metals—								
67	Iron and steel	12,362	535	7,207	158	4,279	43	276	12,499
68	Silver bullion	235	1,888	...	...	...	...	...	1,888
69	Manufactures of metal, n.e.i.—								
	Household equipment of base metals	480	42	256	91	47	22	(a)	458
	Other	881	140	85	30	596	2	329	1,183
	Machinery—								
	Other than electric—								
	Agricultural, except tractors ...	1,058	933	441	476	348	1	(a)	2,198
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	579	271	130	94	29	41	33	598
	Tractors	2,934	1,798	1,117	794	773	...	...	4,482
	Other	4,149	958	730	314	849	98	72	3,021
72	Electrical machinery and apparatus—								
	Electric power machinery (c)	447	75	220	1	107	...	(a)	404
	Other	145	63	17	20	36	(a)	2	138
73	Transport equipment—								
	Road motor vehicles (d)	32	119	136	79	59	4	5	403
	Other	443	564	441	35	28	22	9	1,099
82	Furniture	1,223	315	327	227	217	32	53	1,171
84	Clothing and clothing accessories and articles of knitted, etc., fabric	899	200	350	45	336	31	50	1,014
85	Footwear, gaiters and similar articles	1,104	473	392	257	220	49	4	1,395
99	Gold bullion	26,147	15,107	...	...	...	...	...	15,107
	All other commodities	4,276	1,163	2,089	313	931	89	290	4,876
	TOTAL	119,619	(e)46,170	35,741	3,573	23,240	3,199	4,107	116,030

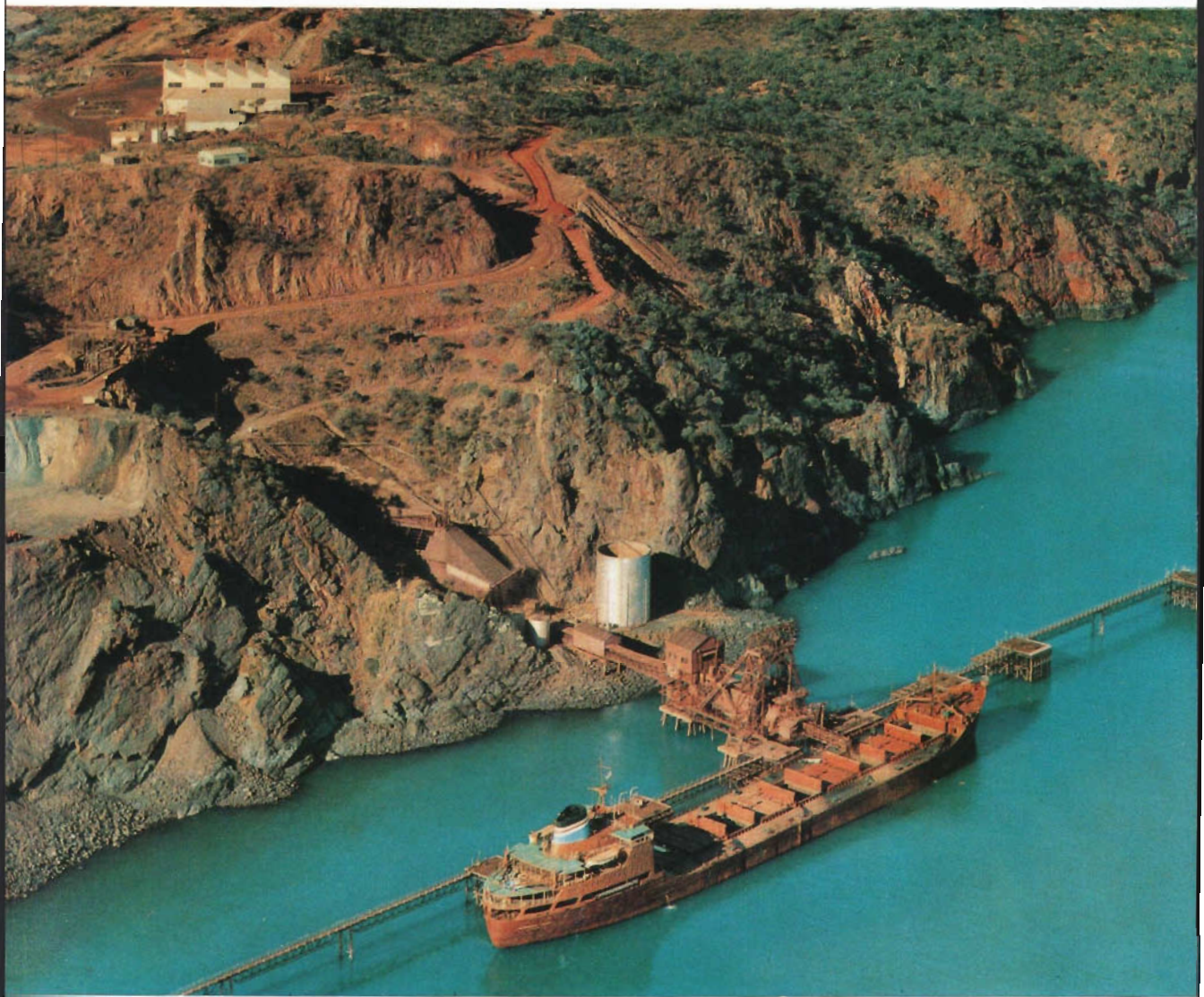
(a) Less than \$500. (b) Excluding furniture. (c) Including switchgear. (d) Including components.
(e) Includes the value of exports to the Australian Capital Territory.



Block by courtesy of Goldsworthy Mining Limited

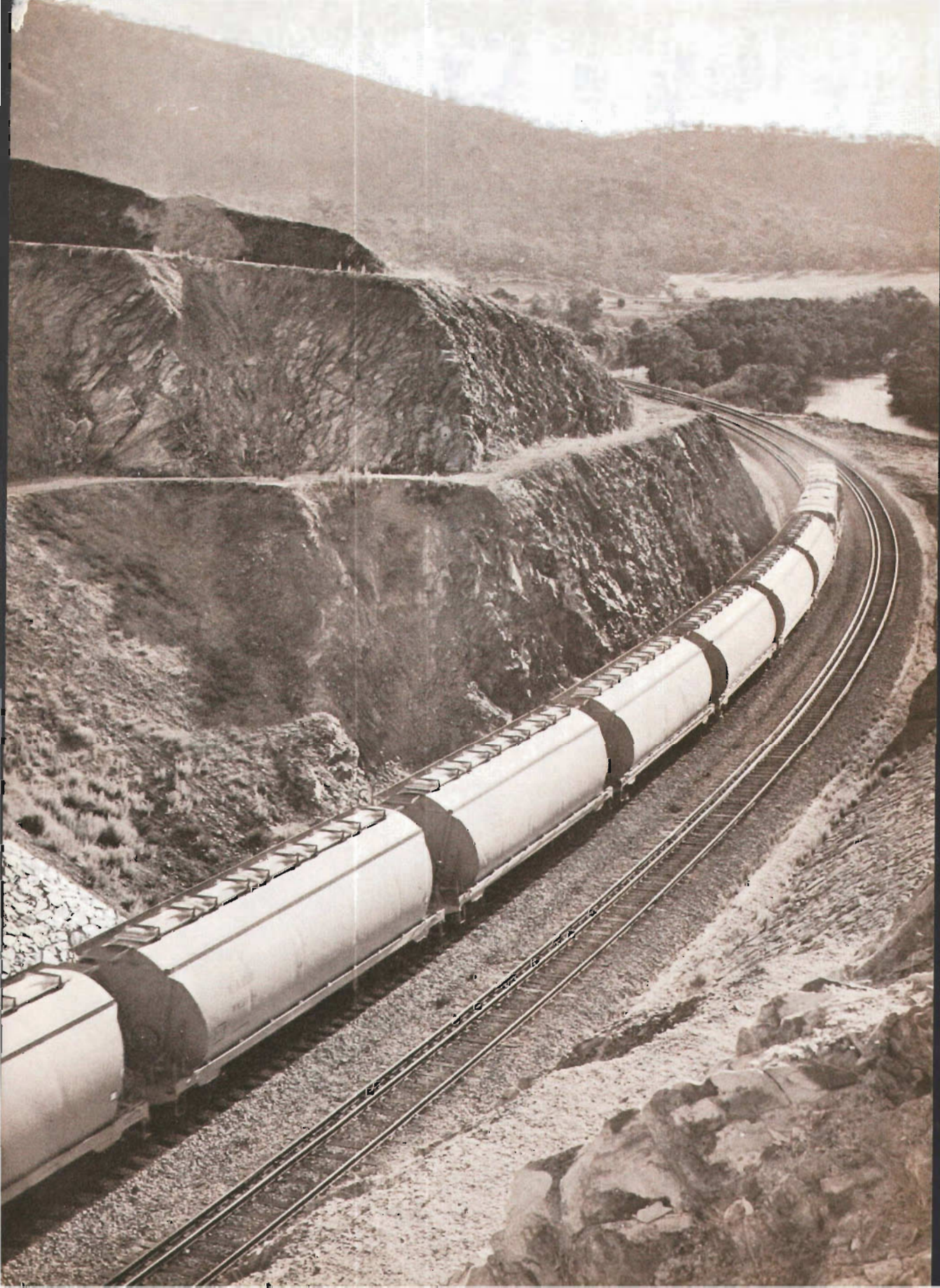
SHIPPING FACILITIES AT FINUCANE ISLAND

An iron ore bulk carrier is shown berthing at the Finucane Island terminal across the harbour from Port Hedland. Ore is railed from Mount Goldsworthy about 70 miles east of the port.



LOADING IRON ORE

The m.v. *Musgrave Range* at Cockatoo Island in Yampi Sound



STANDARD GAUGE WHEAT TRAIN

Haulage of grain on the standard gauge railway commenced
between Merredin and Fremantle in October, 1966



Block by courtesy of Goldsworthy Mining Limited

RAILWAY BRIDGE OVER THE DE GREY RIVER IN THE PILBARA

The bridge was constructed as part of the 70-mile standard gauge railway to carry iron ore from Mount Goldsworthy to Finucane Island off Port Hedland

The following table shows the value of overseas exports during 1966-67, classified according to commodity and main countries of destination. For further analysis of Western Australia's exports of principal commodities according to destination the reader is referred to the annual mimeographed publication *External Trade* compiled and issued free of charge by the Western Australian Office of the Bureau of Census and Statistics.

VALUE OF OVERSEA EXPORTS TO PRINCIPAL COUNTRIES OF DESTINATION
SELECTED COMMODITIES, 1966-67
(\$'000)

Division	Commodity	Germany, Fed. Rep. of	India	Italy	Japan	United Kingdom	United States of America	Other	Total
01	Meat, fresh, chilled, or frozen—								
	Beef and Veal .....	.....	2	.....	133	1,410	8,839	1,566	11,949
	Lamb .....	.....	1	.....	2	136	.....	343	482
	Mutton .....	.....	10	.....	856	145	277	1,795	3,093
	Other	9	(a)	18	42	539	10	807	1,419
02	Cheese and curd .....	.....	.....	.....	155	68	.....	1	224
03	Fish, fresh, chilled, or frozen—								
	Crayfish—								
	Whole	3	.....	8	(a)	(a)	53	844	909
	Tails .....	.....	.....	(a)	.....	.....	13,684	187	13,871
	Prawns	1	.....	.....	1,346	4	78	240	1,668
04	Cereals and cereal preparations—								
	Barley, unmilled .....	.....	.....	1,940	1,668	520	.....	1,336	5,464
	Cereal preparations .....	.....	.....	.....	426	.....	(a)	955	1,381
	Flour of wheat .....	.....	.....	.....	.....	2	.....	2,393	2,393
	Oats, unmilled	3,952	15	1,728	39	629	.....	2,242	8,606
	Wheat, unmilled .....	.....	13,070	.....	15,941	16,107	.....	(b)81,796	126,914
05	Fruit—								
	Currants .....	.....	.....	.....	.....	120	.....	159	279
	Fresh—								
	Apples	1,498	.....	.....	.....	1,739	.....	1,755	4,992
	Other .....	.....	.....	.....	.....	6	.....	685	691
06	Honey	27	1	.....	39	562	1	184	813
08	Feeding-stuff for animals	28	.....	.....	212	12	(a)	94	346
21	Hides, skins and fur skins, undressed—								
	Bovine	53	5	.....	394	16	.....	304	883
	Sheep and lamb	112	.....	1,168	33	435	.....	1,984	3,733
22	Oil-seeds, oil nuts and oil kernels .....	.....	.....	.....	341	.....	.....	.....	341
24	Sleepers, railway .....	.....	50	.....	.....	331	.....	2,733	3,114
26	Wool—								
	Degreased (washed, scoured, etc.)	1,882	104	740	195	2,226	3,175	3,566	11,887
	Greasy (including slupe)	7,904	3,109	6,987	40,143	14,384	5,710	30,820	109,058
	Other .....	.....	19	.....	5	258	741	1,645	2,668
27	Asbestos, crude	7	123	39	34	26	.....	416	645
28	Metalliferous ores and metal scrap—								
	Ores, metalliferous—								
	Copper .....	.....	.....	.....	322	.....	.....	.....	322
	Ilmenite .....	.....	.....	100	497	2,016	422	882	3,916
	Iron, including pyritic cinders	154	.....	927	41,562	594	.....	1,589	44,827
	Lead and zinc .....	.....	.....	.....	123	53	.....	.....	176
	Manganese .....	.....	.....	.....	3,703	(a)	.....	30	3,733
	Tin .....	.....	.....	.....	43	67	(a)	1,123	1,234
	Other	67	.....	5	578	17	634	284	1,585
	Metal waste and scrap—								
	Ferrous .....	.....	.....	.....	423	(a)	.....	45	468
	Non-ferrous	1	.....	4	35	185	2	43	270
29	Animal casings (sausage) and the like	4	.....	15	26	89	77	73	283
33	Petroleum and petroleum products .....	.....	.....	.....	170	1,987	(a)	10,094	12,251
41	Animal oils and fats—								
	Tallow .....	.....	294	.....	38	(a)	.....	1,177	1,509
	Other	75	.....	.....	283	.....	118	82	557
51	Inorganic elements and compounds .....	.....	.....	.....	4,869	.....	4,425	36	9,330
53	Dyeing and tanning materials	4	(a)	40	.....	5	374	52	476
55	Essential oils, perfume and flavour materials	6	1	52	1	8	59	62	189
61	Leather .....	.....	.....	.....	.....	164	.....	103	267
67	Iron and steel—								
	Bars, rods, angles, shapes and sections .....	.....	.....	.....	.....	.....	1,067	204	1,271
	Pig, ingot and other primary forms	234	.....	167	651	25	.....	696	1,773
71	Machinery, other than electric—								
	Excavating, levelling, tamping and boring, for earth, minerals or ores .....	.....	.....	.....	.....	4	108	233	345
	Power generating .....	.....	2	.....	1	32	9	401	446
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances .....	.....	1	.....	.....	7	1	557	566
73	Road motor vehicles .....	.....	3	(a)	.....	7	58	323	392
	All other commodities	193	395	46	849	1,070	1,930	12,831	17,315
	TOTAL	16,217	17,206	14,095	115,893	46,290	41,852	169,772 (b)	421,325

(a) Less than \$500. (b) Includes an amount of \$61.28 million, representing exports of wheat to China (mainland) valued at \$46.10 million and to Pakistan, \$15.18 million.

SHIPS' STORES

The following table shows the quantity and value of ships' stores loaded on board vessels at Western Australian ports during the years 1964-65 to 1966-67. The value of ships' stores is excluded from all tables appearing elsewhere in this Chapter.

EXPORTS IN THE FORM OF SHIPS' STORES (a)

Commodity	Unit of Quantity	1964-65		1965-66		1966-67	
		Quantity	Value	Quantity	Value	Quantity	Value
			\$'000		\$'000		\$'000
Beverages, alcoholic—							
Ale, beer and porter	'000 gallons	158	153	180	155	157	137
Wines, spirits, liqueurs, etc.	'000 gallons	22	59	33	76	36	94
Foodstuffs—							
Fresh, chilled or frozen—							
Eggs in shell	'000 dozen	241	134	270	170	246	155
Fish	'000 lb.	320	217	301	191	437	278
Fruit			89		115		156
Meat	'000 lb.	1,983	606	2,442	782	3,418	894
Vegetables			298		266		353
All other foodstuffs			282		451		424
Fuel for ships and aircraft—							
Coal	'000 tons	3	61	3	53	1	23
Other (bunker oil, etc.)	'000 gallons	80,238	6,320	87,562	6,700	96,784	7,380
Lubricants			146		272		195
All other ships' stores			643		826		849
Total (a)			9,009		10,058		10,936

(a) Includes interstate ships' stores valued at \$795,428 in 1964-65, \$1,052,259 in 1965-66 and \$931,492 in 1966-67. Where the value of overseas ships' stores recorded in any one entry is less than \$100, the stores concerned are not allocated according to commodity, but are included in the item *All other ships' stores*.

OVERSEA TRADE OF PORTS

The following table shows the value of overseas imports and exports through Western Australian ports during each year from 1964-65 to 1966-67.

VALUE OF OVERSEA TRADE OF WESTERN AUSTRALIAN PORTS
(\$'000)

Port	Imports			Exports		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
Port of Fremantle (a)	148,493	165,717	143,156	187,725	241,779	287,202
Other Ports—						
Albany	1,464	1,874	2,238	20,962	26,359	30,048
Broome	21	6	216	3	1,809	2,166
Bunbury	1,366	2,413	2,838	11,677	12,486	21,347
Busselton				147	319	156
Dampier (b)	19	1,633	4,965	884	474	21,972
Derby (c)	13	6	68	809	469	733
Esperance	524	371	889	2,297	1,652	5,634
Exmouth (d)					7	
Geraldton	1,498	1,751	3,193	13,694	24,514	27,437
Onslow						
Port Hedland (e)	2	1,819	1,587	1,422	2,084	21,806
Wyndham	140	99	240	3,458	2,451	2,824
Total	5,047	9,973	16,235	55,355	72,623	134,124
Total, All Ports	153,540	175,690	159,390	243,078	314,404	421,325

(a) For the purpose of this table, the value of goods received from or consigned to overseas countries as air freight or by parcel post is included in the figures shown for the Port of Fremantle. (b) Including Point Samson. (c) Including Yampi. (d) Including Carnarvon. (e) Including Barrow Island.

CUSTOMS AND EXCISE

The particulars appearing in the tables in this section have been extracted from the bulletin *Overseas Trade* published annually by the Commonwealth Statistician, Canberra. The bulletin contains details showing, for each State and Territory, a dissection of customs revenue according to Customs Tariff Division, and excise revenue according to Excise Tariff Item and rate of duty.

CUSTOMS AND EXCISE DUTIES—NET COLLECTIONS IN WESTERN AUSTRALIA
(\$'000)

Tariff	1962-63	1963-64	1964-65	1965-66	1966-67
Customs Duty	8,574	9,782	10,077	13,363	11,851
Excise Duty—					
Petroleum products	9,004	9,763	13,185	17,848	20,222
Spirits, potable and non-potable	579	567	615	830	1,017
Tobacco, cigars and cigarettes	9,842	10,060	11,350	12,909	13,069
Other (a)	16,449	17,357	17,933	21,491	23,365
Total, Excise (a)	35,874	37,746	43,083	53,077	57,673
TOTAL NET REVENUE (a)	44,448	47,528	53,160	66,441	69,524

(a) Includes excise on beer, details of which are not available for publication.

The following table shows the rates of excise duty applying to certain commodities during the period 1st July, 1965 to 30th June, 1967, the quantities of goods excised in Western Australia at those rates, and the gross amounts of revenue collected. For a more detailed analysis, including particulars for each State and Territory, the reader is referred to the annual bulletin *Overseas Trade* to which reference is made earlier in this section.

EXCISE DUTY—GROSS COLLECTIONS IN WESTERN AUSTRALIA

Commodity	Unit of Quantity	Rate of Duty	1965-66		1966-67	
			Quantity	Gross Collections	Quantity	Gross Collections
Beer (a)	gal.	0.983 and 1.1375	(b)	\$'000 (b)	(b)	\$'000 (b)
Spirits (potable) (a)—						
Brandy	pf. gal.	4.90 and 8.00	55,761	388	56,746	454
Gin	pf. gal.	8.20 and 11.30	9,417	99	13,416	152
Whisky	pf. gal.	8.00 and 11.10	14,690	150	14,432	160
Rum	pf. gal.	8.20 and 11.30	10,081	100	10,747	121
Liqueurs	pf. gal.	8.10 and 11.20	2,107	22	2,867	32
Vodka	pf. gal.	8.10 and 11.20	2,953	32	4,879	55
Flavoured spirituous liquors	pf. gal.	8.10 and 11.20	369	4	466	5
Other	pf. gal.	12.20	....	(c)	77	1
Spirits (non-potable) for—						
Fortifying wine	pf. gal.	0.40	47,393	19	53,760	21
Industrial and scientific purposes	pf. gal.	2.50	4,837	12	4,754	12
Making vinegar	pf. gal.	0.20	6,068	1	12,432	2
Manufacture of—						
Essences	pf. gal.	1.00 to 1.20	2,889	3	3,173	3
Scents and toilet preparations	pf. gal.	1.40 to 1.60	51	(c)	45	(c)
Tobacco—Manufactured	lb.	0.60	17,276	12	14,529	10
Cigarettes—Machine-made (a)	lb.	(d) 2.04	123,497	252	....	....
Petrol (a)—		(e) 2.24	538,566	1,206	606,655	1,359
Aviation	gal.	3.71 and 4.20	2,758,862	11,442	2,785,661	11,700
Other	gal.	0.071 and 0.096	....	....	15,777	2
Aviation turbine fuel (a)	gal.	0.098 and 0.123	132,915,683	15,689	146,017,542	17,960
Automotive diesel fuel (a)	gal.	0.054 and 0.079	7,533,518	569	8,726,932	689
Cigarette papers and tubes	60 papers or tubes	0.100 and 0.125	13,289,194	1,590	12,583,678	1,573
Coal	ton	0.0145	5,305,110	77	5,374,576	78
Canned fruit (f)	dozen	0.0333	1,123,091	37	1,075,610	36
Other	n.a.	n.a.	n.a.	(g) 21,824	n.a.	(g) 23,739
Total Gross Collections	n.a.	n.a.	n.a.	(g) 53,536	n.a.	(g) 58,176

n.a. denotes "not applicable".

(a) The higher rate of duty shown became operative from 18th August, 1965. (b) Not available for publication.
(c) Less than \$500. (d) Operative to 18th August, 1965. (e) Operative from 18th August, 1965. (f) The higher rate of duty shown became operative from 17th March, 1967. (g) Includes excise duty paid on beer; see note (b).

The Customs Tariff

The first Commonwealth Customs Tariff was introduced on the 8th October, 1901, from which date uniform duties came into effect throughout Australia. The Australian Customs Tariff has been developed in conformity with the policy of protecting economic and efficient Australian industries and of granting preferential treatment to imports from certain countries. Duties are imposed on some goods, generally of a luxury nature, for revenue purposes. Customs collections are a major source of revenue, but in its protective character the tariff has an important influence on the Australian economy.

CHAPTER IX—continued

PART 2—TRANSPORT

Western Australia's main transport systems are based generally on Perth, the capital, and the principal port, at Fremantle. Subsidiary systems are centred on a number of outports north and south of Fremantle and on some inland towns.

The railway system extends from Fremantle, Perth and Midland for hundreds of miles into the mining, agricultural, pastoral and forest areas in the southern half of the State. There is also a well-developed road system in this area, and the coastal towns in the north-west and the north are connected by road with the south and with the pastoral and mining areas of the hinterland. International flights operate through the airport at Perth, which is also the centre of a comprehensive network of services to towns in Western Australia and to the capital cities of other States.

In recent years important mineral developments in the north-west have led to the provision of deep-water port facilities and the construction of railways and roads connecting them with the extensive iron-ore deposits now being exploited.

SHIPPING

Western Australia's sea-borne trade is conducted through the Port of Fremantle and a number of outports. The outports are Geraldton, Bunbury, Busselton, Albany and Esperance in the more highly-developed south-western and southern part of the State, and Carnarvon, Exmouth, Onslow, Dampier, Point Samson, Port Hedland, Broome, Derby, Yampi and Wyndham, which serve the less closely-settled areas of the north-west and the north.

The following table shows the number and net tonnage of vessels, excluding warships, entered at each port, and the tonnage of cargo discharged at and shipped from each port, during the years 1964-65 and 1965-66. The net tonnage of a vessel, expressed in tons of 100 cubic feet, represents the volume of enclosed space that can be used for cargo and passengers. Most cargoes are recorded in terms of the ton weight of 2,240 lb. but some cargo, consisting mainly of bulky commodities, is recorded on the basis of the ton measurement, a unit equivalent to 40 cubic feet of space. Statistics are compiled accordingly in terms of "tons weight" or "tons measurement." In order to provide a ready comparison, as in the following table, of the volume of cargo handled at the several ports or in different years, the amounts recorded in the two categories have been aggregated. In the tables on page 358, details of cargo handled at each port during 1965-66 are presented separately on the basis of "tons weight" and "tons measurement."

VESSELS ENTERED AND CARGO HANDLED AT PORTS

Port	Vessels Entered				Cargo Handled			
	Year ended 30th June—				Year ended 30th June—			
	1965		1966		1965		1966	
	Vessels	Net Tons	Vessels	Net Tons	Discharged	Shipped	Discharged	Shipped
Port of Fremantle	1,411	'000 7,715	1,562	'000 8,383	tons 4,716,342	tons 3,420,484	tons 4,965,868	tons 3,975,362
Other Ports—								
Albany	157	763	151	800	200,492	285,508	214,608	370,529
Barrow Island (a)	20	19	2	3	(b)	(b)	3,747	104
Broome	96	148	98	164	20,201	7,034	15,101	8,019
Bunbury	139	660	168	727	204,467	522,715	203,911	694,338
Busselton	16	22	15	17	...	14,999	...	15,827
Carnarvon	81	99	41	43	18,075	2,068	19,902	665
Dampier	7	24	91	208	7,779	...	130,517	50
Derby	111	190	109	192	22,204	23,653	28,121	16,350
Esperance	33	164	30	153	120,182	44,791	108,626	53,502
Exmouth	21	48	30	92	7,204	...	20,052	526
Geraldton	95	372	138	566	125,910	286,711	178,715	615,683
Onslow	79	127	71	121	2,454	1,367	2,375	1,311
Point Samson	110	202	95	167	28,797	9,160	27,421	18,992
Port Hedland	131	201	173	236	31,603	72,881	100,899	150,550
Wyndham	98	210	92	194	36,107	12,277	44,386	10,951
Yampi	192	816	208	1,190	9,529	1,510,652	5,607	2,467,692
Total	1,386	4,063	1,512	4,874	835,004 (c)	2,793,816 (c)	1,103,988	4,425,089
All Ports	2,797	11,778	3,074	13,257	5,551,346 (c)	6,214,300 (c)	6,069,856	8,400,451

(a) Buoyed sea terminal.

(b) Not recorded.

(c) Incomplete; see note (b).

TONNAGE OF OVERSEA, INTERSTATE AND INTRASTATE CARGO: 1965-66
(Tons)

Port	Oversea		Interstate		Intrastate		Total	
	Weight	Measurement	Weight	Measurement	Weight	Measurement	Weight	Measurement
DISCHARGED								
Port of Fremantle	3,933,528	159,688	719,341	111,423	21,184	20,704	4,674,053	291,815
Other Ports—								
Albany	153,961	834	2,037	642	42,887	14,247	198,885	15,723
Barrow Island .....	.....	.....	.....	.....	3,747	.....	3,747	.....
Broome .....	.....	.....	35	.....	7,366	7,700	7,401	7,700
Bunbury	116,803	.....	1,697	154	81,434	3,823	199,934	3,977
Busselton .....	.....	.....	.....	.....	.....	.....	.....	.....
Carnarvon	9,832	.....	.....	.....	10,012	58	19,844	58
Dampier	50,130	.....	1,978	.....	78,409	.....	130,517	.....
Derby	7,774	32	.....	69	7,231	13,015	15,005	13,116
Esperance	34,928	.....	37,170	89	36,439	.....	108,537	89
Exmouth	6,037	.....	.....	.....	13,263	752	19,300	752
Geraldton	98,954	315	91	.....	79,346	9	178,391	324
Onslow .....	.....	.....	.....	.....	2,375	.....	2,375	.....
Point Samson	7,902	66	12,246	.....	2,452	4,755	22,600	4,821
Port Hedland	42,938	1	1,056	.....	55,319	1,585	99,313	1,586
Wyndham	10,836	79	17	6	12,177	21,271	23,030	21,356
Yampi	101	.....	970	.....	4,536	.....	5,607	.....
Total	540,196	1,327	57,297	960	436,993	67,215	1,034,486	69,502
All Ports	4,473,724	161,015	776,638	112,383	458,177	87,919	5,708,539	361,317

SHIPPED

Port of Fremantle	2,048,675	62,167	1,365,620	37,044	365,882	95,974	3,780,177	195,185
Other Ports—								
Albany	361,344	9,178	7	.....	.....	.....	361,351	9,178
Barrow Island .....	.....	.....	.....	.....	104	.....	104	.....
Broome	2,378	.....	17	.....	4,192	1,432	6,587	1,432
Bunbury	555,122	22,947	40,788	29	7	75,445	595,917	98,421
Busselton	242	4,697	2,114	4,284	1,532	2,958	3,888	11,939
Carnarvon	650	.....	.....	.....	15	.....	665	.....
Dampier .....	.....	.....	.....	.....	50	.....	50	.....
Derby	4,796	41	265	17	8,571	2,660	13,632	2,718
Esperance	52,983	519	.....	.....	.....	.....	52,983	519
Exmouth .....	.....	.....	.....	.....	181	345	181	345
Geraldton	517,747	44,078	50,358	17	3,436	47	571,541	44,142
Onslow .....	.....	.....	.....	.....	1,311	.....	1,311	.....
Point Samson	10,473	.....	2,742	.....	4,652	1,125	17,867	1,125
Port Hedland	146,114	.....	182	30	4,224	.....	150,520	30
Wyndham	3,842	670	1,331	54	1,359	3,695	6,532	4,419
Yampi	99,239	.....	2,367,991	.....	462	.....	2,467,692	.....
Total	1,754,930	82,130	2,465,795	4,431	30,096	87,707	4,250,821	174,268
All Ports	3,803,605	144,297	3,831,415	41,475	395,978	183,681	8,030,998	369,453

Apart from general cargo, oversea and interstate consignments discharged were principally petroleum products, iron and steel products, rock phosphate and sulphur. Outward cargoes, with the exception of refined petroleum products and steel products shipped from the Port of Fremantle (outer harbour), consisted largely of primary products, including minerals. Cargoes shipped from the ports of Albany and Esperance comprised mainly wheat, oats and barley. At Bunbury the principal cargo was ilmenite, followed next in importance by wheat. Iron ore and wheat were the main exports from Geraldton. Timber was the principal cargo shipped from Busselton. In the northern part of the State, Yampi, Dampier and Port Hedland are the major ports for shipment of iron ore, exports of which commenced from Yampi in July, 1951, from Port Hedland in June, 1966 and from Dampier in August, 1966. The buoyed sea terminal at Barrow Island provides facilities for the loading of crude petroleum. From other ports in the area, exports consist mainly of primary products such as livestock, meat, wool and cotton.

The State Shipping Service, inaugurated by the State Government in 1912, operates principally along the north-west and northern coasts, calling regularly at ports between Fremantle and Darwin (Northern Territory). Some voyages extend beyond Darwin around the north of Australia to other

States, returning to Fremantle by way of south coastal ports. Besides general cargo the freight discharged by ships of the Service at north-west and northern ports consists mainly of refined petroleum, building and construction materials, refrigerated cargo, vehicles and livestock. Cargoes carried south to Fremantle are mainly primary products, meat, livestock and minerals.

In the following tables vessels entered at and cleared from each Western Australian port during 1965-66 are classified according to the direction of the voyage on which each vessel was engaged. "Direction" is determined by reference to the port of commencement of the inward voyage or the port of termination of the outward voyage.

VESSELS ENTERED AT EACH PORT: 1965-66

Port	From Oversea Countries			From Other Australian States		From Other Western Australian Ports	Total	
	Direct	Via Other Australian States	Via Other Western Australian Ports	Direct	Via Other Western Australian Ports		Vessels	Net Tons
								'000
Port of Fremantle	644	52	83	489	91	203	1,562	8,383
Other Ports—								
Albany	40	2	17	54	2	36	151	800
Barrow Island	....	....	....	....	....	2	2	3
Broome	1	2	1	5	22	67	98	164
Bunbury	27	1	24	34	4	78	168	727
Busselton	1	....	1	....	....	13	15	17
Carnarvon	3	....	12	....	6	20	41	43
Dampier	24	5	14	3	4	41	91	208
Derby	10	....	8	10	17	64	100	192
Esperance	11	....	2	7	1	9	30	153
Exmouth	12	1	7	....	....	10	30	92
Geraldton	61	1	10	6	5	55	138	566
Onslow	....	....	....	....	22	49	71	121
Point Samson	6	2	....	6	20	61	95	167
Port Hedland	27	1	18	10	14	103	173	236
Wyndham	8	1	5	17	....	61	92	194
Yampi	28	1	....	94	30	55	208	1,190

VESSELS CLEARED FROM EACH PORT: 1965-66

Port	To Oversea Countries			To Other Australian States		To Other Western Australian Ports	Total	
	Direct	Via Other Australian States	Via Other Western Australian Ports	Direct	Via Other Western Australian Ports		Vessels	Net Tons
								'000
Port of Fremantle	746	36	22	448	93	210	1,555	8,190
Other Ports—								
Albany	62	4	41	8	2	34	151	796
Barrow Island	....	....	....	....	....	3	3	4
Broome	3	....	1	4	43	46	97	158
Bunbury	26	1	80	12	2	48	169	724
Busselton	2	2	1	7	....	3	15	17
Carnarvon	12	....	2	1	5	21	41	43
Dampier	15	....	....	8	11	58	92	209
Derby	7	....	....	3	42	56	108	191
Esperance	5	....	5	3	1	17	31	156
Exmouth	1	....	1	....	....	29	31	97
Geraldton	31	....	29	8	29	40	137	554
Onslow	....	....	....	2	34	35	71	121
Point Samson	6	....	1	1	41	45	94	164
Port Hedland	36	....	....	5	36	95	172	235
Wyndham	6	....	1	55	1	30	93	196
Yampi	4	....	....	141	43	20	208	1,190

Administration of Ports

The Port of Fremantle is controlled and operated by the Fremantle Port Authority. The ports at Albany and Bunbury are administered by the Albany Harbour Board and the Bunbury Harbour Board, which are constituted as statutory authorities. Private organizations control the ports at Yampi, Dampier and Exmouth and the buoyed sea terminal at Barrow Island. The State Government is responsible for all other ports in Western Australia, their operations being under the direction of the Harbour and Light Department.

RAILWAYS

Railways open for general and passenger traffic in the southern part of the State are operated by the Western Australian Government Railways Commission. The system is linked with railways of other States by the Commonwealth Government Trans-Australian Railway between Kalgoorlie in Western Australia and Port Pirie in South Australia. There are, in addition, private railways for the haulage of iron ore in the northern part of the State and timber in the south-west.

A map showing the railway and road services provided by the Western Australian Government Railways Commission during 1965 appeared in the *Western Australian Year Book*, No. 6—1967, facing page 384.

Origin and Development

The earliest railways in the Colony, built in 1871 from Busselton into the nearby forest and in 1872 from the Canning River and from Rockingham into the forests of the Darling Range, were private lines constructed for the transport of timber. In 1871 the Colony's first Loan Act was passed to finance, among other things, a survey for a railway in the Champion Bay district. This line, completed in 1879, was the first government railway and provided transport for lead and copper ores from Northampton to the port of Geraldton. Construction of the Eastern Railway began in 1879 and by March, 1881, Fremantle, Perth and Guildford had been connected. Extensions of the line were opened in 1884 to Chidlow, in 1885 to Spencers Brook and in 1886 to Northam. The first section of what is now the Great Southern Railway was completed in 1885 from Spencers Brook to York, and in the following year a second section, between York and Beverley, was opened to traffic. Meanwhile work on the Northern Railway system had been continued and Geraldton and Walkaway were connected in 1887. In 1888 a northward extension of the Eastern Railway from Clackline to Toodyay was completed. In 1889 Beverley and Albany were linked by a private railway built by the Western Australian Land Company under an agreement by which the company received a grant of 12,000 acres of Crown land adjacent to the line for every mile of track completed. By the end of 1890 there were 430 miles of railway open for general and passenger traffic, 188 miles being owned by the Government of the Colony and 242 miles by the Western Australian Land Company.

The South-Western Railway began operating in 1891 with the completion of a line from Bunbury to Boyanup. Perth was connected with Picton Junction in 1893 and Donnybrook with Boyanup in the same year. The system was extended from Boyanup to Busselton in 1895 and from Brunswick Junction to Collie and from Donnybrook to Bridgetown in 1898. The Eastern Goldfields Railway from Northam reached Southern Cross in 1894, Boorabbin and Kalgoorlie in 1896, and Menzies in 1899. Eastward extensions of the Northern Railway were completed between Narngulu and Mullewa in 1894 and between Mullewa and Cue in 1898. The Government enlarged its Great Southern Railway system in 1896 by purchasing the Western Australian Land Company's line from Beverley to Albany, and in 1898 by opening an eastward extension from York to Greenhills. A second private railway constructed on the land-grant principle, between Midland Junction and Walkaway, was completed by the Midland Railway Company in 1894. At the end of 1900, the Colony's railway system comprised 1,355 miles of government line and the 277 miles of the Midland Railway Company's line, representing a total increase of 1,202 miles in the ten years since 1890.

During the succeeding decade there began a greatly expanded programme of State Government railway construction, due partly to the extension of gold-mining activity but mainly associated with the spectacular development of Western Australia's wheat-growing lands. In 1903 the area sown to wheat, 138 thousand acres, was nearly half again as great as that in the previous year and the production, 1·88 million bushels, was almost double. Ten years later over one million acres were cropped for a harvest of 13·3 million bushels, and in 1915 the area sown was 1·73 million acres and production more than 18 million bushels. This increase had been made possible by the laying of many hundreds of miles of light, narrow-gauge railway, which could be built quickly and cheaply, to provide spur and loop lines from the trunk system into the expanding wheat belt. There were 1,612 miles of government line open for traffic in 1906 and 3,332 miles in 1915, the increase of 1,720 miles in nine years being equivalent to an average annual rate of construction of almost 200 miles. In the next 25 years another thousand miles of route were added, bringing the total length of the State Government system to a maximum of 4,381 miles in 1940.

Serious difficulties were experienced in the rehabilitation of the railway system during the years immediately following the second World War. Rolling stock had become depleted and much of it was obsolete. A programme of replacement of existing locomotives was necessary and considerable work

on permanent way was essential to bring roadbeds to the standard required for heavy haulage at higher speeds. The liabilities imposed by an extensive rail network, constructed primarily to assist the development of the mining, agricultural, pastoral and forestry industries, increased with rising operating costs and growing competition from other forms of transport.

Following an investigation into non-paying lines, a motion was agreed to by the Parliament in December, 1956 giving authority for the suspension, for a trial period, of rail services on 842 miles of line. The Railways (Cue-Big Bell and other Railways) Discontinuance Act was passed in 1960 giving legislative approval of the closure, subject to proclamation, of 670 miles of line on which services had been suspended. Up to the 31st December, 1964, proclamations had been issued in respect of 603 miles, and all closures authorized by the Act were completed on the 21st May, 1965 when the last 67 miles of railway was proclaimed closed. The remaining 172 miles of line on which services were suspended in 1957 are in cereal-growing areas and are now operated on a seasonal basis for the haulage of grain and fertilizers.

The Bellevue-Mount Helena Railway Discontinuance and Land Revestment Act, 1964 and the Bibra Lake-Armadale Railway Discontinuance and Land Revestment Act, 1964, providing for the cessation of services on a total of 25 miles of line, came into operation on the 12th March, 1965.

The Kwinana-Mundijong-Jarrahdale Railway Act, 1961, authorizing the construction of some 24 miles of railway for the haulage of bauxite to an alumina refinery at Kwinana, was assented to in November, 1961 and came into operation by proclamation on the 7th December, 1962. The railway is of 3 ft. 6in. gauge and was opened in July, 1963.

On the 1st August, 1964 the Midland Railway was officially transferred to the control of the Western Australian Government Railways Commission, in terms of The Midland Railway Company of Western Australia Limited Acquisition Agreement Act, 1963 which authorized the State Government to purchase the assets of the Company.

An agreement on a proposal to construct a standard gauge railway between Kwinana and Kalgoorlie, with connecting lines in the suburban area, was negotiated between the Commonwealth and State Governments and later ratified by the Parliaments in 1961. Further reference to this agreement and the associated legislation will be found later in this Part in the section *Railway Gauges*. An official ceremony to mark the commencement of construction of the standard gauge railway was held on the 5th November, 1962 at a site in the Avon valley 21 miles from Perth. At the 30th June, 1967, 312 route miles of standard gauge railway between Kwinana and Koolyanobbing (125 miles from Kalgoorlie) had been completed.

At the 30th June, 1967 there were 4,269 miles of railway open for general and passenger traffic in Western Australia. Of this total 3,815 miles were owned and operated by the State Government and 454 miles by the Commonwealth Government. In addition a further 13 miles of privately-owned line connecting the Koolanooka iron-ore deposits to the State Government line to Geraldton is operated by the Western Australian Government Railways Commission. Other private lines comprise 17 miles operated by timber-milling organizations, 70 miles of iron-ore railway between Goldsworthy and Port Hedland, and 182 miles between iron-ore deposits at Tom Price and the port of Dampier.

The Western Australian Government Railways Commission

The Government Railways Act, 1904-1967 constitutes a Commission, in the person of the Commissioner of Railways, who is responsible, subject to the Minister, for the administration of the Act.

Financial procedure for the Western Australian Government Railways is basically the same as for other Departments. Receipts from railway services are paid into the Consolidated Revenue Fund, and finance for railway operations and the servicing of debt is provided from the Fund by statutory appropriations. Loan moneys, for the construction and improvement of permanent way, for the purchase of traction units and rolling stock and for other capital outlay, are advanced by the Parliament from the General Loan Fund.

There has been a significant growth in rail traffic in recent years, resulting from improvements to permanent way, the acquisition of new rolling stock including diesel railcars and heavy diesel-electric locomotives, the introduction of modern machinery and improved techniques in the Commission's workshops, the provision of modern handling facilities, the simplification of freighting methods and the installation of new signalling and communications equipment. These developments have effected a marked improvement in the finances of the system and in 1960-61 operating revenues exceeded operating expenses (excluding depreciation and interest charges) for the first time since 1945-46. This excess, including surplus earnings of the Commission's road services (see later section *Road Services*), amounted to \$4,081,106 in 1961-62, \$2,279,516 in 1962-63, \$2,939,172 in 1963-64, \$3,766,232 in 1964-65, and \$7,684,414 in 1965-66.

The reduction in 1962-63 was attributable mainly to a decrease in the tonnage of wheat and other grains carried, and the improvement in later years to increased earnings from the haulage of timber, ores and minerals, wheat, wool and fertilizers. With the haulage of iron ore from Koolanooka and Koolyanobbing, and bauxite from Jarrahdale, ores and minerals are rivalling wheat as the largest single item of freight.

Summary of Operations

The following table gives particulars of the financial transactions, railway operations and road service operations of the Western Australian Government Railways for each of the years 1961-62 to 1965-66. It should be noted that the financial details shown include those relating to road services (see following section *Road Services*).

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS (a)

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966

FINANCE (b)					
	\$'000	\$'000	\$'000	\$'000	\$'000
Capital Investment at 30th June (c)	112,591	117,428	124,034	127,449	133,825
Operating Revenues—					
Passenger Fares	2,611	2,609	2,684	2,937	3,001
Parcels and Mails	1,120	1,125	1,192	1,259	1,379
Paying Goods and Livestock	30,305	28,182	29,873	31,036	37,708
Miscellaneous	1,573	1,513	1,441	1,454	1,582
Total Operating Revenues	35,608	33,429	35,190	36,686	43,669
Operating Expenses	31,527	31,150	32,250	32,920	35,985
Excess of Operating Revenues over Expenses	4,081	2,280	2,939	3,766	7,684
Depreciation	3,818	3,922	4,049	4,354	4,669
Interest Charges	5,082	5,226	5,577	6,232	7,006
Total Deficit	4,819	6,868	6,687	6,820	3,991

RAILWAY OPERATIONS					
Route Mileage at 30th June	3,851	3,797	3,677	3,733	3,747
Employees at 30th June	12,122	11,929	11,508	11,390	11,520
Number of—	'000	'000	'000	'000	'000
Train Miles Run (d)	8,900	8,359	8,332	8,324	8,823
Passengers Carried—					
Suburban	11,308	10,936	10,298	9,911	9,748
Country	598	600	516	484	419
Total	11,906	11,536	10,814	10,395	10,168
Tons of Freight—					
Paying Goods and Livestock	5,342	4,793	5,187	5,229	6,384
Departmental (e)	622	529	521	512	452
Total	5,964	5,322	5,708	5,741	6,836
Ton Mileage—					
Paying Goods and Livestock	831,127	762,274	813,319	842,066	1,020,770
Departmental	61,365	55,665	46,390	46,796	46,122
Total	892,492	817,939	859,709	888,862	1,066,891

ROAD SERVICE OPERATIONS					
Route Mileage at 30th June—					
Omnibus	3,265	3,240	3,256	3,782	3,730
Freighter	800	820	1,112	1,314	1,352
Employees at 30th June	165	166	174	233	244
Number of—	'000	'000	'000	'000	'000
Miles Run—					
Omnibus	1,556	1,649	1,671	1,949	2,061
Freighter	377	349	546	759	941
Total	1,933	1,998	2,217	2,708	3,002
Passengers Carried	261	263	251	260	255

(a) The railway and road service operations of The Midland Railway Company of Western Australia Limited were transferred to Western Australian Government Railways control with effect from the 1st August, 1964. (b) Includes financial transactions in relation to road services. (c) Including Stores Funds. (d) Revenue and non-revenue train miles. (e) Departmental freight comprises mainly coal, oil, water, ballast, timber and rails. * Revised.

Road Services

In addition to its normal railway operations the Commission provides road services for the carriage of passengers and freight.

Road services were introduced in November, 1941 when, under the stress of wartime conditions, great difficulty was being experienced in the transport of essential goods, and it was therefore decided to transfer some of the passenger traffic from rail to road. This enabled a greater concentration of locomotive power on goods traffic and the haulage of heavier loads than were possible with mixed passenger and goods trains. Congestion on overloaded sections of railway was reduced and greater flexibility in train schedules resulted in more effective use of locomotives and wagons.

The road passenger services expanded considerably after the war, reaching a peak in 1952-53, when 636,171 passengers were carried and the mileage travelled was 2,125,564. From that year until 1958-59, operations showed a continuous decline as country rail services improved with the increased use of diesel electric traction. Since 1958-59, operations have increased steadily as road freighter services have been developed and passenger services improved and extended to cover routes formerly served by rail.

Some of the omnibuses employed are dual-purpose vehicles equipped with a freight compartment. Passenger vehicle trailers are used on some services to carry up to two tons of luggage, small parcels and mails. In addition to passenger-freighter vehicles, there are vehicles which carry only freight. They are used to eliminate delays to important trains at sidings and to reduce shunting operations. Freight services also operate from rail-heads to provide services to points previously connected by rail and to areas which are being developed.

Goods and Livestock Carried

The table on page 362 shows that almost ninety per cent. of the operating revenues of the Western Australian Government Railways are derived from the carriage of goods and livestock. As stated earlier, these railways were constructed primarily to assist the development of the agricultural, pastoral, forestry and mining industries. The continuing importance of the system to these industries will be readily appreciated from an examination of the following table, which shows the tonnage of paying goods and livestock carried during each year in the period from 1961-62 to 1965-66. The classification used in the table is that adopted by the Railways Commission in dissecting its freight transport statistics.

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS
TONNAGE OF PAYING GOODS (a) CARRIED

Freight Classification	Year ended 30th June—				
	1962	1963	1964	1965	1966
Wheat	1,945,756	1,480,307	1,473,981	1,187,758	1,966,892
Other Grain	300,229	218,877	198,065	155,917	276,028
Grain Products	83,424	64,291	77,430	71,337	54,281
Chaff	6,863	6,472	6,271	5,977	5,657
Fertilizers	482,495	500,407	521,910	539,718	587,486
Fruit and Vegetables	96,584	112,800	96,838	112,154	102,994
Wool	79,041	75,517	89,871	86,018	100,182
Timber	328,309	311,908	363,069	359,387	367,536
Firewood	2,328	2,811	1,621	1,914	729
Coal, Coke, Shale and Charcoal (b)	648,178	681,793	704,244	757,836	678,355
Ores and Minerals	405,155	345,691	626,560	868,019	1,101,842
Oil in Tank Wagons	168,636	179,140	183,781	198,046	214,752
Other Classifications	669,694	687,931	728,922	784,308	819,909
Livestock (†)	125,619	124,808	114,905	100,841	106,836
Total	5,342,311	4,792,753	5,187,468	5,229,230	6,383,509
(†) Number of Livestock Carried—					
Sheep	1,948,117	1,800,264	1,874,837	1,429,584	1,619,214
Cattle	94,197	105,571	120,043	88,292	85,007
Pigs	146,038	131,530	101,235	94,044	102,732
Horses	1,953	1,384	1,542	1,235	898

(a) Including livestock.

(b) Predominantly local coal.

Timber Railways

At the 30th June, 1966, there were five separate lines owned and operated by private companies for the haulage of timber. The following table gives details of timber railways during the period from 1961-62 to 1965-66.

TIMBER RAILWAYS

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
Number of—					
Lines Open at 30th June	13	12	9	4	5
Route Miles Operated	281	275	136	21	22
Locomotives at 30th June	20	15	11	4	5
Train Miles Run	121,010	95,724	46,555	11,027	16,115
Employees at 30th June	100	97	33	17	18
Tonnage of Timber and Other Goods Carried	267,467	226,226	154,117	61,605	85,012

Commonwealth Government Railways

The Commonwealth Government Railways comprise four separate systems. These are the Trans-Australian Railway, operating partly in Western Australia and partly in South Australia; the Central Australia Railway, partly in South Australia and partly in the Northern Territory; the North Australia Railway, wholly in the Northern Territory; and the Australian Capital Territory Railway.

Construction of the Trans-Australian Railway was begun at Port Augusta, the original South Australian terminus of the line, in 1912 and work was completed in 1917. Of the total length of 1,108 miles between Kalgoorlie and Port Pirie (South Australia), 454 miles are in Western Australia. Although statistical details of activities on each of the four systems are available, it is not possible to give separate particulars of the operations in Western Australia of the Trans-Australian Railway. Some statistics relating to the Commonwealth Government Railways are shown in the next table.

Operations of Government Railways in Australia

The following table gives a summary of operations during the year ended 30th June, 1966 on each of the railway systems owned by the State and Commonwealth Governments.

It will be noted that particulars of route miles shown for the New South Wales and Victorian systems differ from the details given for those States in the table in the next section *Railway Gauges*, which is compiled according to the State or Territory in which the several lengths of line are situated. The Victorian system includes lines extending into New South Wales, the aggregate length of such lines in New South Wales being 204 miles. The New South Wales system includes 69 miles of line situated in Queensland.

In 1962, the opening of a new uniform gauge (4 ft. 8½ in.) railway between Melbourne (Victoria) and Albury, on the border between Victoria and New South Wales, completed the standard gauge link between Melbourne and South Brisbane (Queensland). The section between South Brisbane and Albury is operated by the New South Wales Government Railways, and the remainder of the route by the Victorian Government Railways.

GOVERNMENT RAILWAYS IN AUSTRALIA—SUMMARY OF OPERATIONS, 1965-66

Railway System of—	Route Mileage at 30th June	Revenue Train Miles Run	Passenger Journeys	Goods and Livestock Carried	Gross Earnings	Average Number of Employees (a)
		'000	'000	'000 tons	\$'000	
New South Wales	6,055	37,694	257,568	26,917	195,336	46,147
Victoria	4,188	20,145	149,125	12,156	99,519	28,211
Queensland	5,785	17,640	25,979	10,049	84,178	25,620
South Australia	2,478	6,492	15,511	4,789	28,947	8,052
Western Australia	3,747	8,043	10,168	6,384	42,571	11,345
Tasmania	500	1,283	1,304	1,072	5,985	2,160
Commonwealth—						
Trans-Australian	1,108	2,062	233	562	11,942	1,734
Central Australia	822	783	24	2,144	5,504	1,038
North Australia	317	95	85	49	500	135
Australian Capital Territory	5	15		221	145	45
Australia	25,005	94,252	459,997	64,343	474,627	124,487

(a) Excluding construction staff.

Railway Gauges

The following table shows the route mileage of government railways of each gauge in each of the Australian States and Territories at the 30th June, 1966. Except where otherwise indicated, the mileages shown relate to lines owned by the several State railway authorities.

GOVERNMENT RAILWAYS IN EACH STATE AND TERRITORY OF AUSTRALIA
ROUTE MILEAGE OPEN AT 30th JUNE, 1966

State or Territory	Route Miles of Gauge—					Total Route Miles
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
State Systems in—						
New South Wales	(a) 204	6,055	....	....	....	6,259
Victoria	(b) 3,773	202	....	9	....	3,984
Queensland .....	....	(c) 69	5,686	....	30	5,785
South Australia	1,650	....	828	....	....	2,478
Western Australia .....	....	....	3,747	....	....	3,747
Tasmania .....	....	....	500	....	....	500
Commonwealth Systems in—						
South Australia .....	....	871	432	....	....	1,303
Western Australia .....	....	454	....	....	....	454
Northern Territory .....	....	....	490	....	....	490
Australian Capital Territory .....	....	5	....	....	....	5
Total Route Miles	5,627	7,656	11,683	9	30	25,005

(a) Part of the Victorian railway system. (b) Excludes 202 miles of 5 ft. 3 in. gauge line which roughly parallels the uniform gauge line between Melbourne and Albury. (c) Operated as part of the New South Wales railway system.

Standardization of gauges on main trunk routes throughout Australia and on some other lines has been the subject of inquiries by the Commonwealth Government and of agreements between the Commonwealth and some States. The principle of standardization was accepted at a Premiers' Conference in August, 1945 following an investigation instituted by the Commonwealth Government in March, 1944 and the submission of a favourable report in March, 1945. The use of the 4 ft. 8½ in. gauge was recommended for adoption in a unification plan, one of the projects in which was to be the construction of a line from the port of Fremantle through Perth to Kalgoorlie. Approval was given to the making of a survey for a route, and field work began in October, 1945. The work was continued until December, 1947, when it was abandoned pending agreement between the Governments of the Commonwealth and the State on the provision of finance for the unification scheme. In the years immediately following the second World War it became apparent that considerable expenditure would be necessary on the rehabilitation of the Western Australian Government Railways. The urgency and the magnitude of this undertaking were such that all the Department's available resources of money, labour and materials were absorbed in the programme and, in these circumstances, works associated with the unification plan could not be contemplated but, where possible, works connected with the restoration of the 3 ft. 6 in. system were so designed as to make provision for later conversion to the standard gauge.

In March, 1956, a committee consisting of members of the Federal Parliament was appointed to re-examine the matter of standardization. Among its recommendations, submitted in October, 1956 was the provision of the standard gauge line between Fremantle and Kalgoorlie, but no immediate action was taken to carry out this work.

During the 1960 session, the Western Australian Parliament passed the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act ratifying an agreement between the Government and the Company relating to the establishment of an integrated iron and steel industry at Kwinana on the coast south of Fremantle. The Act makes the operation of the agreement contingent upon the passage of legislation by the State and Commonwealth Parliaments to provide for the financing, construction and completion before the 31st December, 1968 of a standard gauge railway between the works site at Kwinana and the terminus of the Trans-Australian Railway at Kalgoorlie. Accordingly the Commonwealth Parliament passed the Railway Agreement (Western Australia) Act 1961 extending to the State financial assistance for the project. The State Parliament approved this agreement by the Railway Standardisation Agreement Act, 1961 and gave authority for the construction of the railway by means of the Railways (Standard Gauge) Construction Act, 1961. Work on route surveys was begun in 1961 and the construction of earthworks commenced on the 5th November, 1962. Basic planning and all major surveys required for the project were completed during 1965. Activities on earthworks, bridging, and the construction of trackwork, signalling and telecommunications are proceeding on various sections of the route. The 3 ft. 6 in. portion of the dual-gauge route between Midland and Northam along the Avon River valley was commissioned for general and passenger traffic on the 13th February, 1966. In October of the same year, haulage of grain on the standard gauge railway commenced between Merredin and the Port of Fremantle. The first train load of iron ore from Koolyanobbing to Kwinana was hauled in April, 1967, and at the 30th June, 1967 there were 312 miles of standard gauge railway open for traffic.

ROADS AND ROAD TRAFFIC

Work connected with road construction and maintenance and associated projects in Western Australia is undertaken by the State Government, through the Main Roads Department, and by local government authorities, comprising City Councils, Town Councils and Shire Councils.

Under the provisions of the Main Roads Act, the Main Roads Department was established in 1930 to replace the Main Roads Board originally constituted as a central road authority in 1926. The Department operates under the Main Roads Act, 1930-1967 and is administered by a Commissioner of Main Roads responsible to the Minister for Works. The Act makes provision for public roads in the categories of "main" roads, "controlled-access" roads and "developmental" roads. An additional category, that of "important secondary" roads, is used by the Department in determining its works programme.

Main roads are those which provide communication between a large producing area, either actual or potential, and its market or nearest port or railway station; between two or more such areas; between large centres of population; or between the capital city and a large producing area or a large centre of population. Controlled-access roads are those which do not permit direct access from abutting property and may be entered or departed from only at certain selected road connexions located at points which are considered to serve best the traffic for which the controlled-access road was designed. Developmental roads are those which serve to develop an area or to increase its development. Important secondary roads are those which, though originally classified as developmental, have come to be used consistently by through traffic and therefore warrant a special allocation of funds by the Main Roads Department. The Act provides that, on the recommendation of the Commissioner, any road may be proclaimed a main road and any main road may cease to be a main road.

The construction and maintenance of main roads and controlled-access roads are the responsibility of the Main Roads Department. The Department also makes substantial financial provision for the construction and maintenance of important secondary roads and for the construction of developmental roads. The construction and maintenance of strategic roads and roads of access to Commonwealth property is undertaken by the Department for the Commonwealth Government.

Within its own district, each local government authority is responsible for the provision and upkeep of roads other than those provided by the Main Roads Department. In addition, the local authority is required by the Main Roads Act to maintain any developmental road situated in its district.

The following table shows the length of public roads of each type of surface, and of unsurfaced public roads, at the 30th June, 1967, classified according to Statistical Division (see map of Western Australia following Index). Included in the total are 3,428 miles of main roads, 7 miles of controlled-access road, 7,958 miles of important secondary roads and 43,930 miles of developmental roads.

ROADS OPEN FOR GENERAL TRAFFIC AT 30th JUNE, 1967
MILEAGE CLASSIFIED ACCORDING TO STATISTICAL DIVISION

Statistical Division	Paved Surface			Unpaved			Grand Total
	Bitumen (a)	Gravel and Other Surfaces	Total	Formed (b)	Unformed (c)	Total	
Perth(d)	3,386	711	4,097	156	579	735	4,832
South-West	2,133	3,880	6,013	4,038	5,769	9,807	15,820
Southern Agricultural	1,628	3,455	5,083	6,787	2,444	9,231	14,314
Central Agricultural	2,967	6,372	9,339	8,984	(e) 3,604	12,588	(f) 21,927
Northern Agricultural	1,603	4,745	6,348	6,051	3,296	9,347	15,695
Eastern Goldfields	1,237	2,277	3,514	5,063	5,167	10,230	13,744
Central	221	348	569	6,490	(e) 1,642	8,132	(f) 8,701
North-West	220	164	384	3,471	(e) 1,361	4,832	(f) 5,216
Pilbara	90	526	616	2,190	(e) 640	2,830	(f) 3,446
Kimberley	321	715	1,036	2,516	1,860	4,376	5,412
Total	13,806	23,193	36,999	45,746	(e) 26,362	72,108	(f) 109,107

(a) Includes short lengths of concrete surface aggregating 5 miles, 33 chains. (b) Comprises roads, mainly of natural surfaces, formed but not metalled or otherwise prepared. (c) Roads unprepared except for certain clearing. (d) The Perth Statistical Division was constituted with effect from 1st January, 1966 by amalgamation of the former Metropolitan and Swan Statistical Divisions. (e) Particulars are incomplete as information for some Shires is not available. (f) See note (e).

Vehicle Registration, Licences and Traffic Control

The Traffic Act, 1919-1967 provides for the registration of vehicles, the issue of licences and the regulation of traffic throughout the State, and prescribes the fees payable in respect of the several types of licences required.

In Western Australia there is no single authority responsible for the licensing of vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area, which comprises the Cities of Perth, Fremantle, Nedlands, South Perth and Subiaco; the Towns of Claremont, Cottesloe, East Fremantle, Melville, Midland and Mosman Park; the Shires of Armadale-Kelmscott, Bassendean, Bayswater, Belmont, Canning, Cockburn, Gosnells, Kwinana, Peppermint Grove, Perth and Rockingham; and parts of the Shires of Mundaring and Swan-Guildford. Outside the Metropolitan Traffic Area each local government authority is responsible for the licensing of vehicles in its own district.

The Traffic Act provides that the issue of drivers' and riders' licences and used car dealers' licences throughout the State shall be the function of the Police Department.

The following table contains particulars of the number of motor vehicles, classified according to type, on the register at the 30th June in each of the years from 1962 to 1966. It also shows the net amounts collected from motor vehicle registrations and fees in the Metropolitan Traffic Area and in the rest of the State, as well as revenue from drivers', riders' and similar licences and fees throughout the State. Vehicles owned by the Commonwealth Government are not licensed under the Traffic Act and are excluded from the figures shown. At the 30th June, 1966 there were in Western Australia 1,535 Commonwealth Government-owned vehicles (other than those of the defence services) listed with the Commonwealth Registry, Canberra. They comprised 359 motor cars and station wagons, 1,140 utilities, vans and trucks, 20 omnibuses and 16 motor cycles.

MOTOR VEHICLES ON REGISTER AND NET FEES RECEIVED

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
METROPOLITAN TRAFFIC AREA					
Number on Register at end of Year (a)—					
Motor Cars and Station Wagons	101,850	114,459	127,393	136,719	148,505
Utilities, Vans, Trucks and Omnibuses	27,598	28,386	29,419	30,025	32,483
Motor Cycles (including Motor Scooters)	8,732	8,205	7,403	6,388	6,030
Total	138,180	151,050	164,215	173,132	187,018
Revenue from Registrations and Fees \$'000	3,169	3,705	4,213	4,591	5,464
REST OF STATE					
Number on Register at end of Year (a)—					
Motor Cars and Station Wagons	53,436	56,101	61,585	65,893	70,952
Utilities, Vans, Trucks and Omnibuses	45,578	46,359	47,701	48,238	50,780
Motor Cycles (including Motor Scooters)	3,654	3,437	3,041	2,844	2,731
Total	102,668	105,897	112,327	116,975	124,463
Revenue from Registrations and Fees \$'000	2,628	2,881	3,255	3,491	4,146
WHOLE STATE					
Number on Register at end of Year (a)—					
Motor Cars and Station Wagons	155,286	170,560	188,978	202,612	219,457
Utilities, Vans, Trucks and Omnibuses	73,176	74,745	77,120	78,263	83,263
Motor Cycles (including Motor Scooters)	12,386	11,642	10,444	9,232	8,761
Total	240,848	256,947	276,542	290,107	311,481
Revenue from—					
Motor Vehicle Registrations and Fees (b) \$'000	5,797	6,586	7,467	8,081	9,610
Drivers', Riders', etc., Licences and Fees \$'000	583	611	741	785	1,059

(a) Excludes vehicles owned by the Commonwealth Government. Excludes also such vehicles as tractors, trailers and industrial (on site) equipment. (b) For further details see table on page 218.

Traffic control in general is exercised by the Police Department in the Metropolitan Traffic Area, except for certain powers in relation to the parking of vehicles conferred on the Perth City Council by the City of Perth Parking Facilities Act, 1956-1965. Outside the Metropolitan Traffic Area, control is vested by the Traffic Act in the local government authorities, each of which is required by the Act to appoint at least one traffic inspector for its district.

In June, 1965, a Departmental Committee was appointed by the State Government to investigate country traffic control, and to consider and report upon the necessity for the establishment of a single traffic authority throughout the State responsible for traffic control only; licensing of vehicles only; or both functions.

The majority of the committee, in a report which was presented in April, 1966, recommended that "the Police Department be established as the sole authority responsible for the enforcement of the Traffic Act throughout the State". A further majority recommendation was to the effect that "licensing of vehicles throughout the State be made the responsibility of a single authority and that the Commissioner of Police is the appropriate authority to assume this responsibility". Although the recommendations were not adopted by the Government, it was decided that a local authority exercising vehicle licensing and traffic control powers in any territory outside the Metropolitan Traffic Area might voluntarily transfer these powers to the Police Department. Legislative authority for any such transfer was given in the Traffic Act Amendment Act, 1967 which provides that if a local authority, by resolution of its Council, so requires, the Minister may, by notice in the *Government Gazette*, confer on the Commissioner of Police, all the powers and duties imposed on the local authority by the Traffic Act, other than those relating to road construction.

Finance for Roads

The principal source of revenue for road works in Western Australia is in the form of Commonwealth financial assistance authorized by a series of Acts, the first of which, the Main Roads Development Act, was passed in 1923.

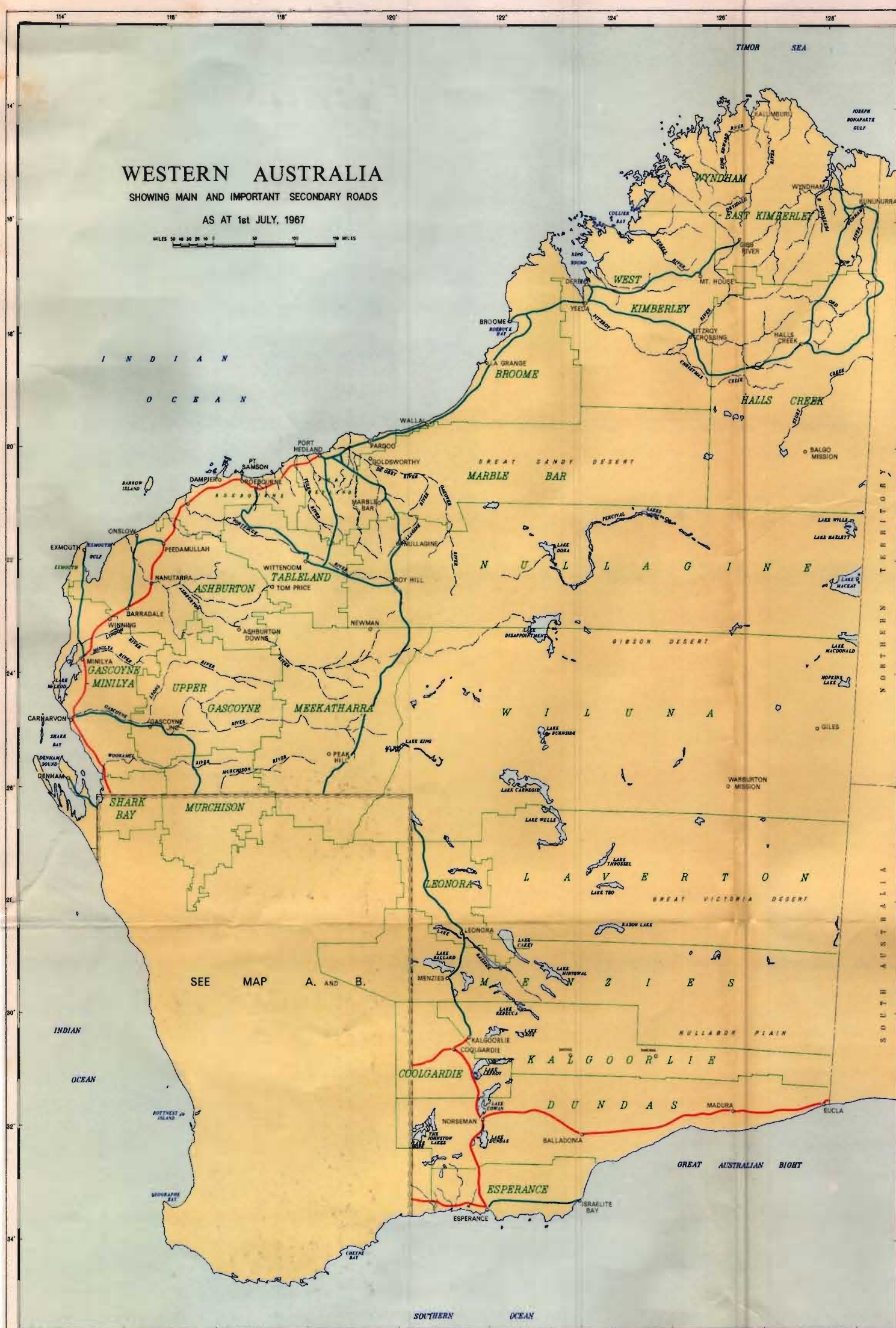
Reference is made in earlier issues of the *Official Year Book of Western Australia* to the main provisions of the Commonwealth Aid Roads Act 1954, the Commonwealth Aid Roads (Special Assistance) Act 1957 and the Commonwealth Aid Roads Act 1959. The legislation currently in operation for the provision of grants to the States for or in connexion with roads is the Commonwealth Aid Roads Act 1964.

The Commonwealth Aid Roads Act 1964, which was assented to on the 26th May, 1964, became operative on the 23rd June, 1964. It supersedes the Commonwealth Aid Roads Act of 1959 and authorizes the Commonwealth to grant financial assistance to the States in relation to roads during the period of five years commencing on the 1st July, 1964. This assistance takes the form of a basic grant aggregating \$660 million for the five-year period, with an additional grant of \$90 million. The basic grant increases uniformly each year from \$124 million in 1964-65 to \$140 million in 1968-69. After payment to Tasmania of five per cent. of the basic grant for each year, the balance is to be allocated among the States in the proportion of one-third according to population, one-third according to area and one-third according to the number of motor vehicles registered. The additional grant, which increases uniformly from \$6 million in the first year to \$30 million in the fifth year, is a conditional one dependent on a State's expenditure on roads from its own resources. Where this expenditure in any year exceeds the corresponding amount spent in 1963-64 (\$5,373,834 in the case of Western Australia), the State is entitled to receive a grant equal to the amount of the excess, or its quota of the additional grant for that year, whichever is the less. A State's quota of the additional grant is determined on the same principle as that used in allocating the basic grant.

The Act continues the requirement of earlier legislation that not less than two-fifths of the moneys paid to a State in respect of any year shall be spent on the construction of rural roads or the purchase of road-making plant for use in connexion with rural roads, which it defines as "roads in rural areas . . . other than highways, trunk roads and main roads".

The receipt and distribution by the State of moneys for roads and associated works are dealt with in a number of accounts, among the more important of which are the Metropolitan Traffic Trust Account, the Central Road Trust Fund, the Main Roads Trust Account, and the Roads Maintenance Trust Fund.

A Central Road Trust Fund account was opened at the Treasury on the 1st January, 1960, in accordance with the provisions of the Traffic Act, to record transactions in connexion with the additional grant provided for in the Commonwealth Aid Roads legislation. The Traffic Act, 1919-1967 requires the Commissioner of Police to pay into the Fund from the Metropolitan Traffic Trust Account the balance remaining in the latter after making, or making provision for, specified payments. Other revenues



MAP. A. SOUTH WEST AREA: Showing MAIN and IMPORTANT SECONDARY ROADS

MAP. B. SOUTH WEST AREA: Showing TYPE of CONSTRUCTION.



MAP A



MAP B

accruing to the Fund are those derived from local government authorities outside the Metropolitan Traffic Area, which are required to contribute the amount of their collections of vehicle licence fees in excess of such receipts in 1958-59, portion of the revenue throughout the State from drivers' and riders' licences, and the State's quota of the additional grant from the Commonwealth.

The Central Road Trust Fund is administered by the Commissioner of Main Roads who is directed in terms of the Traffic Act to make payments from the Fund to local authorities by way of monthly instalments. Every local authority outside the Metropolitan Traffic Area receives each year a total payment 75 per cent. greater than the amount of its contribution for the previous financial year. The metropolitan local authorities share, in proportions determined by the Minister, an amount which exceeds by 75 per cent. one-half of the sum paid to the credit of the Fund by the Commissioner of Police from the Metropolitan Traffic Trust Account. It is provided that the total disbursements to local government authorities from the Fund shall be spent on road construction which, for the purposes of the Act, includes the purchase of road-making plant. The balance of the moneys remaining in the Fund for any financial year is to be paid into the Main Roads Trust Account.

The revenue of the Metropolitan Traffic Trust Account consists of the amount received by the Commissioner of Police as fees for the issue, renewal and transfer of vehicle licences in the Metropolitan Traffic Area. The Act provides that the Commissioner of Police shall pay out of the Metropolitan Traffic Trust Account to each local authority in the Metropolitan Traffic Area an amount equal to three-fourths of the aggregate vehicle licence fees paid to that local authority in 1958-59. The remaining fourth of the base year sum is paid to the Consolidated Revenue Fund. After providing for other specified payments, the balance of the Account, excluding the sum to be transferred to the Central Road Trust Fund, is paid to the Main Roads Trust Account to finance the performance of specified works and services associated with road construction and maintenance, and allied projects.

Other State moneys used for road purposes are the contributions paid to the Main Roads Trust Account by the Commissioner of Transport to meet the cost of maintaining and improving roads used by omnibuses and commercial vehicles licensed by the Department.

Additional finance for roads has become available under the Road Maintenance (Contribution) Act, 1965, which came into operation on the 1st April, 1966. The Act provides that the owner of every vehicle carrying goods for hire or reward, or in connexion with a trade or business, and having a load capacity in excess of eight tons, shall submit a monthly return of mileage travelled and shall pay a charge to be applied to the maintenance of roads. The Act specifies the rate of the charge as one-third of a penny (five-eightieths of a cent) per ton-mile, calculated on the basis of the tare weight plus two-fifths of the load capacity. Moneys received under the Act and paid into the Roads Maintenance Trust Fund to the 30th June, 1967, totalled \$2.93 million.

Local government expenditure on roads is financed from a number of sources. These comprise vehicle licence fees, Commonwealth and State moneys received by way of disbursements made by the Commissioner of Main Roads, amounts levied in the form of general rates, and the proceeds of local government loans raised for road purposes. Under the provisions of the Traffic Act Amendment Act (No. 2), 1964, each local government authority outside the Metropolitan Traffic Area continues to retain the fees collected for motor vehicle licences up to an amount equal to its collections in 1958-59 and is required to spend on road construction at least three-quarters of the amount so retained. The Act provides that the whole of the moneys allocated to metropolitan local authorities from the Metropolitan Traffic Trust Account shall be spent on road construction.

In addition to grants made under the Commonwealth Aid Roads legislation, the Commonwealth Government has provided financial assistance, during the six-year period ended 30th June, 1967, in terms of a series of Western Australia Grant (Beef Cattle Roads) Acts, the first of which was passed in 1961. The aim of this assistance has been to improve the standard of roads used for the transport of beef cattle in the Kimberley. During the period of the programme almost \$17 million was spent, the State Government matching Commonwealth contributions on a dollar for dollar basis. The State Government has submitted proposals to the Commonwealth for an extension of the scheme.

ROAD PASSENGER TRANSPORT SERVICES

Motor omnibus and trolley-bus services (as well as a passenger ferry service) in the metropolitan area are operated by the Metropolitan (Perth) Passenger Transport Trust, constituted under the Metropolitan (Perth) Passenger Transport Trust Act, 1957-1966. For the purposes of the Act, the metropolitan area is defined by a proclamation of the 1st May, 1958 as being "all the land within a circle having a radius

of 30 miles from the Perth Town Hall " and, in addition, an area bounded by the South Western Highway and the ocean, extending southward to an east-west line one mile south of the town of Pinjarra.

Road transport outside the metropolitan area is provided by the railways road services (see pages 362-3), which cover long-distance routes between Perth and country centres; by the Eastern Goldfields Transport Board, which serves the Kalgoorlie-Boulder urban area under an agreement with the Kalgoorlie and Boulder Town Councils and the Kalgoorlie Shire Council; and by privately-owned omnibus services, which operate mainly in and around country centres.

Reference is made on page 149 to the transport of children to and from school in country areas. In 1966 the cost to the Government of school transport services was \$2,365,919. The number of omnibuses engaged was 654. They travelled a daily total of 44,074 miles and carried 22,955 children daily.

OMNIBUS SERVICES (a)

Year ended 30th June—	Route Miles Operated	Omnibuses at end of Year	Omnibus Miles Run '000	Passengers Carried '000	Employees at end of Year	Operating Revenues (b) \$'000	Operating Expenses \$'000	Depreci- ation \$'000	Interest \$'000
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METROPOLITAN (PERTH) PASSENGER TRANSPORT TRUST (c)

1963	522	560	15,693	50,983	1,541	4,752	5,049	379	370
1964	554	573	15,761	49,899	1,626	5,143	5,147	485	365
1965	575	590	16,519	49,967	1,685	5,169	5,386	584	386
1966	614	626	17,893	52,268	1,759	5,622	6,095	601	408
1967	626	653	18,708	53,126	1,764	6,676	6,529	581	426

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS

1963	3,240	52	1,649	263	128	348	414	31	12
1964	3,256	50	1,671	251	130	387	427	39	14
1965	3,732	65	1,949	260	140	491	495	52	23
1966	3,730	60	2,061	255	140	529	580	60	26
1967	3,572	64	1,945	237	137	542	597	75	33

EASTERN GOLDFIELDS TRANSPORT BOARD

1963	20	12	222	900	16	62	58	8	.....
1964	20	12	162	757	14	52	54	8	.....
1965	14	12	171	675	13	52	54	8	.....
1966	15	12	171	656	14	50	59	3	.....
1967	15	12	185	684	14	57	60	5	.....

PRIVATE

1963	1,322	54	1,088	1,696	74	270	241	41	3
1964	1,080	54	978	1,425	67	256	242	39	4
1965	616	37	791	1,446	45	159	155	20	3
1966	628	37	752	1,379	48	148	155	15	1
1967	4,223	41	847	1,431	51	238	(d)	30	3

(a) Includes operations of trolley-buses. Excludes school transport services and tourist services. (b) Passenger fares and subsidies only. (c) For passenger ferry operations, see next table. (d) Not available.

PASSENGER FERRY SERVICE

The Metropolitan (Perth) Passenger Transport Trust operates a passenger ferry service across the Swan River from Perth to South Perth. Particulars of private charter excursions are excluded from the figures in the following table, other than those which relate to operating revenues and expenses.

PASSENGER FERRY SERVICE

Year ended 30th June—	Boats at end of Year	Miles Run (a)	Passengers Carried (a)	Employees at end of Year	Operating Revenues	Operating Expenses	Deprecia- tion	Interest
1963	4	22,144	192,448	8	\$ 22,442	\$ 28,002	\$ 1,458	\$ 484
1964	4	22,262	184,556	8	22,896	30,538	1,652	330
1965	5	*22,064	201,336	8	30,686	33,900	1,796	660
1966	5	21,588	238,273	9	34,200	39,407	493	540
1967	5	21,784	253,160	9	40,925	41,096	564	623

(a) Excludes private charter operations. * Revised.

ROAD TRAFFIC ACCIDENTS

Statistics of road traffic accidents are prepared from information concerning accidents in public thoroughfares, as reported to officers of the Police Department in the Metropolitan Traffic Area and, outside that Area, to traffic inspectors employed by local government authorities and/or police officers. Accidents involving casualties are those which result in the death of any person within a period of 30 days after the accident, or in which any person suffers bodily injury to an extent requiring surgical or medical treatment.

ROAD TRAFFIC ACCIDENTS AND CASUALTIES
WESTERN AUSTRALIA AND AUSTRALIA (a)

Particulars	Year ended 31st December—				
	1962	1963	1964	1965	1966
WESTERN AUSTRALIA					
Accidents involving Casualties	3,685	4,057	4,062	4,170	4,346
Number of Persons Killed—					
Total	177	198	222	252	253
Per 100,000 of Mean Population (b)	23	25	28	31	30
Number of Persons Injured—					
Total	5,077	5,399	5,450	5,638	5,997
Per 100,000 of Mean Population (b)	672	694	684	692	716
AUSTRALIA (a)					
Accidents involving Casualties	45,769	49,465	53,554	55,932	55,538
Number of Persons Killed—					
Total	2,527	2,598	2,966	3,184	3,242
Per 100,000 of Mean Population (b)	24	24	27	28	28
Number of Persons Injured—					
Total	62,006	67,880	74,258	77,723	77,837
Per 100,000 of Mean Population (b)	581	622	668	685	674

(a) For the year 1962, excludes particulars for the Northern Territory.
with final results of the 1966 Census.

(b) Revised, where necessary, in accordance

In the next table road traffic accident casualties which occurred in Western Australia during the five years ended 31st December, 1966 are classified according to type of road user. The figures shown in the category "Other" refer to such persons as riders of horses and drivers of animal-drawn vehicles.

ROAD TRAFFIC ACCIDENTS—CASUALTIES ACCORDING TO TYPE OF ROAD USER

Type of Road User	Year ended 31st December —				
	1962	1963	1964	1965	1966
PERSONS KILLED					
Drivers of Motor Vehicles	61	71	91	97	101
Motor Cyclists	12	19	9	12	4
Pedal Cyclists	6	8	8	13	9
Passengers—					
Pillion	1	2	2	3	.....
Other	62	48	69	76	88
Pedestrians	35	50	43	51	51
Other	.....	.....	.....	.....	.....
Total	177	198	222	252	253
PERSONS INJURED					
Drivers of Motor Vehicles	1,592	1,853	1,968	2,092	2,351
Motor Cyclists	585	503	415	371	342
Pedal Cyclists	340	438	372	357	344
Passengers—					
Pillion	120	92	83	68	44
Other	1,877	1,862	1,927	1,996	2,196
Pedestrians	559	640	675	751	714
Other	4	11	10	3	6
Total	5,077	5,399	5,450	5,638	5,997

The following table gives a classification of casualties according to the ages of persons killed and persons injured during each year of the period from 1962 to 1966.

ROAD TRAFFIC ACCIDENTS—CASUALTIES CLASSIFIED ACCORDING TO AGE

Year ended 31st December—	Age last birthday (years)									Total	
	0-4	5-6	7-16	17-20	21-29	30-39	40-49	50-59	60 and over		Not stated
PERSONS KILLED											
1962	6	5	11	33	27	21	17	20	36	1	177
1963	10	2	12	28	41	20	18	26	40	1	198
1964	6	7	21	34	34	21	34	30	34	1	222
1965	17	5	13	35	41	31	24	32	54	....	252
1966	9	1	29	34	52	25	19	47	37	....	253
PERSONS INJURED											
1962	217	129	700	1,049	939	593	447	342	318	343	5,077
1963	181	130	724	1,082	1,027	632	521	421	354	327	5,399
1964	170	141	794	1,146	1,005	542	550	417	350	335	5,450
1965	248	119	751	1,182	1,016	612	486	415	389	420	5,638
1966	209	130	791	1,342	1,033	618	545	460	405	464	5,997

Road traffic accidents during the years ended 31st December, 1965 and 1966 are classified in the next table according to nature of accident and type of vehicle involved. It should be noted that, as accidents (and casualties) may involve more than one type of vehicle and, in such cases, are classified to each type involved, it is not appropriate to derive totals by adding the figures shown in the second part of the table.

ROAD TRAFFIC ACCIDENTS NATURE OF ACCIDENT AND TYPE OF VEHICLE INVOLVED

Nature of Accident and Type of Vehicle Involved	Year ended 31st December—					
	1965			1966		
	Accidents involving Casualties	Casualties		Accidents involving Casualties	Casualties	
		Persons Killed	Persons Injured		Persons Killed	Persons Injured
NATURE OF ACCIDENT						
Vehicle Colliding with—						
Moving Vehicle	2,096	105	3,062	2,199	94	3,278
Pedestrian	741	50	744	726	50	706
Stationary Vehicle	125	5	180	110	1	147
Other Fixed Object	10	1	15	10	....	16
Animal	18	....	28	24	2	30
Vehicle Overturning or Leaving Road	1,094	84	1,512	1,134	89	1,653
Passenger Accident	57	4	56	32	3	33
Other Accidents	29	3	41	111	14	134
Total	4,170	252	5,638	4,346	253	5,997
TYPE OF VEHICLE INVOLVED (a)						
Motor Vehicle—						
Car other than Taxi	3,389	203	4,790	3,614	204	5,114
Taxi	80	2	100	88	4	135
Van, Utility, Truck	1,031	81	1,378	1,010	75	1,390
Semi-trailer	47	10	50	46	11	55
Omnibus	78	4	117	60	5	79
Other	37	7	41	42	8	57
Motor Cycle, Motor Scooter....	408	15	455	373	5	415
Pedal Cycle	372	13	370	360	9	361

(a) See letterpress immediately preceding table.

MOTOR VEHICLE USAGE

Some information on the usage of motor vehicles was obtained in a sample survey conducted throughout Australia by the Commonwealth Bureau of Census and Statistics in November, 1963. The sample comprised 19,676 vehicles, of which 2,742 were cars or station wagons. Because the survey results are based on a sample, they are subject to sampling variability and may therefore differ somewhat from the results that would have been obtained from a complete enumeration of all registered motor vehicles. The principal figures relating to cars and station wagons are shown in the following table. They are quoted from a preliminary report on the survey and are subject to revision. Further details, including particulars relating to goods-carrying vehicles, appear in *Survey of Motor Vehicle Usage, 1963—Preliminary Bulletin: States and Territories* published by the Commonwealth Statistician, Canberra.

SURVEY OF MOTOR VEHICLE USAGE, 1963
CARS AND STATION WAGONS: STATES AND TERRITORIES
(Preliminary estimates)

	N.S.W. (a)	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
All cars and station wagons on register (b)—								
Number on register (c)	880,600	707,200	304,400	246,700	170,800	78,400	6,000	2,394,100
Average annual mileage per vehicle	8,580	8,650	7,950	8,180	9,090	8,460	8,390	8,510
Business mileage—proportion of all mileage	32.5	29.8	28.1	25.0	26.6	31.4	24.4	29.9
Cars and station wagons, by business mileage (d)—								
Proportion with no business mileage	67.4	66.8	71.3	73.1	73.3	70.2	78.2	68.9
Proportion with business mileage	32.6	33.2	28.7	26.9	26.7	29.8	21.8	31.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cars and station wagons, by use for travel to and from work (d)—								
Proportion not used	25.6	28.0	31.5	28.6	24.3	23.0	28.9	27.2
Proportion used on most work- ing days	58.8	57.0	52.8	53.3	62.2	62.4	55.6	57.3
Proportion used on occasional working days....	15.6	15.0	15.7	18.1	13.5	14.6	15.5	15.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cars and station wagons in metro- politan and non-metropolitan areas (d) (e)—								
Proportions of totals—								
Metropolitan	54.8	67.0	45.3	61.0	71.5	38.8	61.9	58.5
Non-metropolitan	45.2	33.0	54.7	39.0	28.5	61.2	38.1	41.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average annual mileage per vehicle—								
Metropolitan	9,070	8,600	9,050	7,760	9,150	8,930	9,130	8,770
Non-metropolitan	8,960	9,160	7,330	9,330	9,400	8,390	7,640	8,760
All vehicles	9,020	8,780	8,110	8,370	9,220	8,600	8,560	8,760
Business mileage, proportion of total—								
Metropolitan	30.4	27.9	34.6	25.5	25.6	38.3	23.9	29.2
Non-metropolitan	35.1	33.5	21.5	24.4	29.1	26.8	26.8	30.9
All vehicles	32.5	29.8	28.1	25.0	26.6	31.4	24.9	29.9

(a) Includes Australian Capital Territory.
numbers on the register in each month of 1963.
tration.

(b) Includes vehicles in dealers' ownership.
(d) Excludes vehicles in dealers' ownership.

(c) Average of the
(e) Address at registra-

AIR TRANSPORT

The supervision and control of civil air transport operations throughout Australia is the responsibility of the Department of Civil Aviation. Among its functions are the enforcement of safety regulations; the registration of aircraft and the issue of certificates of airworthiness; the licensing of members of air crews and of ground staffs; the provision, operation and maintenance of aeronautical communication systems and air navigation facilities; the authorization of sites for aerodromes; the design, operation and maintenance of aerodromes; the establishment and operation of air traffic control services; the specification of the requisite meteorological services; the approval of fares, freight rates and time tables; and the licensing of air service operations and co-operation with State Government transport licensing authorities.

An extensive system of air services operates in Western Australia for the transport of passengers, freight and mails. Perth has an international airport which is used by oversea services between Australia and the United Kingdom via Singapore and between Australia and South Africa. Perth is also the western terminus of interstate flights connecting the capital cities of Australia and is the base for a comprehensive airline network serving many inland centres as well as coastal towns in the south, the north-west and the north of the State. From some of these towns regular services operate over many hundreds of miles of route to sheep and cattle stations and to native missions. Some stations and towns in the Kimberley are linked with Darwin and Alice Springs in the Northern Territory. (The principal air routes being flown in or through Western Australia at the 1st January, 1966, are shown on the map of the State following the Index.) In addition to these regular services there are facilities for charter flights. Some operators engage in work connected with the Royal Flying Doctor Service of Australia.

The principal function of the Royal Flying Doctor Service of Australia is to provide medical aid, dental care and air ambulance transport for residents, including aboriginal natives, in remote areas. Isolated townships, mining centres and sheep and cattle stations are usually equipped with two-way radio sets and, by this means, are linked with bases where doctors are available for radio consultation in the event of sickness or accident. In serious cases a doctor flies to the patient, who may then be flown to hospital for treatment. The Service provides first-aid books, as well as standard medicine chests with directions for the use of the drugs and medical supplies which they contain and, where necessary, the doctor gives additional instruction by radio.

The radio network of the Royal Flying Doctor Service is regularly used in the work of Schools of the Air conducted by the Education Department, and also for the transmission and receipt of telegrams. In addition, it may be used, as the need arises, in connexion with flood relief, in searching for lost parties and in co-ordinating movements of livestock.

The Service is financed by grants from the Commonwealth and State Governments and by private donations.

TRANSPORT CO-ORDINATION

Reference is made in earlier issues of the Year Book to the provisions of the State Transport Co-ordination Act, 1933-1961. This Act was repealed by the State Transport Co-ordination Act, 1966, which came into operation on the 19th June, 1967. From the same date the Road and Air Transport Commission Act, 1966 became effective.

State Transport Co-ordination Act, 1966

The Act provides for the appointment of a Director General of Transport, a Transport Advisory Council and a Transport Users' Board.

The duties of the Director General are to recommend to the Minister transport policy or changes in transport policy and measures for achieving policy objectives and the co-ordination of the various forms of transport service; to implement such policies and measures; to provide for research in transport planning and operation and in the economics of every form of transport; to co-ordinate capital works programmes for public transport services; to inquire into existing transport services; to recommend the provision of road transport services; to examine and report on any proposal for the construction of a new railway; to recommend the closure or partial suspension of any transport service, including a railway; and to advise the Minister on the administration of specified Acts relating to transport.

The Transport Advisory Council comprises the Director General of Transport (as Chairman), the Commissioner of Railways, the Commissioner of Main Roads, the Commissioner of Transport, the Chairman of the Metropolitan (Perth) Passenger Transport Trust, the Chairman of the Western Australian Coastal Shipping Commission, a representative of the West Australian Road Transport Association, and a representative of operators of regular air transport services. The duties of the Council are to formulate proposals in respect of, and make recommendations on, any matter referred to it by the Minister or the Director General of Transport, or that it may bring forward of its own motion.

The Transport Users' Board consists of the Director General of Transport (as Chairman) and four persons appointed by the Governor on the nomination of the Minister. These four members must be persons who, in the opinion of the Minister, are capable of assessing the financial and economic effect on transport users of any proposed or existing transport policy, two of them being persons particularly versed in the transport needs of rural industries. The Transport Users' Board is charged with the duty of considering and, where it so resolves, of making recommendations on, any matter affecting a transport service operating in the State, or concerning the lack or inadequacy of a transport service.

Road and Air Transport Commission Act, 1966

The Act provides for the appointment of a Commissioner of Transport. Under the direction of the Minister, the Commissioner is required to call tenders for the provision of road transport where, in the opinion of the Minister, the requirements of a district are not adequately served by any form of transport; to administer and direct the payment of such subsidies with respect to the provision of transport as may be authorized pursuant to the Act; and to consider and determine all applications for licences in respect of public vehicles. In regard to such licences the Commissioner may specify any particular conditions concerning the granting or holding of a licence, and may determine, in respect of any particular licence or group of licences, the conditions that shall be imposed on the granting and holding of such licences.

The public vehicles licensed by the Commissioner are omnibuses (other than those operated by the Metropolitan (Perth) Passenger Transport Trust), commercial goods vehicles, and aircraft.

In the licensing of omnibuses the Commissioner is empowered to prescribe the routes to be operated, the stopping places at which passengers may be picked up or set down, the fares to be charged, the time-tables to be observed and the maximum number of passengers to be carried at any one time on any vehicle. The Commissioner may impose such other conditions as he thinks proper in the public interest.

All commercial goods vehicles operating on public roads are required to be licensed, except those which operate solely in the area within a radius of 20 miles from the General Post Office, Perth, or within a radius of 20 miles from the owner's place of business (or, where such place of business is situated more than 40 miles from the General Post Office, Perth, within a radius of 25 miles). Exemptions from licensing provisions also apply to vehicles used for the transport of specified types of goods, mainly primary produce including forest products, minerals and livestock, or for the transport of goods within particular areas or between particular points.

Aircraft licences issued by the Commissioner relate to regular services and charter flights. Aircraft exempted from the licensing provisions of the Act are those operated solely in connexion with the Royal Flying Doctor Service or in the course of aerial spraying, crop dusting, seed sowing, fertilizer distribution, photography, geophysical surveying, dingo baiting or whale or fish spotting.

Financial transactions are recorded in a Transport Commission Fund account as required by the Act. The principal revenues of the Fund are receipts from licence and permit fees and amounts received from the Treasury for distribution in the form of subsidy to transport operators and others in certain areas. The expenditure from the Fund includes amounts necessary to meet administration costs, disbursements to the Main Roads Department and to local government authorities for the maintenance and improvement of roads, moneys required to be held in trust for the provision and maintenance of landing grounds, and the payment of subsidies. Subsidies are paid principally on the cartage of grain and fertilizers, but also on the air transport of perishable goods to remote parts of the State and on travel, mainly by air, by students normally resident in those areas.

Taxi-cars (Co-ordination and Control) Act

The Taxi-cars (Co-ordination and Control) Act, 1963-1967 constitutes a Taxi Control Board of seven members to provide for the co-ordination and control of taxi-cars and the registration and conduct of taxi-car drivers in the Metropolitan Traffic Area and such other areas as may be declared. The Act provides that the Board shall consist of the Commissioner of Transport (as Chairman); a member of the police force appointed by the Commissioner of Police; and five persons, appointed by the Governor, comprising one nominated by the Local Government Association of Western Australia to represent the interests of local authorities; one nominated by the W.A. Taxi Operators' Association; two who are taxi-car owners or operators and who are elected by taxi-car owners and operators; and one nominated by the Metropolitan (Perth) Passenger Transport Trust.

The principal functions of the Board are the formulation of schemes for the co-ordination and control of taxis; the determination of the number and kind of taxis to be licensed; the issue of licences; the determination of fares and other charges; the supervision of the operation of taxis and the regulation of stands; the registration of, and the control of the conduct and dress of, drivers; and the enforcement of regulations made under the Act.

It is provided that the number of taxis that may be licensed to operate within the Metropolitan Traffic Area shall not at any time exceed one for every 700, or be less than one for every 800, of the population of the area.

The Act establishes a Taxi Control Fund for the receipt of fees payable on the issue, renewal or transfer of licences. The expenses of the administration of the Act are paid from the Fund.

CHAPTER IX—*continued*

PART 3—COMMUNICATION

POSTS, TELEGRAPHS AND TELEPHONES

The first postmasters in the Colony of Western Australia were appointed at Perth and Fremantle in 1830 and a Postal Department was established by the Colonial Government in 1834. Telegraphic communication, between Perth and Fremantle, was inaugurated in 1869 by means of a private line, which was purchased by the Government in 1871. A telephone exchange system, installed and operated by the Government, was opened at Perth in 1887.

In 1901, following the federation of the Australian Colonies, the post, telegraph and telephone services of the State Governments were transferred to the Commonwealth Government. The Post and Telegraph Act of 1901 placed the services under the control of a Commonwealth Minister to be known as the Postmaster-General.

The following table shows the number of persons employed by the Postmaster-General's Department in Western Australia, and the number of post offices and telephone offices throughout the State at the 30th June in each year from 1962 to 1966. Full-time employees are those directly under the control of the Department. The remainder, shown as "Other Employees," provide services, which may or may not occupy their full time, under contract or in return for payments appropriate to work performed. "Non-official" post offices are conducted by persons who are not members of the Commonwealth Public Service, and are frequently operated in conjunction with some other business activity. "Telephone offices" are those where trunk-line calls and local calls may be made and telegrams lodged by members of the public, but which do not provide other postal facilities. Multi-coin public telephones are not included.

POSTMASTER-GENERAL'S DEPARTMENT—NUMBERS OF EMPLOYEES AND OFFICES
WESTERN AUSTRALIA

Particulars	At 30th June—				
	1962	1963	1964	1965	1966
Full-time Employees—					
Permanent Officers	4,654	4,743	4,842	4,966	5,065
Temporary and Exempt Officers (a)	1,103	1,143	1,281	1,251	1,428
Total	5,817	5,886	6,123	6,217	6,493
Other Employees—					
Non-official Postmasters and Staff	532	539	535	*533	542
Telephone Office-keepers	318	304	285	*266	242
Mall Contractors (b)	298	315	316	*290	292
Part-time Employees	226	242	231	*241	262
Total	1,374	1,400	1,367	*1,330	1,338
Total—Employees	7,191	7,286	7,490	*7,547	7,831
Post Offices—					
Official	148	147	148	149	151
Non-official	486	492	488	486	484
Telephone Offices	315	305	284	268	241
Total—Offices	949	944	920	903	876

(a) Exempt staff are persons exempt from the provisions of the Public Service Act. to drive vehicles. * Revised.

(b) Includes persons employed

Figures relating to the revenue and expenditure of the Department in Western Australia during each of the financial years from 1961-62 to 1965-66 are given in the following table. They represent actual collections and payments in each year, as shown by records kept for Treasury purposes. Some additional items of departmental revenue and expenditure are not apportioned to States and therefore do not appear in the table.

**POSTMASTER-GENERAL'S DEPARTMENT—REVENUE AND EXPENDITURE
WESTERN AUSTRALIA
(\$'000)**

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
REVENUE (a)					
Postal	5,456	5,829	6,208	6,591	6,993
Telegraph	1,062	1,192	1,267	1,373	1,591
Telephone	9,759	10,852	12,490	15,061	17,276
Other	8	56	33	37	26
TOTAL	16,284	17,929	19,997	23,062	25,886
EXPENDITURE (b)					
Non-Capital Works—					
Expenditure from Ordinary Services Votes—					
Salaries and Payments in the nature of Salary	6,271	6,451	6,828	7,530	8,179
Administration	691	678	886	977	1,147
Stores and Material (c)	328	219	196	226	317
Mail Services	479	506	530	555	603
Engineering Services, other than New Works (c)	5,937	4,538	5,084	5,971	7,046
Total	13,706	12,392	13,473	15,259	17,292
Rent, Repairs and Maintenance	139	197	229	268	372
Furniture and Fittings	(d)	(d)	(d)	(d)	48
Capital Works—					
Plant and Equipment—					
Telegraph Services	76	106	103	170	185
Telephone Services	4,784	7,676	8,340	9,907	11,042
Other Plant and Equipment and Motor Vehicles (c)	210	777	1,086	807	827
Buildings, Sites and Properties (d)	594	588	828	1,383	1,147
Total	5,664	9,147	10,358	12,267	13,200
GRAND TOTAL	19,508	21,736	24,060	27,795	30,912

(a) Revenue actually collected during the year, as recorded for Treasury purposes. (b) Actual payments made during the year, as recorded for Treasury purposes. (c) Expenditure on motor vehicles, postal plant and certain non-engineering plant, which prior to 1962-63 was recorded against Ordinary Services Votes, is now included under Capital Works. (d) Prior to 1965-66, expenditure on furniture and fittings was included in the item *Buildings, Sites and Properties* under Capital Works.

As the figures shown in the preceding table relate to actual collections and payments made, they do not represent the net results of the Department's operations for the year. The annual net results of the operations throughout Australia of each service, for the three years ended 30th June, 1966 after providing for working expenses (including depreciation, superannuation and furlough liability) and interest charges are shown in the following table. The amounts appearing under the heading of *Interest* represent interest on funds provided by the Treasury.

**POSTMASTER-GENERAL'S DEPARTMENT—PROFIT OR LOSS (a) OF SERVICES
AUSTRALIA
(\$'000)**

Particulars	Year ended 30th June—								
	1964			1965			1966		
	Postal	Telecom- munications	All Services	Postal	Telecom- munications	All Services	Postal	Telecom- munications	All Services
Earnings	106 577	222,717	329,293	112,191	257,855	370,045	116,746	284,528	401,274
Working Expenses	103,981	178,578	282,559	112,889	200,037	312,926	124,279	216,803	341,082
Profit or Loss before charging Interest	2,596	44,138	46,734	—698	57,818	57,119	—7,532	67,725	60,192
Interest	1,039	45,688	47,328	1,920	50,987	52,907	2,809	57,507	60,316
Profit or Loss after charging Interest	956	—1,550	—594	—2,618	6,831	4,212	—10,341	10,217	—124

(a) Minus sign (—) denotes loss.

Posts

In the following table, postal matter handled in Western Australia during each year from 1961-62 to 1965-66 is dissected according to the type of article dealt with, and whether received from overseas or posted for delivery in Australia or to an overseas destination.

POSTAL ARTICLES HANDLED
(Thousands)

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
Posted for Delivery within Australia—					
Ordinary Postal Articles—					
Letter-form	110,089	118,270	130,714	136,287	143,192
Other	9,562	9,857	11,262	11,873	13,540
Parcels (a)	915	954	1,016	1,001	1,045
Registered Articles (b)	525	533	533	575	659
Posted for Delivery Overseas—					
Ordinary Postal Articles—					
Letter-form	6,041	6,289	6,855	4,697	6,437
Other	1,238	1,228	1,216	721	869
Parcels (a)	21	22	29	28	31
Registered Articles (b)	49	53	55	62	53
Received from Overseas—					
Ordinary Postal Articles—					
Letter-form	2,739	3,036	3,454	3,970	3,961
Other	5,076	5,963	6,453	6,578	6,698
Parcels (a)	52	57	64	70	79
Registered Articles (b)	29	29	44	46	49

(a) Includes registered, cash on delivery and duty parcels.

(b) Excludes registered parcels; see note (a).

Telegraphs and Telephones

The following table relates to telegraph and telephone services in Western Australia in each financial year from 1961-62 to 1965-66. Telephone services comprise ordinary exchange services (*i.e.*, those which provide direct access to the exchange system by means of exclusive use of an exchange line), duplex services, party-line services, private branch exchange services and public telephones. The numbers shown as "Telephone Instruments in Service" relate to those through which direct access to the exchange system may be obtained.

TELEGRAPHS AND TELEPHONES

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
TELEGRAPHS					
Number of—					
Offices (a)	949	954	920	903	875
Telegrams—					
Within Australia—Dispatched	'000 1,786	'000 1,850	'000 1,940	'000 2,004	'000 2,160
Beyond Australia—Dispatched	77	85	84	88	110
Received	75	80	83	90	97
Total	152	165	167	188	207
TELEPHONES (a)					
Number of—					
Exchanges	762	765	767	765	765
Services—					
Metropolitan (b)	66,008	71,396	77,312	81,404	86,787
Other	31,967	34,080	36,506	38,677	41,236
Total	97,975	105,476	113,818	120,081	128,023
Telephone Instruments in Service—					
Total	133,731	144,843	154,932	164,354	176,256
Per 100 of Population	17.7	18.6	19.4	20.2	21.1

(a) At 30th June. (b) Services connected to exchanges located within 10 miles of the General Post Office, Perth.

The teleprinter exchange service was introduced in Perth in December, 1956. This service enables a subscriber's teleprinter to be connected with that of any other subscriber in the local network or networks in other States.

TELEPRINTER EXCHANGE NETWORK (TELEX)

Particulars	Year ended 30th June—				
	1962	1963	1964	1965	1966
Number of—					
Subscribers at 30th June	82	96	117	164	200
Local Calls	3,454	5,326	3,947	3,913	7,992
Trunk Calls	29,595	42,521	60,616	84,858	119,312

At the 30th June, 1966, the single wire mileage of telegraph and telephone cables in Western Australia was 1,002,611. The single wire mileage of aerial wires was 130,205 and the mileage of pole routes was 17,245. There were 610 tube miles of coaxial cable.

RADIOCOMMUNICATION

The Overseas Telecommunications Commission (Australia) is the authority responsible for the operation of Australia's external telecommunication services by cable and radio.

The Commission is constituted under the provisions of the Overseas Telecommunications Act 1946-1966. This Act implemented, in Australia, a recommendation of the 1945 Commonwealth Telecommunications Conference for national ownership of the external telecommunication services of the British Commonwealth countries concerned and for the establishment of a representative advisory board, the Commonwealth Telecommunications Board, to co-ordinate their development.

The Commission thus participates with other countries of the British Commonwealth in the development, maintenance and operation of a world-wide network of cable and radio circuits. The whole of Australia's international public telecommunications traffic is handled through this network, traffic being routed over cable or radio circuits, or a combination of them, according to circumstances.

The Commission operates a coastal radio service, telegraph, telex and photo-telegraph services and, in conjunction with the Postmaster-General's Department, telephone services with overseas countries and ships at sea.

The coastal radio service provides, as its principal function, essential maritime communications, including distress signals, navigation warnings, air-sea rescue service and radio-medical service messages, meteorological messages and time signals, as well as naval traffic as required. It provides also, by radio-telegraph and radiotelephone, commercial communications with ships at sea and, by radiotelephone, message communication with small vessels. Western Australian coastal radio stations at Perth, Broome, Esperance and Geraldton are operated by the Overseas Telecommunications Commission, and at Wyndham by the Department of Civil Aviation as agent for the Commission.

The licensing of civil radiocommunication stations and the transmission of radio messages within Australia are the responsibility of the Postmaster-General's Department. The Royal Flying Doctor Service of Australia, to which reference is made in the section *Air Transport* in Part 2 of this Chapter, provides general telegraph facilities in remote areas through its extensive radio network.

At the 30th June, 1966 there were 81,422 civil radiocommunication stations authorized throughout Australia. They comprised 3,389 fixed stations, 6,479 land stations, 66,442 mobile stations and 5,112 amateur stations.

The numbers of each type of radiocommunication station authorized to operate in Western Australia at the 30th June, 1966 are given in the next table. The following definitions are relevant in considering the figures shown in the table. *Fixed Stations*—Stations established at fixed locations for communication with other stations similarly established. *Outposts*—Stations established in outback areas for communication with control stations such as those of the Royal Flying Doctor Service. *Land Stations*—Stations established at fixed locations for communication with mobile stations. *Coast Stations*—Land stations for communication with ocean-going vessels. *Mobile Stations*—Equipment installed in aircraft (aeronautical), motor vehicles (land mobile services), harbour vessels (harbour mobile services) and ocean-going vessels (ship), and mobile equipment of organizations such as the Royal Flying Doctor Service.

CIVIL RADIOCOMMUNICATION STATIONS AUTHORIZED AT 30th JUNE, 1966

Type of Station	Number	Type of Station	Number
TRANSMITTING AND RECEIVING—		TRANSMITTING AND RECEIVING— <i>contd.</i>	
Fixed Stations—		Mobile Stations—	
Aeronautical	16	Aeronautical	261
Services with Other Countries	11	Land Mobile Services	4,155
Outpost	420	Harbour Mobile Services	117
Other	149	Outpost	429
Land Stations—		Ship	439
Aeronautical	26	Amateur	408
Base Stations—			
Land Mobile Services	449	TOTAL—TRANSMITTING AND RE-	
Harbour Mobile Services	29	CEIVING	6,990
Coast	23	RECEIVING ONLY (Fixed)	51
Special Experimental	58		
		GRAND TOTAL	7,041

BROADCASTING AND TELEVISION

Broadcasting and television services throughout Australia are controlled by the Australian Broadcasting Control Board under the Ministerial direction of the Postmaster-General. The Board is established by a provision of the Broadcasting and Television Act 1942-1967, which places under its general control the National Broadcasting Service, the National Television Service, the Commercial Broadcasting Service and the Commercial Television Service. The Act prescribes the fees payable for broadcast listeners' licences and television viewers' licences, while the fees to be charged for licences to operate commercial broadcasting and television stations are provided for in the Broadcasting Stations Licence Fees Act 1964-1966 and the Television Stations Licence Fees Act 1964-1966.

The principal functions of the Australian Broadcasting Control Board are to ensure that services by broadcasting stations and television stations are in accordance with approved plans, that stations are operated in accordance with appropriate technical standards, and that adequate and comprehensive programmes are provided. Subject to the approval of the Minister and of the Treasurer, the Board may give financial and other assistance to commercial broadcasting stations for the purpose of ensuring that programmes of adequate extent, standard and variety are provided in the areas which they serve. The Board is required to hold public inquiries into applications for licences for commercial broadcasting and television stations in areas for which the Minister proposes to grant licences.

The Australian Broadcasting Commission, which is constituted under the Broadcasting and Television Act 1942-1967, controls the activities of, and provides programmes for, the National Broadcasting Service and the National Television Service. The operations of the Commission are financed by appropriations made by the Commonwealth Parliament.

The income of licensees of commercial broadcasting and television stations is derived from advertisements and other forms of publicity.

Broadcasting and Television Stations

BROADCASTING STATIONS AT 30th JUNE, 1967

NATIONAL STATIONS					COMMERCIAL STATIONS				
Type and Location	Call Sign	Frequency (Kc/s)	Aerial Power (Watts)	Hours of Service per week (a)	Type and Location	Call Sign	Frequency (Kc/s)	Aerial Power (Watts)	Hours of Service per week (a)
Medium Frequency—					Perth	6IX	1,080	2,000	168
Perth	6WF	690	50,000	125½	"	6KY	1,210	2,000	168
"	6WN	810	10,000	125½	"	6PM	1,000	2,000	125
Albany	6AL	650	400	125½	"	6PR	880	2,000	168
Carnarvon	6CA	720	200	125½	Albany	6VA	780	2,000	117
Dalwallinu	6DL	530	10,000	125½	Bridgetown	6BY	900	2,000	113
Esperance	6ED	840	1,000	125½	Bunbury	6TZ	960	2,000	124½
Kalgoorlie	6GF	660	2,000	125½	Collie	6CI	1,130	2,000	124½
Geraldton	6GN	830	2,000	125½	Geraldton	6GE	1,010	2,000	114½
Northam	6NM	600	200	125½	Kalgoorlie	6KG	980	2,000	103
Wagin	6WA	560	50,000	125½	Katanning	6WB	1,070	2,000	113
High Frequency—					Merredin	6MD	1,100	2,000	113
Perth	VLW	(b)	10,000	122½	Narrogin	6NA	920	2,000	122½
"	VLX	(b)	50,000	122½	Northam	6AM	860	2,000	117

(a) To the nearest quarter hour.
optimum results.

(b) The frequencies on which these stations transmit are varied as required to obtain

TELEVISION STATIONS AT 30th JUNE, 1967 (a)

Call Sign and Channel	Area Served	Location of Transmitter	Authorized Frequencies Mc/s	Polarization	Hours of Service per week (b)	Date of Commencement of Operations (c)
NATIONAL STATIONS						
ABW-2	Perth	Bickley	Vision 63-70 Sound 64.25 69.75	Horizontal	73½	7th May, 1960
ABAW-2	Southern Agri-cultural	Mount Barker	Vision 63-70 Sound 64.24 69.74	Vertical	73½	6th June, 1966
ABCW-4	Central Agri-cultural	Mawson Trig	Vision 94-101 Sound 95.26 100.76	Horizontal	73½	28th March, 1966
ABSW-5	Bunbury	Mount Lennard	Vision 101-108 Sound 102.25 107.75	Horizontal	73½	10th May, 1965

COMMERCIAL STATIONS

STW-9	Perth	Bickley	Vision 195-202 Sound 196.25 201.75	Horizontal	89	12th June, 1965
TVW-7	Perth	Bickley	Vision 181-188 Sound 182.25 187.75	Horizontal	87½	16th October 1959
BTW-3	Bunbury	Mount Lennard	Vision 85-92 Sound 86.24 91.74	Horizontal	33½	10th March, 1967

(a) The operating power for all stations is: Vision, 100 kW e.r.p. (effective radiated power); Sound, 20 kW e.r.p.
 (b) To nearest quarter hour. (c) Date on which full-scale transmission began.

Receiving Licences

Broadcast listeners', television viewers', and combined receiving licences are issued at post offices in accordance with the provisions of the Broadcasting and Television Act 1942-1967, which stipulates that, except as prescribed, a person shall not use, maintain or have in his possession a broadcast or television receiver unless there is in force a licence which applies to that receiver. A broadcast listener's licence or a television viewer's licence, whichever is appropriate, authorizes the operation of any broadcast receiver or any television receiver, which is in the possession of the holder of a licence, or of a member of his family, at the address specified in the licence and is ordinarily kept at that address; or is installed in a vehicle which is ordinarily in the possession of the holder, or a member of his family, and is ordinarily kept at that address when not in use. A person who has both broadcast and television receivers at the one address is required to take out a combined receiving licence, provision for which was introduced by legislation effective from the 1st April, 1965.

A licence may be granted free of charge to a blind person over 16 years of age or to a person or authority conducting a school, and at a concession rate to certain classes of pensioners. Receivers provided for the use of inmates of an institution (including a hospital) are covered by an appropriate licence held by the institution. Persons residing in Zone 2 may also be granted a broadcast listener's licence at a reduced rate. Zone 1 is the areas within 250 miles of specified broadcasting stations and Zone 2 is the remainder of Australia.

Each broadcast or television receiver let out on hire (except under a hire purchase agreement) must be covered by a hirer's licence held by the person or firm from whom the receiver is hired. The keeper of a lodging house (which includes a hotel, motel, boarding house or any other premises where lodging or sleeping accommodation is provided for reward) must take out a lodging house licence for each broadcast or television receiver provided by the proprietor in any room or part of the lodging house occupied or available for occupation by lodgers.

The annual fee payable at the 30th June, 1967 for each class of licence is shown in the following table.

BROADCAST LISTENERS' AND TELEVISION VIEWERS' LICENCES
ANNUAL FEES: 30th JUNE, 1967

Class of Licence	Ordinary Rate	Pensioner Rate
	\$	\$
Broadcast Listener's Licence and Hirer's Licence for a Broadcast Receiver—		
Zone 1	5.50	1.00
Zone 2	2.80	0.70
Lodging House Licence for a Broadcast Receiver—		
Zone 1	5.50	.....
Zone 2	2.80	.....
Television Viewer's Licence and Hirer's Licence for a Television Receiver	12.00	3.00
Lodging House Licence for a Television Receiver	12.00	.....
Combined Receiving Licence	17.00	4.00

Revenue in Western Australia from fees for all receiving licences amounted to \$1,737,096 in 1962-63, \$1,843,348 in 1963-64, \$2,124,246 in 1964-65, \$2,285,076 in 1965-66 and \$2,570,450 in 1966-67.

RECEIVING LICENCES

Class of Licence	Number in Force at 30th June—				
	1963	1964	1965	1966	1967

BROADCAST LISTENERS' LICENCES (a)

Ordinary	141,537	147,873	122,503	43,724	34,702
Hirers'	13	1	14	12	12
Lodging House	10	9	48	94	43
Pensioners'	23,277	25,492	22,208	11,286	9,411
Blind Persons'	421	392	.....	.....	.....
Schools'	379	354	.....	.....	.....
Total	165,637	174,121	144,773	55,116	44,168

TELEVISION VIEWERS' LICENCES (a)

Ordinary	78,892	91,923	71,605	10,771	12,051
Hirers'	7,300	10,769	11,204	15,687	15,531
Lodging House	54	140	236	296	342
Pensioners'	9,470	12,250	10,026	1,534	1,721
Blind Persons'	142	165	.....	.....	.....
Schools'	49	25	.....	.....	.....
Total	95,907	115,272	93,071	28,288	29,645

COMBINED RECEIVING LICENCES (a)

Ordinary	}	(b)	{	25,660	97,965	111,398
Pensioners'				4,228	14,975	17,230
Blind Persons'				416	*451	396
Schools'				366	*392	379
Total	(b)	(b)		30,670	*113,783	129,403

(a) The combined receiving licence came into effect on the 1st April, 1965. From that date, a person having both broadcast and television receivers at the one address has been required to take out a combined receiving licence. (b) See note (a). * Revised.

CHAPTER X—EMPLOYMENT, WAGES AND PRICES

PART 1—EMPLOYMENT

NOTE—In addition to the employment data appearing in this Part, references to the numbers of persons engaged in particular activities are to be found elsewhere in the Year Book. In Chapter V, for example, Part 1—*Education* shows numbers engaged in teaching, while Part 3—*Health Services, Hospitals and Homes for the Aged* contains details of hospital staffs. In Chapter VIII, Part 1—*Primary Production* gives male employment on rural holdings, at mines and in fishing, and Part 2—*Secondary Production* includes tables relating wholly, or in part, to employment in factories. Chapter IX, Part 2—*Transport* shows numbers engaged in various types of transport undertakings.

All tables in this Part which contain information compiled from census schedules exclude particulars of full-blood Aborigines.

The most detailed and comprehensive statistics of employment of the population are those which are derived from the periodic Population Census. Among the most useful of the tabulations based on these enumerations are those which classify the population according to occupational status and industry.

THE WORK FORCE

It is customary in modern census practice to distinguish between the economically active and inactive sectors of the community on the basis of those "In the Work Force" and those "Not in the Work Force."

The *work force* comprises all persons who are actively engaged in an industry, business, trade or service, as well as those who are normally engaged in such an activity but are not at work at the time of the investigation. It includes employers, the self-employed, wage and salary earners, persons helping in an activity without receiving wage or salary, and those not at work.

The *self-employed* comprise persons working on their own account but not employing others.

Persons *not at work* include those who stated that they were usually engaged in work, but were not actively seeking a job at the time of the census by reason of sickness or accident, or because they were on strike, changing jobs, or temporarily laid off. It includes also persons able and willing to work but unable to secure employment, as well as casual and seasonal workers not actually in a job at the time of the census. The numbers shown in the category *not at work* therefore do not represent the number of unemployed persons available for work and unable to obtain it.

Persons *not in the work force* include children not attending school; full-time students and children attending school; persons of independent means; those engaged in home duties; pensioners and annuitants; and inmates of institutions.

The comprehensive tables resulting from the census include detailed analyses of the work force according to such characteristics as age, conjugal condition, religion, birthplace, occupational status, industry and occupation. For the purpose of this Chapter, only a selection of the tables, in condensed form, relating to occupational status, industry and occupation have been included.

At the Census of 30th June, 1966 there were 246,155 males in the work force, representing 57.69 per cent. of the total male population.

The number of females in the work force at the 1966 Census was 93,424, or 22.79 per cent. of the female population. Of this total, 45,286, equivalent to 48.47 per cent. of females in the work force, were married women, including women married but permanently separated.

The 1966 Census work force statistics are not strictly comparable with those of earlier censuses. For a detailed explanation of the new approach adopted at the 1966 Census, the reader is referred to *Census Bulletin No. 5.1—Summary of Population: Western Australia*, issued November, 1967 by the Commonwealth Statistician, Canberra. The net effect of the new definition is to include approximately 8,100 additional persons in the Western Australian work force, a proportional increase of approximately 2.4 per cent.

Classification according to Occupational Status

In the following table the numbers and proportions of males, females and persons "in the work force" and "not in the work force" are shown for the Census of 30th June, 1966. The table also provides an analysis of the work force according to occupational status.

In the tables on pages 385–6 the population at the 1966 Census is classified according to occupational status in conjunction with marital status and age.

POPULATION CLASSIFIED ACCORDING TO OCCUPATIONAL STATUS
CENSUS, 30th JUNE, 1966

Occupational Status	Males	Females	Persons	Proportion of Population		
				Males	Females	Persons
				per cent.	per cent.	per cent.
In Work Force—						
Employed—						
Employer	21,383	4,700	26,083	5.01	1.15	3.12
Self-employed	25,136	4,689	29,825	5.89	1.14	3.56
Employee (on wage or salary)	195,704	79,661	275,365	45.87	19.43	32.91
Helper (not on wage or salary)	994	2,310	3,304	0.23	0.56	0.39
Total Employed	243,217	91,360	334,577	57.00	22.28	39.99
Unemployed	2,938	2,064	5,002	0.69	0.50	0.60
Total in Work Force	246,155	93,424	339,579	57.69	22.79	40.59
Not in Work Force—						
Child not at school	48,732	46,195	94,927	11.42	11.27	11.35
Child attending school or full-time student	97,401	90,728	188,129	22.83	22.13	22.49
Mainly dependent on pension or superannuation	22,374	32,163	54,537	5.24	7.84	6.52
Of independent means	3,626	3,402	7,028	0.85	0.83	0.84
Home duties		137,269	137,269		33.48	16.41
Inmates of institutions	3,094	3,166	6,260	0.73	0.77	0.75
Other not in work force	5,309	8,635	8,944	1.24	0.89	1.07
Total Not in Work Force	180,536	316,558	497,094	42.31	77.21	59.41
GRAND TOTAL	426,691	409,982	836,673	100.00	100.00	100.00

For comparative purposes, the table below shows the occupational status of the population of each State and Territory and of Australia as a whole at the Census of 30th June, 1966.

POPULATION ACCORDING TO OCCUPATIONAL STATUS—AUSTRALIA
CENSUS, 30th JUNE, 1966

Occupational Status	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
MALES									
In Work Force—									
Employed—									
Employer	83,466	67,236	44,111	23,747	21,383	8,245	815	1,388	250,391
Self-employed	106,723	92,302	49,463	31,135	25,136	9,162	601	1,286	315,808
Employee (on wage or salary)	1,058,213	777,217	379,207	259,105	195,704	87,567	12,796	27,304	2,797,113
Helper (not on wage or salary)	4,564	3,333	2,486	1,167	994	432	26	46	13,048
Total Employed	1,252,966	940,088	475,267	315,154	243,217	105,406	14,238	30,024	3,376,360
Unemployed	18,421	10,139	7,964	4,464	2,938	1,146	162	214	45,448
Total in Work Force	1,271,387	950,227	483,231	319,618	246,155	106,552	14,400	30,238	3,421,808
Not in Work Force	853,076	663,677	360,666	228,912	180,536	80,828	7,108	19,739	2,394,542
Total Males	2,124,463	1,613,904	843,897	548,530	426,691	187,380	21,508	49,977	5,816,350
FEMALES									
In Work Force—									
Employed—									
Employer	19,774	16,747	10,518	6,228	4,700	1,759	225	271	60,222
Self-employed	23,170	20,008	11,306	7,205	4,689	1,644	134	263	68,419
Employee (on wage or salary)	474,185	374,625	149,377	111,197	79,661	35,450	4,171	12,774	1,241,440
Helper (not on wage or salary)	12,566	8,191	5,483	2,613	2,310	940	76	188	32,317
Total Employed	529,695	419,571	176,684	127,243	91,360	39,793	4,606	13,446	1,402,398
Unemployed	13,070	7,250	4,954	3,563	2,064	971	138	232	32,242
Total in Work Force	542,765	426,821	181,638	130,806	93,424	40,764	4,744	13,678	1,434,640
Not in Work Force	1,566,595	1,178,801	638,150	412,539	316,558	143,272	11,181	32,358	4,299,454
Total Females	2,109,360	1,605,622	819,788	543,345	409,982	184,036	15,925	46,036	5,734,094

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—MALES
CENSUS, 30th JUNE, 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
Employers—								
Never married	186	473	555	256	183	132	42	1,827
Married	6	376	3,711	5,504	5,109	3,358	854	18,918
Married but permanently separated .....	.....	2	33	69	72	51	19	246
Widowed .....	.....	1	6	24	45	74	87	237
Divorced	1	.....	17	36	53	35	13	155
Total	193	852	4,322	5,889	5,462	3,650	1,015	21,383
Self-employed—								
Never married	575	1,234	1,111	602	450	414	144	4,530
Married	11	652	4,512	5,488	4,336	3,544	1,100	19,643
Married but permanently separated .....	.....	5	59	92	87	65	29	337
Widowed .....	.....	1	2	22	48	142	139	354
Divorced .....	.....	1	23	76	70	79	23	272
Total	586	1,893	5,707	6,280	4,991	4,244	1,435	25,136
Employees (on wage or salary)—								
Never married	26,456	17,305	9,448	4,468	2,783	2,054	372	62,886
Married	422	8,127	31,008	35,293	27,719	19,600	2,407	124,576
Married but permanently separated	3	133	722	1,038	986	667	103	3,652
Widowed	6	15	59	230	534	983	325	2,152
Divorced	8	28	302	660	765	607	68	2,438
Total	26,895	25,608	41,539	41,689	32,787	23,911	3,275	195,704
Helpers (not on wage or salary)—								
Never married	402	150	42	11	12	25	27	669
Married .....	.....	19	30	31	41	57	77	255
Married but permanently separated .....	.....	1	1	2	.....	9	4	17
Widowed .....	.....	.....	.....	.....	3	6	30	39
Divorced .....	.....	.....	1	1	2	3	7	14
Total	402	170	74	45	58	100	145	994
Total at work—								
Never married	27,619	19,162	11,156	5,337	3,428	2,625	585	69,912
Married	439	9,174	39,261	46,316	37,205	26,559	4,438	163,392
Married but permanently separated	3	141	815	1,201	1,145	792	155	4,352
Widowed	6	17	67	276	630	1,205	581	2,782
Divorced	9	29	343	773	890	724	111	2,879
TOTAL AT WORK	28,076	28,523	51,642	53,903	43,298	31,905	5,870	243,217
Not at work—								
Never married	533	351	263	136	89	80	20	1,472
Married	6	85	278	329	236	232	58	1,224
Married but permanently separated .....	.....	3	24	36	31	20	4	118
Widowed .....	.....	3	1	6	14	21	9	54
Divorced .....	.....	2	8	16	25	15	4	70
Total Not at Work	539	444	574	523	395	368	95	2,938
Total in work force—								
Never married	28,152	19,513	11,419	5,473	3,517	2,705	605	71,384
Married	445	9,259	39,539	46,645	37,441	26,791	4,496	164,616
Married but permanently separated	3	144	839	1,237	1,176	812	159	4,370
Widowed	6	20	68	282	644	1,226	590	2,836
Divorced	9	31	351	789	915	739	115	2,949
TOTAL IN WORK FORCE	28,615	28,967	52,216	54,426	43,693	32,273	5,965	246,155
Not in work force—								
Never married	12,090	1,920	873	572	586	1,199	2,564	(a) 19,804
Married	7	133	475	753	1,086	3,803	14,366	20,623
Married but permanently separated	1	9	34	80	138	251	651	1,164
Widowed	1	1	5	19	58	354	4,378	4,816
Divorced .....	.....	2	20	54	93	216	407	792
Total Not in Work Force	12,099	2,065	1,407	1,478	1,961	5,823	22,366	(a) 47,199
Total Males—								
Never married	40,242	21,433	12,292	6,045	4,103	3,904	3,169	(a) 91,188
Married	452	9,392	40,014	47,398	38,527	30,594	18,862	185,239
Married but permanently separated	4	153	873	1,317	1,314	1,063	810	5,534
Widowed	7	21	73	301	702	1,580	4,968	7,652
Divorced	9	33	371	843	1,008	955	522	3,741
GRAND TOTAL	40,714	31,032	53,623	55,904	45,654	38,096	28,331	(a) 293,354

(a) Excludes 43,524 males aged 0-4 years, 45,791 males aged 5-9 years and 44,022 males aged 10-14 years not in the work force.

and the self-employed in Primary Production. Of the 43,438 persons engaged in this industry at the 30th June, 1966 nearly 60 per cent. were in one or other of these categories.

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—FEMALES
CENSUS, 30th JUNE, 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
Employers—								
Never married	8	24	24	22	44	50	16	188
Married	7	122	869	1,328	1,122	497	58	4,003
Married but permanently separated .....	.....	.....	5	21	18	13	4	61
Widowed .....	.....	1	3	24	113	154	81	376
Divorced .....	.....	.....	4	24	20	23	1	72
Total	15	147	905	1,419	1,317	737	160	4,700
Self-employed—								
Never married	38	44	30	35	61	83	42	333
Married	10	186	907	1,145	989	509	87	3,833
Married but permanently separated .....	.....	3	13	23	30	21	2	92
Widowed .....	.....	.....	5	35	79	132	95	346
Divorced .....	.....	.....	7	19	38	18	3	85
Total	48	233	962	1,257	1,197	763	229	4,689
Employees (on wage or salary)—								
Never married	23,301	9,117	3,330	1,594	1,473	1,249	339	40,403
Married	730	4,719	7,157	10,165	6,831	2,215	176	31,993
Married but permanently separated	24	195	507	748	705	277	29	2,485
Widowed	6	14	84	402	1,130	1,157	317	3,110
Divorced	2	23	260	532	541	280	32	1,670
Total	24,063	14,068	11,338	13,441	10,680	5,178	893	79,661
Helpers (not on wage or salary)—								
Never married	159	55	29	17	10	11	5	286
Married	15	127	413	508	500	259	60	1,882
Married but permanently separated .....	.....	3	12	10	4	4	4	37
Widowed .....	.....	1	3	2	12	33	34	85
Divorced .....	.....	1	5	4	5	5	.....	20
Total	174	187	462	541	531	312	103	2,310
Total at work—								
Never married	23,506	9,240	3,413	1,668	1,588	1,393	402	41,210
Married	782	5,154	9,346	13,146	9,442	3,480	381	41,711
Married but permanently separated	24	201	537	802	757	315	39	2,675
Widowed	6	16	95	463	1,334	1,476	527	3,917
Divorced	2	24	276	579	604	326	36	1,847
TOTAL AT WORK	24,300	14,635	13,667	16,658	13,725	6,990	1,385	91,360
Not at work—								
Never married	663	228	82	18	16	15	.....	1,022
Married	47	167	219	211	99	28	10	781
Married but permanently separated	4	17	21	36	33	8	.....	119
Widowed .....	.....	3	2	10	31	31	17	94
Divorced .....	.....	2	10	13	12	9	2	48
Total Not at Work	714	417	334	288	191	91	29	2,064
Total in work force—								
Never married	24,169	9,468	3,495	1,686	1,604	1,408	402	42,232
Married	809	5,321	9,565	13,357	9,541	3,508	391	42,492
Married but permanently separated	28	218	558	838	790	323	39	2,794
Widowed	6	19	97	473	1,365	1,507	544	4,011
Divorced	2	26	286	592	616	335	38	1,895
TOTAL IN WORK FORCE	25,014	15,052	14,001	16,946	13,916	7,081	1,414	93,424
Not in work force—								
Never married	11,191	1,099	724	557	625	1,209	2,555	(a) 17,960
Married	2,356	12,134	34,202	32,490	26,989	20,116	12,274	140,561
Married but permanently separated	14	144	556	697	568	618	595	3,192
Widowed	2	22	179	531	1,743	5,043	18,003	26,123
Divorced	3	25	180	300	404	513	454	1,879
Total Not in Work Force	13,566	13,424	35,841	34,575	30,329	27,499	34,481	(a) 189,715
Total Females—								
Never married	35,360	10,567	4,219	2,243	2,229	2,617	2,957	(a) 60,192
Married	3,165	17,455	43,767	45,847	36,530	23,624	12,665	188,053
Married but permanently separated	42	362	1,114	1,535	1,358	941	634	5,986
Widowed	8	41	276	1,004	3,108	6,550	19,147	30,134
Divorced	5	51	466	892	1,020	848	492	3,774
GRAND TOTAL	38,580	28,476	49,842	51,521	44,245	34,580	35,895	(a) 283,139

(a) Excludes 41,286 females aged 0-4 years, 43,428 females aged 5-9 years and 42,129 females aged 10-14 years not in the work force.

Classification according to Industry

For census purposes, industry may be defined as any single branch of productive activity, trade or service. It is concerned with the activities of persons, firms or businesses considered as a group producing the same commodity, performing the same process or providing the same service. All persons engaged in any such branch of economic activity are classified industrially as belonging to that particular branch irrespective of their personal occupation within the industry. Examples are: Mining, which includes, in addition to miners and prospectors, such persons as laboratory technicians, transport workers and office staff employed by mining companies; Shipping, which covers staff members of shipping companies and agencies, as well as ships' crews; professional activities such as Medicine, Law and Architecture which include not only qualified practitioners but also persons employed by them as, for example, receptionists, law clerks and draftsmen.

Classification according to industry at the 1966 Census has been made on the basis of the *Classification and Classified List of Industries—Revised: June, 1966*, published by the Commonwealth Statistician, Canberra. The Classification divides the work force into 14 Major Groups which, in turn, are divided into 53 Sub-groups and 342 Industry Categories.

In the following table, the work force at the 30th June, 1966 is classified according to the main industrial groups such as Primary Production; Mining and Quarrying; Manufacturing; and so on. It should be noted that the particulars shown under Public Authority Activities (N.E.I.) are residual figures comprising those persons in the administrative sphere of general government, local government and foreign consular services who have not been classified elsewhere. They do not, therefore, represent the total number of persons engaged in or attached to all fields of government service, Commonwealth, State or Local.

WORK FORCE CLASSIFIED ACCORDING TO INDUSTRY GROUP CENSUS, 30th JUNE, 1966

Industry Group	Males	Females	Persons
Primary Production	36,964	6,474	43,438
Mining and Quarrying	8,021	310	8,331
Manufacturing	50,545	10,348	60,893
Electricity, Gas, Water, and Sanitary Services	5,508	346	5,854
Building and Construction	33,886	1,181	35,067
Transport and Storage	22,118	1,784	23,902
Communication	5,698	1,341	7,039
Finance and Property	7,351	4,417	11,768
Commerce	36,875	24,201	61,076
Public Authority (N.E.I.) and Defence Services	10,886	3,052	13,938
Community and Business Services (including Professional)	17,822	24,372	42,194
Amusement, Hotels and Office Accommodation, Cafes, Personal Service, etc.	8,175	12,373	20,548
Other Industries	7	1	8
Industry inadequately described or not stated	2,299	3,224	5,523
Total in Work Force	246,155	93,424	339,579

PROPORTION OF TOTAL WORK FORCE (per cent.)

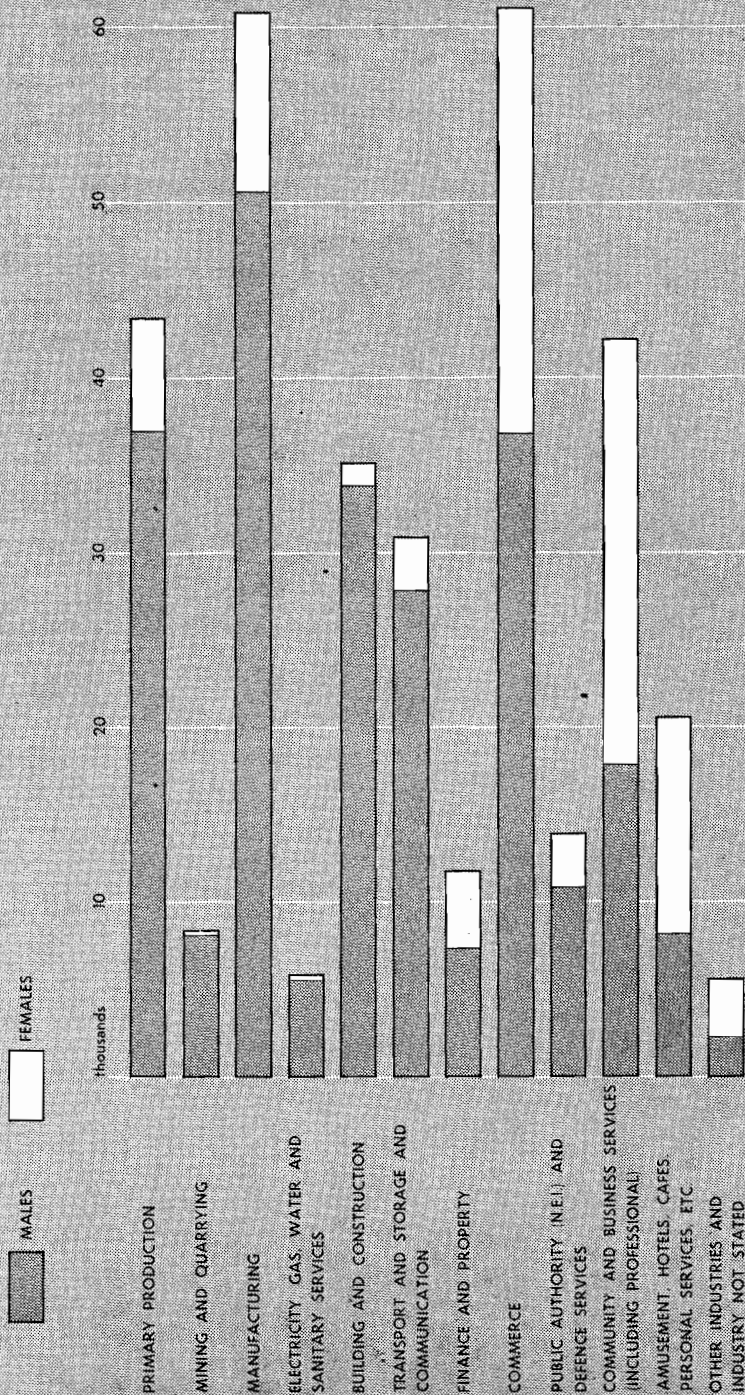
Industry Group	Males	Females	Persons
Primary Production	15.02	6.93	12.79
Mining and Quarrying	3.26	0.33	2.45
Manufacturing	20.53	11.08	17.93
Electricity, Gas, Water and Sanitary Services	2.24	0.37	1.72
Building and Construction	13.77	1.26	10.33
Transport and Storage	8.99	1.91	7.04
Communication	2.31	1.44	2.07
Finance and Property	2.99	4.73	3.47
Commerce	14.98	25.90	17.99
Public Authority (N.E.I.) and Defence Services	4.42	3.27	4.10
Community and Business Services (including Professional)	7.24	26.09	12.43
Amusement, Hotels and Other Accommodation, Cafes, Personal Service, etc.	3.32	13.24	6.05
Other Industries	0.00	0.00	0.00
Industry inadequately described or not stated	0.93	3.45	1.63
Total in Work Force	100.00	100.00	100.00

Classification of the components of the work force according to industry, as in the table on page 389, furnishes much useful information. It is interesting to note, for example, the preponderance of employers and the self-employed in Primary Production. Of the 43,438 persons engaged in this industry at the 30th June, 1966 nearly 60 per cent. were in one or other of these categories.

Industry of the Work Force

CENSUS, 30th JUNE, 1966

MALES AND FEMALES



INDUSTRY AND OCCUPATIONAL STATUS OF THE WORK FORCE
CENSUS, 30th JUNE, 1966

Industry Group	In Work Force					
	At Work				Un-employed	Total in Work Force
	Em- ployer	Self- employed	Employee (on Wage or Salary)	Helper (not on Wage or Salary)		
MALES						
Primary Production	8,260	14,052	13,555	727	370	36,964
Mining and Quarrying	58	185	7,665	9	104	8,021
Manufacturing	2,018	1,347	46,817	49	314	50,545
Electricity, Gas, Water and Sanitary Services	25	18	5,437	2	26	5,508
Building and Construction	2,613	3,024	27,758	26	465	33,886
Transport and Storage	758	2,035	19,168	12	145	22,118
Communication	.....	.....	5,680	3	15	5,698
Finance and Property	361	511	6,460	9	10	7,351
Commerce	4,392	2,416	29,779	67	221	36,875
Public Authority (N.E.I.) and Defence Services	.....	.....	10,843	.....	43	10,886
Community and Business Services (including Professional)	1,519	411	15,777	48	67	17,822
Amusement, Hotels, Cafes, Personal Service, etc.	1,340	1,072	5,644	29	90	8,175
Other (a)	39	65	1,121	13	1,068	2,306
Total Males in Work Force	21,383	25,136	195,704	994	2,938	246,155
FEMALES						
Primary Production	1,248	1,949	1,960	1,294	23	6,474
Mining and Quarrying	2	1	306	1	.....	310
Manufacturing	347	271	9,517	84	129	10,348
Electricity, Gas, Water and Sanitary Services	4	4	334	3	1	346
Building and Construction	205	54	862	55	5	1,181
Transport and Storage	114	139	1,478	45	8	1,784
Communication	.....	.....	1,326	3	12	1,341
Finance and Property	51	78	4,250	17	21	4,417
Commerce	1,601	1,164	20,884	335	217	24,201
Public Authority (N.E.I.) and Defence Services	.....	.....	3,022	.....	30	3,052
Community and Business Services (including Professional)	189	347	23,527	84	225	24,372
Amusement, Hotels, Cafes, Personal Service, etc.	909	608	10,461	189	206	12,373
Other (a)	30	74	1,734	200	1,187	3,225
Total Females in Work Force	4,700	4,689	79,661	2,310	2,064	93,424
PERSONS						
Primary Production	9,508	16,001	15,515	2,021	393	43,438
Mining and Quarrying	60	186	7,971	10	104	8,331
Manufacturing	2,365	1,618	56,334	133	443	60,893
Electricity, Gas, Water and Sanitary Services	29	22	5,771	5	27	5,854
Building and Construction	2,818	3,078	28,620	81	470	35,067
Transport and Storage	872	2,174	20,646	57	153	23,902
Communication	.....	.....	7,006	6	27	7,039
Finance and Property	412	589	10,710	26	31	11,768
Commerce	5,993	3,580	50,663	402	438	61,076
Public Authority (N.E.I.) and Defence Services	.....	.....	13,865	.....	73	13,938
Community and Business Services (including Professional)	1,708	758	39,304	132	292	42,194
Amusement, Hotels, Cafes, Personal Service, etc.	2,249	1,680	16,105	213	296	20,548
Other (a)	69	139	2,855	213	2,255	5,531
Total in Work Force	26,083	29,825	275,365	3,304	5,002	339,579

(a) Comprises the groups "Other Industries" and "Industry Inadequately Described or Not Stated."

Classification according to Occupation

Occupation is defined as the nature of the work which a person performs, and implies *personal* performance. It may be based on the material treated, the process carried out or the type of service rendered by an *individual* worker. Thus the occupation of a person is the kind of work that he or she personally performs, as distinct from industry, which is defined as any single *branch of productive activity, trade or service* and is not concerned with the nature of personal performance.

hospitals and institutions, migrant hostels, banks, post office, broadcasting and television, police, factories, electricity generation and supply, water conservation, irrigation, road and bridge construction, harbour works and other public works.

The Classification of Occupations used in the tabulation of the 1966 Census data has been adapted from and closely adheres to the principles embodied in the International Standard Classification of Occupations issued by the International Labour Office, Geneva, 1958. The International Standard Classification of Occupations was prepared after extensive discussions and research by world experts in this field, to provide an adequate classification framework for countries interested in occupational classification, and, at the same time, provide a basis for international comparison of occupational data obtained mainly from Censuses of Population. The Australian Classification of Occupations contains 11 Major Groups, 72 Minor Groups and 313 Occupation Categories. In accordance with the International Standard Classification, occupations have been grouped by the general similarity of the characteristics of the work they entail.

Complete descriptions of major groups, minor groups and categories, together with a list of occupation titles included under each heading, are contained in the *Classification and Classified List of Occupations—Revised: June, 1966*, published by the Commonwealth Statistician, Canberra.

The following table shows the numbers and the proportions of the Western Australian work force in each of the major groups of occupations, as recorded at the Census of 30th June, 1966.

WORK FORCE CLASSIFIED ACCORDING TO OCCUPATION GROUP
CENSUS, 30th JUNE, 1966

Occupation Group	Males	Females	Persons	Proportion of Total (per cent.)		
				Males	Females	Persons
Professional, Technical and Related Workers	17,937	13,327	31,264	7.29	14.27	9.21
Administrative, Executive and Managerial Workers	17,703	2,115	19,818	7.19	2.26	5.84
Clerical Workers	20,307	27,193	47,500	8.25	29.11	13.99
Sales Workers	12,862	14,385	27,247	5.23	15.40	8.02
Farmers, Fishermen, Hunters, Timber Getters and Related Workers	38,385	6,081	44,466	15.59	6.51	13.09
Miners, Quarrymen and Related Workers	4,705	1	4,706	1.91	0.00	1.39
Workers in Transport and Communication Occupations Craftsmen, Production-Process Workers and Labourers, n.e.c.	20,382	2,315	22,697	8.28	2.48	6.68
Service, Sport and Recreation Workers	100,085	6,648	106,733	40.66	7.12	31.43
Members of Armed Services	9,747	18,295	28,042	3.96	19.58	8.26
Occupation Inadequately Described or Not Stated	2,368	84	2,452	0.96	0.09	0.72
	1,674	2,980	4,654	0.68	3.19	1.37
Total in Work Force	246,155	93,424	339,579	100.00	100.00	100.00

n.e.c. denotes "not elsewhere classified."

Work Force Survey

Estimates of the civilian work force are prepared each quarter by the Commonwealth Statistician. They are based on surveys of a sample of households, selected by area sampling methods, in the six Australian State capital cities. As the estimates refer to the six capital cities *considered as a whole*, separate details are not available for Perth. The surveys are currently in process of extension to non-metropolitan areas.

Surveys have been conducted at quarterly intervals, in February, May, August and November of each year, since November, 1960. The information is obtained by personal interview at about 19,500 sample households which are visited during a four-week period each quarter by specially trained enumerators. The enumeration includes all persons aged 15 years and over living in the selected households, with the exception of members of the permanent armed forces, national servicemen enlisted in the Regular Army Supplement, and certain diplomatic personnel customarily excluded from the Population Census and population estimates.

Each person included in the survey is classified according to work force characteristics on the basis of his actual activity during the previous week as reported to the enumerator. The classification used in the surveys conforms closely to that recommended by the Eighth International Conference of Labour Statisticians held at Geneva in 1954. In this classification, the work force category to which each person is assigned depends on his actual activity during the specified week, as determined from answers given to a set of questions specially designed for the purpose.

The results of the surveys are published in the mimeographed release *Employment and Unemployment*, issued quarterly by the Commonwealth Statistician, Canberra.

**WORK FORCE PARTICIPATION AND UNEMPLOYMENT RATES
SIX AUSTRALIAN STATE CAPITAL CITIES
(Per cent.)**

November—	Work Force Participation Rate (a)				Unemployment Rate (b)			
	Males		Females		Males		Females	
	Married	Not Married (c)	Married	Not Married (c)	Married	Not Married (c)	Married	Not Married (c)
1962.....	88.8	73.1	27.7	50.7	0.8	2.6	1.9	2.3
1963.....	88.4	72.0	27.3	50.7	0.6	1.9	1.1	1.7
1964.....	88.7	71.3	28.5	49.5	0.4	1.4	1.6	1.6
1965.....	89.1	71.5	30.4	49.8	0.6	2.0	1.8	2.0
1966.....	89.3	70.9	32.3	50.2	0.7	2.3	1.5	2.1

(a) The civilian work force as a percentage of the civilian population aged 15 years and over. (b) The number unemployed as a percentage of the civilian work force. See also table on page 394. (c) Includes never married, widowed and divorced.

ESTIMATES OF EMPLOYMENT

In addition to employment data provided by the census and the work force survey, there are available monthly estimates of the number of wage and salary earners in civilian employment, excluding employees in rural industry (comprising agriculture, grazing and dairying) and private domestic service.

The prime purpose of the series is to measure currently, and as nearly as possible with available data, *monthly trends* in employment in the defined field.

The employment estimates are based on comprehensive "benchmark" data derived for the purpose from the Population Censuses of June, 1954 and June, 1961. Figures for periods between and subsequent to the two benchmark points in time are estimates obtained from three main sources, (i) Pay-roll Tax returns, which are lodged by all employers paying more than \$400 per week in wages, other than those specifically exempted under the Pay-roll Tax Assessment Act 1941-1967, (ii) returns from government bodies, and (iii) some other direct current records of employment, *e.g.*, for hospitals. The data thus derived are supplemented by estimates of the changes in the number of wage and salary earners not covered by these collections. As they become available, particulars of employment obtained from other collections, notably the annual factory census (see Chapter VIII, Part 2) and the censuses and sample surveys of retail establishments, are used to check and, where desirable, to revise estimates in relevant sections.

The terms *employment*, *number employed*, *employees* and *wage earners* as used here are synonymous with, and relate to, wage and salary earners on pay-rolls or *in employment* in the latter part of each month, as distinct from numbers of employees *actually working* on a specific date. Some persons working part-time are included.

The benchmark figures were derived from particulars recorded for individuals on population census schedules, while the estimated monthly figures are derived mainly from reports supplied by employers, relating to enterprises or establishments. Because the two sources differ in some cases in scope and in the reporting of industry, the industry dissection of the benchmark totals was adjusted to conform as closely as possible to an enterprise/establishment reporting basis.

Employees in rural industry and in private domestic service are not included in the estimates because the available data are inadequate.

The table on page 392 shows the number of wage and salary earners in civilian employment in various industry groups and sub-groups at the last pay-period in June for the years 1963 to 1967. The figures appearing against the item "Other" under the heading "Other Industries" comprise employees in the Industry Sub-groups *Law, Order and Public Safety; Religion and Social Welfare; Other Community and Business Services; Amusement, Sport and Recreation; Hotels, Boarding Houses and other Accommodation, and Restaurants; and Other Personal Services.*

Employees of government and semi-government authorities are included in the figures shown in the table on page 392. Estimates of the numbers employed by Commonwealth, State and Local Government authorities are available separately. They include not only those engaged in administrative activities but also employees on services such as railways, road transport, air transport, shipping, education, health, hospitals and institutions, migrant hostels, banks, post office, broadcasting and television, police, factories, electricity generation and supply, water conservation, irrigation, road and bridge construction, harbour works and other public works.

WAGE AND SALARY EARNERS IN CIVILIAN EMPLOYMENT(a)—INDUSTRY GROUPS
Excluding Employees in Rural Industry and Private Domestic Service, and Defence Forces
(Thousands)

Industry Group and Sub-group	June, 1963	June, 1964	June, 1965	June, 1966	June, 1967
MALES					
Forestry, Fishing and Trapping	1.6	1.3	1.3	1.4	1.4
Mining and Quarrying	7.1	7.1	6.9	7.2	7.8
Manufacturing	44.4	46.0	48.0	49.1	50.1
Electricity, Gas, Water and Sanitary Services	4.9	5.0	5.2	5.4	5.8
Building and Construction	20.6	21.2	23.3	26.5	24.4
Transport and Storage—					
Road transport and storage	4.9	5.1	5.6	6.2	6.5
Shipping and stevedoring	4.0	4.1	4.1	4.4	4.4
Rail and air transport	7.6	7.6	7.5	7.9	8.0
Communication	5.4	5.5	5.6	5.8	6.1
Finance and Property—					
Banking	2.9	3.1	3.4	3.6	3.8
Other	2.7	2.9	3.0	3.2	3.4
Commerce—					
Retail trade	16.1	16.8	17.0	17.0	17.2
Wholesale and other commerce	11.8	12.0	12.3	12.8	13.2
Public Authority Activities, not elsewhere included	7.6	7.9	8.3	8.8	9.4
Other Industries—					
Health, hospitals, etc.	3.1	3.4	3.5	3.7	3.8
Education	5.4	5.6	6.0	6.4	6.6
Other (b)	9.4	9.7	10.5	11.4	12.0
Total	159.4	164.3	171.5	180.7	183.9
FEMALES					
Forestry, Fishing and Trapping	0.2	0.2	0.2	0.3	0.3
Mining and Quarrying	7.3	7.6	8.1	9.0	9.4
Manufacturing	0.3	0.3	0.3	0.3	0.4
Electricity, Gas, Water and Sanitary Services	0.3	0.3	0.4	0.5	0.6
Building and Construction	0.4	0.5	0.5	0.6	0.6
Transport and Storage—					
Road transport and storage	0.2	0.2	0.2	0.2	0.2
Shipping and stevedoring	0.4	0.4	0.4	0.5	0.5
Rail and air transport	1.0	1.1	1.2	1.2	1.3
Communication	1.3	1.4	1.5	1.7	1.8
Finance and Property—					
Banking	2.1	2.2	2.3	2.5	2.5
Other	12.2	12.9	13.6	14.7	15.9
Commerce—					
Retail trade	3.4	3.5	3.7	4.1	4.3
Wholesale and other commerce	2.3	2.5	2.7	2.9	3.2
Public Authority Activities, not elsewhere included	9.6	10.4	11.0	11.3	11.8
Other Industries—					
Health, hospitals, etc.	5.7	5.9	6.3	6.9	7.4
Education	8.7	9.2	10.2	11.1	12.0
Other (b)					
Total	55.5	58.5	62.7	68.0	72.4
PERSONS					
Forestry, Fishing and Trapping	1.6	1.3	1.3	1.4	1.4
Mining and Quarrying	7.3	7.3	7.1	7.5	8.1
Manufacturing	51.7	53.6	56.1	58.1	59.5
Electricity, Gas, Water and Sanitary Services	5.2	5.3	5.5	5.7	6.2
Building and Construction	20.9	21.5	23.7	27.0	25.0
Transport and Storage—					
Road transport and storage	5.3	5.6	6.1	6.8	7.1
Shipping and stevedoring	4.2	4.3	4.3	4.6	4.6
Rail and air transport	8.0	8.0	7.9	8.4	8.5
Communication	6.4	6.6	6.8	7.0	7.4
Finance and Property—					
Banking	4.2	4.5	4.9	5.3	5.6
Other	4.8	5.1	5.3	5.7	5.9
Commerce—					
Retail trade	28.3	29.7	30.6	31.7	33.1
Wholesale and other commerce	15.2	15.5	16.0	16.9	17.5
Public Authority Activities, not elsewhere included	9.9	10.4	11.0	11.7	12.6
Other Industries—					
Health, hospitals, etc.	12.7	13.8	14.5	15.0	15.6
Education	11.1	11.5	12.3	13.3	14.0
Other (b)	18.1	18.9	20.7	22.6	24.0
Total	214.9	222.9	234.2	248.7	256.3

(a) Figures do not in all cases add to the totals shown owing to rounding to thousands.

(b) See letterpress on page 391.

GOVERNMENT AUTHORITIES—CIVILIAN EMPLOYEES IN WESTERN AUSTRALIA
(Thousands)

Date	Commonwealth (a)			State (a) (b)			Local Government (b)			Total		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
June—1954	8.4	2.1	10.5	35.1	5.9	41.0	3.1	0.2	3.3	46.6	8.2	54.8
1955	8.9	2.2	11.1	37.4	6.2	43.6	3.4	0.2	3.6	49.7	8.6	58.3
1956	9.0	2.2	11.2	38.1	6.2	44.3	3.4	0.3	3.7	50.5	8.7	59.2
1957	9.0	2.2	11.2	37.9	6.4	44.3	3.3	0.3	3.6	50.2	8.9	59.1
1958	9.3	2.2	11.5	39.6	6.8	46.4	3.5	0.3	3.8	52.4	9.3	61.7
1959	9.6	2.3	11.9	40.4	7.3	47.7	3.7	0.3	4.0	53.7	9.9	63.6
1960	9.8	2.3	12.1	38.7	7.8	46.5	3.7	0.4	4.1	52.2	10.5	62.7
1961	9.8	2.4	12.2	39.0	8.2	47.2	3.7	0.4	4.1	52.5	11.0	63.5
1962	10.0	2.4	12.4	38.4	8.8	47.2	3.8	0.4	4.2	52.2	11.6	63.8
1963	10.3	2.5	12.8	39.1	9.0	48.1	4.1	0.4	4.5	53.5	11.9	65.4
1964	10.6	2.6	13.2	39.6	9.5	49.1	4.3	0.4	4.7	54.5	12.5	67.0
1965	11.0	2.8	13.7	40.7	10.2	50.9	4.6	0.5	5.1	56.3	13.5	69.8
1966	11.6	3.0	14.6	42.1	11.0	53.1	4.7	0.6	5.3	58.4	14.6	73.0
1967	12.3	3.3	15.6	42.5	11.7	54.2	5.0	0.6	5.6	59.7	15.7	75.4

(a) Includes employees of semi-governmental authorities.
rural industry.

(b) Excludes a small number of employees engaged in

UNEMPLOYMENT

A full count of unemployed persons in Western Australia is available only from population censuses. At the post-war censuses details have been obtained of all persons usually engaged in an industry, business, profession, trade or service but who were without employment at the time of the census, irrespective of whether they were actively seeking employment or not. As the term "unemployment" is normally associated only with those persons available for work and unable to obtain it, persons without employment at the census date are broadly described as "not at work".

The numbers of persons not at work at the 1947, 1954 and 1961 Censuses are given in the following table, together with the reasons for being without work. Persons not at work represented 3.21 per cent. of the total work force in 1947, 1.09 per cent. in 1954, and 3.63 per cent. in 1961. At the 1966 Census, 2,938 males and 2,064 females were classified as being without employment. This was equivalent to 1.47 per cent. of the total work force.

**MEMBERS OF WORK FORCE NOT AT WORK ACCORDING TO CAUSE
CENSUSES OF 1947, 1954 AND 1961**

Census	Unable to Secure Employment	Temporarily Laid Off	Sickness or Accident	Changing Jobs	Other and Not Stated (a)	Total
MALES						
1947	2,099	901	1,144	22	1,284	5,450
1954	479	170	606	468	354	2,077
1961	5,218	531	1,254	599	317	7,919
FEMALES						
1947	240	172	232	9	505	1,158
1954	188	60	169	189	135	741
1961	1,433	139	313	262	97	2,244
PERSONS						
1947	2,339	1,073	1,376	31	1,789	6,608
1954	667	230	775	657	489	2,818
1961	6,651	670	1,567	861	414	10,163

(a) Includes persons resting between jobs, voluntarily unemployed, or involved in an industrial dispute.

Monthly figures compiled by the Department of Labour and National Service from the operations of the Commonwealth Employment Service provide indicators of movement in the level of unemployment.

The department makes a count of the number of persons, registered with the Employment Service for employment on the Friday nearest to the end of the month, who claimed at the time of registering that they were not employed, and who were still recorded as unplaced. Included in the figures are persons who have been referred to employers and those who may have obtained employment without notifying the department. Also available from the Department of Labour and National Service is the number of vacancies, registered by employers, which were recorded as unfilled at the end of the month.

In the next table the number of persons registered for employment and vacancies registered at the end of June are shown for the years 1963 to 1967.

Applications for unemployment benefit are received by the Department of Labour and National Service acting on behalf of the Department of Social Services. Persons seeking employment benefit must register with the Employment Service, which is responsible for certifying that suitable employment is not available before benefits can be paid. Statistics of the number of persons receiving unemployment benefits are given on page 192.

COMMONWEALTH EMPLOYMENT SERVICE—WESTERN AUSTRALIA PERSONS REGISTERED FOR EMPLOYMENT AND VACANCIES REGISTERED

At end of June—	Persons Registered (a)			Vacancies Registered		
	Males	Females	Total	Males	Females	Total
1963	3,885	2,168	6,053	693	254	947
1964	2,955	2,186	5,141	879	264	1,143
1965	1,774	1,802	3,576	1,973	449	2,422
1966	2,075	1,295	3,370	2,437	528	2,965
1967	2,160	1,597	3,757	1,852	559	2,411

(a) Persons who claimed when registering with the Commonwealth Employment Service that they were not employed and who were recorded as unplaced. Includes those referred to employers and those who may have obtained employment without notifying the Commonwealth Employment Service. Includes also persons receiving unemployment benefit.

One of the primary functions of the work force survey (see page 390) is to provide regular and detailed information on unemployment in Australia. Separate details for Western Australia are not available and published estimates to date have been restricted to the six State capital cities.

In the following table unemployment rates are shown by industry group for the six capitals for the surveys of November 1962 to 1966. The unemployment rate is that percentage of the civilian work force aged 15 years and over who are currently unemployed and looking for work or who are laid off without pay.

Of the persons found to be unemployed in November, 1966, 65.4 per cent. had been unemployed for less than one month and 20.2 per cent. had been unemployed for three months or more.

UNEMPLOYMENT RATES—SIX AUSTRALIAN STATE CAPITAL CITIES

Industry Group in which Last Employed	November—				
	1962 (a)	1963 (a)	1964 (a)	1965 (a)	1966 (b)
Manufacturing	1.3	0.9	0.8	0.9	1.1
Building and Construction	1.1	1.2	0.5	1.2	1.0
Transport, Storage and Communication	0.9	0.8	0.5	0.7	0.9
Commerce	1.4	0.9	0.9	1.3	1.1
Public Authority (N.E.I.), Community and Business Services (including Professional)	0.7	0.7	0.7	0.7	0.8
Amusement, Hotels and Other Accommodation, Cafes. etc., Personal Service, etc.	2.3	1.4	1.7	1.2	1.3
Other Industries	1.8	1.3	1.0	1.0	1.0
All Industries Combined (c)	1.3	1.0	0.8	1.0	1.0

(a) Persons aged 14 years and over.
had not previously been employed.

(b) Persons aged 15 years and over.

(c) Excludes unemployed persons who

CHAPTER X—continued

PART 2—WAGES

THE BASIC WAGE

NOTE—In this Part, references to the Commonwealth basic wage apply to the position obtaining prior to a decision given by the Commonwealth Conciliation and Arbitration Commission on the 5th June, 1967, when it announced the “elimination of basic wages and margins and the introduction of total wages” (see letterpress on pages 400–01).

References to the State basic wage apply to the period before the operation of the Industrial Arbitration Act Amendment Act of 1966 (see letterpress below and on page 404).

The Conciliation and Arbitration Act 1904–1967 (Commonwealth) defines the basic wage for an adult male worker as “that wage, or that part of a wage, which is just and reasonable for an adult male, without regard to any circumstance pertaining to the work upon which, or the industry in which, he is employed.” The Act contains a similar definition of a basic wage for females. Before the inclusion of this amendment, the Act empowered the Court to prescribe a “minimum rate of wage” but it neither defined, nor provided for the determination of, a specific “basic wage.” In general terms, however, the basic wage was understood to be identifiable as the minimum wage, including “loadings,” payable to an adult unskilled labourer. A “loading” may be defined as an addition to the “basic” wage as compensation for some peculiar condition of labour or environment or other circumstance, and not by way of “margin for skill.”

The Commonwealth Conciliation and Arbitration Commission, which is constituted under the provisions of the Conciliation and Arbitration Act, has the power to declare basic wage rates. The rates for the several State capital cities are shown in the table on page 401, together with the weighted average rate for the six capital cities.

The Western Australian Industrial Commission is established under the provisions of the Industrial Arbitration Act, 1912–1966 (State). Prior to the 23rd December, 1966, when amending legislation became operative, the Commission had authority to declare basic wage rates applicable in Western Australia. The amending Act, the Industrial Arbitration Act Amendment Act, 1966, provides that the rates which were current immediately prior to the date of commencement of the Act shall remain unaltered until exceeded by the basic wage for the six capital cities as declared by the Commonwealth Conciliation and Arbitration Commission, and that subsequent alterations shall be made in accordance with variations of that wage. (At the 22nd December, 1966 the State basic wage rate for adult male workers was \$33.50 per week, and the Commonwealth rate for the six capital cities was \$32.80 per week.)

Industrial Authorities

A Commonwealth Court of Conciliation and Arbitration was established under the provisions of the Commonwealth Conciliation and Arbitration Act of 1904. By an amendment made to the Conciliation and Arbitration Act in 1956 the Commonwealth arbitration system was reorganized by the creation of two separate authorities to deal with matters formerly within the sole jurisdiction of the Court. The amendment had the effect of allocating to a Commonwealth Industrial Court the judicial functions, and to a Commonwealth Conciliation and Arbitration Commission the arbitral functions, previously carried out by the Commonwealth Court of Conciliation and Arbitration.

The *Commonwealth Industrial Court*, as constituted at the 31st December, 1967, comprised a Chief Judge and five other Judges. The Act provides that, except in respect of certain specified matters, the jurisdiction of the Court shall be exercised by not less than two Judges. A single Judge may refer a question of law for the opinion of the Court constituted by not less than two Judges. Although, in general, decisions of the Court are final, an appeal may be made to the High Court of Australia, but only when the High Court grants leave to appeal.

The *Commonwealth Conciliation and Arbitration Commission*, according to the provisions of the Conciliation and Arbitration Act 1904–1967, shall consist of a President, not less than two Deputy Presidents, a Senior Commissioner and not less than five Commissioners. The Act provides also for the appointment of Conciliators. At the 31st December, 1967 there were, in addition to the President and the Senior Commissioner, five Deputy Presidents, ten Commissioners and three Conciliators. Generally, the Commission's jurisdiction is limited to the prevention or settlement, by conciliation or arbitration, of industrial disputes which extend beyond the limits of any one State, but the Commission is authorized to conciliate or arbitrate in respect of any dispute or industrial matter associated with Commonwealth Government undertakings

or projects. The power to make awards or certify agreements concerning standard hours, basic wages and long service leave is reserved to the Commission in Presidential Session, which is constituted by not less than three presidential members nominated by the President. The Principal Registry of the Commission is in Melbourne, Victoria, and there is a Deputy Industrial Registrar in each State.

A Court of Arbitration was established in Western Australia in 1901 under the provisions of the Industrial Conciliation and Arbitration Act, 1900. The Court comprised a President, a representative of associations of employers and a representative of associations of workers. The Court of Arbitration was replaced, with effect from the 1st February, 1964, by the Western Australian Industrial Appeal Court and The Western Australian Industrial Commission, authorities constituted in terms of the Industrial Arbitration Act Amendment Act (No. 2), 1963.

The *Western Australian Industrial Appeal Court* consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of The Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction.

The *Western Australian Industrial Commission* consists of a Chief Industrial Commissioner and three other Commissioners. The Act provides that a Commissioner sitting or acting alone constitutes the Commission and may exercise all the powers and jurisdiction of the Commission.

The Commission is empowered to inquire into any industrial matter or industrial dispute in any industry and to make orders or awards fixing the prices for work done by and the rates of wages payable to workers; fixing the number of hours and the times to be worked in order to entitle those workers to the wages so fixed; limiting the hours of piece workers; fixing the rates for overtime, work on holidays, shift work, week-end work and other special work, including allowances as compensation for overtime; determining any industrial matter; and declaring what deduction may be made from the prices or wages of workers for board or residence or board and residence provided for workers and for any customary provisions or payments in kind conceded to such workers.

The Commission in Court Session is constituted by not less than three Commissioners sitting or acting together. Appeals from decisions of a single Commissioner are heard and determined by the Commission in Court Session. Such appeals are restricted to the evidence and matters raised in the proceedings before the single Commissioner.

Commonwealth Basic Wage

The first determination of a wage standard by a Court in Australia was made in 1907, when Mr. Justice Higgins, President of the Commonwealth Court of Conciliation and Arbitration, fixed an amount of £2 2s. (\$4.20) per week for Melbourne as reasonable to meet the needs of "a family of about five." This determination is commonly referred to as the "Harvester Judgment" from the fact that it related to an application by the proprietors of the Sunshine Harvester Works that the wage paid to their employees was "fair and reasonable."

The "Harvester" standard was adopted by the Court for incorporation in its awards and the rates remained virtually unchanged until 1913. In that year the Court began to have regard to retail price index numbers the first of which, the "A" Series, covering food and groceries and rent of all houses, had recently been published by the Commonwealth Statistician. In general, the practice was to revise basic wage rates in direct proportion to variations in the retail price index. Until 1918 the Court, in computing "Harvester" equivalents, used the index numbers for the previous calendar year and, from 1918 to 1921, the figures for the next preceding four quarters.

During the period of application of this system, it was frequently contended that it failed to maintain the "Harvester" standard. Criticism became more general with the rise in prices towards the end of the first World War and led to the appointment in 1919 of a Royal Commission on the Basic Wage under the chairmanship of A. B. Piddington, K.C. The "Piddington Commission," as it came to be called, was required by its terms of reference to inquire into the actual cost of maintaining in a reasonable state of comfort a household comprising a man and his wife and three children under fourteen years of age, and also the means to be adopted for the automatic adjustment of the basic wage in order to maintain its purchasing power. The Commission presented its findings in two reports, the first of which was made in November, 1920, and the second in April, 1921. The recommendations in relation to a living wage were rejected by the Court as being so much in excess of existing wages as to cause doubt about the capacity of industry to pay such rates. The Commission's finding in regard to the automatic

adjustment of the basic wage led to the creation of the "C" Series Index of Retail Prices, an index much more comprehensive in scope than the original "A" Series in that it included the additional groups Clothing and Miscellaneous Expenditure.

In 1921, the Court began to insert provisions in awards for the automatic adjustment of wages according to quarterly movements in the "A" Series Index, and a loading of 3s. (30c) was added to the "Harvester" equivalent by Mr. Justice Powers to ensure that during a period of rapidly rising prices the worker would suffer no loss of real wages in the interval between the adjustment of rates.

The method of fixation and adjustment remained unaltered until the depression of the 1930's, when the Court, having satisfied itself that unfavourable economic conditions prevented the maintenance of real wages at their existing level, directed that, with certain exceptions, all wages under its jurisdiction should be reduced by ten per cent. as from the 1st February, 1931.

In its judgment of May, 1933, the Court concluded that the method of adjusting wages to conform to variations in the "A" Series Index numbers had resulted in a decrease of real wages to a level below the prescribed percentage. To correct this decline, it adopted the use of the "D" Series Index, derived by combining the "A" and the "C" Series Indexes.

In a judgment delivered in April, 1934, the Court introduced an entirely new basis for the fixation of the basic wage. The "Harvester" standard supplemented by the Powers loading of 3s. (30c) was discarded and a fresh starting point selected. The new wage was largely founded upon a declaration of £4 4s. (\$8.40) per week made by the New South Wales Board of Trade in August, 1925. As this amount took into consideration the upward tendency of prices, the Court regarded the rate as applicable to the year 1926. The "C" Series index number for Sydney for that year was 1033, and for the December quarter of 1933 stood at 829. Thus the 1933 equivalent in purchasing power of an amount of £4 4s. (\$8.40) in 1926 was £3 7s. (\$6.70), to the nearest shilling ($84s. \times 829 \div 1,033$), which became the rate applicable in Sydney from the 1st May, 1934. The equating of this wage to the index number 829 established the relationship '1,000 in the "C" Series Index = £4 1s. (\$8.10) in the wage' ($67s. \times 1,000 \div 829$, to the nearest shilling) and by applying the multiplier 0.081 to the "C" Series index number for any town or group of towns at any time, the wage in shillings could be readily computed. Owing to adverse industrial conditions in South Australia and Tasmania, the new rates for Adelaide and Hobart were graduated so as not to come into full operation until the 1st June, 1935. The date on which future periodical adjustments were to become operative was altered to the beginning of the first pay-period in the months of June, September, December or March, and adjustments were continued on this basis until 1939. Thereafter they took effect from the beginning of the first pay-period commencing in the months of February, May, August or November, until their abolition by the Court in its judgment of the 12th September, 1953.

The hearing of a claim by the combined unions for an increase in the basic wage was concluded in June, 1937. The Court, in fixing a new rate, transferred the basis of the adjustment of wages from the "C" Series to a special "Court" Series based upon the relationship between wages and index numbers which had been established in 1934. This Court Series was, in effect, simply a table expressing in shillings the wage rates derived by the use of the conversion factor 0.081. The Court's judgment further provided for the addition of "prosperity loadings" to the rates so derived, which came to be designated the "needs portion" of the wage. The amount of the loading applied to the "needs" wage for Sydney, Melbourne and Brisbane was 6s. (60c), for Adelaide, Perth and Hobart, 4s. (40c) and for the six capital cities as a whole, 5s. (50c).

In general, the method of the 1937 judgment was retained by the Court until its "interim" decision of the 13th December, 1946 when, in granting an increase of 7s. (70c) per week in the "needs" portion of the wage, it inaugurated a Court Index (Second Series). In fixing the base of this new series, the "C" Series index number (1146) for the six capital cities as a whole in the September quarter, 1946 was equated to the "needs" portion (£5 *i.e.*, \$10) of the new Six Capitals wage. This established the base, 1000 in the "C" Series index = £4 7s. (\$8.70) in the wage. The immediate monetary effect was to increase by 7s. (70c) per week the "needs" wage in each of the capital cities with the exception of Hobart, where the increase was 6s. (60c). The prosperity loadings were retained at their original levels.

On the application early in 1949 of certain unions seeking, among other things, an increase in the basic wage the Court, after an exhaustive examination of the Australian economy, declared a general increase of £1 (\$2) per week. Judgment was delivered on the 12th October, 1950, the new rates to be operative from the first pay-period in December. The Court also introduced a Court Index (Third Series), derived

by equating 1572 (the "C" Series index number for the six capital cities as a whole in the September quarter, 1950) to £8 2s. (\$16.20), the increased weighted average wage for the six capitals (made up of the "needs" portion £6 17s. (\$13.70), plus a uniform prosperity loading of 5s. (50c), plus the additional £1 (\$2) awarded by the Court). In this way, 1000 in the "C" Series index became equal to £5 3s. (\$10.30) in the wage. In determining the new rate of payment, a uniform amount of £1 5s. (\$2.50) was added to the existing "needs" basic wage, with the concurrent discontinuance of the prosperity loading as a separate entity. This had the effect of increasing the basic wage in Sydney, Melbourne and Brisbane by 19s. (\$1.90), in Adelaide, Perth and Hobart by £1 1s. (\$2.10), and for the six capital cities as a whole by £1 (\$2). From and including the first pay-period in February, 1951, the rates so determined were to be subject in their entirety to quarterly adjustment in accordance with movements in the Court Index (Third Series). Thus the components "needs portion" and "prosperity loading" ceased to exist as separate and distinguishable parts of the wage.

Following applications by employers' organizations requesting, among other things, "that the system of adjusting the basic wages in accordance with variations occurring in retail price index numbers be abandoned" and counter claims by employees' organizations for increases in the basic wage for adult males, the Court on the 16th September, 1952 commenced hearing evidence in what has come to be known as the "Basic Wage and Standard Hours Inquiry, 1952-53." Submission of evidence continued intermittently until the 11th September, 1953, and on the following day the Court announced its decision. The application for discontinuance of the system of adjusting the basic wages in accordance with variations in the retail price index numbers was granted but all of the other applications were refused. On the 27th October, in stating the reasons for its decisions, the Court made it clear that, as in its opinion there should be no departure from "its now well-established principle that the basic wage should be the highest that the capacity of the community as a whole can sustain" and as it had "withdrawn from relating the basic wage to the fulfilment of any particular standard of needs," the Court "finds it impossible to justify the continuance of an 'automatic' adjustment system whose purpose is to maintain the purchasing power of a particular wage (assessed with regard to the capacity of industry to pay such wage in 1950)." In consequence, the wage rates which had applied from the beginning of the first pay-period commencing in August, 1953, continued to operate.

In November, 1955, application was made to the Court by certain employees' organizations seeking an alteration of the basic wage. Among matters included in the application were requests that the wage be increased to the amount which it would have reached if automatic quarterly adjustments, discontinued since September, 1953, had continued to apply, that the wage be raised by a further £1 (\$2), and that automatic quarterly adjustments be restored. In the course of the hearing the Attorney-General, in exercise of powers conferred by the Conciliation and Arbitration Act, intervened in the public interest on behalf of the Commonwealth and each of the State Governments was represented by counsel or by a State official. In its judgment, delivered on the 25th May, 1956, the Court refused the first of the unions' claims and rejected the request for the restoration of the quarterly adjustments, but granted an increase of 10s. (\$1) per week in the adult male basic wage to apply from the beginning of the first pay-period commencing in June, 1956.

The next basic wage hearing commenced before the newly-constituted Commonwealth Conciliation and Arbitration Commission on the 13th November, 1956. The unions' claims were substantially the same as in the previous case except that the clause relating to an increase of £1 (\$2) in the basic wage was not included. Again the Commonwealth Government intervened in the public interest and representatives of the South Australian and Victorian State Governments appeared before the Commission. In its judgment on the 29th April, 1957, the Commission rejected the claims made by the unions and granted a uniform increase of 10s. (\$1) per week in the adult male basic wage to apply from the beginning of the first pay-period commencing on or after the 15th May, 1957.

On the 18th February, 1958, the Commission began hearing an application by unions claiming that the basic wage be increased to the amount which it would have reached had the system of quarterly adjustments been retained plus an addition of 10s. (\$1) per week, and that the resultant wage be subsequently varied by quarterly adjustment. The claims were opposed by the State of South Australia but Tasmania, the only other State represented, appeared in support of the unions' application. The Attorney-General of the Commonwealth intervened in the public interest. In delivering judgment on the 12th May, 1958, the Commission refused the claim for restoration of automatic quarterly adjustments but granted an increase of 5s. (50c) per week in the adult male basic wage, to come into effect from the beginning of the first pay-period commencing on or after the 21st May, 1958.

At the 1959 inquiry, which opened on the 24th February, the unions' claims were the same as those submitted in the previous year. The States of South Australia and Tasmania were again represented, South Australia opposing all the claims and Tasmania supporting those for an increase in the basic wage to the amount which it would have reached had the system of quarterly adjustments been retained and for restoration of the system. The Commonwealth Attorney-General intervened. On the 5th June, 1959 the Commission delivered judgment and granted an increase of 15s. (\$1.50) per week in the basic wage for adult males, the new rate to operate from the beginning of the first pay-period commencing on or after the 11th June, 1959. All other claims were rejected. An application which had been made on behalf of employers in the pastoral industry seeking a reduction of £1 5s. (\$2.50) in the basic wage payable to pastoral workers was also refused.

On the 16th February, 1960, the Commission began hearing an application by the unions for the restoration of quarterly adjustments to the basic wage and for an increase in the amount of the wage. On the six capital cities rate the increase sought was £1 2s. (\$2.20) per week, representing an addition of 5s. (50c) to restore the real value of the wage to its 1953 level, and a further amount of 17s. (\$1.70) being the unions' minimum estimate of the increase in productivity which had occurred since the automatic adjustment system was discontinued. The Commonwealth Government intervened and all States except New South Wales were represented. The State of South Australia opposed the unions' application. Victoria, Queensland and Western Australia, while presenting information to show how their finances would be affected by wage increases, neither supported nor opposed the claims. Tasmania supported the application for restoration of quarterly adjustments. In its judgment, delivered on the 12th April, 1960, the Commission refused the unions' application.

On the 14th February, 1961 the Commonwealth Conciliation and Arbitration Commission began hearing applications by employer and employee organizations. The employers sought an increase in standard hours of work from 40 to 42 with a concomitant increase in the weekly wage by an amount equivalent to two hours' pay at ordinary rates. The unions claimed an increase of £2 9s. (\$4.90) in the wage on a "six capital cities" basis, and the reintroduction of automatic quarterly adjustments in accordance with movements in the "C" Series Retail Price Index. The amount claimed consisted of two components, one of £1 2s. (\$2.20) representing the increase in productivity since 1953 and the other of £1 7s. (\$2.70) which was amended in the course of the hearing to £1 10s. (\$3), to cover "cost of living" increases since that time.

The Commonwealth Government, while supplying certain economic and statistical material, expressed no attitude apart from its opposition to the reintroduction of quarterly adjustments. All States except New South Wales were represented. South Australia made no submissions and called no evidence. Victoria, Queensland and Western Australia, although presenting some statistical information, neither supported nor opposed the unions' application. Tasmania supported the claim for restoration of automatic adjustments and an increase in the wage to the level indicated by the movement in the "C" Series Retail Price Index.

Judgment was delivered on the 4th July, 1961. The Commission refused the application of the employers, and the unions' claim for restoration of quarterly adjustments, and granted an increase of 12s. (\$1.20) per week in the basic wage for adult males, to apply from the beginning of the first pay-period commencing on or after the 7th July, 1961. Among the decisions contained in the judgment was one stating, in part, that "in February next the only issue in regard to the basic wage should be why the money wages fixed as a result of our decision should not be adjusted in accordance with any change in the Consumer Price Index(†) and for the purpose of deciding that issue the Order giving effect to the decisions hereby announced will also provide for the adjournment of the application of the unions for increase of the basic wages under the Metal Trades Award to Tuesday, 20th February, 1962 . . .".

In accordance with this decision the adjourned hearing was held on the 20th February, 1962, when the Commission decided that "there will be no alteration in the amounts of the existing basic wages until further order of the Commission," and that "the application before the Commission is further adjourned until 19th February, 1963."

The Commission, after a sitting on the 5th February, 1963, announced that there would be no alteration in the existing basic wage rates and further adjourned the application until a date after the 18th February, 1964.

(†) See letterpress *The Consumer Price Index* in Chapter X, Part 3—*Retail Prices*.

On the 25th February, 1964, the Commission began hearing an application by the unions for a variation in the Metal Trades Award and the Pastoral Industry Award, and an application by the employers for a variation in the Metal Trades Award.

The unions sought an increase of 52s. (\$5.20) per week in the basic wage portion of the Metal Trades Award and the Pastoral Industry Award and the reintroduction of automatic quarterly adjustments based on the Consumer Price Index. The employers sought an alteration to the present wage structure, involving the abolition of the "basic wage" and "margins" components of the award and the substitution of a total wage, with increases ranging from 5s. (50c) to 8s. (80c) per week.

It was decided to hear the claims by the unions first but to reserve the decisions until the employers' Total Wage Case was heard immediately afterwards.

On the 9th June, 1964 the Commission gave judgment granting an increase of £1 (\$2) per week in the basic wage payable to adult males from the beginning of the first pay-period commencing on or after the 19th June, 1964. The unions' application for restoration of automatic quarterly adjustments of the basic wage was rejected. The Commission was unanimous in the opinion "that the application of the employers for the deletion from the Commission's Awards generally of the basic wage provision and for the insertion in those Awards of a wage expressed as a total wage should be rejected."

Hearing of the 1965 basic wage case commenced on the 2nd March, 1965 and claims by the employers and the trade unions were heard concurrently.

The employers' claim (Part A) was for the abolition of the concepts of the basic wage and margins, and the introduction into the Metal Trades Award of an obligation to pay a total wage made up of the sum of the amounts expressed in terms of the basic wage and a margin, plus an amount equivalent to one per cent. of such sum. The employers also asked (Part B) that, in respect of the ensuing twelve months, the level of the basic wage and the level of margins, in so far as the latter is determined upon general economic grounds, should be decided simultaneously. It was open to the Commission under Part B of these claims to decide whether there should be an increase in the basic wage element alone; the marginal element alone; or both the basic wage and marginal elements, to whatever extent in respect of each element the Commission deemed proper.

The trade unions sought new basic wage rates incorporating increases proportionate to the rises in the Consumer Price Index. For the Six Capital Cities basic wage the increase claimed was 12s. (\$1.20) per week for adult males.

The Commission announced its decision on the 29th June, 1965. Part A of the employers' application was refused. With regard to Part B, the Commission decided that there would be no alteration in the basic wage but, with effect from the first pay-period commencing on or after the 1st July, 1965, each margin in Clause 4 of the Metal Trades Award should be increased by an amount equal to $1\frac{1}{2}$ per cent. of the sum of the Six Capital Cities basic wage and that margin. The application of the unions for an increase in the basic wage was refused.

On the 1st March, 1966 the Commonwealth Conciliation and Arbitration Commission began hearing applications by employer and employee organizations. The unions claimed an increase of \$4.30 in the basic wage, restoration of the system of automatic quarterly adjustments based upon movements in the Consumer Price Index, and an increase of \$5.90 in the marginal rate for tradesmen under the Metal Trades Award, with proportionate increases to all other classifications of employees. The employers sought the aggregation of existing basic wage rates and marginal rates into total wage rates to which should be added $1\frac{1}{2}$ per cent. of such total rates or, alternatively, that the existing basic wage rates be increased by 30 cents, marginal rates by one per cent. and the resultant figure by $\frac{1}{2}$ per cent.

Judgment was given by the Commission on the 8th July, 1966. An increase of \$2 per week in the basic wage payable to adult males was granted, to operate as from the beginning of the first pay-period commencing on or after the 11th July, 1966 and to remain in force until the 31st December, 1966. The claim by the unions for restoration of automatic quarterly adjustments to the basic wage was refused. No variation was made in marginal rates but the Commission instructed one of its members to investigate and report on this matter. As an interim provision, however, to grant some immediate relief to low-wage earners, minimum weekly wage rates were prescribed for adult male employees in the metal trades. With regard to the employers' proposal for conversion of the wage structure to the basis of a total wage it was decided to defer the question of implementation pending further consideration.

On the 5th June, 1967 the Commonwealth Conciliation and Arbitration Commission gave its decision on three matters before the Commission. These were claims by the unions for an increase in the basic

wage and an increase in margins, and an application by the employers seeking the aggregation of existing basic wage rates and marginal rates into total wage rates.

In a unanimous judgment, the Commission announced "the elimination of basic wages and margins and the introduction of total wages." An increase of \$1 per week was awarded to all adult employees and the judgment stated that "total wages will be arrived at by adding an amount of \$1 per week to the weekly award wages of all adult males and females . . ." and further, that the Commission had "on this occasion deliberately awarded the same increase to adult females and adult males." The increase was declared to become operative from the beginning of the first pay-period commencing on or after the 1st July, 1967.

The following table shows variations, during the period from 1946 to 1966, in the Commonwealth basic wage rates payable to adult male workers employed under Federal awards in each capital city. The rates based on the weighted average for the six capital cities are also shown.

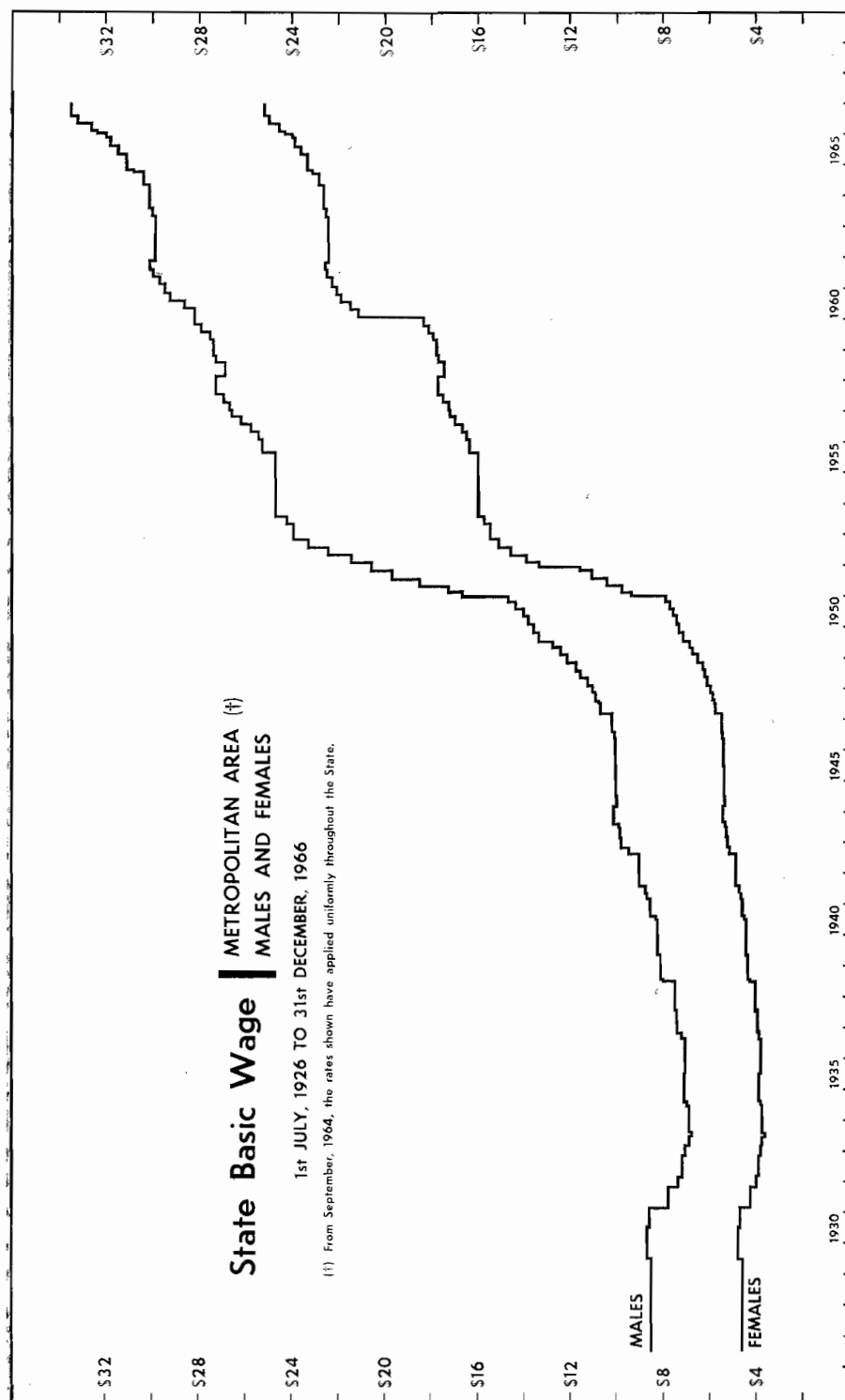
COMMONWEALTH BASIC WAGE(a)—VARIATIONS IN RATES (b) FROM 1946

Date of Operation (c)	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted Average Six Capital Cities
	\$	\$	\$	\$	\$	\$	\$
1946—							
February	9.90	9.80	9.30	9.40	9.40	9.50	9.60
May	"	"	9.40	"	"	"	9.70
August	10.00	9.90	"	9.50	9.50	9.60	9.80
November	10.10	"	"	"	"	9.70	"
December	10.80	10.60	10.10	10.20	10.20	10.30	10.50
1947—							
February	"	10.70	10.30	"	10.30	10.40	10.60
May	11.00	"	10.40	10.30	"	"	"
August	"	10.80	10.40	10.40	10.40	10.50	10.70
November	11.20	10.90	10.50	10.60	10.60	10.70	10.90
1948—							
February	11.40	11.30	10.70	10.80	10.70	11.00	11.10
May	11.60	11.50	11.00	11.10	11.00	11.20	11.40
August	12.00	11.70	11.30	11.40	11.20	11.50	11.60
November	12.20	12.00	11.50	11.60	11.60	11.80	11.90
1949—							
February	12.40	12.30	11.80	11.90	11.80	12.10	12.20
May	12.70	12.50	11.90	12.10	12.00	12.40	12.40
August	13.00	12.80	12.20	12.40	12.60	12.70	12.70
November	13.20	13.00	12.50	12.60	12.90	12.80	12.90
1950—							
February	13.50	13.40	12.70	12.90	13.10	13.10	13.30
May	13.80	13.70	12.90	13.10	13.30	"	13.50
August	14.20	14.00	13.20	13.40	13.60	13.50	13.80
November	14.60	14.30	13.50	13.70	13.90	13.90	14.20
December	16.50	16.20	15.40	15.80	16.00	16.00	16.20
1951—							
February	17.30	17.00	15.90	16.60	16.60	16.50	16.90
May	18.00	17.70	16.60	17.10	17.60	17.30	17.60
August	19.30	18.90	17.50	18.40	18.80	18.70	18.90
November	20.70	19.90	18.50	19.50	19.70	19.90	20.00
1952—							
February	21.60	20.90	19.90	20.50	20.50	20.80	21.00
May	22.30	21.20	20.70	21.10	21.40	21.40	21.60
August	23.50	22.40	21.30	22.40	22.20	22.20	22.70
November	23.70	22.80	21.60	22.90	22.80	23.00	23.10
1953—							
February	23.80	22.90	21.50	22.50	22.90	23.20	"
May	24.10	23.20	21.70	22.80	23.10	23.90	23.40
August	24.30	23.50	21.80	23.10	23.60	24.20	23.60
1956—							
June	25.30	24.50	22.80	24.10	24.60	25.20	24.60
1957—							
15th May	26.30	25.50	23.80	25.10	25.60	26.20	25.60
1958—							
21st May	26.80	26.00	24.30	25.60	26.10	26.70	26.10
1959—							
11th June	28.30	27.50	25.80	27.10	27.60	28.20	27.60
1961—							
7th July	29.50	28.70	27.00	28.30	28.80	29.40	28.80
1964—							
19th June	31.50	30.70	29.00	30.30	30.80	31.40	30.80
1966—							
11th July (a)	33.50	32.70	31.00	32.30	32.80	33.40	32.80

(a) The latest rates shown in this table applied before a decision of the Commonwealth Conciliation and Arbitration Commission in June, 1967 to eliminate basic wages and margins from its awards, and to introduce total wages to operate from the beginning of the first pay-period commencing on or after 1st July, 1967. Total wages for adult males and adult females were to be increased by \$1 per week from the same date.

(b) Rates for adult male workers employed under Federal awards. From December, 1950 the basic wage for adult females was fixed at 75 per cent. of the male rate; previously it had ranged from 54 per cent. up to 75 per cent. of the male rate.

(c) Prior to 1957 rates operative from beginning of first pay-period commencing in the month shown; from 1957, operative from beginning of first pay-period commencing on or after the date shown.



State Basic Wage

Under the provisions of an amendment of 1925 to the Industrial Arbitration Act, 1912, the Court of Arbitration was required to declare a basic wage annually, to operate from the 1st July in each year. In 1930, the Court was empowered by another amendment to the Act to adjust the annual declaration each quarter in consonance with "the variation (if any) in the cost of living." A further amendment in 1950 removed the obligation to make an annual declaration and conferred discretionary power to make basic wage determinations at any time, such reviews to be at intervals of not less than twelve months. The provision for quarterly adjustments was retained.

The first decision of the Court took effect on the 1st July, 1926, and prescribed a rate of £4 5s. (\$8.50) for males and £2 5s. 11d. (\$4.59), or 54 per cent. of the male rate, for females throughout the whole of the State. In fixing the male rate, the Court divided the wage into four elements and allowed such amounts for each as to meet the requirements of a family unit of four, comprising a man, his wife and two children. For Food and Groceries the amount was the equivalent of the Piddington Commission's standard but reduced to provide for a family unit of four; for Rent, the average rental of four and five roomed houses; for Clothing, an amount approximating the sum fixed for such expenditure by the New South Wales Board of Trade in 1925, and for Miscellaneous Expenditure, an amount based on the Piddington Commission's findings.

These rates remained unaltered until the 1st July, 1929, when the amounts were increased to £4 7s. (\$8.70) and £2 7s. (\$4.70) respectively, with the exception of certain specified goldfields areas for which the previous wage was retained.

A revision by the Court following the 1930 inquiry resulted in the declaration of a separate wage for the metropolitan area of £4 6s. (\$8.60) for males and £2 6s. 5d. (\$4.64) for females. In this connexion, the metropolitan area was the area comprised within a radius of 15 miles from the General Post Office, Perth. Rates for all other parts of the State were fixed at £4 5s. (\$8.50) and £2 5s. 11d. (\$4.59) respectively.

Additional power was given to the Court under the provisions of the Industrial Arbitration Act Amendment Act, 1930, to enable quarterly adjustments to be made to the rates fixed by the annual declaration and, on the 3rd March, 1931, rates of £3 18s. (\$7.80) for males and £2 2s. 2d. (\$4.22) for females were prescribed for the metropolitan area, and of £3 17s. (\$7.70) and £2 1s. 8d. (\$4.17) for all other parts of the State. Such quarterly adjustments were to be made only when a rise of one shilling (10 cents) or more per week was indicated in the "cost of living."

The annual declaration operative from the 1st July, 1931 did not vary these amounts, but a further quarterly adjustment on the 18th August, 1931 marked the inauguration of a separate wage for agricultural areas, which were taken to be those areas, other than the Court's metropolitan area, contained within the official South-West Land Division as described in the Land Act.

In 1938 an inquiry, which was the most comprehensive since the original declaration, gave special consideration to the factors of national income and standards of nutrition and as a result wage levels throughout the State were considerably increased from the 1st July in that year. The Rent and Miscellaneous Expenditure elements of the wage were based on the existing standards but Clothing was based on the Piddington standard, reduced to provide for a family unit of four, and Food and Groceries on the Piddington standard plus an amount of 1s. (10c).

Subsequent annual declarations until 1942 maintained in purchasing power the standard of the 1938 judgment.

At a sitting of the Court held on the 26th February, 1942, to consider the quarterly adjustment of the basic wage, the Court decided that, under the existing economic conditions, there should be no alteration to the rates then in force. This decision marked the first occasion upon which the Court, in the exercise of the discretionary powers conferred upon it under the Act, had refrained from making a quarterly adjustment to the wage to equate its purchasing power to the standards of the relevant annual declaration. It was followed by a similar decision given on the 29th April, 1942, when the Court reaffirmed that no adjustment should be made to existing rates, despite further increases in retail prices.

On the 11th June, 1942, the Court, in its annual declaration, adopted as its new base the rates which had operated since the 28th July, 1941, and these remained in force until the 8th August, 1942, when they were superseded in terms of a Basic Wage Adjustment Order made by the Premier under the authority of National Security (Economic Organization) Regulations. The rates established under this Order were substantially the current equivalents of the standards adopted by the Court in its annual declarations from 1938 to 1941.

On the 30th October, 1942, these standards were readopted by the Court for the purposes of the quarterly adjustments and continued to apply until the Interim Basic Wage Declaration of the 26th February, 1947. In this declaration, made under powers conferred by an amendment in December, 1946 to National Security (Economic Organization) Regulations, the basic wage was increased by a loading of 5s. (50c). This loading was varied proportionately to the remainder of the basic wage in subsequent declarations and quarterly adjustments.

An amendment of 1950 to the Industrial Arbitration Act removed the obligation to make annual declarations, enabled basic wage determinations to be made at any time during the year at intervals of not less than twelve months, subject only to quarterly adjustments, and required that in such determinations due consideration must be given to the economic capacity of industry to pay any proposed increase in the basic wage.

Consequent on the judgment of the Commonwealth Court on the 12th October, 1950, the State Court declared a new wage, incorporating an increase of £1 (\$2) for males and 15s. (\$1.50) for females and consolidating the four elements and the loading previously mentioned, to have effect from the 18th December, 1950. This meant that the concept of a composite wage, which had applied since the initial declaration in 1926, was abandoned. It also decided in January, 1951, that any quarterly adjustments should be based on variations in the "C" Series Retail Price Index Numbers. On the 28th November, 1951, the Court raised the basic wage for females from 54 per cent. of the male rate to 65 per cent., the new rates to operate from the 1st December, 1951.

On the 13th November, 1953, the Court again exercised its discretionary powers and determined that no change should be made in the basic wage, although there had been an appreciable increase in the "C" Series Retail Price Index. This decision governed subsequent determinations until the 9th August, 1955, when the Court reverted to the practice of making quarterly adjustments.

On the 30th January, 1960 the Court raised the basic wage for females from 65 per cent. to 75 per cent. of the male wage, the new rates to operate from the beginning of the next succeeding pay-period.

In determining the quarterly adjustments to basic wage rates to apply from the 1st May, 1961, the Court for the first time used the Consumer Price Index instead of, as formerly, the "C" Series Retail Price Index, which was last compiled for the December quarter of 1960.

The Western Australian Industrial Commission came into operation on the 1st February, 1964, replacing the Court of Arbitration as the authority responsible for State basic wage determinations in Western Australia. The Industrial Arbitration Act, 1912-1963 required that such determinations should be made by the Commission in Court Session. The Commission so constituted made its first adjustment to the basic wage on the 27th April, 1964, when it prescribed increased rates to apply on and from that date. As a result of this decision, the weekly rates payable to adult males became £15 4s. 2d. (\$30.42) in the Metropolitan Area, £15 2s. 7d. (\$30.26) in the South-West Land Division, and £14 16s. 8d. (\$29.67) in Goldfields Areas and other parts of the State.

On the 15th June, 1964 the Trades and Labor Council of Western Australia, acting on behalf of registered unions, addressed to the Commission a request for an inquiry into the basic wage. A preliminary hearing was held on the 3rd July to consider questions of procedure, representation and related matters. The general inquiry began before the Commission in Court Session on the 22nd July and was completed on the 14th August. Representatives of the unions and of the Western Australian Employers' Federation (Incorporated) made extensive submissions and the Crown Counsel, on behalf of the State Government, intervened in the public interest, as authorized under section 68 of the Industrial Arbitration Act, 1912-1963. Judgment was given on the 22nd September. The Commission was unanimous in its conclusion that one basic wage should apply to the whole State, but was divided as to the amount of the wage. The majority view was that a weekly wage of £15 8s. (\$30.80) should be declared as appropriate to adult male workers, and an order was issued accordingly prescribing this amount for males and an amount of £11 11s. (\$23.10) for females, the rates to operate on and from the 22nd September, 1964 and to apply uniformly throughout the State. Subsequent variations continued to be made on this basis.

The Industrial Arbitration Act Amendment Act, 1966, which came into operation on the 23rd December, 1966, provided that the rates which were current immediately prior to the date of commencement of the Act should remain unaltered until exceeded by the basic wage for the six capital cities as declared by the Commonwealth Conciliation and Arbitration Commission, and that subsequent alterations should be made in accordance with variations of that wage.

Reference is made on page 401 to the decision given by the Commonwealth Conciliation and Arbitration Commission on the 5th June, 1967, when it announced the elimination of basic wages and margins from its awards, and the introduction of *total* wages to operate from the beginning of the first pay-period commencing on or after the 1st July, 1967. This decision provided also that total wages for adult males and adult females were to be increased by \$1 per week from the same date. Following this decision a number of unions in Western Australia applied to the Western Australian Industrial Commission seeking an increase of \$1 per week in margins for adult males and adult females, with proportionate increases for junior workers and apprentices. The Commission delivered its judgment on the 27th June, 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from \$36.55 to \$37.55; "that the wage rates for adult workers not in receipt of the 'minimum wage' be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount". These increases were declared to operate from the beginning of the first pay-period commencing on or after the 1st July, 1967.

The following table shows variations, during the period from 1957 to 1966, in the State basic wage rates payable to adult male and female workers employed under State industrial awards or registered agreements, or in accordance with the provisions of the Factories and Shops Act.

STATE BASIC WAGE(a)—VARIATIONS IN RATES FROM 1957 (b)

Date of Operation	Metropolitan Area (c)		South-West Land Division (c)		Goldfields Areas and other parts of State	
	Males	Females	Males	Females	Males	Females
	\$	\$	\$	\$	\$	\$
1957—						
25th January	26.62	17.31	26.64	17.32	26.66	17.32
26th April	26.88	17.48	"	"	"	"
19th July	27.28	17.72	26.99	17.54	26.78	17.41
28th October	"	"	27.14	17.64	26.66	17.32
1958—						
7th February	26.85	17.45	27.01	17.56	"	"
28th April	"	"	27.12	17.62	26.80	17.42
4th August	27.22	17.70	27.33	17.77	26.98	17.53
27th October	27.34	17.78	"	"	27.15	17.65
1959—						
27th April	27.51	17.88	27.45	17.84	"	"
27th July	27.86	18.11	27.74	18.03	27.35	17.78
26th October	28.15	18.30	28.12	18.28	27.74	18.02
1960—						
30th January (d)	"	21.12	"	21.09	"	20.80
2nd May	28.63	21.48	28.31	21.23	27.88	20.92
25th July	29.22	21.92	28.92	21.69	28.59	21.45
24th October	29.46	22.09	29.20	21.90	28.71	21.54
1961—						
31st January	29.66	22.24	29.50	22.12	28.94	21.71
1st May	29.92	22.44	29.77	22.32	29.20	21.90
31st July	30.05	22.54	29.89	22.42	29.32	21.99
30th October	29.88	22.41	29.72	22.29	29.15	21.87
1963—						
22nd April	30.02	22.52	29.87	22.40	29.29	21.97
29th July	30.15	22.61	29.99	22.49	29.41	22.06
1964—						
27th April	30.42	22.82	30.26	22.69	29.67	22.25
WHOLE STATE (e)						
1964—						
22nd September			30.80	23.10		
26th October			31.12	23.34		
1965—						
26th April			31.47	23.60		
26th July			31.78	23.84		
16th November			31.96	23.97		
1966—						
25th January			32.38	24.28		
2nd May			32.65	24.40		
2nd August			33.26	24.95		
24th October			33.50	25.13		

(a) The latest rates shown in this table applied before a decision of the Western Australian Industrial Commission dated 27th June, 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from \$36.55 to \$37.55; "that the wage rates for adult workers not in receipt of the 'minimum wage' be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount". These increases were declared to operate from the beginning of the first pay-period commencing on or after the 1st July, 1967.

(b) A table showing variations from inception in 1926 to the end of 1958 appears on pages 362-3 of the *Official Year Book of Western Australia*, 1960, No. 2—*New Series*. (c) See letterpress on page 403.

(d) Female rate increased to 75 per cent. of male rate from beginning of next succeeding pay-period. (From 1st December, 1951 female rate had been 65 per cent. of male rate).

(e) See letterpress on page 404.

MINIMUM RATES OF WAGE

See NOTE on page 395

The basic wage, as the term implies, establishes a "base" to which additions may be made to provide rates actually payable in certain industries and occupations and in particular areas. Minimum rates, incorporating these additional payments, may be prescribed by awards of the Commonwealth Conciliation and Arbitration Commission or of The Western Australian Industrial Commission, or may be negotiated by industrial agreement. These agreements are registered with the appropriate arbitration authority and are binding upon the parties.

It is estimated that, in May, 1963, awards, determinations and registered agreements of the Commonwealth authority applied to 13.3 per cent. of male and 14.8 per cent. of female workers in Western Australia, and of the State authority to 76.5 per cent. of male and 74.4 per cent. of female workers.

The additions made to the basic rate are principally margins for skill which vary according to the occupation or craft of workers to whom they apply. In general, the labourer receives no such margin, and the margin increases with the degree of training and experience necessary for the satisfactory performance of a particular operation. Clothing allowances are frequently paid to employees who are handling destructive or corrosive materials or who are required to work in excessively dirty situations. A tool allowance is often provided, as in the case of carpenters, cabinetmakers and painters. Some awards prescribe the payment of a district allowance to workers in uncongenial climates or in areas where amenities are lacking. Noxious trades sometimes carry a specific loading. "Service money" is payable, under some awards, to workers who have had a specified period of service in a particular industry. An "industry allowance" is paid to gold-mining workers. Further examples of special allowances are those paid to employees working in a confined space or at heights or in excessively wet conditions.

The following table shows the minimum rates of wage payable at the 31st December, 1966, to adult workers in a selection of industries and occupations. The data have been extracted from a much more comprehensive list appearing in Part VI of the *Statistical Register of Western Australia*. The rates relate generally to a full week's work of 40 hours excluding overtime.

MINIMUM RATES OF WAGES PAYABLE TO ADULT WORKERS UNDER AWARDS OF ARBITRATION AUTHORITIES AND INDUSTRIAL AGREEMENTS AS AT 31st DECEMBER, 1966

Rates relate generally to the metropolitan area and are shown to the nearest cent

Industry and Occupation	Wages	Industry and Occupation	Wages
AGRICULTURAL, PASTORAL AND DAIRY- ING—	\$ Per week	CLERICAL—	\$
Farming—		Wholesale and Retail Trading—	Per week
Farm worker	34.10	Senior clerk	40.95
Pastoral Workers—		Clerk (male)	38.45
Machine shearer	Per 100	to	44.50
Flock sheep	19.41	Clerk (female)	31.13
Rams	38.82	to	32.13
Wool presser	Per week		
Wool shed hand	67.97	HAIRDRESSING—	
	61.20	Hairdresser (male)	42.50
BUILDING—		Hairdresser (female)	32.33
Carpenter, Joiner	57.01		
Bricklayer, Rubble waller	56.61	HOSPITALS (GOVERNMENT)—	
Stonemason	56.06	Matron—	
Painter, Signwriter	56.31	Less than 5 beds	48.83
Plasterer	56.66	5 and less than 10 beds	51.83
Plumber	56.81	10 and less than 20 beds	54.93
		20 and less than 50 beds	57.93
CARTING AND CARRYING—		50 and less than 100 beds	63.03
Motor wagon driver		to	44.73
Vehicle 25 cwt. or less	41.30	Sister in charge	53.23
Vehicle over 25 cwt. and up to		to	40.73
3 tons	42.80	Sister	42.23
Vehicle over 3 and up to 6 tons	44.30		
CLEANING, CARETAKING, ETC. (BUILD- INGS)—		Junior sister	38.38
Caretaker (male)	42.70	to	39.13
Cleaner (male)	37.50	Wardsmald, Kitchenmaid	27.61
	27.93	to	36.61
Cleaner (female)	to	Orderly	37.31
	28.33		
Lift attendant (male)	36.25		
Window cleaner (male)	38.45		

MINIMUM RATES OF WAGES AT 31st DECEMBER, 1966—continued

Industry and Occupation	Wages	Industry and Occupation	Wages
	\$		\$
HOTELS, HOSTELS—	Per week	MANUFACTURING—continued	Per week
Barman, Barmaid	41.10	Industrial Metals, Machines, Implements, and Conveyances—continued	
Cook (male)	39.00	COACHBUILDING—continued	
	to	Wheelwright, Wheelmaker,	
Cook (female)	42.80	Painter, Spray painter, Trimmer, Grainer, Seatmaker, Sign-writer	43.65
	30.63		
	to	ENGINEERING:	
Waiter	34.43	Blacksmith, Fitter, Turner	49.00
Waitress	36.85	Patternmaker	53.75
	28.38	Toolmaker	52.00
		Motor mechanic	49.00
MANUFACTURING—		Electrical fitter, Armature winder	49.00
Treatment of Non-metalliferous Mine and Quarry Products—		Electrical installer	49.00
ASBESTOS-CEMENT GOODS:		SHEET METAL WORKING:	
Sheet machine driver, pipe machine driver	40.90	Bench hand, first class	49.00
	38.50	Canister maker	38.25
	to	WIRE MAKING:	
Moulder	39.30	Galvaniser	35.50
		Barbed wire maker	34.55
CEMENT GOODS:		Annealer	34.50
Brick making			
Mixing machine operator	35.50	Precious Metals, Jewellery, Plate—	
Pipe making		JEWELLERS, WATCHMAKERS:	
Moulder	39.05	Jeweller, Engraver, Setter	44.70
Wiredrawer	38.70	Watchmaker, Clockmaker	45.10
Tile making		Textiles and Textile Goods (including Knitted Goods)—	
Hand presser, Ridge maker	38.70	BAG AND SACK MAKING:	
CEMENT WORKS:		Floor hand (female)	26.38
Miller	39.00	Machinist, Hand cutter (female)	27.98
Burner	42.20	Machinist (male)	37.30
FIBROUS PLASTER AND PLASTER GOODS:		KNITTING:	
Modeller	49.54	Mechanic	39.50
Fixer	50.44	Machine attendant, Presser (male)	36.30
LIMEWORKS:		Female worker	25.93
Dayfrier, Lime bagger, Crusher	35.00	TEXTILES MAKING:	
Bricks, Pottery, Glass, etc.—		Combing	
BRICKWORKS:		Assistant foreman	42.70
Burner	39.25		38.00
	to	Other male worker	to
Moulder and presser	40.40		39.25
	41.10		25.40
GLASS WORKERS:		Female worker	to
Glass beveller and silverer	49.00		27.65
Leadlight glazer	49.00	Drawing, Spinning, Twisting and Winding	
PIPE AND TILE WORKS:		Assistant foreman	42.70
Burner	39.70		36.15
Moulder, Presser, Trap maker	38.85	Other male worker	to
			39.25
Chemicals, Dyes, Explosives, Paints, Oils, Grease		Female worker	25.40
OIL REFINING:			27.40
Plant attendant, leading hand	52.10	Warping	
Plant attendant, first class	49.30	Assistant foreman	42.70
Plant attendant, second class	46.25		36.75
Storeman	40.50	Other male worker	to
SOAP FACTORIES:			39.50
Soap crutcher	37.60		25.40
General hand	37.30	Female worker	to
			28.40
Industrial Metals, Machines, Implements and Conveyances—		Weaving	
AGRICULTURAL IMPLEMENT MAKING:		Assistant foreman	44.20
Assembler	37.50		36.15
	to	Other male worker	to
	38.90		43.45
	40.45	Female worker	25.40
Fitter	41.10		to
			29.65
AIRCRAFT WORKERS:		Skins and Leather (not Clothing or Footwear)—	
Repair, Maintenance and Servicing Section—		SADDLERY AND LEATHER WORKING:	
Ground engineer, Aircraft mechanic		Journeyman	39.60
	47.05		to
Holding prescribed certificates	49.50	Journeywoman	41.10
	44.00		27.98
Holding no certificate		TANNING:	
COACHBUILDING:		Firmer	40.30
Coachsmith, General smith, Farrier, Wheelwright smith, Spring maker, Bodymaker, Panel beater	44.70	Splitting machinist	42.60
	37.50		to
Welder	44.70		44.20
		WOOLSCOURING:	
		Woolscourer in charge of machine	41.70
		Other worker	40.05

MINIMUM RATES OF WAGES AT 31st DECEMBER, 1966—*continued*

Industry and Occupation	Wages	Industry and Occupation	Wages
MANUFACTURING—<i>continued</i>	\$	MANUFACTURING—<i>continued</i>	\$
Clothing (excluding Knitted)—	Per week	Food, Drink and Tobacco—<i>continued</i>	Per week
BOOT AND SHOE MAKING :		MILK PROCESSING :	
Pattern cutter	48.00	Tester, Grader	40.65
Pattern grader	41.70	Pasteurizer	38.00
Repairer	41.95	Man in charge of bottling machine	37.50
CLOTHING, MEN'S (READY-MADE) :		PASTRY COOKING :	
Cutter	44.55	Pastrycook (male)	43.30
Tailor	43.80	Pastrycook (female)	44.90
Trimmer, Fitter-up (female)	42.15		32.98
Journeywoman	25.80	SUGAR REFINING :	
	to	Raw Sugar	
	42.15	Mechanical equipment operator	43.10
DRESSMAKING (ORDER) :		Melting house	
Cutter (male)	46.50	Fugal washer	38.20
Cutter (female)	38.20	Refined Sugar	
Head of a table (male)	44.70	Drier, Grader	38.20
Machinist (male)	42.15	Sawmilling, Woodworking and Basketware	
Journeywoman	25.80	BOX AND CASE MAKING :	
	to	Sawyer	37.90
	30.70		to
DRESSMAKING (READY-MADE) :		Machinist	41.40
Cutter (male)	44.55	Case maker	37.30
Cutter (female)	30.70		37.30
Tailor	43.80	SAWMILLING :	
Machinist (male)	42.15	Faller	41.85
Journeywoman	25.80	Saw doctor	46.90
	to		37.00
	30.70	Sawyer, Benchman	to
TAILORING, MEN'S (ORDER) :			44.70
Cutter	48.00	Tractor driver	43.65
Trimmer, Fitter-up, Presser	42.15	TIMBER YARDS :	
Journeywoman	25.80	Buzzer	36.00
	to		to
	42.15	Moulding machinist	43.60
Food, Drink and Tobacco—			38.10
AERATED WATER AND			to
CORDIAL MAKING :			43.60
Cordial maker	41.10		37.00
Bottler	39.00	Sawyer, Benchman	to
BAKING :			44.70
Foreman in charge	48.75	Tenoner	37.00
	to		to
	49.70		43.60
Single hand baker, Doughmaker	47.80	Furniture, Bedding, etc.—	
Bread carter	39.25	Cabinetmaker, Chairmaker	49.85
Bread carter in charge of motor vehicle	42.40	Wood carver, Upholsterer, French polisher	49.00
BREWING :		Paper, Stationery, Printing, Bookbinding, etc.—	
Leading hand	43.98	PRINTING (JOBGING) :	
Bottle washer, Cask washer, Packer, Sorter, Corker, Winer, Labourer	41.17	Machine compositor	47.30
BUTTER MAKING :		Proof reader and reviser	45.05
Butter maker	42.35	PRINTING (NEWSPAPERS) :	
Cream grader	42.60	Machine Compositor	
Factory hand	36.80	Night	
CHEESE MAKING :		Day	71.75
Cheese maker	42.35	General hand	65.15
Factory hand	36.80	Night	
FLOUR MILLING :		Day	54.75
Foreman miller	52.60		48.15
	to	Miscellaneous Products—	
	46.30	DENTAL :	
Shift miller, Roller man	52.60	Dental technician (male)	49.50
Wheat sampler	42.00	Dental assistant (female)	30.83
HAM AND BACON CURING :		OPTICAL :	
Leading man	48.50	Optical mechanic	42.90
	to	Leading hand	45.10
	40.90		to
Trimmer	42.90		49.35
ICE MAKING AND COLD STORAGE :		RADIO AND TELEVISION :	
Engine driver	42.65	General serviceman	49.00
Fireman	37.90		to
ICE-CREAM MAKING :		Antenna and television installer	52.50
Freezing machine operator	37.55		40.70
	to	Heat, Light and Power—	
	39.05	ELECTRIC LIGHT WORKS :	
Cone and wafer machine hand	38.55	Turbine driver	49.50
JAM MAKING, FRUIT AND VEGETABLE CANNING :		Auxiliary plant attendant	44.50
Leading hand	42.70	GAS WORKS :	
Syrup maker, Jam boiler, Retort attendant	38.50	Retort operator in charge	45.00
		Service layer, Main layer	40.50

MINIMUM RATES OF WAGES AT 31st DECEMBER, 1966—continued

Industry and Occupation	Wages	Industry and Occupation	Wages
MINING—	\$		\$
Coal—	Per shift (a)	RETAIL TRADE—	Per week
Miner	8.07	Shop assistant (male)	41.10
Loaderman (mechanical units)	9.30	Shop assistant (female)	30.73
Faceman, Shiftman (mechanical units)	8.84	Storeman	40.80
Gold—	Per shift (b)		
Rock-drill man	8.41	STEVEDORING—	Per hour
Hand miner	9.03	Lumper handling general cargo	1.36
Shaft-timber man	7.96		
	8.57	TRANSPORT (PASSENGER) (d)—	Per week
	9.03	Omnibus driver	45.50
QUARRYING—	Per week	Linesman	42.00
Spaller, Man barring down, Machine man	38.05	Conductor	38.00
Crusher feeder	39.00		to
Powder monkey	40.25	Body builder	40.50
		Painter	44.70
RAILWAYS (GOVERNMENT)—	Per shift (c)	Greaser	44.70
Engine driver	9.68	Fare collector (female)	39.30
Fireman	7.58		32.13
Trainee engineman	7.44	WOOL STORES—	
Guard	8.87	Head classer, Man in charge of store	47.65
Porter	7.30	Assistant classer	44.75
		Wool sorter	43.25

(a) Eleven shifts each fortnight; ten of 7 hours and one of 5 hours. (b) Five shifts per week; 7½ hours per shift underground, 8 hours surface. (c) Five 8-hour shifts per week. (d) Metropolitan (Perth) Passenger Transport Trust.

Components of Total Wage Rates

The Commonwealth Statistician publishes regularly, for each State and for Australia as a whole, statistics of variations in the components of minimum wage rates as shown in the following tables relating to Western Australia and Australia. For the purposes of these tables the Commonwealth jurisdiction embraces awards of, or agreements registered with, the Commonwealth Conciliation and Arbitration Commission and determinations of the Commonwealth Public Service Arbitrator. State jurisdictions embrace awards or determinations of, or agreements registered with, State industrial authorities, together with certain unregistered agreements, where these are dominant in the particular industries to which they refer.

A more detailed description of this dissection of weekly wage rates into components, and tables for each State and Australia according to jurisdiction, extending back to 1939, are published in the mimeographed statement *Minimum Wage Rates, March, 1939 to June, 1965*, issued by the Commonwealth Statistician, Canberra.

The basic wage rates shown are weighted averages of the rates prescribed in awards, etc., for a selected range of representative occupations. For industries other than mining, metropolitan basic wage rates have generally been used. There are, however, a number of occupations for which basic wage rates other than the metropolitan rate are prescribed. Also, in some States at various times, State Government employees under Commonwealth awards have been paid State basic wage rates, and the basic wage rates of some employees have been subject to automatic quarterly adjustments while those of other employees within the same jurisdiction have remained unchanged. In all such cases the basic wage rate actually paid has been used in preparing the tables. For these and other reasons the weighted average basic wage rates shown in the tables differ from the basic wage rates appearing on pages 401 and 405.

Margins are minimum amounts, in addition to the basic wage, awarded to particular classifications of employees for features attaching to their work, such as skill, experience, arduousness and other like factors.

Loadings are minimum amounts, in addition to the basic wage and margin (if any), awarded for various kinds of disabilities associated with the performance of work, or to meet particular circumstances. They include payments such as industry loadings and other general loadings prescribed in awards, etc., for the selected occupations.

The wage rates shown in the following tables should not be regarded as actual current averages, but as indexes expressed in money terms indicative of trends. They do not measure the relative level of minimum wages as between Western Australia and Australia as a whole.

**WEEKLY WAGE RATES (a)—ADULT MALES, COMPONENTS OF TOTAL WAGE RATE
WESTERN AUSTRALIA, 1962 TO 1966**

Weighted Averages of Minimum Weekly Rates(b) Payable for a Full Week's Work (Excluding Overtime)
(\$)

Jurisdiction and component of total wage (c)	End of December—				
	1962	1963	1964	1965	1966
Commonwealth awards, etc.—					
Basic wage (d)	28.83	28.84	30.82	30.83	32.84
Margin	8.67	9.83	10.39	11.85	12.30
Loading	0.28	0.28	0.34	0.34	0.37
Total wage	37.78	38.95	41.55	43.02	45.51
State awards, etc.—					
Basic wage (d)	29.82	30.09	31.12	31.96	33.50
Margin	6.22	6.74	6.84	7.62	8.87
Loading	0.37	0.48	0.51	0.57	0.70
Total wage	36.41	37.31	38.47	40.15	43.07
All awards, etc.—					
Basic wage (d)	29.71	29.94	31.08	31.83	33.43
Margin	6.51	7.10	7.25	8.11	9.27
Loading	0.35	0.46	0.49	0.54	0.66
Total wage	36.57	37.50	38.82	40.48	43.36

(a) Excludes rural. The amounts shown should not be regarded as actual current averages, but as an index expressed in money terms, indicative of trends. (b) As prescribed in awards, determinations and agreements. (c) See letter-press preceding table. (d) See NOTE on page 395.

**WEEKLY WAGE RATES(a)—ADULT MALES, COMPONENTS OF TOTAL WAGE RATE
AUSTRALIA, 1962 TO 1966**

Weighted Averages of Minimum Weekly Rates(b) Payable for a Full Week's Work (Excluding Overtime)
(\$)

Jurisdiction and component of total wage (c)	End of December—				
	1962	1963	1964	1965	1966
Commonwealth awards, etc.—					
Basic wage (d)	28.96	28.98	30.92	30.92	32.92
Margin	7.12	7.89	8.09	8.96	9.16
Loading	0.41	0.46	0.53	0.55	0.64
Total wage	36.49	37.33	39.54	40.43	42.72
State awards, etc.—					
Basic wage (d)	29.31	29.50	31.07	31.34	33.13
Margin	6.93	7.59	7.81	8.82	9.17
Loading	0.59	0.68	0.88	0.91	0.99
Total wage	36.83	37.77	39.76	41.07	43.29
All awards, etc.—					
Basic wage (d)	29.12	29.23	30.99	31.12	33.02
Margin	7.03	7.75	7.96	8.90	9.16
Loading	0.51	0.57	0.70	0.72	0.81
Total wage	36.66	37.55	39.65	40.74	42.99

For footnotes, see previous table.

WAGE AND SALARY PAYMENTS

The following table includes details, for each of the years 1961-62 to 1965-66, of the total amount paid in Western Australia in the form of wages, salaries and supplements, and of average weekly earnings per employed male unit. Particulars of Commonwealth and State basic wage rates applying to adult male workers in the metropolitan area are also shown in order to provide a summary of trend in those rates during the period.

The figures shown in the table under the heading "Wages, Salaries and Supplements" comprise payments in the nature of wages and salaries as defined for Pay-roll Tax purposes, including allowances for income in kind (board and quarters, etc.), together with supplements to wages and pay and allowances

of members of the forces. In addition to wages and salaries paid by employers subject to Pay-roll Tax, they include wages and salaries paid by employers not subject to Pay-roll Tax, based on estimates of employment and average earnings. Supplements consist of employers' contributions to pension and superannuation funds, direct payments of pensions and retiring allowances, and amounts paid as workers' compensation for injuries. Pay and allowances of members of the forces consist of active pay, field allowances, subsistence allowances, dependants' allowances and the value to the members of the forces of food, clothing, normal medical attention, etc., supplied in kind. Deferred pay is included.

Statistics of "average weekly earnings per employed male unit" are derived from particulars of employment and wages and salaries recorded on Pay-roll Tax returns, from other direct collections and from estimates of the unrecorded balance. Pay of members of the forces is not included. Male units represent total male employment plus a proportion of female employment based on the approximate ratio of female to male earnings. It is important to bear in mind, in reading the table, that the figures shown as "average weekly earnings per employed male unit" relate therefore to the total wage and salary earner field and comprise payments to all grades of employees throughout the State from junior workers to persons at the highest levels of executive and administrative activity. Overtime earnings, over-award and bonus payments are included, as well as payments made in advance or retrospectively during the years shown.

WAGES, SALARIES AND SUPPLEMENTS; AVERAGE WEEKLY EARNINGS
AND BASIC WAGE RATES (a)

Period	Wages, Salaries and Supplements	Average Weekly Earnings per Employed Male Unit	Basic Wage Rates per Week (a) Metropolitan Area—Adult Male Workers			
			Commonwealth Basic Wage		State Basic Wage	
			At End of Period	Average for Period	At End of Period	Average for Period
Year ended 30th June—	\$ million	\$	\$	\$	\$	\$
1962	464	43.00	28.80	(b) 28.78	29.88	29.92
1963	492	44.20	28.80	28.80	30.02	29.90
1964	*542	47.20	30.80	(c) 28.86	30.42	30.18
1965	589	49.50	30.80	30.80	31.47	30.99
1966	680	54.10	30.80	30.80	32.65	32.10

(a) See NOTE on page 395.

(b) Variation (increase of \$1.20) assumed to have operated on and from 7th July, 1961.

(c) Variation (increase of \$2) assumed to have operated on and from 19th June, 1964.

* Revised.

CHAPTER X — *continued*

PART 3—RETAIL PRICES

Prices of a limited range of commodities are recorded in the Blue Books of Western Australia from the early years of settlement. It was not until 1911, however, that a systematic collection of retail prices statistics, undertaken by the Commonwealth Statistician, was begun. The results of this inquiry were published in 1912 and thus, for the first time, particulars of retail prices in a selection of Western Australian towns became available. As well as providing data for each of five principal towns for the year 1911, the published information contained particulars for the capital city for each year from 1901 to 1910, the scope of the investigation having been specially extended for this purpose. The 46 commodities included in the collection, in addition to house rent, comprised a representative range of groceries, dairy produce and meat. The field of collection was later expanded to cover other groups of household expenditure.

Prices are now collected regularly for items of food; clothing and drapery; housing; household supplies and equipment; and miscellaneous commodities and services.

Representative and reputable retailers and service establishments are selected for each class of commodity and each service. These informants furnish regular returns of prices. Whenever necessary, particulars of prices are also obtained from other firms. For food items, prices are collected monthly, as at the 15th of each month, and are averaged for the three months of the quarter. For most other items prices are obtained quarterly as at the 15th of the middle month of the quarter. In general, prices are collected from actual vendors at retail selling outlets. The prices are those actually being charged for normal cash purchases of new articles. "Bargain" or "sale" prices of imperfect goods or discontinued lines are not used.

The information is collected, under authority of the Census and Statistics Act 1905-1966, for specified "standards" of the commodities and services priced. Specifications include the unit of quantity to be priced, the grade, quality, size, style, etc., and in some cases the particular brand and the manufacturer's "line" number. The standards selected are those with a considerable volume of sales and likely to remain representative over a long period.

The items and standards priced are revised from time to time to keep them in harmony with changing conditions. Before each quarterly collection the standards of all items are reviewed after extensive inquiries among manufacturers, wholesalers and retailers. Where changes in the items or standards priced become necessary, suitable adjustments are made in compiling price series to ensure that they reflect only changes in prices for representative goods of constant quality and not differences in prices of differing standards.

The actual collection of information is carried out by specially qualified field officers of the Commonwealth Bureau of Census and Statistics, who not only receive and check returns but visit the shops or other establishments concerned.

The following tables show the annual average retail prices of 37 items of groceries, dairy produce and meat in the metropolitan area for each of the five years from 1962 to 1966.

AVERAGE RETAIL PRICES OF GROCERIES—METROPOLITAN AREA
(Cents)

Commodity	Unit	1962	1963	1964	1965	1966
Bread (a)	2 lb.	15.0	15.4	15.5	16.0	17.1
Flour, plain, prepacked (b)	"	13.0	12.8	12.6	12.7	13.4
" self-raising	"	18.5	17.6	16.9	17.1	17.6
Tea	$\frac{1}{2}$ lb.	31.0	30.7	30.4	30.5	30.6
Sugar (b)	lb.	9.1	9.2	9.0	8.8	8.7
Rice (b)	1 lb. pkt. (c)	27.4	27.4	13.0	13.2	13.2
Jam, plum	$1\frac{1}{2}$ lb. tin.	21.1	20.8	26.5	26.6	27.0
Oats, rolled (b)	$1\frac{1}{2}$ lb. pkt.	32.3	29.4	28.1	29.3	23.3
Peaches, canned	29 oz.	32.0	29.4	28.2	29.4	30.5
Pears, canned	"	33.5	32.8	32.7	42.3	30.5
Potatoes	7 lb.	7.2	7.3	8.4	8.3	42.0
Onions, brown	lb.	20.0	21.0	25.3	28.3	11.2
Soap, laundry (b)	20 oz. pkt.					31.0

(a) Cash price delivered. (b) Series not strictly comparable throughout due to changes in unit or method of packing, necessitating some calculation of imputed prices. (c) Not available.

AVERAGE RETAIL PRICES OF DAIRY PRODUCE AND MEAT—METROPOLITAN AREA
(Cents)

Commodity	Unit	1962	1963	1964	1965	1966
DAIRY PRODUCE						
Butter	lb.	47·6	47·6	48·8	50·0	50·1
Cheese, processed (a)	$\frac{1}{2}$ lb. pkt.	21·5	21·5	21·8	22·3	23·4
Eggs, grade 1a	doz.	58·4	59·0	57·7	59·5	63·6
Bacon, rashers, prepacked (a)	$\frac{1}{2}$ lb.	31·8	33·9	37·1	37·8	39·9
Milk, condensed	14 oz. tin	19·5	19·0	19·1	19·6	19·9
„ fresh, bottled (b)	quart	17·5	17·5	17·5	18·5	20·0
MEAT						
Beef (fresh):						
Sirloin	lb.	42·2	42·0	45·3	48·5	56·0
Rib (without bone)	„	41·1	40·2	42·2	44·4	50·6
Steak, rump	„	61·7	62·2	66·1	71·1	85·1
„ chuck	„	38·6	38·4	40·6	43·0	50·7
Sausages	„	19·6	20·1	21·2	22·3	24·4
Beef (corned):						
Silverside	„	40·8	40·8	43·0	45·5	51·9
Brisket, rolled	„	29·3	28·7	30·8	33·1	38·4
Mutton (fresh):						
Leg	„	25·2	25·3	28·6	29·6	31·8
Forequarter	„	15·2	15·2	18·8	18·7	20·8
Chops, loin	„	22·7	23·2	27·3	28·1	29·4
„ leg	„	23·8	23·8	27·4	28·3	30·1
Lamb (fresh):						
Leg	„	40·2	40·1	44·1	45·1	48·1
Forequarter	„	26·2	25·6	29·0	30·0	32·5
Chops, loin	„	41·0	40·8	45·8	47·2	49·3
„ leg	„	41·1	41·0	45·8	47·2	49·4
Pork (fresh):						
Leg	„	44·5	49·7	55·3	56·1	58·8
Loin	„	44·6	49·9	55·4	56·2	59·4
Chops	„	44·8	50·1	55·8	56·4	59·5

(a) See note (b) to previous table.

(b) Cash price delivered.

RETAIL PRICE INDEX NUMBERS

The collected information relating to prices of goods and services may be summarized in the form of index numbers. Prices of items, selected as being representative of a high proportion of the expenditure of wage-earner households, are combined at regular intervals by the use of "weights" in approximate proportion to quantities actually used. The aim is to express as a single number the degree of change in prices for the selected field taken as a whole. In practice the application of this principle over a term of years presents great difficulty by reason of the numerous changes which occur in the type, grade and relative quantities of many of the items commonly used.

Basically in the simplest method of compiling retail price indexes the price of each item is multiplied by a fixed quantity or "weight", the product being an "expenditure". The sum of these products for all items at any given date represents an "aggregate expenditure". The "aggregate expenditures" for successive periods are converted into an index series by equating the aggregate for a selected or "base" period to 1,000 (or some other convenient number), and calculating all index numbers to this base according to the ratio which the several aggregates bear to that of the base period.

The "A" Series Index was first compiled in 1912 and although it was both rudimentary and of limited scope, covering only food, groceries and house rents, it was not discontinued until 1938. The "C" Series Index was first compiled in 1921, and retrospectively to 1914, to supply the need for a more adequate index. It was originally described as the "All Items" Index, to distinguish it from the "A" Series, because it included, in addition to food, groceries and house rents, many items of clothing, household drapery and utensils, fuel, lighting, fares, smoking and some other miscellaneous items.

The list of component items and the weighting pattern of the "C" Series Retail Price Index, first adopted in 1921, were slightly revised by Conference of Statisticians in 1936, but otherwise remained almost unchanged until the index was discontinued in 1960. From the outbreak of war in 1939 to late in 1948, periodic policy changes in regard to various war-time controls, including rationing, caused recurrent changes in consumption and in the pattern of expenditure. This rendered changes in the index desirable but made it impracticable either to produce a new index, or to revise the old one, on any basis that would render the index more representative than it already was of the changing pattern in those years.

When commodity rationing had virtually ceased in the latter part of 1948, action was taken by the Commonwealth Statistician to collect price data of about 100 additional items and to gather information

as to current consumption and expenditure patterns. This was done to facilitate review of the component items and weighting system of the "C" Series Retail Price Index, in the light of the new pattern of wage-earner expenditure and consumption that appeared to be then emerging. However, there supervened, in the next few years, conditions which caused wide price dispersion coupled with a very rapid rise in prices and a new sequence of changes in consumption and the pattern of wage-earner expenditure. Under these conditions it was not possible to devise any new weighting pattern likely to be more continuously representative of conditions then current than was the existing "C" Series Index on the 1936 revision. Consequently the "C" Series Index continued to be compiled on its pre-war basis without significant change in procedures.

An Interim Retail Price Index, with the year 1952-53 as its base, was introduced in 1954 and continued until the March quarter of 1960. This Interim Index was a transitional index designed to measure retail price variations on the "C" Series model in terms of post-war consumption weights, as emerging in the early 1950's. It embraced a wider range of commodities and services than did the "C" Series Index, but it did not take into account successive major changes in the pattern of expenditure and modes of living that began to occur early in 1950 and through to 1960. These changes could not, in fact, be detected and measured promptly, and incorporated into an index, concurrently with their happening in those years. Nor was it envisaged as desirable to adopt fundamentally new procedures in price index construction until it was fully evident that far-reaching procedural changes were necessary to meet the situation that had developed between about 1950 and 1960.

During this period home-owning largely replaced the renting of privately-owned houses, the numbers of government-owned rented houses increased appreciably, the use of the motor car greatly increased and partly replaced use of public transport, various items of electrical household equipment and television came into widespread use, household consumption of electricity greatly increased, and technological developments such as the introduction of new synthetic materials produced a number of changes in clothing and other groups of items. Through the impact of these continuing changes in usage, combined with disparate movements in prices, the Interim Retail Price Index became outmoded. As studies progressed and new data became available, it was clear that no single list of items and no single set of fixed weights would be adequately representative as a basis for measuring retail price changes at all times throughout the post-war period. In consequence, the situation was met by compiling the Consumer Price Index constructed as a chain of linked indexes with significant changes in composition and weighting effected at short intervals.

THE CONSUMER PRICE INDEX

The Consumer Price Index was first compiled in 1960, retrospectively to the September quarter of 1948. It replaced both the "C" Series Retail Price Index and the Interim Retail Price Index in official statistical publications. The title "Consumer Price Index" is used for purposes of convenience and does not imply that the new index differs in definition or purpose from previous retail price indexes. The Index is designed to measure quarterly variations in retail prices of goods and services representing a high proportion of the expenditures of wage-earner households. The weighting pattern relates to estimated aggregates of wage-earner household expenditures and not to estimated expenditures of an "average" or individual household of specified size, type, or mode of living. It is thus possible to give appropriate representation to owner-occupied houses as well as rented houses and to include motor cars, television sets, and other major expenditures which relate to some households and not to others.

Investigations revealed that the incidence and frequency of changes in the pattern of household expenditure since 1950 were such as to render it necessary to construct not one but a series of new indexes introducing additional items and changes in weighting patterns at short intervals. Five series for short periods (September quarter, 1948 to June quarter, 1952; June quarter, 1952 to June quarter, 1956; June quarter, 1956 to March quarter, 1960; March quarter, 1960 to December quarter, 1963; and from December quarter, 1963) have therefore been constructed and linked to form a continuous series, with reference base year 1952-53 = 100.0. In each period between links the items and weighting have remained unchanged. It is envisaged that future links will be made in the index when significant changes in the pattern of household expenditure render it necessary to do so.

The Consumer Price Index covers a wide range of commodities and services arranged in the five major groups, Food; Clothing and Drapery; Housing; Household Supplies and Equipment; and Miscellaneous. It is designed only to measure the proportionate change in prices as combined in the individual groups, or the aggregate of the groups in the index. This is a basic principle of all price

indexes, and failure to appreciate it gives rise to misconceptions concerning price indexes and their uses. Consumer (retail) price indexes are sometimes loosely called "cost of living indexes" and are thought to measure changes in the "cost of living." Neither the Consumer Price Index, nor any other retail price index, measures those changes in the cost of living that result directly from changes in the mode or level of living. Changes of that kind are matters for consideration apart from price indexes. But the change in prices of goods and services is a very important part of the change in any cost of living and this part is measured by consumer (retail) price indexes.

The following summary gives a general description of the nature of the items included in the several groups which together comprise the Consumer Price Index.

Food—Meat (fresh and processed); dairy produce; cereal products; soft drink, ice cream and confectionery; potatoes, onions and preserved fruit and vegetables; and other foods including sugar, jam, margarine, tea, coffee, baby foods, and sundry canned and other foods.

Clothing and Drapery—Men's, women's, boys' and girls' clothing; men's, women's and children's footwear; household drapery; and piecegoods and knitting wool.

Housing—Costs (house price, rates, repairs and maintenance) involved in home ownership or purchase by instalments; and rent paid to a private owner or government authority.

Household Supplies and Equipment—Household appliances; fuel and light; and household articles including furniture (from December quarter, 1963), floor coverings, kitchen and other utensils, gardening and small tools, household sundries, personal requisites, proprietary medicines and school requisites.

Miscellaneous—Transport (train, tram and bus fares and private motoring costs); beer; tobacco and cigarettes; services such as hairdressing, dry cleaning, shoe repairs and postal and telephone services; and other expenditure including costs of radio and television operation, cinema admission and newspapers.

These groups do not include every item of household spending. It is both impracticable and unnecessary for them to do so. Prices are collected regularly for specified quantities and qualities of a large and representative selection of commodities and services. Movements in the prices of these items, when combined in suitable proportions, provide a representative measure of price change as affecting a high proportion of the expenditure of wage-earner households.

The sets of weights used have been derived from analyses of statistics of production and consumption, the Population Censuses of 1947, 1954 and 1961, the Censuses of Retail Establishments of 1948-49, 1952-53, 1956-57 and 1961-62 and the continuing Survey of Retail Establishments; from information supplied by manufacturing, commercial, and other relevant sources; and from special surveys. As from the December quarter, 1963 the weights, in general, are based on the pattern of consumption of the years 1957-58 to 1961-62.

The index has been compiled for each quarter from the September quarter of 1948, and for each financial year from 1948-49. (A selection of Consumer Price Index numbers *ab initio* appears in the tables on pages 380-82 of the *Official Year Book of Western Australia*, No. 3—1962, and in the *Statistical Summary from 1829* following this Chapter.) "All Groups" index numbers, and group index numbers for each of the five major groups, are compiled and published regularly for the six State capital cities separately and combined. The reference base for each of these indexes is: Year 1952-53 = 100.0. Figures appearing after the decimal point possess little significance for general statistical purposes. They are inserted merely to avoid the minor distortions that would occur in rounding off the figures to the nearest whole number.

The separate city indexes measure price *movements* within each city individually. They enable comparisons to be drawn between cities as to differences in the degree of *price movement*, but not as to differences in the *actual price level*, since the index for each city is *independently* based on the prices recorded *in that city* during 1952-53. Similarly, the separate group indexes measure price *movements* of each group individually. They enable comparisons to be drawn as to differences in the degree of price change in the different groups, but do not show the comparative cost of the different groups.

The index for the six capital cities combined is a weighted average of price movement in the individual cities. For periods to the December quarter, 1963 the relative influence of the several cities on the combined index is determined by their populations at the 1954 Census. From the link made as at the December quarter, 1963 the weights of the individual cities have been revised on the basis of the results of the 1961 Census.

CONSUMER PRICE INDEX—PERTH

(Base of each Index Series : Year 1952-53 = 100)

Period							Group Index Numbers					Combined Index (All Groups)
							Food	Clothing and Drapery	Housing	Household Supplies and Equipment	Miscellaneous	
Year—												
1952-53	....	....	....	....			100.0	100.0	100.0	100.0	100.0	100.0
1956-57	....	....	....	....			116.0	103.1	123.6	104.5	117.0	112.9
1957-58	....	....	....	....			114.4	105.7	126.0	105.7	118.3	113.6
1958-59	....	....	....	....			115.2	107.2	130.3	105.9	118.7	114.7
1959-60	....	....	....	....			118.4	108.2	133.5	107.1	120.9	116.9
1960-61	....	....	....	....			124.4	110.8	141.7	107.3	125.2	121.2
1961-62	....	....	....	....			123.5	111.7	146.4	107.3	125.3	121.6
1962-63	....	....	....	....			123.9	112.0	150.9	107.0	125.5	122.2
1963-64	....	....	....	....			125.4	112.8	155.9	105.2	128.5	123.8
1964-65	....	....	....	....			130.5	114.1	160.0	106.4	134.2	127.6
1965-66	....	....	....	....			136.6	115.4	165.6	108.1	142.1	132.5
Quarter—												
1952—												
September	....	....	....	....			98.4	99.4	96.1	99.2	98.8	98.6
December	....	....	....	....			98.2	100.3	99.3	99.0	99.6	99.2
1953—												
March	....	....	....	....			100.2	100.0	101.5	100.6	100.8	100.5
June	....	....	....	....			103.1	100.3	103.1	101.1	100.8	101.7
1956—												
September	....	....	....	....			115.6	101.9	124.1	103.5	113.9	111.7
December	....	....	....	....			114.6	102.4	123.5	104.4	117.3	112.3
1957—												
March	....	....	....	....			115.9	103.4	123.4	104.8	118.2	113.2
June	....	....	....	....			117.8	104.6	123.2	105.3	118.4	114.2
September	....	....	....	....			116.5	105.0	123.9	105.9	118.4	114.0
December	....	....	....	....			113.0	105.3	125.3	106.2	118.4	113.0
1958—												
March	....	....	....	....			113.4	105.4	126.8	105.2	118.2	113.2
June	....	....	....	....			114.8	106.9	127.9	105.3	118.2	114.1
September	....	....	....	....			115.1	107.0	128.8	105.4	118.4	114.4
December	....	....	....	....			113.8	107.5	130.4	105.7	118.7	114.3
1959—												
March	....	....	....	....			114.8	107.2	130.5	106.1	118.9	114.7
June	....	....	....	....			117.1	106.9	131.4	106.4	118.9	115.5
September	....	....	....	....			117.8	107.3	131.5	106.8	118.8	115.9
December	....	....	....	....			115.7	107.7	132.6	107.0	120.4	115.7
1960—												
March	....	....	....	....			118.4	108.0	134.2	107.4	121.2	117.1
June	....	....	....	....			121.6	109.6	135.6	107.0	123.3	119.0
September	....	....	....	....			122.9	109.8	137.0	107.4	123.7	119.8
December	....	....	....	....			122.9	110.8	141.6	107.3	125.6	120.8
1961—												
March	....	....	....	....			125.3	110.9	143.5	107.4	125.8	121.9
June	....	....	....	....			126.4	111.6	144.8	107.0	125.6	122.4
September	....	....	....	....			123.8	111.6	145.1	107.5	125.7	121.7
December	....	....	....	....			122.5	111.9	145.5	107.4	125.5	121.3
1962—												
March	....	....	....	....			123.4	111.8	147.1	107.1	124.9	121.5
June	....	....	....	....			124.2	111.5	147.8	107.2	124.9	121.8
September	....	....	....	....			124.7	111.7	148.8	107.2	124.8	122.1
December	....	....	....	....			122.8	111.8	150.9	106.9	124.9	121.7
1963—												
March	....	....	....	....			123.7	112.0	151.2	106.9	126.0	122.3
June	....	....	....	....			124.4	112.4	152.6	107.0	126.1	122.8
September	....	....	....	....			124.6	112.6	153.3	105.0	126.2	122.7
December	....	....	....	....			123.7	112.6	155.7	104.9	128.2	123.1
1964—												
March	....	....	....	....			125.0	112.8	156.8	105.2	130.3	124.2
June	....	....	....	....			128.3	113.2	157.8	105.7	129.3	125.3
September	....	....	....	....			130.3	113.6	158.1	105.8	131.5	126.6
December	....	....	....	....			128.4	113.9	159.9	106.2	133.2	126.6
1965—												
March	....	....	....	....			130.1	114.3	160.4	106.6	136.0	128.0
June	....	....	....	....			133.3	114.7	161.5	106.9	136.2	129.3
September	....	....	....	....			134.4	114.7	162.9	107.9	136.4	130.0
December	....	....	....	....			133.9	115.0	165.5	108.0	142.8	131.7
1966—												
March	....	....	....	....			135.8	115.4	166.5	107.9	144.6	132.8
June	....	....	....	....			142.1	116.5	167.6	108.5	144.6	135.3
September	....	....	....	....			143.1	116.6	170.2	108.9	146.1	136.3
December	....	....	....	....			140.9	117.8	172.6	110.1	149.1	136.9

CONSUMER PRICE INDEX—SIX CAPITAL CITIES COMBINED

(Base of each Index Series : Year 1952-53 = 100)

Period							Group Index Numbers					Combined Index (All Groups)
							Food	Clothing and Drapery	Housing	Household Supplies and Equipment	Miscellaneous	
Year—												
1952-53	....	....	....	....	....	....	100.0	100.0	100.0	100.0	100.0	100.0
1956-57	....	....	....	....	....	....	115.3	103.9	122.1	105.8	118.0	113.1
1957-58	....	....	....	....	....	....	113.3	107.0	127.3	107.5	119.7	114.2
1958-59	....	....	....	....	....	....	115.4	108.2	130.6	108.7	121.2	116.0
1959-60	....	....	....	....	....	....	119.8	109.4	135.2	109.8	123.9	118.9
1960-61	....	....	....	....	....	....	127.7	111.6	144.8	111.2	127.3	123.8
1961-62	....	....	....	....	....	....	125.5	112.8	150.7	112.7	128.1	124.3
1962-63	....	....	....	....	....	....	124.3	113.2	155.0	112.4	128.8	124.5
1963-64	....	....	....	....	....	....	126.0	114.0	159.6	111.0	129.9	125.7
1964-65	....	....	....	....	....	....	133.0	115.6	165.0	111.9	136.1	130.4
1965-66	....	....	....	....	....	....	139.3	117.0	171.9	113.8	142.5	135.2
Quarter—												
1952—												
September	....	....	....	....	....	....	99.8	98.4	96.3	99.3	99.1	98.9
December	....	....	....	....	....	....	98.5	99.8	99.2	99.4	100.1	99.4
1953—												
March	....	....	....	....	....	....	100.1	100.3	101.3	100.4	100.4	100.4
June	....	....	....	....	....	....	101.7	101.5	103.1	100.9	100.4	101.4
1956—												
September	....	....	....	....	....	....	119.0	102.3	119.7	103.6	116.0	112.9
December	....	....	....	....	....	....	115.6	103.3	121.7	105.5	118.0	113.0
1957—												
March	....	....	....	....	....	....	112.9	104.2	122.3	107.0	118.6	112.6
June	....	....	....	....	....	....	113.8	105.6	124.5	107.1	119.3	113.7
September	....	....	....	....	....	....	113.4	106.2	125.6	107.6	119.6	113.9
December	....	....	....	....	....	....	112.1	106.7	127.0	108.0	119.6	113.7
1958—												
March	....	....	....	....	....	....	113.9	106.7	127.6	107.1	119.6	114.3
June	....	....	....	....	....	....	113.9	108.2	128.8	107.3	119.8	114.8
September	....	....	....	....	....	....	113.7	108.2	129.2	107.9	120.1	114.9
December	....	....	....	....	....	....	114.6	108.4	130.4	108.7	121.3	115.8
1959—												
March	....	....	....	....	....	....	116.3	108.1	130.9	108.9	121.5	116.3
June	....	....	....	....	....	....	117.1	107.9	131.9	109.1	121.9	116.8
September	....	....	....	....	....	....	117.9	108.3	132.5	109.4	122.3	117.3
December	....	....	....	....	....	....	118.4	109.2	133.9	109.6	123.0	118.0
1960—												
March	....	....	....	....	....	....	120.3	109.5	134.8	110.0	123.8	119.0
June	....	....	....	....	....	....	122.6	110.5	139.4	110.2	126.4	121.1
September	....	....	....	....	....	....	126.0	110.7	141.4	110.6	126.7	122.5
December	....	....	....	....	....	....	126.7	111.5	144.1	111.0	127.2	123.3
1961—												
March	....	....	....	....	....	....	128.6	111.7	145.7	111.3	127.5	124.2
June	....	....	....	....	....	....	129.4	112.4	148.0	111.9	127.7	125.0
September	....	....	....	....	....	....	128.1	112.4	148.5	112.6	127.9	124.8
December	....	....	....	....	....	....	125.3	112.9	150.5	112.7	128.3	124.3
1962—												
March	....	....	....	....	....	....	124.7	112.9	151.0	112.7	128.0	124.1
June	....	....	....	....	....	....	123.7	112.9	152.6	112.8	128.2	124.0
September	....	....	....	....	....	....	124.2	113.0	153.3	112.8	128.4	124.3
December	....	....	....	....	....	....	124.3	113.2	154.7	112.4	128.7	124.4
1963—												
March	....	....	....	....	....	....	124.1	113.2	155.3	112.1	129.0	124.5
June	....	....	....	....	....	....	124.5	113.4	156.8	112.4	129.2	124.9
September	....	....	....	....	....	....	125.0	113.7	157.9	110.6	129.7	125.1
December	....	....	....	....	....	....	124.5	113.7	159.0	110.8	129.5	125.0
1964—												
March	....	....	....	....	....	....	126.0	113.8	159.9	111.1	130.1	125.8
June	....	....	....	....	....	....	128.5	114.6	161.7	111.4	130.3	127.0
September	....	....	....	....	....	....	130.7	115.0	163.0	110.7	133.1	128.5
December	....	....	....	....	....	....	132.1	115.4	164.4	111.3	136.5	130.0
1965—												
March	....	....	....	....	....	....	133.1	115.8	165.3	112.5	137.3	130.9
June	....	....	....	....	....	....	135.9	116.3	167.2	112.9	137.3	132.1
September	....	....	....	....	....	....	139.3	116.3	168.6	113.4	137.8	133.5
December	....	....	....	....	....	....	139.5	116.6	171.4	113.7	142.7	135.2
1966—												
March	....	....	....	....	....	....	138.4	116.9	172.4	113.7	144.7	135.4
June	....	....	....	....	....	....	139.8	118.0	175.3	114.5	144.8	136.5
September	....	....	....	....	....	....	139.7	118.2	176.6	114.7	146.9	137.1
December	....	....	....	....	....	....	140.7	119.3	178.4	115.1	148.9	138.4

CONSUMER PRICE INDEX: ALL GROUPS INDEX NUMBERS
SIX CAPITAL CITIES, SEPARATELY AND COMBINED

(Base of each Index Series: Year 1952-53 = 100)

NOTE: The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

Period	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted Average of Six Capital Cities
Year—							
1952-53	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1956-57	112.9	114.0	112.0	111.1	112.9	116.9	113.1
1957-58	114.5	114.4	114.4	111.9	113.6	117.0	114.2
1958-59	115.3	116.6	118.2	114.5	114.7	118.7	116.0
1959-60	117.8	120.0	121.2	118.0	116.9	120.8	118.9
1960-61	122.1	125.9	125.4	122.9	121.2	127.5	123.8
1961-62	122.6	126.3	127.3	122.5	121.6	128.1	124.3
1962-63	123.2	126.2	127.7	122.1	122.2	128.0	124.5
1963-64	124.5	127.1	129.0	123.5	123.8	129.4	125.7
1964-65	128.8	132.2	133.9	128.6	127.6	133.6	130.4
1965-66	133.1	137.1	140.4	132.7	132.5	138.3	135.2
Quarter—							
1952—							
September	98.8	98.8	99.4	99.4	98.6	98.1	98.9
December	99.5	99.3	99.6	99.0	99.2	98.8	99.4
1953—							
March	100.4	100.3	100.1	100.2	100.5	100.8	100.4
June	101.2	101.6	100.9	101.4	101.7	102.3	101.4
1956—							
September	112.7	114.1	111.9	111.6	111.7	116.2	112.9
December	112.6	114.2	111.7	111.4	112.3	117.2	113.0
1957—							
March	112.6	113.3	111.7	110.2	113.2	116.7	112.6
June	113.7	114.2	112.6	111.3	114.2	117.5	113.7
September	114.0	114.4	112.8	111.9	114.0	116.7	113.9
December	113.9	114.2	113.7	111.6	113.0	116.9	113.7
1958—							
March	115.0	114.2	115.0	111.5	113.2	117.1	114.3
June	115.1	114.6	115.9	112.7	114.1	117.3	114.8
September	114.8	114.9	116.7	113.5	114.4	117.7	114.9
December	115.2	116.4	117.9	114.2	114.3	118.7	115.8
1959—							
March	115.5	117.1	119.0	115.0	114.7	119.1	116.3
June	115.8	117.9	119.1	115.3	115.5	119.3	116.8
September	116.3	118.2	120.2	116.3	115.9	119.7	117.3
December	117.2	118.8	120.8	116.9	115.7	120.1	118.0
1960—							
March	118.2	119.8	121.6	118.3	117.1	120.8	119.0
June	119.6	123.0	122.3	120.6	119.0	122.6	121.1
September	120.8	124.9	123.6	121.5	119.8	125.8	122.5
December	121.6	125.5	125.1	122.4	120.8	127.1	123.3
1961—							
March	122.5	126.1	126.7	123.4	121.9	128.3	124.2
June	123.4	127.1	126.1	124.3	122.4	128.9	125.0
September	123.1	126.8	127.0	123.5	121.7	129.1	124.8
December	122.5	126.5	127.1	122.5	121.3	128.3	124.3
1962—							
March	122.4	125.9	127.7	122.1	121.5	127.5	124.1
June	122.3	125.9	127.3	121.9	121.8	127.5	124.0
September	122.7	126.2	127.5	121.9	122.1	127.6	124.3
December	123.2	126.2	127.6	121.9	121.7	128.2	124.4
1963—							
March	123.3	126.0	127.8	121.9	123.3	128.0	124.5
June	123.7	126.4	127.9	122.5	123.8	128.2	124.9
September	123.7	126.7	128.4	122.8	123.7	128.8	125.1
December	123.9	126.4	128.2	122.7	123.1	129.0	125.0
1964—							
March	124.6	127.1	129.2	123.5	124.2	129.8	125.8
June	125.8	128.3	130.2	125.1	125.3	130.1	127.0
September	127.3	129.6	131.9	126.9	126.6	131.7	128.5
December	128.4	131.8	133.4	128.6	126.6	133.4	130.0
1965—							
March	129.1	132.9	134.6	128.9	128.0	134.0	130.9
June	130.3	134.4	135.7	129.9	129.3	135.2	132.1
September	131.8	135.6	138.3	130.7	130.0	137.0	133.5
December	133.8	137.2	140.0	132.7	131.7	138.8	135.2
1966—							
March	133.3	137.2	141.4	133.1	132.8	138.1	135.4
June	134.0	138.5	141.7	134.4	135.3	139.3	136.5
September	134.7	139.1	142.5	135.0	136.3	139.2	137.1
December	136.2	140.1	143.6	136.5	136.9	140.1	138.4

RETAIL PRICE INDEX NUMBERS, 1901 TO 1966

The index numbers shown in the following table are presented as a continuous series, but they give only a broad indication of long-term trends in retail price levels. They are derived by linking a number of indexes that differ greatly in scope. The successive indexes used are: from 1901 to 1914, the "A" Series Retail Price Index; from 1914 to 1946-47, the "C" Series Retail Price Index; from 1946-47 to 1948-49, a composite of Consumer Price Index Housing Group (partly estimated) and "C" Series Index excluding Rent; from 1948-49 to 1966, the Consumer Price Index.

RETAIL PRICE INDEX NUMBERS, 1901 TO 1966

SIX STATE CAPITAL CITIES COMBINED

(Base: Year 1911 = 100)

Year					Index Number	Year					Index Number
1901	....	....	....	....	88	1934	....	....	....	....	136
1902	....	....	....	....	93	1935	....	....	....	....	138
1903	....	....	....	....	91	1936	....	....	....	....	141
1904	....	....	....	....	86	1937	....	....	....	....	145
1905	....	....	....	....	90	1938	....	....	....	....	149
1906	....	....	....	....	90	1939	....	....	....	....	153
1907	....	....	....	....	90	1940	....	....	....	....	159
1908	....	....	....	....	95	1941	....	....	....	....	167
1909	....	....	....	....	95	1942	....	....	....	....	181
1910	....	....	....	....	97	1943	....	....	....	....	188
1911	....	....	....	....	100	1944	....	....	....	....	187
1912	....	....	....	....	110	1945	....	....	....	....	187
1913	....	....	....	....	110	1946	....	....	....	....	190
1914 (a)	....	....	....	....	114	1947	....	....	....	....	198
1915 (a)	....	....	....	....	130	1948	....	....	....	....	218
1916 (a)	....	....	....	....	132	1949	....	....	....	....	240
1917 (a)	....	....	....	....	141	1950	....	....	....	....	262
1918 (a)	....	....	....	....	150	1951	....	....	....	....	313
1919 (a)	....	....	....	....	170	1952	....	....	....	....	367
1920 (a)	....	....	....	....	193	1953	....	....	....	....	383
1921 (a)	....	....	....	....	168	1954	....	....	....	....	386
1922 (a)	....	....	....	....	162	1955	....	....	....	....	394
1923	....	....	....	....	166	1956	....	....	....	....	419
1924	....	....	....	....	164	1957	....	....	....	....	429
1925	....	....	....	....	165	1958	....	....	....	....	435
1926	....	....	....	....	168	1959	....	....	....	....	443
1927	....	....	....	....	166	1960	....	....	....	....	459
1928	....	....	....	....	167	1961	....	....	....	....	471
1929	....	....	....	....	171	1962	....	....	....	....	469
1930	....	....	....	....	162	1963	....	....	....	....	472
1931	....	....	....	....	145	1964	....	....	....	....	483
1932	....	....	....	....	138	1965	....	....	....	....	502
1933	....	....	....	....	133	1966	....	....	....	....	517

(a) November.

STATISTICAL SUMMARY FROM 1829

POPULATION AND MIGRATION

Year	Population at 31st December (a)				Mean Population (a)		Migration		
	Whole State			Perth Statistical Division	Year ended—		Recorded Arrivals (b)	Recorded Departures (b)	Estimated Net Migration (c)(d)
	Males	Females	Persons	Persons	30th June	31st December			
1829	769	234	1,003			(e)			(e)
1830	877	295	1,172			(e)			(e)
1840	1,434	877	2,311			(e)			(e)
1850	3,576	2,310	5,886	(e)		(e)			(e)
1860	9,597	5,749	15,346		(e)	15,092			130
1870	15,511	9,624	25,135			24,894			7
1880	16,985	12,576	29,561			29,350	(e)	(e)	-129
1890	28,854	19,648	48,502	20		47,081			1,821
1900	110,088	69,879	179,967	73		175,113			6,495
1901	117,885	75,716	193,601	78.2	180,856	188,135			10,435
1902	128,370	83,603	211,973	85.8	195,791	204,705			14,963
1903	134,140	90,608	224,748	91.2	212,968	219,643			8,864
1904	141,694	97,714	239,408	97.4	226,471	233,963			10,301
1905	146,498	103,640	250,138	102.1	240,896	246,681	28,791	22,934	5,857
1906	148,061	107,112	255,173	104.7	251,112	254,362	25,396	25,077	319
1907	146,264	108,276	254,540	105.0	255,840	255,510	22,326	27,740	-5,414
1908	148,447	111,224	259,671	107.6	255,933	257,822	24,592	24,339	255
1909	151,325	114,350	265,675	110.6	260,355	263,279	24,643	23,537	1,106
1910	157,971	118,861	276,832	115.7	266,686	271,019	31,403	25,091	6,312
1911	167,993	125,930	293,923	121.4	278,043	286,712	41,359	29,436	11,923
1912	173,897	131,724	305,621	126.5	294,364	301,040	38,326	31,982	6,344
1913	180,534	139,401	319,935	132.9	307,145	313,383	37,637	29,607	8,030
1914	178,978	143,111	322,089	133.7	319,014	322,668	27,270	31,277	-4,007
1915	170,890	145,773	316,663	133.3	322,996	321,247	20,734	32,185	-11,451
1916	159,237	147,643	306,880	135.6	317,867	313,066	19,322	34,583	-15,261
1917	157,532	149,306	306,838	142.3	308,756	306,339	17,822	22,977	-5,155
1918	159,865	150,318	310,183	145.6	306,804	308,198	24,262	25,190	-928
1919	174,981	152,879	327,860	155.7	311,835	319,955	32,561	18,231	14,330
1920	176,895	154,428	331,323	167.0	327,152	330,023	29,930	31,228	-1,298
1921	178,968	157,580	336,548	171.0	331,973	334,084	29,333	28,435	898
1922	184,471	161,073	345,544	178.1	337,269	341,375	31,141	27,109	4,032
1923	191,131	165,728	356,859	191.8	345,891	350,772	33,835	27,444	6,391
1924	197,676	170,648	368,324	199.9	356,751	363,152	35,195	28,768	6,427
1925	202,554	174,973	377,527	208.0	368,525	372,970	32,920	28,587	4,333
1926	206,797	178,436	385,233	208.4	376,933	380,930	30,732	27,977	2,755
1927	215,851	184,046	399,897	216.2	385,780	392,071	35,275	25,700	9,575
1928	225,072	189,549	414,621	222.4	399,777	407,576	36,039	26,379	9,660
1929	231,361	195,276	426,637	229.0	414,489	420,756	32,847	25,952	6,895
1930	232,868	198,742	431,610	235.1	425,785	429,079	22,457	22,910	-453
1931	232,397	201,289	433,686	239.9	431,022	432,347	14,192	16,984	-2,792
1932	233,049	203,271	436,320	238.9	433,596	435,041	15,446	17,062	-1,616
1933	234,744	205,898	440,642	232.1	436,798	438,780	17,261	17,401	-138
1934	236,140	207,589	443,729	234.3	440,736	442,354	17,609	18,998	-1,389
1935	238,739	210,884	449,623	237.7	444,275	446,874	19,733	18,599	1,134
1936	240,827	213,373	454,200	241.0	449,728	452,294	20,590	21,027	-437
1937	244,050	216,492	460,542	244.4	454,532	457,328	22,571	21,561	1,010
1938	246,943	219,741	466,684	247.7	460,642	463,808	23,227	22,784	443
1939	249,065	223,315	472,380	252.2	466,896	469,780	21,195	20,980	215
1940	248,734	225,342	474,076	255.5	472,060	473,397	(e)	(e)	-2,902
1941	246,842	226,371	473,213	260.0	474,180	473,988	(e)	(e)	-5,769
1942	246,816	229,839	476,655	265.6	474,833	476,619	(e)	(e)	-349
1943	246,389	231,875	478,264	272.3	476,989	476,745	(e)	(e)	-244
1944	249,301	235,474	484,775	281.2	478,271	481,498	(e)	(e)	-3,528
1945	251,590	238,498	490,088	289.0	484,720	487,510	20,831	21,482	-651
1946	255,310	241,663	496,973	297.9	489,982	492,771	35,547	35,746	-199
1947	261,653	247,109	508,762	307.3	497,006	502,951	54,001	50,640	3,361
1948	268,304	253,695	521,999	315.8	508,747	514,621	63,183	57,980	5,203
1949	280,273	263,911	544,184	331.4	521,932	532,603	72,127	58,363	13,764
1950	294,758	277,891	572,649	351.7	545,134	557,878	83,272	63,586	19,686
1951	304,454	285,885	590,339	362.8	570,346	580,317	79,254	70,829	8,425
1952	316,700	296,235	612,935	378.1	589,887	600,615	82,663	69,986	12,677
1953	326,372	305,371	631,743	390.1	611,191	621,034	82,063	73,805	8,258
1954	334,342	314,365	648,707	402.2	630,705	639,963	82,970	75,742	7,228
1955	343,838	324,771	668,609	416.8	648,222	657,323	89,201	79,110	10,091
1956	350,333	330,935	681,268	427.4	666,898	674,459	86,808	84,067	2,741
1957	356,195	339,039	695,234	438.9	680,949	687,448	84,397	82,339	2,058
1958	361,441	345,755	707,196	449.3	693,568	699,915	87,522	85,330	2,192
1959	366,253	352,438	718,691	459.5	705,869	711,737	95,046	93,754	1,292
1960	372,665	358,368	731,033	470.3	717,316	722,900	99,715	97,188	2,527
1961	384,773	370,440	755,213	482.7	729,770	737,596	102,229	97,706	4,523
1962	395,891	381,357	777,248	500.3	755,770	766,205	121,883	113,627	8,256
1963	407,024	391,871	798,895	517.8	777,413	788,457	128,286	121,208	7,078
1964	417,023	401,098	818,121	534.0	798,324	808,300	148,481	138,218	10,263
1965	427,330	410,918	838,248	550.9	817,157	826,481	170,340	159,815	10,525
1966	439,680	423,005	862,685	569.5	837,290	848,837	187,565	173,906	13,659

NOTE—A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line represent total population, including Aborigines.

(a) Estimated. Figures from December, 1961 have been revised to conform to final results of the 1966 Census; those for 1966 are subject to revision after the 1971 Census. (b) Figures for 1932 and earlier years represent recorded migration adjusted to conform to census results; those for 1933 and later are unadjusted. (c) Excludes full-blood Aborigines. (d) Adjusted to conform to census results. (e) Not available.

VITAL STATISTICS (a)

Year	Marriages Registered	Births Registered	Deaths Registered (d)	Natural Increase (e)	Rate per 1,000 of Mean Population (b)				Infant Mortality (c)	
					Marriages	Births	Deaths (d)	Natural Increase (e)	Number	Rate (f)
1840	25	54	20	34	(g)	(g)	(g)	(g)	(g)	(g)
1850	37	186	54	132	(g)	(g)	(g)	(g)	(g)	(g)
1860	151	588	209	379	10·01	38·96	13·85	25·11	(g)	(g)
1870	153	853	378	475	6·15	34·27	15·18	19·08	100	117·2
1880	214	933	382	551	7·29	31·79	13·02	18·77	72	77·2
1890	278	1,561	540	1,021	5·90	33·16	11·47	21·69	140	89·7
1900	1,781	5,454	2,240	3,214	10·17	31·15	12·79	18·35	688	126·2
1901	1,821	5,718	2,519	3,199	9·68	30·39	13·39	17·00	737	128·9
1902	2,024	6,232	2,823	3,409	9·89	30·44	13·79	16·65	885	142·0
1903	2,064	6,699	2,788	3,911	9·40	30·50	12·69	17·81	946	141·2
1904	2,088	7,176	2,817	4,359	8·92	30·67	12·04	18·63	811	113·0
1905	2,123	7,582	2,709	4,873	8·61	30·74	10·98	19·75	790	104·2
1906	2,261	7,800	3,084	4,716	8·89	30·66	12·12	18·54	858	110·0
1907	2,114	7,712	2,931	4,781	8·27	30·18	11·47	18·71	752	97·5
1908	2,012	7,755	2,879	4,876	7·80	30·08	11·17	18·91	657	84·7
1909	1,997	7,602	2,704	4,898	7·59	28·87	10·27	18·60	593	78·0
1910	2,107	7,585	2,740	4,845	7·77	27·99	10·11	17·88	593	78·2
1911	2,421	8,091	2,923	5,168	8·44	28·22	10·19	18·03	615	76·0
1912	2,524	8,689	3,335	5,354	8·38	28·86	11·08	17·78	713	82·1
1913	2,572	9,218	2,934	6,284	8·21	29·41	9·36	20·05	648	70·3
1914	2,660	9,204	3,043	6,161	8·24	28·52	9·43	19·09	627	68·1
1915	2,581	9,017	2,992	6,025	8·03	28·07	9·31	18·76	600	66·5
1916	2,365	8,563	3,085	5,478	7·55	27·35	9·85	17·50	567	66·2
1917	1,621	7,882	2,769	5,113	5·29	25·73	9·04	16·69	450	57·1
1918	1,612	7,106	2,833	4,273	5·23	23·06	9·19	13·87	406	57·1
1919	2,194	6,937	3,590	3,347	6·86	21·68	11·22	10·46	424	61·1
1920	2,932	8,149	3,388	4,761	8·88	24·69	10·27	14·42	538	66·0
1921	2,656	7,807	3,480	4,327	7·95	23·37	10·42	12·95	611	78·3
1922	2,446	8,131	3,167	4,964	7·17	23·82	9·28	14·54	452	55·6
1923	2,376	7,854	2,930	4,924	6·77	22·39	8·35	14·04	442	56·3
1924	2,596	8,301	3,263	5,038	7·15	22·86	8·99	13·87	414	49·9
1925	2,746	8,185	3,315	4,870	7·36	21·95	8·89	13·06	463	56·6
1926	2,844	8,301	3,350	4,951	7·47	21·79	8·79	13·00	409	49·3
1927	3,108	8,482	3,393	5,089	7·93	21·63	8·65	12·98	389	45·9
1928	3,309	8,704	3,640	5,064	8·12	21·36	8·93	12·43	419	48·1
1929	3,367	9,051	3,930	5,121	8·00	21·51	9·34	12·17	508	56·1
1930	3,205	9,200	3,774	5,426	7·47	21·44	8·80	12·64	430	46·7
1931	2,741	8,549	3,681	4,868	6·34	19·77	8·51	11·26	355	41·5
1932	2,904	7,965	3,715	4,250	6·68	18·31	8·54	9·77	355	44·6
1933	3,374	7,874	3,790	4,084	7·69	17·95	8·64	9·31	290	36·8
1934	3,682	7,801	4,076	3,725	8·32	17·64	9·21	8·42	319	40·9
1935	3,940	8,119	4,118	4,001	8·82	18·17	9·22	8·95	326	40·2
1936	4,242	8,479	4,230	4,249	9·38	18·75	9·35	9·39	358	42·2
1937	4,169	8,609	4,065	4,544	9·12	18·82	8·89	9·94	323	37·5
1938	4,153	9,141	4,234	4,907	8·95	19·71	9·13	10·58	309	33·8
1939	4,195	9,036	4,336	4,700	8·93	19·23	9·23	10·00	369	40·8
1940	5,234	9,121	4,486	4,635	11·06	19·27	9·48	9·79	403	44·2
1941	5,077	10,118	4,769	5,349	10·71	21·35	10·06	11·29	357	35·3
1942	5,441	9,901	5,076	4,825	11·42	20·77	10·65	10·12	365	36·9
1943	4,528	10,481	4,587	5,894	9·50	21·98	9·62	12·36	342	32·6
1944	4,506	10,870	4,478	6,392	9·36	22·58	9·30	13·28	354	32·6
1945	3,788	10,672	4,712	5,960	7·77	21·89	9·67	12·23	315	29·5
1946	5,171	12,105	4,753	7,352	10·49	24·57	9·65	14·92	376	31·1
1947	5,282	12,874	4,723	8,151	10·50	25·60	9·39	16·21	398	30·9
1948	5,186	12,931	4,685	8,246	10·08	25·13	9·10	16·02	331	25·6
1949	4,951	13,511	4,790	8,721	9·30	25·37	8·99	16·37	357	26·4
1950	5,434	14,228	5,058	9,170	9·74	25·50	9·07	16·44	386	27·1
1951	5,390	14,794	5,288	9,506	9·29	25·49	9·11	16·38	425	28·7
1952	5,389	15,413	5,209	10,204	8·97	25·66	8·67	16·99	384	24·9
1953	5,032	15,862	5,072	10,790	8·10	25·54	8·17	17·37	378	23·8
1954	5,204	15,928	5,364	10,564	8·13	24·89	8·38	16·51	359	22·5
1955	5,145	16,623	5,379	11,244	7·83	25·29	8·18	17·11	373	22·4
1956	5,080	16,916	5,572	11,344	7·53	25·08	8·26	16·82	384	22·7
1957	4,897	16,924	5,297	11,627	7·12	24·62	7·71	16·91	357	21·1
1958	5,038	16,731	5,554	11,177	7·20	23·90	7·94	15·97	360	21·5
1959	5,387	17,111	5,497	11,614	7·57	24·04	7·72	16·32	345	20·2
1960	5,323	16,926	5,697	11,229	7·36	23·41	7·88	15·53	366	21·6
1961	5,150	17,078	5,729	11,349	6·98	23·15	7·77	15·39	336	19·7
1962	5,466	17,064	5,810	11,254	7·23	22·58	7·69	14·89	380	22·3
1963	5,755	17,290	5,976	11,314	7·40	22·23	7·68	14·55	353	20·4
1964	6,023	16,685	6,429	10,256	7·55	20·93	8·06	12·86	328	19·7
1965	6,448	16,186	6,274	9,912	7·91	19·85	7·70	12·16	351	21·7
1966	7,001	17,007	6,772	10,235	8·36	20·31	8·09	12·22	329	19·3

(a) Excluding full-blood Aborigines. (b) Rates for 1961 and later years have been revised in accordance with the final results of the 1966 Census. (c) Deaths under one year of age. (d) Excludes deaths of defence personnel from September, 1939 to June, 1947. (e) Excess of births registered over deaths registered. (f) Per 1,000 live births. (g) Not available.

PUBLIC REVENUE AND EXPENDITURE
(\$'000)

Year (a)	Consolidated Revenue Fund								
	Revenue from—			Total Revenue	Expenditure on—				Total Expendi- ture
	Land (including Land Tax)	Mining	Timber		Lands and Surveys	Agriculture Generally	Mining	Woods and Forests (b)	
1840	5	....	....	34	2	....	....	....	30
1850	4	....	(c)	38	4	....	....	....	33
1860	33	....	1	140	4	....	....	....	123
1870	39	(c)	1	196	12	....	....	....	226
1880	69	(c)	2	360	15	....	....	....	409
1890	206	8	2	829	31	....	7	....	803
1900	237	213	22	5,751	91	13	126	5	5,231
1901	277	189	36	6,161	113	22	133	5	6,328
1902	257	227	34	7,381	118	24	124	7	6,982
1903	260	95	43	7,993	139	91	129	8	7,774
1904	295	88	40	7,957	228	98	313	8	8,256
1905	320	72	37	8,038	263	79	337	10	8,291
1906	341	69	42	7,946	226	99	151	12	8,095
1907	396	68	43	7,675	206	85	140	13	7,863
1908	445	63	47	7,788	204	92	143	18	7,796
1909	527	64	53	7,633	226	101	129	18	7,813
1910	598	64	55	8,549	145	95	121	17	8,121
1911	732	76	69	7,701	161	108	136	18	7,469
1912	722	59	82	7,933	182	126	141	21	8,202
1913	729	53	87	9,193	166	174	136	23	9,574
1914	759	52	90	10,411	144	120	133	24	10,682
1915	733	47	86	10,281	124	98	120	21	11,413
1916	741	47	71	10,714	91	93	125	17	11,410
1917	649	41	55	9,154	93	115	129	20	10,554
1918	642	39	78	9,245	93	109	120	22	10,657
1919	670	35	54	9,890	89	125	115	22	11,194
1920	754	48	108	11,727	120	137	140	72	13,068
1921	800	48	142	13,579	180	132	147	100	14,953
1922	763	46	147	13,814	216	118	131	116	15,278
1923	783	40	144	14,415	202	113	133	114	15,226
1924	803	35	232	15,731	202	119	126	162	16,190
1925	896	33	304	16,763	166	126	123	171	16,880
1926	965	33	377	17,616	145	141	137	226	17,815
1927	996	33	367	19,502	144	156	172	220	19,445
1928	1,116	38	394	19,616	138	172	204	226	19,669
1929	1,079	35	307	19,896	144	188	204	191	20,448
1930	1,037	38	298	19,501	146	197	210	219	20,537
1931	808	35	172	17,374	129	155	210	75	20,215
1932	712	34	104	16,071	104	130	205	66	19,186
1933	657	41	123	16,664	96	130	175	63	18,392
1934	642	56	166	16,963	93	133	220	84	18,541
1935	745	90	221	18,668	96	151	241	108	18,997
1936	649	84	269	20,067	102	175	291	131	19,891
1937	613	84	311	20,371	103	201	288	146	21,113
1938	589	78	330	21,638	104	236	285	166	21,659
1939	507	82	275	21,899	114	234	288	153	22,340
1940	465	80	287	22,240	112	225	279	158	22,534
1941	511	69	302	22,864	113	218	260	166	22,842
1942	527	65	210	23,880	108	215	247	162	23,877
1943	580	43	275	26,303	111	211	225	235	26,254
1944	644	44	257	27,178	123	225	227	328	27,102
1945	617	40	276	27,908	130	266	256	399	27,899
1946	610	53	269	28,815	170	337	267	400	28,815
1947	729	76	473	29,962	240	365	325	433	30,057
1948	866	73	485	35,421	320	424	371	417	36,125
1949	921	85	365	41,121	372	515	388	365	42,756
1950	963	87	497	51,622	568	692	417	482	51,574
1951	930	86	574	56,312	591	801	494	561	55,994
1952	934	91	694	67,910	815	986	564	771	69,094
1953	1,041	103	907	77,768	875	1,103	698	1,052	78,784
1954	1,297	125	1,100	86,292	1,083	1,225	785	1,073	86,497
1955	1,537	131	1,127	91,440	1,122	1,335	714	1,190	92,408
1956	1,666	158	1,733	99,225	1,237	1,502	759	2,151	102,886
1957	2,561	138	1,751	108,662	1,452	1,724	817	2,155	112,437
1958	3,414	149	1,797	114,108	1,529	1,763	825	2,298	116,355
1959	3,250	185	1,823	120,136	1,541	1,842	828	2,289	123,506
1960	3,415	216	1,846	128,776	1,654	2,062	923	2,335	131,587
1961	2,866	242	1,876	138,665	1,760	2,236	1,056	2,389	141,075
1962	3,267	388	2,172	149,852	1,861	2,508	1,162	2,696	151,780
1963	3,478	409	2,167	157,182	2,183	2,732	1,274	2,796	158,687
1964	3,683	413	2,356	167,888	2,353	3,216	1,453	3,046	170,681
1965	3,896	513	2,589	180,143	2,408	3,409	1,639	3,400	184,840
1966	4,516	759	2,720	206,655	2,616	3,709	1,780	3,660	206,665

(a) From 1900, year ended 30th June.

(b) Includes expenditure under Special Acts.

(c) Less than \$500.

NET EXPENDITURE FROM LOAN FUNDS ; PUBLIC DEBT

(\$'000)

Year (a)	Net Expenditure from Loan Funds on Public Works and Services (b)						Public Debt (as at end of year)		
	Railways, Tramways and Omnibuses	Electricity Supply	Harbours, Rivers, Light- houses, etc.	Water Supplies, Sewerage, Drainage and Irrigation	Public Buildings	Other	Total	Gross Amount Outstand- ing	Sinking Fund
1860	.....	.....	.....	.....	.....	.....	.....	4	.....
1870	.....	.....	.....	.....	.....	.....	.....	.....	.....
1880	(c) 549	.....	(d) 38	.....	.....	(e) 802	.....	722	(e) 170
1890	3	.....	6	2	(f) 76	(e) 32	.....	2,735	754
1900	302	.....	395	949	.....	110	1,757	23,349	.....
1901	665	.....	430	1,746	.....	150	2,991	25,419	863
1902	1,158	.....	366	1,464	.....	104	3,092	29,885	973
1903	2,119	.....	277	827	.....	109	3,332	31,255	1,310
1904	887	.....	168	261	.....	105	1,421	32,181	1,730
1905	697	.....	193	1	.....	419	1,309	33,286	2,148
1906	440	.....	57	37	6	204	745	36,117	2,641
1907	659	.....	192	183	224	543	1,802	38,445	3,200
1908	612	.....	147	256	213	240	1,467	40,987	3,809
1909	1,095	.....	162	229	194	343	2,024	43,904	4,467
1910	908	.....	174	199	152	626	2,058	46,575	5,139
1911	(g) 1,818	.....	(g) 67	(g) 307	(g) 106	(g) 816	(g) 3,114	47,408	5,090
1912	2,641	.....	372	250	262	1,095	4,619	52,567	5,837
1913	3,988	.....	301	790	140	1,599	6,818	60,563	6,619
1914	2,333	.....	180	664	88	2,561	5,826	68,840	7,384
1915	1,386	.....	331	496	162	2,668	5,043	74,045	8,138
1916	895	.....	218	331	81	1,643	3,169	78,279	9,057
1917	675	.....	244	153	47	592	1,710	81,830	10,072
1918	416	.....	170	136	35	1,351	2,108	84,608	11,142
1919	375	.....	140	93	43	1,448	2,099	87,274	12,278
1920	242	.....	204	94	21	4,765	5,327	93,644	13,656
1921	398	.....	237	427	50	4,061	5,173	98,079	15,283
1922	1,207	.....	183	435	89	2,996	4,910	109,920	16,740
1923	1,359	.....	240	402	37	4,740	6,779	116,972	17,562
1924	1,303	.....	278	871	177	5,244	7,874	125,532	18,747
1925	1,243	.....	362	1,301	182	5,110	8,198	128,987	19,970
1926	1,540	.....	439	1,357	156	4,667	8,157	140,022	21,309
1927	1,559	.....	382	884	235	4,901	7,960	141,212	17,514
1928	1,902	.....	530	1,132	256	4,577	8,397	152,586	17,798
1929	1,825	.....	528	1,092	182	4,255	7,882	(h) 138,711	(h) 1,983
1930	1,819	.....	529	610	108	4,226	7,291	142,389	2,081
1931	878	.....	257	420	Cr. (i)	1,457	3,012	153,130	2,621
1932	263	.....	155	1,152	.....	1,055	2,624	159,416	2,618
1933	374	.....	485	1,355	69	1,838	4,121	167,029	2,693
1934	659	.....	492	1,606	196	2,344	5,297	171,696	743
1935	997	.....	610	2,155	213	1,103	5,076	177,130	1,048
1936	946	.....	602	2,487	169	700	4,903	180,688	1,138
1937	491	.....	352	2,303	178	741	4,064	184,666	1,292
1938	950	.....	201	1,843	183	1,144	4,321	187,424	614
1939	441	.....	184	1,777	230	640	3,272	190,945	719
1940	200	.....	104	1,615	732	974	3,624	192,461	608
1941	214	18	152	1,649	306	480	2,819	195,583	1,147
1942	110	25	111	605	70	437	1,359	194,718	535
1943	157	92	133	100	55	217	754	193,976	347
1944	49	31	Cr. 143	75	166	34	212	192,957	140
1945	140	11	61	150	241	492	1,094	191,790	254
1946	142	208	75	473	451	276	1,625	193,852	1,008
1947	535	332	173	1,453	772	821	4,087	198,005	1,091
1948	676	1,471	316	1,388	1,097	125	5,074	200,549	309
1949	913	2,131	449	1,626	1,099	942	7,161	207,377	126
1950	4,496	4,691	804	2,002	1,357	2,859	16,209	219,100	142
1951	3,723	6,591	1,164	4,091	2,003	3,081	20,653	246,374	17
1952	15,198	6,684	2,694	4,803	2,729	3,409	35,517	276,577	647
1953	13,533	179	2,422	4,858	5,432	8,787	35,213	306,144	1,861
1954	11,295	1,406	2,328	3,939	3,144	6,276	28,388	331,565	822
1955	9,752	1,410	1,920	5,661	3,093	6,726	29,462	355,768	442
1956	6,139	2,049	1,638	5,516	4,187	7,098	26,629	377,465	245
1957	5,519	4,200	950	7,119	5,599	9,169	32,556	410,290	112
1958	4,209	2,480	1,398	7,694	5,891	6,599	28,272	436,857	147
1959	5,711	2,200	1,428	8,395	7,410	7,199	32,342	464,237	173
1960	4,953	1,553	1,373	9,547	8,723	6,355	32,504	493,575	171
1961	4,221	400	1,966	10,314	10,479	8,037	35,418	523,070	94
1962	5,432	300	2,587	10,952	12,032	6,449	37,751	555,130	222
1963	6,204	500	2,438	10,770	13,420	5,563	38,894	587,336	485
1964	7,496	.....	3,028	10,537	15,630	6,409	43,100	626,045	442
1965	6,800	794	2,822	10,957	19,948	5,457	46,779	665,620	473
1966	7,628	1,434	2,583	12,667	19,908	3,580	47,800	705,514	267

(a) From 1900, year ended 30th June. Sinking Fund at 31st March from 1900 to 1928. (b) From 1928 includes expenditure from Loan Suspense Account. (c) Total amount for the years 1872 to 1881. (d) Total amount for the years 1872 to 1881. (e) Not available. (f) Includes expenditure prior to 1890. (g) Including readjustments for previous years. (h) Reduction due to operation of Financial Agreement Act of 1928. (i) Less than \$500.

BANKING AND INSURANCE

Year	Trading Banks			Savings Banks (c)		Insurance			
	De- positors' Balances (a)	Loans (other than Loans to Authorized Dealers in the Short- term Money Market), Advances and Bills Discounted (a)	Weekly Debits to Customers' Accounts (b)	Number of accounts open at end of Year	Depositors' Balances at end of Year	Life		General (d) (e)	
						Sum Insured under Policies Existing at end of Year		Gross Premiums	Gross Claims
						Ordinary (including Super- annuation)	Industrial		
	\$'000	\$'000	\$m.		\$'000	\$'000	\$'000	\$'000	\$'000
1870	(f)	(f)		895	27	(f)	(f)		
1880	(f)	(f)		1,299	45	(f)	(f)		
1890	1,904	2,809		3,014	69	(f)	(f)		
1900	8,781	5,514		33,646	2,598	6,916	439		
1901	8,874	6,123		39,318	3,237	7,632	475		
1902	9,591	6,448		45,108	3,778	8,673	522		
1903	9,584	7,301		48,008	3,977	9,850	528		
1904	9,468	7,710		54,873	4,160	10,689	533		
1905	10,196	8,221		59,704	4,415	11,113	706		
1906	11,102	9,228		63,573	4,632	11,252	731	(f)	(f)
1907	10,696	10,123		66,737	5,266	11,242	711		
1908	9,970	10,902		70,340	5,762	11,546	890		
1909	10,232	10,977		75,852	6,111	11,874	961		
1910	12,627	12,228		84,262	6,955	12,717	1,170		
1911	14,331	15,000		97,147	8,178	13,996	1,369		
1912	13,395	16,824		108,622	8,801	14,925	1,662		
1913	12,841	16,353		121,201	9,350	15,277	2,017		
1914	13,787	16,633		134,510	9,851	15,842	2,267		
1915	15,229	17,418		144,777	10,285	16,058	2,451		
1916	16,099	18,635		156,458	10,667	16,660	2,731		
1917	17,178	18,285		171,207	11,683	17,239	3,042		
1918	19,374	19,170		182,140	12,580	18,103	3,456	721	196
1919	21,606	20,829		196,584	14,005	19,851	3,907	783	303
1920	24,742	21,594		211,415	14,516	21,640	4,089	803	295
								1,080	368
1921	24,004	21,833	(f)	226,468	15,433	24,183	4,699	1,112	684
1922	24,519	21,531		237,505	15,519	25,586	5,189	1,195	658
1923	25,349	22,796		250,214	16,067	27,544	5,707	1,242	435
1924	26,245	23,313		264,842	16,436	29,310	6,300	1,528	543
1925	27,200	24,095		277,701	16,608	31,739	6,811	1,669	724
1926	28,387	25,745		292,353	17,940	33,970	7,317	1,832	901
1927	(g) 29,301	(g) 29,233		309,176	13,389	36,279	8,042	(g) 831	(g) 432
1928	31,025	30,592		330,284	21,291	38,926	8,750	2,111	1,200
1929	29,811	34,480		350,046	23,218	41,268	9,366	2,391	1,205
1930	25,524	41,773		367,665	23,457	41,656	9,003	2,452	1,163
1931	24,455	41,635		371,662	21,735	39,906	8,353	1,914	971
1932	28,563	39,292		206,997	20,435	39,181	8,585	1,693	655
1933	29,785	38,433		194,095	20,129	39,447	8,918	1,786	796
1934	32,853	38,742		192,915	20,798	40,681	9,394	1,746	801
1935	36,206	41,061		197,611	21,858	42,899	9,946	1,929	910
1936	38,731	43,232		208,990	23,034	45,608	10,688	2,178	1,015
1937	39,463	44,532		217,247	23,670	48,857	11,373	2,410	1,366
1938	41,230	45,141		225,118	24,075	51,653	11,944	2,641	1,526
1939	41,181	47,774		232,564	24,792	53,853	12,609	2,746	1,462
1940	42,219	47,529		233,649	23,720	54,708	13,086	2,884	1,460
1941	47,099	45,617		238,820	25,042	55,842	13,875	2,792	1,236
1942	51,918	49,638		250,153	27,642	55,881	15,311	2,806	1,245
1943	61,135	37,827		279,499	37,769	57,865	16,656	2,347	1,014
1944	71,529	35,402		301,225	51,581	61,380	17,962	2,369	897
1945	74,846	31,504		316,565	63,526	66,254	19,024	2,565	1,154
1946	(h) 66,652	(h) 33,726	(i) 11.6	340,737	76,578	77,608	21,036	2,890	1,223
1947	72,490	45,388	14.2	349,091	73,250	88,016	23,054	3,503	1,737
1948	82,032	48,754	17.4	358,709	72,365	98,891	25,139	4,188	2,089
1949	100,971	49,904	21.4	365,130	75,070	111,213	27,127	5,071	2,053
1950	116,458	55,301	27.4	378,670	79,225	126,332	29,503	5,913	2,440
1951	149,244	66,680	38.6	392,790	89,345	148,724	32,460	7,360	3,341
1952	170,923	83,353	43.6	403,678	94,342	171,007	35,267	9,358	5,261
1953	170,234	87,353	44.2	414,288	99,589	195,499	38,110	10,736	5,453
1954	181,863	106,429	50.8	422,480	105,229	221,568	40,240	11,427	5,276
1955	180,895	137,830	52.4	426,637	107,258	251,543	41,487	12,563	6,281
1956	174,070	142,156	53.9	446,419	115,868	282,139	42,114	13,546	7,126
1957	*185,576	*135,074	57.1	473,548	*125,386	317,264	42,535	13,792	8,202
1958	186,478	*141,198	60.4	497,890	*131,896	352,360	43,003	15,601	7,807
1959	180,300	*147,106	61.5	527,079	142,998	396,322	43,279	17,169	9,165
1960	192,076	142,064	69.7	550,966	*157,246	459,740	44,325	19,951	10,671
1961	190,094	*146,244	75.7	577,619	161,424	523,636	44,745	21,607	12,770
1962	*209,274	139,204	80.4	625,070	*181,056	597,892	46,754	22,914	12,255
1963	219,952	*153,528	88.2	683,417	208,812	679,161	47,983	24,761	14,723
1964	*242,268	*164,878	96.4	736,009	239,766	774,550	*50,588	26,285	15,629
1965	272,430	186,000	106.3	786,340	*261,654	881,652	53,565	28,224	16,108
1966	310,432	195,190	122.4	848,562	292,871	1,005,118	57,916	32,385	18,247

(a) Average based on amounts as at close of business each week. From 1927, year ended 30th June. (b) Weekly average for year ended 30th June. Excludes debits to Australian Government accounts at city branches. From 1946-47 includes The Rural and Industries Bank of Western Australia (Rural Department). (c) From 1900, year ended 30th June. (d) From 1927, year ended 30th June. (e) Excludes transactions of The Motor Vehicle Insurance Trust, which became the sole insurer in respect of motor vehicle (third party) insurance from 1st July, 1949. (f) Not available. (g) Six months ended 30th June. (h) Average for nine months to 30th June. (i) Ten months ended June, 1946. * Revised.

TRANSPORT AND COMMUNICATION

Year	State Government Railways (a)				Private Railways	Posts, Telegraphs and Telephones			Shipping (h)	
	Route Miles at end of Year (b)	Operating Revenue (c)	Operating Expenses (e)	Paying Goods and Livestock Carried (e)	Route Miles at end of Year (d)	Tele-graph and Tele-phone Lines (e)	Revenue (f)(g)	Expendi-ture (f)(g)	Vessels—Cleared to Ports outside the State	
		\$'000	\$'000	'000 tons		miles	\$'000	\$'000	Number	Net Tons
1870 ....	....	....	....	....	....	....	8	14	131	68
1880	34	5	8	2	38	1,568	26	60	168	126
1890	188	90	103	61	385	2,961	53	73	267	420
1900	1,355	2,519	1,723	1,384	623	6,053	413	498	747	1,606
1901	1,355	2,707	2,090	1,720	629	6,173	438	503	901	1,872
1902	1,360	3,043	2,513	1,888	629	6,112	465	519	785	1,687
1903	1,516	3,107	2,496	1,795	627	6,079	443	554	703	1,663
1904	1,541	3,176	2,359	2,057	655	6,199	471	610	655	1,777
1905	1,605	3,220	2,512	2,154	694	6,389	527	604	656	1,828
1906	1,612	3,269	2,404	2,097	743	6,451	519	591	609	1,792
1907	1,764	3,075	2,272	2,091	765	6,686	521	638	597	1,760
1908	1,943	3,004	2,015	2,059	798	6,868	544	692	592	1,817
1909	2,045	3,017	1,948	1,997	842	6,719	553	672	650	2,054
1910	2,145	3,275	2,194	2,242	902	7,480	613	785	726	2,372
1911	2,376	3,689	2,433	2,489	948	7,580	629	904	781	2,566
1912	2,598	3,769	2,688	2,542	981	7,758	642	988	765	2,614
1913	2,854	4,076	3,013	2,866	952	8,513	673	1,265	873	3,023
1914	2,967	4,514	3,144	3,170	960	8,804	688	1,142	(i) 527	(i) 1,795
1915	3,332	4,116	2,996	2,524	976	(j)	692	1,088	655	2,384
1916	3,332	4,176	3,023	2,555	993	8,791	734	1,052	689	2,493
1917	3,425	3,755	2,897	2,400	1,010	8,342	761	973	731	2,558
1918	3,491	3,633	2,903	2,259	983	8,313	778	890	315	1,102
1919	3,539	3,746	3,135	2,379	898	8,328	903	926	636	2,112
1920	3,539	4,584	4,001	2,614	918	8,270	886	1,067	729	2,659
1921	3,539	5,440	4,844	2,604	895	8,318	1,084	1,236	789	2,826
1922	3,539	5,656	4,658	2,548	878	8,413	1,184	1,473	874	3,231
1923	3,555	5,832	4,421	2,624	865	8,706	1,215	1,725	709	3,088
1924	3,629	6,455	4,596	3,023	812	10,098	1,217	2,611	673	3,101
1925	3,733	6,719	4,710	3,285	854	11,031	1,270	1,943	805	3,658
1926	3,865	6,875	5,018	3,237	884	11,402	1,360	2,054	685	3,256
1927	3,918	7,216	5,371	3,439	872	11,858	1,480	1,875	799	3,797
1928	3,977	7,716	5,822	3,698	838	11,526	1,598	1,926	812	3,806
1929	4,079	7,600	6,111	3,670	842	11,691	1,691	1,831	808	3,674
1930	4,111	7,318	6,226	3,530	847	11,804	1,818	1,841	794	3,932
1931	4,181	6,398	5,222	3,154	826	11,812	1,672	1,626	742	3,686
1932	4,235	5,845	4,247	2,848	830	11,699	1,576	1,234	694	3,530
1933	4,338	5,864	4,223	2,840	845	11,723	1,639	1,266	691	3,564
1934	4,360	5,839	4,373	2,652	854	11,785	1,696	1,336	683	3,568
1935	4,359	6,624	4,765	2,903	869	11,505	1,845	1,467	730	3,775
1936	4,358	6,892	4,976	2,887	880	11,532	1,949	1,653	725	3,831
1937	4,357	6,924	5,240	2,798	873	12,090	2,078	1,779	761	3,754
1938	4,376	7,356	5,420	3,062	854	12,057	2,163	1,845	866	4,111
1939	4,378	7,198	5,823	2,859	844	12,071	2,217	2,034	930	4,327
1940	4,381	7,112	5,657	2,659	831	12,040	2,235	1,983	805	3,751
1941	4,381	7,144	5,516	2,604	815	12,080	2,300	1,990	556	3,087
1942	4,381	7,993	6,052	2,638	818	12,118	2,601	2,086	492	2,508
1943	4,381	8,836	6,895	2,505	849	12,164	3,084	2,258	312	1,467
1944	4,381	8,773	7,592	2,560	829	12,523	3,278	2,570	382	1,580
1945	4,381	8,552	7,529	2,904	798	12,435	3,364	2,603	382	1,528
1946	4,381	8,213	8,053	2,728	706	12,429	3,463	2,914	490	2,473
1947	4,348	8,092	8,848	2,577	750	12,423	3,690	3,326	572	2,646
1948	4,348	9,198	11,140	2,858	739	12,661	3,923	4,418	572	3,431
1949	4,321	10,430	13,405	2,737	734	12,874	4,132	5,792	950	4,678
1950	4,252	12,944	15,003	2,843	774	14,439	4,739	6,477	1,006	5,272
1951	4,228	14,392	17,238	3,033	752	14,120	5,511	8,303	1,060	5,552
1952	4,113	18,327	21,331	3,063	752	14,598	7,290	9,849	1,045	5,524
1953	4,108	15,945	24,175	2,619	724	14,904	7,792	10,924	1,025	5,407
1954	4,111	22,749	27,512	3,206	758	14,946	8,360	11,746	1,005	5,320
1955	4,111	25,061	27,871	3,407	748	15,149	9,088	11,854	1,136	6,144
1956	4,119	26,548	29,986	3,793	726	15,284	9,828	13,844	1,268	6,776
1957	4,117	28,088	32,023	4,223	706	15,482	10,792	14,808	1,244	6,531
1958	4,117	25,950	29,685	3,580	575	15,579	11,685	16,222	1,219	6,499
1959	4,117	27,400	29,865	3,913	575	15,690	12,219	17,144	1,282	6,607
1960	4,120	30,077	30,816	4,533	517	15,839	14,404	18,148	1,403	7,234
1961	4,123	33,076	31,103	4,833	469	16,082	15,817	18,566	1,598	8,547
1962	(k) 3,851	35,608	31,527	5,342	(l) 558	16,153	16,284	19,508	1,687	8,962
1963	(k) 3,797	33,429	31,150	4,793	552	16,569	17,929	21,736	1,528	8,252
1964	(k) 3,677	35,190	32,250	5,187	413	16,843	19,997	24,060	1,580	8,627
1965	3,733	36,686	32,920	5,229	(m) 21	17,336	23,062	27,795	1,580	8,593
1966	3,747	43,669	35,985	6,384	285	17,245	25,886	30,912	1,711	9,528

(a) From 1900, year ended 30th June. (b) Open for general and passenger traffic. (c) From 1942 includes operations of Railway Road Services, which began in November, 1941. (d) From 1900 to 1964 includes 277 miles of line open for general and passenger traffic. From 1915, year ended 30th June. (e) At end of year; from 1916, at 30th June. From 1935, figures represent pole route mileage. (f) From 1920, year ended 30th June. (g) Figures represent revenue actually collected, and actual payments made, as recorded for Treasury purposes. (h) From 1915, year ended 30th June. (i) Six months ended 30th June. (j) Complete records not available. (k) Decrease due to proclamations of closure issued by authority of the Railways (Que- Big Bell and other Railways) Discontinuance Act, 1960. (l) Increase due to the transfer of all government-operated timber railways to private control. (m) Decrease due to transfer of Midland Railway Company to Western Australian Government Railways, and to closure of timber and mining railways.

MOTOR VEHICLE REGISTRATIONS; EXPORTS OF WHEAT

Year	New Motor Vehicles Registered (a)				Motor Vehicles on Register (b)				Wheat Exports (c)	
	Motor Cars (d)	Utilities, Vans, Trucks and Omnibuses	Motor Cycles (e)	Total	Motor Cars (f)	Utilities, Vans, Trucks and Omnibuses	Motor Cycles (e)	Total	Quantity	Value
1840									'000 bushels	\$'000
1850									....	....
1860									(g)	(g)
1870									....	....
1880									15	8
1890									....	....
1900									1	(g)
1901									(g)	(g)
1902									....	....
1903									....	....
1904									10	3
1905					n.a.				47	16
1906									(g)	(g)
1907									490	193
1908									212	90
1909									625	258
1910									2,015	813
1911					n.a.		n.a.	n.a.	2,231	774
1912									502	200
1913									4,106	1,528
1914	n.a.	n.a.	n.a.	n.a.					(h) 7,286	(h) 2,688
1915									(g)	(g)
1916									3,931	2,047
1917									7,036	3,239
1918					2,538				1,694	875
1919					2,938				1,651	800
1920					3,404				9,151	5,083
1921										
1922					4,181				6,576	5,860
1923					4,403				10,357	6,076
1924					7,280				5,363	2,942
1925					11,162				10,925	5,085
1926					15,261				14,986	10,316
1927					20,011				13,175	8,373
1928					19,451	5,819			16,330	9,334
1929					24,205	8,104			26,194	13,989
1930					27,174	9,767			26,091	13,384
					31,130	11,358	7,707	50,195	24,953	12,258
1931										
1932					27,741	10,880	6,777	45,398	42,440	10,577
1933					28,608	12,094	6,700	47,402	36,868	10,647
1934					27,969	12,626	6,700	47,295	30,695	9,323
1935					28,761	13,937	6,284	48,982	23,360	6,834
1936					30,578	15,630	6,597	52,705	24,936	7,844
1937					32,329	17,362	6,861	56,552	14,897	5,607
1938					34,180	19,919	6,977	61,076	13,780	7,255
1939	3,297	1,814	568	5,679	36,386	22,596	7,079	66,061	22,038	9,667
1940	2,871	1,517	399	4,787	38,039	24,441	7,199	69,679	22,614	6,055
					38,907	25,026	6,789	70,722	15,330	4,669
1941	1,015	632	200	1,847	36,995	24,788	6,704	68,487	14,856	5,858
1942	250	353	74	677	29,022	21,625	4,057	54,704	9,774	4,021
1943	218	151	57	426	29,750	21,189	3,935	54,874	5,138	2,111
1944	19	1,102	109	1,230	30,295	22,459	4,324	57,078	12,057	5,813
1945	40	597	192	829	30,635	23,943	4,501	59,079	23,590	14,955
1946	101	456	271	828	31,408	28,904	6,799	67,111	13,510	11,696
1947	1,354	1,126	678	3,158	32,879	32,097	8,199	73,175	6,802	8,964
1948	2,963	1,975	1,059	5,997	35,596	35,285	8,877	79,758	19,312	33,809
1949	4,684	3,122	1,769	9,575	40,119	38,901	10,974	89,994	18,401	28,100
1950	8,926	4,707	2,346	15,979	48,632	43,206	12,897	104,735	21,510	33,384
1951	8,201	6,610	2,802	17,613	56,235	47,908	14,535	118,678	30,510	51,688
1952	8,836	5,750	2,740	17,326	64,277	52,627	16,047	132,951	26,823	45,728
1953	6,879	4,881	1,416	13,176	69,917	56,445	15,565	141,927	23,319	40,347
1954	9,926	5,601	1,258	16,785	78,312	60,362	15,243	153,917	6,800	11,272
1955	12,394	5,993	1,202	19,589	90,255	63,870	14,662	168,787	19,335	27,478
1956	10,100	5,203	1,089	16,392	99,206	62,809	12,959	174,974	22,773	28,860
1957	9,321	4,418	1,192	14,931	104,506	63,315	12,731	180,552	46,796	61,291
1958	10,140	5,562	1,702	17,404	111,825	63,598	12,631	188,054	26,644	40,861
1959	10,389	5,140	2,071	17,600	119,957	65,588	12,814	198,359	23,503	33,113
1960	13,492	5,695	1,949	21,136	130,476	68,702	12,876	212,054	36,713	49,442
1961	15,161	5,542	1,080	21,783	141,612	70,974	12,589	225,175	52,480	71,280
1962	17,082	5,833	902	23,817	155,447	74,224	12,890	242,061	73,883	104,356
1963	23,175	6,367	754	30,296	170,781	75,748	11,649	258,178	50,720	72,197
1964	24,958	7,013	628	32,599	189,251	78,239	10,449	277,939	55,022	77,881
1965	23,304	6,897	553	30,754	202,914	79,316	9,244	291,474	40,507	56,955
1966	23,418	9,170	706	33,294	219,816	84,423	8,777	313,016	69,372	96,515

n.a. denotes "not applicable" or "not available".

(a) Year ended 30th June. (b) From 1929, at 30th June; for earlier years, at various dates. For years before 1946, excludes Commonwealth-owned vehicles; from 1946, includes Commonwealth-owned vehicles other than those of defence services. From 1956, new series based on the results of the periodic Census of Motor Vehicles. (c) From 1915, year ended 30th June. (d) From 1959, includes station wagons previously included with utilities, vans, trucks and omnibuses. (e) Including motor scooters. (f) From June, 1957, includes station wagons, previously included with utilities, vans, trucks and omnibuses. (g) Less than 500. (h) Six months ended 30th June.

EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Wool				Meats, Chilled or Frozen					
	Greasy (b)		Degreased		Beef and Veal		Mutton and Lamb		Pork	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
1840	50	5								
1850	310	31								
1860	657	99								
1870	1,788	179	(c)	(c)						
1880	4,343	543								
1890	6,969	523								
1900	8,658	505	436	36	(d)	(d)	(d)	(d)	(d)	(d)
1901	12,868	697	711	59	(d)	(d)	(d)	(d)	(d)	(d)
1902	12,484	858	448	58						
1903	12,502	833	405	54						
1904	11,914	799	300	40						
1905	17,034	1,143	350	46	(d)	(d)	(d)	(d)	(d)	(d)
1906	14,878	1,157	364	49			16	1		
1907	19,914	1,583	296	41			370	11		
1908	20,303	1,239	440	35			95	3		
1909	26,431	1,951	714	75					1	(e)
1910	25,777	1,894	420	40						
1911	24,981	1,835	176	16						
1912	27,902	2,052	225	19						
1913	25,505	1,933	227	21					(e)	
1914 (f)	4,846	361	35	3						
1915	23,906	1,626	99	10						
1916	28,869	2,517	235	29	4,311	176	41	2		
1917	24,327	2,831	78	10						
1918	10,519	1,056	113	15	1,188	36	115	4	324	15
1919	29,022	3,775	623	129	239	6	138	4	133	6
1920	56,284	7,218	3,316	657	662	33				
1921	42,048	4,593	1,084	183	5,762	248	118	7	45	5
1922	54,512	5,673	4,181	731	2,479	79				
1923	39,275	5,986	2,651	479	9,955	305	866	55	1	(e)
1924	42,359	8,028	1,516	446	10,647	272	446	26		
1925	33,722	7,030	1,293	443	7,106	198				
1926	48,024	6,703	1,666	353	8,119	240				
1927	52,131	6,694	1,657	342	6,697	198				
1928	60,402	9,734	1,839	192	11,026	272	227	15		
1929	56,202	7,615	843	207	9,313	226				
1930	61,777	5,422	1,025	136	11,381	272				
1931	69,397	4,652	1,386	121	11,315	244	855	35	209	7
1932	64,591	4,540	1,966	151	11,240	235	2,113	103	1,221	53
1933	68,192	4,871	2,695	236	14,406	276	384	15	949	37
1934	69,998	9,131	2,728	491	12,602	234	1,352	49	668	29
1935	80,550	6,479	3,451	348	12,072	233	4,979	236	1,194	55
1936	78,488	8,892	3,081	451	17,036	321	5,557	232	1,550	65
1937	58,324	7,854	2,448	475	11,227	249	4,555	247	1,306	67
1938	53,452	5,877	2,706	446	11,445	314	8,705	470	823	52
1939	68,409	6,072	3,606	469	16,501	497	11,775	638	1,278	80
1940	65,279	7,603	3,648	661	10,639	329	10,285	533	4,990	324
1941	19,983	2,601	2,799	518	12,309	407	9,691	496	13,261	851
1942	75,739	9,836	4,928	1,030	7,883	327	8,122	435	10,295	682
1943	28,514	4,163	2,731	594	(e)	(e)	8,785	458	2,321	155
1944	68,063	10,842	4,619	917	3,185	190	14,691	763	3,457	238
1945	52,058	8,082	4,885	1,025	2,651	168	8,824	410	3,741	254
1946	108,180	17,136	11,746	2,778	9,517	558	5,002	275	7,497	545
1947	75,187	15,561	17,457	4,900	14,017	691	8,997	409	2,880	248
1948	80,205	27,801	16,073	5,443	14,007	604	11,198	584	669	53
1949	85,919	36,717	13,588	6,352	17,760	840	10,157	608	1,375	179
1950	83,405	40,071	17,491	10,852	19,015	1,183	5,274	485	359	59
1951	80,732	96,493	11,055	18,066	16,973	1,221	2,070	217	616	113
1952	91,455	57,291	11,353	10,389	13,290	1,135	2,301	301	934	232
1953	100,909	67,759	12,604	11,363	11,058	1,437	14,527	1,463	1,020	303
1954	100,701	71,346	11,918	10,914	13,555	1,748	7,295	875	474	152
1955	96,554	59,296	13,261	11,267	14,939	2,098	7,109	1,328	2,313	532
1956	113,289	57,894	16,745	12,419	16,767	2,343	14,556	2,156	1,637	482
1957	108,582	71,251	18,746	16,259	(g) 9,099	(g) 1,221	12,761	1,741	1,015	588
1958	96,453	57,224	18,557	15,462	(g) 24,305	(g) 3,302	11,205	1,900	5,124	1,462
1959	111,131	46,313	21,763	12,224	23,226	4,342	21,923	3,177	4,371	1,178
1960	111,104	58,137	27,430	19,820	29,977	6,742	19,258	2,378	2,618	953
1961	131,903	59,290	26,128	15,552	27,365	6,141	25,059	3,901	4,176	1,501
1962	136,894	68,177	25,331	15,688	27,654	6,299	18,669	2,436	6,946	2,025
1963	131,433	66,401	25,222	15,706	38,069	9,382	16,376	2,401	4,543	1,404
1964	159,262	97,138	22,901	17,101	45,257	11,497	11,872	1,895	1,898	718
1965	151,812	83,030	22,586	15,264	42,682	11,730	11,111	1,981	1,259	516
1966	193,682	101,905	21,705	13,223	39,937	12,108	22,750	4,357	926	376

(a) From 1915, year ended 30th June. (b) For 1890 and earlier years includes degreased wool for which figures are not available separately. (c) See note (b). (d) Separate particulars not available. Total exports of fresh meats were 184,379 lb. valued at \$9,164 in 1900; 244,009 lb. valued at \$12,308 in 1901; 8,775 lb. valued at \$396 in 1905. (e) Less than 500. (f) Six months ended 30th June. (g) Figures for 1956-57 exclude, and those for 1957-58 include, shipments of 6,776,366 lb. valued at \$393,102 exported overseas during 1956-57 but not recorded until 1957-58.

EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Flour (b)		Butter (b)		Potatoes (b)		Fresh Fruit(b)(c)	Cattle	Sheep
	Quantity	Value	Quantity	Value	Quantity	Value	Value	Value	Value
	short tons (d)	\$'000	cwt. (e)	\$'000	tons (e)	\$'000	\$'000	\$'000	\$'000
1850	....	....	....	....	....	....	....	....	....
1860	.... 12	(f)	....	(f)	.... 70	(f) 1	....	(f)	(f) 4
1870	....	....	....	....	.... 26	(f)	....	....	....
1880	.... (e)	.... 2	....	....	....	....	....	....	(f)
1890	....	....	....	....	....	....	....	1	2
1900	.... 52	.... 1	.... 76	.... 1	.... 111	.... 1	.... 1	(f)	2
1901	.... 53	.... 1	.... 81	.... 1	.... 83	.... 1	.... 1	(f)	4
1902	.... 13	(f)	....	(f)	.... 24	(f)	(f)	22	5
1903	.... 13	(f)	.... 35	(f)	.... 2	(f)	(f)	....	(f)
1904	.... 493	.... 8	.... 17	(f)	.... 1	(f)	(f)	....	2
1905	.... 119	.... 2	.... 454	.... 2	.... 13	(f)	(f)	(f)	3
1906	....	(f)	.... 20	(f)	....	....	(f)	(f)	2
1907	.... 4,067	.... 69	.... 4	(f)	....	....	.... 2	....	....
1908	.... 477	.... 9	.... 3	(f)	.... 11	(f)	.... 5	.... 1	(f)
1909	.... 1,029	.... 20	.... 206	.... 3	.... 63	(f) 1	.... 4	(f)	1
1910	.... 2,821	.... 49	.... 1,507	.... 12	.... 18	(f)	.... 11	.... 16	.... 9
1911	.... 7,145	.... 107	.... 157	.... 1	....	....	.... 32	.... 67	.... 17
1912	.... 15,410	.... 241	.... 135	.... 2	.... 548	.... 11	.... 67	.... 103	.... 22
1913	.... 29,696	.... 477	.... 165	.... 2	.... 3	(f)	.... 65	.... 146	.... 31
1914 (g)	.... 18,211	.... 315	.... 30	(f)	.... 4	(f)	.... 17	.... 59	.... 6
1915	.... 2,890	.... 52	.... 15	(f)	.... 69	.... 1	.... 93	.... 75	.... 11
1916	.... 17,220	.... 426	.... 69	.... 1	.... 516	.... 11	.... 44	.... 142	.... 9
1917	.... 37,747	.... 843	.... 232	.... 4	.... 6	(f)	.... 164	.... 45	.... 4
1918	.... 57,634	.... 1,377	.... 2,631	.... 48	.... 7	(f)	.... 71	.... 177	.... 29
1919	.... 105,183	.... 2,583	.... 1,457	.... 29	.... 57	.... 1	.... 114	.... 18	.... 44
1920	.... 129,250	.... 5,045	.... 744	.... 17	.... 1,611	.... 54	.... 300	.... 73	.... 28
1921	.... 53,302	.... 2,144	.... 398	.... 10	.... 339	.... 7	.... 243	.... 44	.... 23
1922	.... 56,155	.... 2,046	.... 245	.... 6	.... 293	.... 5	.... 352	.... 96	.... 70
1923	.... 59,703	.... 1,338	.... 13	(f)	.... 1,541	.... 32	.... 476	.... 118	.... 45
1924	.... 77,970	.... 1,644	.... 115	.... 2	.... 3,389	.... 90	.... 378	.... 60	.... 40
1925	.... 74,909	.... 1,923	....	(f)	.... 436	.... 5	.... 493	.... 5	.... 8
1926	.... 91,859	.... 2,581	....	(f)	.... 1,621	.... 43	.... 464	.... 30	.... 31
1927	.... 94,020	.... 2,314	.... 11	(f)	.... 1,516	.... 44	.... 669	.... 32	.... 50
1928	.... 85,107	.... 2,009	.... 10	(f)	.... 429	.... 12	.... 384	.... 70	.... 58
1929	.... 79,659	.... 1,780	.... 713	.... 14	.... 1,306	.... 32	.... 1,067	.... 38	.... 52
1930	.... 69,070	.... 1,540	.... 412	.... 7	.... 4,957	.... 151	.... 312	.... 1	.... 46
1931	.... 85,664	.... 1,266	.... 393	.... 5	.... 4,820	.... 47	.... 604	.... 3	.... 25
1932	.... 88,252	.... 1,156	.... 13,044	.... 179	.... 713	.... 14	.... 861	.... 3	.... 28
1933	.... 86,155	.... 1,105	.... 20,519	.... 280	.... 479	.... 5	.... 665	.... 1	.... 35
1934	.... 64,594	.... 781	.... 19,676	.... 195	.... 1,681	.... 17	.... 673	(f)	.... 26
1935	.... 85,965	.... 1,127	.... 20,504	.... 148	.... 2,337	.... 49	.... 826	.... 1	.... 44
1936	.... 66,836	.... 972	.... 20,325	.... 246	.... 8,307	.... 121	.... 905	.... 1	.... 47
1937	.... 86,146	.... 1,662	.... 14,535	.... 183	.... 6,995	.... 119	.... 670	.... 1	.... 56
1938	.... 81,162	.... 1,605	.... 32,318	.... 472	.... 4,951	.... 55	.... 549	(f)	.... 74
1939	.... 89,029	.... 1,165	.... 36,917	.... 462	.... 14,725	.... 282	.... 1,175	.... 1	.... 73
1940	.... 91,667	.... 1,301	.... 36,861	.... 490	.... 11,764	.... 214	.... 740	(f)	.... 65
1941	.... 118,595	.... 2,185	.... 34,412	.... 460	.... 18,209	.... 373	.... 282	.... 2	.... 112
1942	.... 84,974	.... 1,681	.... 32,988	.... 428	.... 10,237	.... 213	.... 114	.... 1	.... 97
1943	.... 77,616	.... 1,581	.... 3,334	.... 47	.... 6,309	.... 139	.... 139	.... 1	(f)
1944	.... 106,859	.... 2,344	.... 18,082	.... 262	.... 760	.... 22	.... 96	.... 27	(f)
1945	.... 101,896	.... 2,505	.... 18,969	.... 369	.... 17,656	.... 581	.... 132	.... 2	.... 1
1946	.... 116,942	.... 4,667	.... 25,254	.... 502	.... 13,010	.... 446	.... 488	.... 2	.... 91
1947	.... 129,699	.... 7,628	.... 18,113	.... 383	.... 12,735	.... 484	.... 1,445	.... 27	.... 362
1948	.... 139,996	.... 11,326	.... 40,207	.... 1,000	.... 18,329	.... 681	.... 1,688	.... 10	.... 347
1949	.... 131,203	.... 10,516	.... 40,843	.... 1,047	.... 13,506	.... 431	.... 1,452	.... 11	.... 374
1950	.... 115,814	.... 8,335	.... 29,033	.... 864	.... 9,931	.... 384	.... 1,780	.... 5	.... 426
1951	.... 159,740	.... 11,774	.... 9,795	.... 312	.... 11,004	.... 506	.... 2,295	.... 9	.... 616
1952	.... 161,581	.... 13,669	.... 2,828	.... 93	.... 13,301	.... 733	.... 2,353	.... 23	.... 631
1953	.... 176,241	.... 15,090	.... 3,059	.... 126	.... 12,657	.... 750	.... 4,556	.... 23	.... 501
1954	.... 147,849	.... 11,704	.... 3,343	.... 141	.... 15,773	.... 1,300	.... 3,300	.... 29	.... 568
1955	.... 120,342	.... 7,219	.... 3,312	.... 142	.... 8,878	.... 512	.... 3,845	.... 68	.... 612
1956	.... 129,421	.... 7,766	.... 5,017	.... 206	.... 2,239	.... 171	.... 3,893	.... 177	.... 625
1957	.... 127,491	.... 7,474	.... 3,489	.... 156	.... 7,606	.... 736	.... 4,598	.... 243	.... 923
1958	.... 111,827	.... 6,907	.... 3,938	.... 169	.... 13,777	.... 832	.... 3,725	.... 308	.... 841
1959	.... *104,559	.... *6,337	.... 3,508	.... 166	.... 8,442	.... 368	.... 3,609	.... 396	.... 764
1960	.... *87,861	.... *5,100	.... 3,764	.... 183	.... 9,460	.... 436	.... 2,437	.... 325	.... 845
1961	.... *135,407	.... *7,840	.... 5,971	.... 247	.... 7,697	.... 437	.... 4,636	.... 318	.... 881
1962	.... *97,983	.... *5,891	.... 14,877	.... 532	.... 10,165	.... 632	.... 2,818	.... 55	.... 1,254
1963	.... *74,574	.... *4,645	.... 4,857	.... 228	.... 17,747	.... 810	.... 4,982	.... 160	.... 1,495
1964	.... *69,090	.... *4,396	.... 2,723	.... *126	.... 9,768	.... 353	.... 4,016	.... 331	.... 1,433
1965	.... *92,402	.... *5,926	.... 3,272	.... 159	.... 12,731	.... 841	.... 5,165	.... 427	.... 1,376
1966	.... 54,157	.... 3,378	.... 20,896	.... 732	.... 21,025	.... 1,393	.... 4,838	.... 283	.... 1,633

(a) From 1915, year ended 30th June. (b) Series revised to exclude ships' stores throughout. (c) Includes tomatoes for 1932-33 and earlier years. (d) Short ton = 2,000 lb. (e) Not available. (f) Less than \$500. (g) Six months ended 30th June. * Revised.

EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Skins and Hides	Timber (b)		Crayfish Tails (c)		Pearl-shell		Petroleum and Petroleum Products (d)	
		Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity
		\$'000	'000 sup. ft.	\$'000	'000 lb.	\$'000	cwt.	\$'000	'000 gal.
1850	1	126	2	....	....	....	....	....	....
1860	(e)	658	10	....	....	....	....	....	....
1870	(e)	2,566	35	....	....	1,480	19	....	....
1880	8	7,950	133	....	....	14,380	79	....	....
1890	49	14,066	164	....	....	24,745	173	....	....
1900	150	68,705	916	....	....	14,747	173	....	....
1901	173	85,807	1,144	....	....	16,350	211	....	....
1902	223	75,082	1,001	....	....	18,936	277	....	....
1903	257	95,794	1,278	....	....	19,071	349	....	....
1904	253	96,868	1,308	....	....	23,275	249	....	....
1905	337	104,514	1,378	....	....	29,654	294	....	....
1906	371	105,761	1,416	....	....	23,515	285	....	....
1907	373	76,826	1,010	....	....	27,881	340	....	....
1908	276	118,435	1,627	....	....	30,693	381	....	....
1909	395	129,868	1,734	....	....	23,412	350	....	....
1910	482	144,858	1,945	....	....	29,281	492	....	....
1911	347	149,390	1,972	....	....	27,471	482	....	....
1912	365	135,565	1,807	....	....	31,915	843	....	....
1913	513	163,438	2,179	....	....	30,419	549	....	....
1914	(f)	209	75,357	1,004	....	10,143	172	....	....
1915	300	119,622	1,617	....	....	22,806	323	....	....
1916	504	65,188	884	....	....	25,045	317	....	....
1917	445	46,688	622	....	....	24,000	394	....	....
1918	407	41,230	548	....	....	17,267	288	....	....
1919	544	49,629	665	....	....	13,253	236	....	....
1920	1,246	60,784	931	....	....	33,505	671	....	....
1921	759	117,795	2,274	....	....	23,056	470	....	....
1922	730	99,707	2,082	....	....	30,440	508	....	....
1923	1,092	94,935	1,995	....	....	25,477	429	....	....
1924	1,040	133,648	2,735	....	....	28,479	487	....	....
1925	965	142,132	2,956	....	....	23,264	469	....	....
1926	883	144,017	3,046	....	....	25,762	465	....	....
1927	752	157,355	3,316	....	....	24,502	425	....	....
1928	1,106	124,617	2,531	....	....	19,066	332	....	....
1929	1,101	91,623	1,921	....	....	21,515	345	....	....
1930	738	78,957	1,615	....	....	19,378	331	....	....
1931	539	49,534	1,015	....	....	20,313	334	....	....
1932	395	36,752	722	....	....	12,237	194	....	....
1933	480	26,826	523	....	....	20,653	294	....	....
1934	771	48,730	972	....	....	16,854	196	....	....
1935	640	63,913	1,270	....	....	19,435	189	....	....
1936	1,061	67,178	1,356	....	....	19,363	214	....	....
1937	1,143	68,087	1,397	....	....	18,261	247	....	....
1938	985	90,549	1,860	....	....	24,781	336	....	....
1939	736	68,451	1,436	....	....	22,621	212	....	....
1940	745	60,595	1,251	....	....	16,859	153	....	....
1941	580	73,094	1,546	....	....	13,704	153	....	....
1942	772	62,697	1,369	....	....	11,616	142	....	....
1943	348	42,272	1,189	....	....	120	1	....	....
1944	680	43,744	1,216	....	....	37	1	....	....
1945	537	34,218	1,131	....	....	....	....	....	....
1946	1,274	40,476	1,429	....	....	260	8	....	....
1947	2,131	41,505	1,719	....	....	2,491	120	....	....
1948	2,048	43,349	2,230	....	....	6,733	340	....	....
1949	2,134	38,379	1,986	(g)	(g)	8,169	367	....	....
1950	2,329	34,295	1,949	1,143	463	6,997	248	....	....
1951	5,294	28,110	1,783	3,165	1,517	6,797	274	....	....
1952	3,194	28,659	2,075	2,891	1,861	8,205	406	....	....
1953	3,942	47,585	4,147	2,930	2,085	10,538	612	....	....
1954	3,295	46,318	4,480	3,222	2,342	12,271	708	....	....
1955	2,921	41,748	3,847	3,377	2,490	13,785	820	64,638	6,064
1956	3,274	54,591	5,598	3,529	3,022	15,954	999	332,098	33,401
1957	(h)	4,650	56,147	6,215	3,566	3,514	1,391	335,033	37,383
1958	(h)	3,898	66,872	7,496	4,708	3,965	22,580	1,381	435,461
1959	3,489	77,561	8,415	6,117	5,281	15,521	772	396,537	43,194
1960	4,767	73,601	7,760	6,604	6,499	12,535	707	427,136	47,467
1961	3,828	66,412	7,175	5,106	5,881	11,283	502	557,264	54,919
1962	4,580	68,059	7,528	7,952	9,778	8,924	320	561,273	50,639
1963	4,339	65,811	7,241	7,694	8,910	7,647	289	556,418	49,679
1964	4,966	63,331	6,813	7,532	9,211	3,304	112	576,297	54,751
1965	4,177	*56,521	6,279	5,891	10,592	3,186	133	452,257	43,615
1966	5,447	29,205	3,694	7,040	13,821	3,045	123	(i)	37,911

(a) From 1915, year ended 30th June. (b) Excluding plywood and veneers and small quantities of timber for which no super. footage is recorded. For the years 1906 to 1921, figures are approximate. (c) Figures for the years 1949-50 to 1951-52 represent overseas exports only and exclude small consignments to other Australian States. Those for 1952-53 to 1959-60 include small consignments of cooked whole crayfish to other Australian States. (d) A major oil refinery began production in 1954-55. In some earlier years there were small consignments of re-exported products which were of little significance and are not shown. (e) Less than \$500. (f) Six months ended 30th June. (g) Precise information not available, but it is known that the value of exports was about \$500,000. (h) Figure for 1956-57 excludes, and that for 1957-58 includes, an amount of \$22,012 representing the value of cattle hides exported during 1956-57 but not recorded until 1957-58. (i) Not available.

* Revised.

EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Gold Bullion (b)		Lead and Zinc (inc. Silver- Lead- Zinc) Ores and Concen- trates	Tin Ore and Concen- trates	Asbestos (Crude and Fibre)		Manganese Ore and Concentrates		Iron Ore and Concentrates (c)	
	Quantity	Value (d)	Value	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 fine oz.	\$'000	\$'000	\$'000	short tons (e)	\$'000	'000 tons	\$'000	'000 tons	\$'000
1850	....	....	(f)	....	....	....	....	....	....	....
1860	....	....	2	....	....	....	....	....	....	....
1870	....	....	29	....	....	....	....	....	....	....
1880	....	....	31	....	....	....	....	....	....	....
1890	23	173	4	11	....	....	....	....	....	....
1900	1,000	7,589	(f)	76	....	....	....	....	....	....
1901	1,024	7,884	....	79	....	....	....	....	....	....
1902	897	6,638	....	45	....	....	....	....	....	....
1903	1,106	8,124	....	46	(f)	(f)	....	....	....	....
1904	1,061	7,879	....	54	....	....	....	....	....	....
1905	778	6,586	....	154	....	....	....	....	....	....
1906	692	5,861	....	277	....	....	....	....	....	....
1907	538	4,545	4	303	....	....	....	....	....	....
1908	485	4,105	10	167	....	....	....	....	....	....
1909	512	4,328	4	126	....	....	....	....	(f)	(f)
1910	334	2,835	4	93	....	....	....	....	....	....
1911	309	2,613	31	110	....	....	....	....	....	....
1912	269	2,285	45	159	....	....	(f)	(f)	....	....
1913	198	1,683	119	144	....	....	....	....	....	....
1914 (g)	60	513	57	49	....	....	....	....	....	....
1915	100	827	95	51	....	....	....	....	....	....
1916	183	1,547	22	92	....	....	....	(f)	....	....
1917	....	....	7	113	....	....	....	....	....	....
1918	....	....	9	110	1	(f)	....	....	....	....
1919	....	....	8	112	3	....	....	....	....	....
1920	41	452	102	129	....	....	....	....	....	....
1921	(f)	1	67	41	145	13	....	....	....	....
1922	....	....	....	10	98	8	....	....	....	....
1923	....	....	47	18	....	....	....	....	....	....
1924	91	767	108	38	....	....	....	....	(f)	(f)
1925	36	305	186	29	....	....	....	....	....	....
1926	50	386	186	23	....	....	....	....	....	....
1927	91	711	109	28	....	....	....	....	....	....
1928	14	121	8	24	....	....	....	....	1	....
1929	10	81	11	30	....	....	....	....	(f)	(f)
1930	(f)	1	19	29	....	....	....	....	....	....
1931	....	....	2	10	....	....	....	....	....	....
1932	515	7,336	1	6	....	....	....	....	....	....
1933	625	9,376	....	7	....	....	....	....	....	....
1934	653	10,624	....	11	....	....	....	....	....	....
1935	589	10,258	....	17	....	....	....	....	....	....
1936	771	13,385	....	18	....	....	....	....	....	....
1937	909	15,819	....	16	....	....	....	....	....	....
1938	1,075	18,598	1	20	310	37	....	....	....	....
1939	1,169	21,240	1	11	300	26	....	....	....	....
1940	1,168	24,056	2	14	207	17	....	....	....	....
1941	1,202	25,096	2	12	163	15	....	....	....	....
1942	975	20,590	2	6	82	7	....	....	....	....
1943	756	15,744	1	5	98	8	....	....	....	....
1944	349	7,250	1	6	101	8	....	....	....	....
1945	....	....	1	5	425	36	....	....	....	....
1946	....	....	(f)	8	1,192	104	....	....	....	....
1947	....	....	5	12	702	65	....	....	....	....
1948	356	7,656	146	17	1,324	148	....	....	....	....
1949	....	....	235	31	1,299	179	2	22	....	....
1950	(f)	2	272	49	985	204	10	126	....	....
1951	....	....	263	62	1,728	378	11	154	....	....
1952	395	13,143	1,369	107	2,888	709	8	115	52	102
1953	759	24,798	1,681	153	3,313	990	14	256	544	1,079
1954	418	13,230	*270	97	3,527	986	27	829	583	1,157
1955	618	19,338	*108	146	4,180	788	34	804	580	1,149
1956	410	12,842	*888	322	8,305	1,440	55	1,271	472	936
1957	770	24,119	*960	293	11,825	2,140	58	1,551	329	649
1958	208	6,511	*410	166	12,944	2,920	75	2,501	439	870
1959	132	4,118	*238	304	11,836	2,166	56	1,628	589	1,169
1960	600	18,738	*229	415	16,983	3,111	79	2,224	796	1,601
1961	2,532	79,271	*83	325	11,879	2,364	47	1,267	1,509	2,547
1962	453	14,195	*45	563	14,165	2,753	108	2,945	1,132	2,487
1963	417	13,048	33	532	13,900	2,799	52	1,390	1,497	3,000
1964	385	12,045	18	1,080	8,894	1,767	27	695	1,379	2,817
1965	513	16,127	*662	1,229	12,270	2,210	76	1,747	1,557	3,114
1966	833	26,147	124	1,521	8,889	1,702	103	2,404	2,615	6,967

(a) From 1915, year ended 30th June.
until actually shipped.(b) Gold sold abroad before consignment is not recorded as an export
additional premiums on sales of industrial gold.(c) From 1959-60, includes pyritic cinders.
months ended June.

* Revised.

(d) Australian currency value, including

(e) Short ton = 2,000 lb.

(f) Less than 500.

(g) Six

EXTERNAL TRADE
(\$'000)

Year (a)	Imports			Exports (b)			Excess of—		Ships' Stores
	Oversea	Interstate	Total	Oversea	Interstate	Total	Imports	Exports	
1850	(c)	(c)	125	(c)	(c)	44	80	....	(c)
1860	318	20	338	160	16	175	163	....	3
1870	260	167	427	348	46	394	33	....	8
1880	349	358	707	736	252	988	....	280	11
1890	1,025	724	1,749	961	369	1,330	419	....	14
1900	6,574	5,350	11,924	11,246	2,250	13,496	....	1,572	208
1901	7,790	5,118	12,908	15,509	1,149	16,659	....	3,750	373
1902	10,343	4,093	14,437	16,316	1,598	17,914	....	3,477	189
1903	8,457	5,083	13,540	18,797	1,733	20,530	....	6,991	119
1904	8,044	5,301	13,345	19,736	718	20,454	....	7,109	89
1905	7,539	5,425	12,964	18,027	1,624	19,651	....	6,687	91
1906	7,561	6,081	13,642	18,007	1,547	19,554	....	5,912	111
1907	7,175	5,871	13,046	17,157	2,499	19,656	....	6,610	154
1908	6,424	5,932	12,356	17,046	1,830	18,875	....	6,519	161
1909	6,645	6,169	12,814	13,361	4,121	17,482	....	4,668	239
1910	8,750	7,067	15,817	11,679	4,627	16,306	....	489	294
1911	8,971	8,321	17,292	18,342	2,586	20,928	....	3,637	285
1912	10,635	8,466	19,101	15,281	2,308	17,589	1,512	....	293
1913	10,815	8,970	19,785	10,204	7,726	17,931	1,854	....	326
1914 (d)	5,112	4,256	9,368	5,788	4,474	10,262	....	894	157
1915	7,972	8,630	16,603	6,242	4,177	10,419	6,184	....	286
1916	8,338	9,628	17,966	8,769	6,711	15,480	2,486	....	601
1917	8,773	9,997	18,770	9,291	19,488	28,779	....	10,009	587
1918	5,011	10,288	15,298	8,521	2,783	11,303	3,995	....	311
1919	6,281	9,767	16,048	18,886	2,323	21,209	....	5,161	637
1920	9,918	14,819	24,737	28,918	2,392	31,311	....	6,574	827
1921	14,439	15,239	29,678	20,790	2,724	23,514	6,165	....	1,004
1922	8,616	15,459	24,076	21,594	4,522	26,116	....	2,041	1,141
1923	13,001	14,555	27,555	19,359	2,252	21,611	5,944	....	599
1924	13,325	15,363	28,688	24,825	2,928	27,753	935	....	493
1925	16,053	16,095	32,148	25,719	2,623	28,342	3,806	....	987
1926	15,792	17,133	32,925	25,223	2,876	28,100	4,826	....	1,064
1927	18,894	17,858	36,752	26,135	2,810	28,946	7,806	....	1,358
1928	18,023	18,553	36,575	32,505	2,674	35,179	1,396	....	1,302
1929	18,906	21,201	40,108	30,603	2,411	33,014	7,094	....	1,358
1930	17,758	19,805	37,563	32,009	2,213	34,223	3,341	....	1,316
1931	9,165	13,639	22,804	33,306	1,550	34,856	....	12,052	1,095
1932	6,926	15,854	22,780	29,633	1,826	31,459	....	8,679	1,133
1933	9,542	16,740	26,282	28,037	1,916	29,953	....	3,671	1,122
1934	8,889	18,554	27,443	31,132	2,427	33,559	....	6,116	1,024
1935	10,203	20,290	30,493	30,002	2,650	32,652	....	2,158	1,106
1936	12,688	22,073	34,761	33,023	3,665	36,689	....	1,928	1,095
1937	14,144	24,742	38,886	34,592	6,361	40,953	....	2,067	1,029
1938	15,986	25,879	41,865	38,944	6,057	45,001	....	3,135	1,200
1939	12,275	25,329	37,604	34,149	10,815	44,964	....	7,360	1,049
1940	12,568	27,450	40,017	19,256	28,518	47,774	....	7,756	1,380
1941	9,710	27,519	37,229	16,900	30,808	47,708	....	10,479	1,971
1942	10,391	26,110	36,501	23,157	25,241	48,398	....	11,897	2,305
1943	7,383	24,803	32,186	10,625	20,117	30,741	1,445	....	1,983
1944	7,770	26,628	34,399	22,845	13,472	36,317	....	1,919	2,747
1945	9,215	26,863	36,079	24,765	11,533	36,298	....	219	2,508
1946	11,018	32,238	43,256	38,917	11,662	50,579	....	7,322	2,511
1947	18,929	42,253	61,182	46,015	11,459	57,474	3,708	....	1,966
1948	34,311	51,329	85,640	97,389	11,599	108,989	....	23,349	2,474
1949	44,075	61,182	105,258	96,982	9,495	106,477	....	1,220	4,710
1950	68,844	70,044	138,887	106,590	12,421	119,011	19,876	....	4,720
1951	80,517	95,828	176,345	197,686	18,780	216,466	....	40,122	7,249
1952	120,474	124,209	244,683	151,562	35,404	186,966	57,717	....	8,419
1953	59,748	137,213	196,961	166,286	49,659	215,945	....	18,984	10,321
1954	85,051	165,374	250,425	136,849	39,190	176,039	74,386	....	7,266
1955	101,295	182,110	283,405	137,013	47,310	184,323	99,082	....	7,865
1956	92,963	177,952	270,915	152,286	68,466	220,752	50,164	....	10,592
1957 (e)	80,423	188,680	269,103	216,599	81,545	298,144	....	29,041	12,902
1958 (e)	91,775	195,103	286,879	179,516	79,836	259,352	27,527	....	11,602
1959	89,972	202,430	292,402	174,585	68,919	243,504	....	....	9,482
1960	92,363	246,696	339,059	231,766	77,278	309,043	30,016	....	8,954
1961	110,531	245,474	356,005	309,332	89,922	399,254	....	43,249	10,285
1962	100,178	245,208	345,386	287,619	84,626	372,245	....	26,859	9,379
1963	112,640	313,712	426,351	246,823	91,636	338,459	87,892	....	7,904
1964	121,677	323,176	444,854	286,132	101,811	387,943	56,911	....	9,733
1965	153,540	343,899	497,439	243,078	119,954	363,033	134,407	....	9,009
1966	176,358	403,054	579,412	314,404	118,619	434,023	145,388	....	10,058

(a) From 1915, year ended 30th June. (b) Excludes ships' stores. (c) Not available. (d) Six months ended 30th June. (e) An amount of \$1,008,900, representing the value of goods exported overseas in 1956-57 but not recorded until 1957-58, is excluded from 1956-57 and included in 1957-58.

LAND TENURE ; LIVESTOCK ; WOOL PRODUCTION

Year	Land Alienated and Land in Process of Alienation (a)	Land held under Lease or Licence (a) (b)	Livestock (c)				Wool Production (d)	
			Horses	Cattle	Sheep	Pigs	Quantity	Gross Value (e)
	'000 acres	'000 acres	'000	'000	'000	'000	'000 lb.	\$'000
1829	525	.....	(f)	(f)	1	(f)	(g)	.....
1830	633	.....	(f)	1	8	(f)	(g)	.....
1840	1,598	.....	1	2	31	2	(g)	.....
1850	1,330	(g)	3	13	128	3	(g)	.....
1860	1,516	5,563	10	32	260	11	657	(g)
1870	1,465	12,239	22	45	609	13	1,788	.....
1880	2,125	44,920	35	64	1,232	24	4,343	.....
1890	5,334	104,742	44	131	2,525	29	6,969	.....
1900	6,619	87,376	68	339	2,434	62	9,531	.....
1901	9,585	97,456	74	399	2,626	61	15,305	829
1902	9,857	112,138	80	437	2,705	53	14,633	1,006
1903	10,548	135,679	83	498	2,601	50	14,645	976
1904	11,658	139,854	90	561	2,853	70	13,964	937
1905	12,380	145,770	97	632	3,121	75	19,523	1,310
1906	12,576	152,528	105	690	3,341	56	17,438	1,375
1907	13,070	160,180	113	717	3,685	53	22,014	1,750
1908	14,003	161,219	117	742	4,097	47	22,451	1,371
1909	16,252	166,858	125	793	4,732	47	30,048	2,219
1910	17,330	167,208	134	825	5,159	58	29,123	2,141
1911	19,046	169,938	140	844	5,412	56	29,644	2,184
1912	20,793	175,630	148	806	4,597	47	25,380	1,870
1913	21,363	188,547	157	834	4,421	48	25,026	1,902
1914	21,649	184,221	162	864	4,456	60	24,419	1,819
1915	22,087	189,742	163	821	4,804	58	29,713	2,607
1916	21,710	196,707	170	864	5,530	91	33,093	3,926
1917	21,561	192,437	178	927	6,384	112	40,335	4,835
1918	21,568	208,049	180	944	7,184	86	45,734	6,155
1919	21,843	245,405	175	881	6,698	58	41,594	5,369
1920	23,023	257,610	179	850	6,333	61	41,772	4,552
1921	24,232	258,504	180	893	6,506	63	43,082	4,482
1922	25,756	267,620	181	940	6,664	68	40,862	6,294
1923	27,065	262,147	182	954	6,596	61	45,285	8,665
1924	28,343	209,937	175	892	6,397	66	43,424	9,151
1925	28,902	232,992	171	836	6,862	74	48,288	6,800
1926	30,278	230,562	166	827	7,459	70	55,132	7,148
1927	31,740	234,160	165	847	8,447	60	62,702	10,170
1928	33,322	237,428	161	838	8,943	49	58,866	8,027
1929	35,399	243,724	160	837	9,557	65	67,151	5,952
1930	36,039	245,390	157	813	9,883	101	71,542	4,829
1931	36,209	216,627	156	827	10,098	121	71,614	5,007
1932	35,869	206,162	157	857	10,417	118	75,147	5,198
1933	35,547	198,325	160	886	10,322	91	78,424	9,404
1934	35,090	200,588	162	912	11,197	98	89,992	6,422
1935	34,118	203,602	160	883	11,083	98	85,707	8,886
1936	32,995	203,961	155	793	9,008	76	63,537	7,306
1937	33,003	205,059	151	740	8,732	65	64,739	5,832
1938	33,009	205,992	144	768	9,178	83	72,475	5,450
1939	32,768	205,705	139	799	9,574	150	75,400	7,581
1940	32,437	209,380	130	789	9,516	218	71,347	7,889
1941	32,110	209,958	124	840	9,773	163	77,627	8,328
1942	31,864	211,536	113	831	10,424	152	95,718	11,935
1943	31,658	212,039	107	871	11,013	164	102,759	12,741
1944	31,622	212,696	97	853	10,050	164	84,141	10,512
1945	31,719	212,331	88	834	9,766	138	82,067	10,424
1946	31,781	212,163	81	812	9,787	102	80,524	16,094
1947	32,083	213,885	75	816	10,444	93	89,528	29,277
1948	31,857	217,807	69	864	10,873	81	93,769	37,720
1949	32,280	223,691	59	865	10,923	79	92,750	47,237
1950	32,778	226,005	55	841	11,362	90	102,911	118,068
1951	33,981	(b) 203,940	53	852	12,188	86	116,142	64,027
1952	34,766	205,607	50	846	12,475	76	120,726	75,121
1953	35,861	206,438	49	830	13,087	101	128,964	82,567
1954	37,237	206,566	47	861	13,411	107	124,173	67,985
1955	37,826	208,640	45	897	14,128	99	140,764	69,642
1956	38,230	216,318	45	957	14,887	140	148,374	90,283
1957	38,564	216,811	44	997	15,724	151	151,026	75,228
1958	39,259	221,763	41	1,000	16,215	115	157,358	59,407
1959	39,718	227,600	41	1,030	16,412	131	160,892	75,302
1960	40,103	227,650	40	1,100	17,151	176	182,217	73,863
1961	40,617	231,806	40	1,218	18,314	174	183,334	79,283
1962	41,468	240,037	39	1,298	18,727	131	177,176	80,071
1963	42,607	248,246	39	1,299	20,165	128	209,555	116,331
1964	43,643	246,467	37	1,258	22,392	137	200,995	93,275
1965	44,589	*246,055	35	1,271	24,427	144	238,356	115,183
1966	45,416	246,038	(g)	1,357	27,370	161	(h)	(h)

(a) From 1906, at 30th June ; for earlier years, at 31st December. (b) Comprises allocations by Lands Department and certain leases and licences issued by Mines and Forests Departments. Apparent decrease in 1951 due mainly to revisions in records of Lands Department. (c) At 31st December for 1941 and earlier years ; from 1942, the figures shown relate to 31st March in the following year. (d) Comprises shorn, dead and fellmongered wool. Excludes wool exported on skins. For 1947 and earlier, year ended 31st December ; figures shown for 1948 to 1964 are for the year ended 31st March in the following year. From 1965 figures relate to the year ended 30th June in the following year. (e) Figures for 1949 and 1951 to 1955 exclude distributions of profits under the 1959-1945 War-time Wool Disposals Plan aggregating \$13,869,934. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (f) Less than 500. (g) Not available. (h) Not available at time of publication. * Revised.

AGRICULTURE

Year (a)	Total Area under all Crops (b)	Area and Production of Principal Grain Crops							
		Wheat				Oats		Barley	
		Area	Production			Area	Production	Area	Production
			Yield per Acre	Total	Gross Value				
	'000 acres	'000 acres	bushels	'000 bushels	\$'000	'000 acres	'000 bushels	'000 acres	'000 bushels
1840	3	2	20·0	33					
1850	7	4	(c)	(c)					
1860	25	14	15·3	208		1	12	2	43
1870	55	27	11·9	317	(c)	2	40	5	88
1880	64	28	*0·3	257		1	21	6	89
1890	70	34	13·8	467		2	39	5	85
1900	201	74	10·4	775	310	5	86	8	29
1901	217	95	10·1	957	359	10	184	3	35
1902	230	92	10·7	986	345	10	168	4	46
1903	284	138	13·6	1,876	610	15	259	4	53
1904	327	182	11·1	2,013	688	14	226	3	37
1905	385	195	11·8	2,308	851	16	234	4	49
1906	461	250	11·0	2,759	1,086	28	457	4	49
1907	494	280	10·5	2,926	1,046	47	722	6	76
1908	585	285	8·6	2,461	2,433	59	722	7	74
1909	722	449	12·5	5,602	2,661	73	1,248	8	102
1910	855	582	10·1	5,898	2,162	62	776	8	34
1911	1,073	612	7·1	4,359	1,734	77	961	4	37
1912	1,200	793	11·6	9,169	3,209	128	2,016	6	93
1913	1,538	1,097	12·2	13,331	4,666	134	1,656	12	168
1914	1,868	1,376	1·9	2,624	1,881	96	465	7	24
1915	2,189	1,734	10·5	18,236	6,535	104	1,538	10	131
1916	2,005	1,567	10·3	16,103	6,106	122	1,689	11	134
1917	1,680	1,250	7·4	9,304	4,419	96	909	5	36
1918	1,605	1,146	7·7	8,845	4,423	141	1,500	8	81
1919	1,628	1,042	10·8	11,223	10,662	192	2,487	9	116
1920	1,805	1,276	9·6	12,248	11,023	193	2,022	11	111
1921	1,902	1,336	10·4	13,905	7,532	163	2,020	8	86
1922	2,275	1,553	8·9	13,857	6,986	214	2,262	9	108
1923	2,323	1,657	11·4	18,920	8,987	242	2,847	9	98
1924	2,711	1,868	12·8	23,887	14,532	319	4,241	12	178
1925	2,932	2,112	9·7	20,471	12,837	278	2,939	13	158
1926	3,325	2,571	11·7	31,069	17,217	235	2,716	14	128
1927	3,720	2,999	12·1	36,370	19,842	235	2,923	12	127
1928	4,259	3,344	10·1	33,790	16,473	326	3,555	14	190
1929	4,566	3,568	11·0	39,081	17,721	385	4,058	24	262
1930	4,792	3,956	13·5	53,504	12,201	275	3,293	17	185
1931	3,963	3,159	13·1	41,521	14,430	268	3,550	15	165
1932	4,263	3,389	12·3	41,792	13,554	286	3,603	14	135
1933	4,217	3,183	11·7	37,305	12,004	343	3,950	25	325
1934	3,841	2,764	9·8	26,985	10,123	409	4,244	27	238
1935	3,726	2,541	9·2	23,315	9,747	448	4,558	32	418
1936	3,852	2,575	8·4	21,549	11,902	463	3,445	40	449
1937	4,168	3,026	12·0	36,225	14,830	386	4,364	45	584
1938	4,683	3,413	10·8	36,844	8,984	426	4,668	75	946
1939	4,287	2,970	13·8	40,861	15,526	453	5,315	83	971
1940	3,988	2,625	8·0	21,060	8,648	429	3,250	66	725
1941	3,817	2,653	14·1	37,500	15,615	407	5,325	68	959
1942	2,784	1,753	11·8	20,600	10,080	342	3,612	50	533
1943	2,744	1,567	10·6	16,550	9,531	358	3,964	61	724
1944	2,756	1,516	10·5	15,929	8,319	402	3,845	76	884
1945	2,875	1,836	11·4	20,929	15,871	396	4,081	66	666
1946	3,532	2,426	9·8	23,800	22,048	425	3,661	66	519
1947	3,936	2,760	12·5	34,500	50,265	495	5,411	63	745
1948	4,102	2,868	12·6	36,250	42,122	532	6,998	64	981
1949	4,293	2,894	13·3	38,500	51,339	585	7,268	68	968
1950	4,533	3,185	15·7	49,900	65,328	586	7,914	59	925
1951	4,508	3,095	12·9	40,000	58,984	657	7,689	57	695
1952	4,637	2,999	11·8	35,458	55,194	832	10,440	107	1,742
1953	4,477	2,885	13·8	39,700	55,423	733	9,591	209	2,733
1954	5,043	2,979	11·5	34,300	43,655	874	9,585	260	2,805
1955	5,234	2,890	18·4	53,250	68,840	1,091	16,516	337	4,653
1956	5,139	2,764	11·6	32,100	44,055	1,051	10,442	344	3,751
1957	5,511	2,957	11·2	33,100	45,912	1,153	13,793	307	3,556
1958	6,015	3,292	17·5	57,650	77,639	1,330	22,585	321	5,410
1959	6,382	3,719	15·8	58,670	82,361	1,240	19,599	421	7,080
1960	6,757	4,021	15·9	63,900	92,290	1,330	21,810	541	8,496
1961	6,976	4,380	15·0	65,700	100,023	1,231	20,186	491	7,282
1962	7,327	4,804	15·1	72,500	107,023	1,177	18,572	390	6,056
1963	6,706	4,640	11·3	52,340	74,389	1,125	17,850	299	4,077
1964	7,289	5,151	12·2	63,071	88,557	1,152	14,011	303	3,701
1965	8,449	6,150	16·6	102,156	153,050	1,240	23,279	413	6,481
1966	8,558	6,247	16·3	103,195	(d)153,753	1,204	22,117	373	6,707

(a) Figures shown for 1942 and earlier are for the year ended last day of February in the following year; those shown for 1943 and later are for the season ended 31st March in the following year. (b) Excludes meadow hay.

(c) Not available.

(d) Preliminary; subject to revision.

* Revised.

PRIMARY PRODUCTION — MISCELLANEOUS

Year	Hay (all kinds)		Gold Production (a)		Coal Production		Average Values f.o.b.	
	Area	Production	Quantity	Value (b)	Quantity	Value	Wool (greasy) per lb. (c)	Wheat per bushel (d)
	'000 acres	'000 tons	'000 fine oz.	\$'000	'000 tons	\$'000	cents	cents
1860	6	3	....	....	....	....	—	53·96
1870	17	21	....	....	....	....	—	50·00
1880	20	20	....	....	....	....	(e)	50·00
1890	23	25	20	171	....	....	—	15·00
1900	104	104	1,414	12,015	118	110	—	—
1901	93	90	1,703	14,471	118	137	5·42	40·00
1902	106	94	1,871	15,895	141	172	6·88	(f) 51·67
1903	109	122	2,065	17,541	133	138	6·67	(f) 63·54
1904	105	114	1,983	16,848	139	134	6·71	32·50
1905	125	139	1,955	16,611	127	111	6·71	34·17
1906	150	158	1,795	15,245	150	116	7·88	36·87
1907	131	138	1,698	14,421	142	110	7·95	39·37
1908	202	170	1,648	14,000	175	151	6·10	42·50
1909	159	195	1,595	13,553	214	182	7·38	41·25
1910	175	179	1,471	12,494	262	227	7·35	40·42
1911	344	300	1,371	11,646	250	222	7·35	34·58
1912	232	256	1,283	10,897	295	272	7·35	39·79
1913	247	279	1,314	11,163	314	307	7·58	37·08
1914	332	157	1,233	10,475	319	297	(g) 7·45	36·87
1915	290	395	1,210	10,280	287	276	6·80	(f) 69·79
1916	241	237	1,061	9,017	302	296	8·72	48·54
1917	266	267	970	8,243	327	384	11·64	46·67
1918	250	250	877	7,446	337	409	10·04	50·21
1919	327	379	734	7,498	402	521	13·01	53·75
1920	267	264	618	6,951	462	701	12·82	71·67
1921	336	369	554	5,907	469	814	10·92	73·33
1922	432	457	538	5,052	438	763	10·41	55·00
1923	330	368	505	4,464	421	738	15·24	50·42
1924	398	449	485	4,512	422	727	18·95	47·50
1925	391	355	441	3,749	437	726	20·85	60·83
1926	358	424	437	3,715	475	789	13·96	62·71
1927	357	417	408	3,469	502	816	12·84	55·21
1928	415	422	393	3,342	528	840	16·11	54·58
1929	419	428	377	3,204	545	853	13·55	50·62
1930	398	492	418	3,729	501	770	8·78	45·42
1931	381	453	511	5,996	432	672	6·70	22·92
1932	417	485	606	8,807	416	541	7·03	31·25
1933	480	512	637	9,773	458	580	7·14	30·42
1934	413	463	651	11,118	500	557	13·04	29·37
1935	494	505	649	11,404	537	636	8·04	32·08
1936	478	413	846	14,747	565	663	11·33	39·79
1937	432	450	1,001	17,488	554	681	13·47	55·21
1938	408	438	1,168	20,726	605	750	11·00	41·04
1939	396	476	1,214	23,686	558	726	8·88	24·37
1940	418	375	1,191	25,393	539	729	11·65	30·45
1941	325	414	1,109	23,703	557	779	13·02	39·43
1942	253	278	848	17,731	581	923	12·99	41·14
1943	282	314	546	11,421	532	979	14·60	41·08
1944	329	339	466	9,800	558	1,166	15·79	48·21
1945	281	287	469	10,021	543	1,146	15·53	63·40
1946	277	280	617	13,280	642	1,460	15·84	86·57
1947	229	268	704	15,151	731	1,680	20·70	131·77
1948	227	277	665	14,314	733	1,760	34·66	175·07
1949	216	272	648	15,926	751	1,944	42·73	152·70
1950	177	227	610	18,933	814	2,575	48·04	155·20
1951	174	212	628	19,451	848	3,434	119·52	169·41
1952	227	290	730	23,696	830	4,915	62·64	170·48
1953	219	294	824	26,598	886	6,146	67·15	173·02
1954	289	305	851	26,627	1,018	7,178	70·85	165·75
1955	269	384	842	26,749	904	6,179	61·41	142·12
1956	242	288	812	26,405	830	5,448	51·10	126·73
1957	339	386	897	29,102	839	5,105	65·62	130·97
1958	333	455	867	28,357	871	4,561	59·33	153·36
1959	319	433	867	28,388	911	4,713	61·67	140·88
1960	284	381	856	28,140	922	4,878	52·33	134·67
1961	294	396	872	28,584	766	3,361	44·95	135·82
1962	340	453	859	28,115	919	3,962	49·80	141·25
1963	289	389	800	26,375	902	3,970	50·52	142·34
1964	305	390	713	23,383	987	4,679	60·99	141·55
1965	291	414	659	22,381	994	4,410	54·69	140·60
1966	295	417	629	23,316	1,061	4,562	52·61	139·13

(a) Comprises gold refined at the mint and gold contained in gold-bearing materials exported. (b) Australian currency value including amounts, totalling \$2,876,196 for the years 1952 to 1966, distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. Also includes net subsidy payments by the Commonwealth Government, under the Gold-Mining Industry Assistance Act 1954-1966, totalling \$16,411,465 in the years 1955 to 1966. (c) From 1915 figures relate to year ended 30th June. (d) Prior to 1940 averages generally are based on exports of the previous season's wheat; from 1940 they relate to exports during the year ended 30th June. (e) Not available. (f) Exports negligible; average Metropolitan Market price shown. (g) For six months ended 30th June.

VALUE OF PRODUCTION

(\$'000)

Year (a)	Gross Value of Primary Production (b)						Total (b)	Net Value of all Recorded Production (c) (d)		
	Agri- culture	Dairying, Poultry and Bee Keeping	Pastoral and Trapping (c)	Mining and Quarry- ing	Forestry	Fishing		Primary	Manu- facturing	Total
1914	6,194	1,122	4,115	11,154						
1915	13,059	1,173	6,060	11,057						
1916	11,779	1,383	7,340	11,937						
1917	8,513	1,332	8,959	9,365						
1918	9,516	1,396	9,088	8,607						
1919	18,133	1,687	9,544	7,184	(e)	(e)	(e)	(e)	(e)	(e)
1920	17,466	2,065	9,008	6,592	(e)	(e)	(e)	(e)	(e)	(e)
1921	13,853	2,265	8,032	5,845						
1922	12,992	2,350	10,584	5,739						
1923	15,076	2,483	13,027	5,446		642				
1924	22,367	2,726	13,419	5,340		764				
1925	*19,510	2,507	11,537	5,010	4,126	970	43,661	30,140	(f) 19,222	(g) 49,362
1926	24,187	2,503	11,262	4,933	3,367	580	46,833	32,512	13,814	46,326
1927	26,068	2,687	14,687	4,698	2,906	516	51,563	36,228	15,380	51,608
1928	23,884	2,936	13,501	4,589	2,463	561	47,933	31,961	15,937	47,898
1929	24,504	3,443	10,800	4,496	2,159	544	45,945	26,746	14,976	41,722
1930	17,756	3,170	8,845	4,695	1,809	485	36,761	17,266	10,562	27,828
1931	20,985	3,311	8,023	6,911	1,312	427	40,969	23,822	9,212	33,034
1932	20,495	3,338	8,057	9,691	1,183	430	43,193	24,714	10,124	34,838
1933	19,022	3,315	13,369	10,606	1,648	406	48,366	29,976	10,889	40,864
1934	16,336	3,927	9,456	11,939	2,399	373	44,430	28,175	12,570	40,745
1935	17,045	3,897	12,639	12,402	2,653	372	49,008	32,352	15,008	47,360
1936	18,871	4,170	11,437	15,827	3,032	465	53,801	36,447	15,893	52,341
1937	21,071	4,494	10,139	18,845	2,957	592	58,100	38,821	17,125	55,945
1938	17,077	4,716	9,457	22,205	2,899	561	56,916	35,976	17,551	53,527
1939	23,198	4,855	11,602	25,035	2,660	562	67,911	*46,344	18,055	64,399
1940	14,760	5,230	11,701	26,706	3,160	539	62,096	41,065	18,034	59,098
1941	22,219	5,960	*12,234	24,843	2,950	479	68,685	46,459	20,201	66,660
1942	18,106	7,664	16,345	18,975	3,277	255	64,622	45,248	22,906	68,154
1943	18,505	7,971	18,381	12,801	3,150	347	61,155	42,495	25,023	67,518
1944	20,856	8,473	15,600	11,529	3,152	330	59,940	42,276	25,920	68,196
1945	26,310	8,709	16,228	11,797	3,358	438	66,840	47,842	27,653	75,495
1946	32,635	8,933	22,451	15,405	3,305	635	83,363	60,351	31,497	91,848
1947	64,699	9,790	37,430	17,728	3,649	1,135	134,431	107,206	36,768	143,975
1948	58,785	11,964	46,771	17,543	4,024	1,379	140,467	108,182	42,948	151,130
1949	69,686	12,975	59,079	19,707	4,501	1,432	167,381	131,728	52,088	183,816
1950	87,752	14,155	132,420	24,175	6,741	1,649	266,891	222,046	68,441	290,487
1951	86,791	18,778	80,443	26,975	8,517	2,505	224,010	171,002	85,491	256,493
1952	87,127	21,289	91,099	35,969	7,155	3,286	245,924	181,123	98,383	279,505
1953	86,533	22,328	102,176	40,996	7,678	3,808	263,519	194,208	110,294	304,502
1954	77,164	21,762	87,770	42,651	8,116	4,383	241,846	170,351	121,912	292,262
1955	109,709	22,433	89,654	41,199	10,474	4,915	278,383	200,428	139,466	339,893
1956	80,170	23,240	113,162	42,735	10,305	5,563	275,176	196,749	146,884	343,633
1957	87,293	23,500	94,293	44,382	11,046	6,530	267,044	183,077	150,624	333,701
1958	126,672	22,838	81,764	43,595	10,903	7,818	293,590	199,991	157,524	357,515
1959	131,052	24,696	100,543	46,487	10,919	8,621	322,318	223,895	172,747	396,642
1960	140,003	25,917	101,630	47,103	11,082	8,569	334,304	232,468	193,262	425,730
1961	148,765	26,400	105,821	48,535	11,104	10,689	351,314	247,867	196,083	443,950
1962	157,948	27,387	107,656	49,415	10,877	11,219	364,503	255,821	216,422	472,243
1963	123,342	28,723	149,333	47,468	11,462	10,187	370,515	266,670	230,511	497,181
1964	139,426	30,884	126,612	49,306	12,093	15,218	373,539	*266,726	260,637	527,363
1965	215,949	32,899	158,085	53,842	12,731	15,733	489,239	363,490	288,803	652,293

(a) Figures generally are for the season or financial period ending in the following year. (b) Represents the estimated value of recorded production based on wholesale prices realized at the principal market. (c) In addition, the following amounts were paid as interim distribution of profits under the 1939-1945 War-time Wool Disposals Plan: in 1949, \$3,629,478; in 1951, \$3,629,478; in 1952, \$2,325,324; in 1953, \$368,104; in 1954, \$2,120,460; and in 1955, \$1,797,090. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (d) For primary production, net value of production is derived by deducting from the gross value all marketing costs and the cost of certain goods (seed, fertilizer, pickling, sprays, dips, fodder, fuel and oil, etc.) used in the processes of production. For manufacturing, net value of production is the value added in the course of manufacture. It is obtained by deducting from the selling value "at the factory" the cost of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing. (e) Not available. (f) Eighteen months ended 30th June, 1926. (g) See note (f). * Revised.

FACTORIES (a)

Year (b)	Fac- tories	Persons Em- ployed (c)	Salaries and Wages (d)	Output (e)	Net Pro- duction (f)	Certain Items of Factory Production							
						Bricks (g)	Cement	Timber from Local Logs (h)	Bacon and Ham	Butter (i)	Beer and Stout	Flour (Plain)	Elec- tricity Dis- tributed
	No.	No.	\$'000	\$'000	\$'000	'000	tons	'000 sup. ft.	tons	tons	'000 gal.	short tons (j)	'000 kWh.
1897	487	9,689	(k)			36,564	....	85,053		121	2,818	7,314	
1898	595	9,895	(k)			26,811	....	103,043		118	3,278	8,460	
1899	603	10,206	2,496			18,565	....	118,052		132	3,374	10,042	
1900	632	11,166	2,589			25,234	....	112,693		130	4,015	12,539	
1901	662	12,198	2,910			30,160	....	122,414		150	4,225	10,278	
1902	702	12,520	3,043	(k)	(k)	37,722	....	124,005		144	4,780	11,840	
1903	693	12,458	2,960			45,576	....	126,730		157	4,943	13,711	(k)
1904	793	13,427	3,208			50,332	....	143,595		197	5,404	20,185	
1905	777	13,481	3,109			44,045	....	137,250		189	5,144	26,420	
1906	802	13,739	3,244			37,893	....	136,295		170	5,100	26,977	
1907	791	13,545	2,959			28,666	....	110,394	(k)	195	4,652	28,353	
1908	774	13,276	3,116	8,958	5,213	23,842	....	168,414		163	4,312	31,424	
1909	773	13,606	3,180	8,810	4,964	17,833	....	171,825		185	4,600	24,878	
1910	822	14,894	3,532	10,158	5,472	23,162	....	174,528		286	4,711	36,818	
1911	880	16,754	4,171	11,863	6,567	28,687	....	198,977		222	5,113	40,642	23,227
1912	891	17,425	4,579	13,652	7,165	34,432	....	217,696		200	5,419	49,319	24,704
1913	954	18,372	4,675	14,597	7,524	35,085	....	218,908		231	5,360	61,997	25,716
1914	989	18,799	4,949	14,445	7,667	34,854	....	227,297		201	5,544	61,922	27,580
1915	983	15,882	3,871	14,125	6,468	21,667	....	123,494		320	5,349	32,396	28,131
1916	953	13,844	3,600	14,693	6,294	18,585	....	100,356		482	5,299	70,912	26,943
1917	944	13,350	3,486	15,324	6,199	17,488	....	85,218		608	5,018	102,300	30,252
1918	862	13,849	3,726	16,799	6,318	15,672	....	94,990	1,028	397	5,362	119,876	30,402
1919	922	16,358	4,636	20,573	7,645	21,092	....	131,477	1,000	445	5,775	141,516	28,083
1920	998	16,942	6,073	26,283	9,708	31,838	....	137,934	837	544	5,736	120,125	33,336
1921	1,099	18,151	7,136	25,689	10,479	23,548	(m)	183,663	772	684	5,532	82,148	36,086
1922	1,323	18,743	7,426	25,741	11,580	28,509	(m)	179,059	801	678	4,988	94,316	40,556
1923	1,307	19,805	7,731	27,409	12,257	34,864	(m)	192,547	969	766	4,893	107,990	47,973
1924	1,293	21,671	8,673	31,453	13,917	34,930	(m)	207,137	1,164	741	5,196	122,102	55,440
1925	1,170	20,667	13,175	42,890	19,222	53,336	15,636	328,935	1,875	836	7,593	190,369	99,853
1926	1,216	19,403	8,303	31,343	13,814	45,204	17,050	229,195	1,123	1,100	5,615	133,919	78,139
1927	1,398	20,435	9,003	33,996	15,380	52,992	19,645	227,631	1,157	1,111	6,011	127,246	84,450
1928	1,469	20,913	9,351	34,909	15,937	60,568	20,769	174,324	1,089	1,617	5,934	119,550	92,460
1929	1,466	19,643	8,310	33,783	14,976	47,720	23,276	159,643	1,161	2,109	6,008	120,595	102,411
1930	1,455	14,619	5,774	24,707	10,562	13,630	15,565	112,484	1,300	3,171	5,028	132,090	98,100
1931	1,490	13,392	4,671	22,375	9,212	15,101	16,853	57,690	1,297	3,727	4,366	131,165	119,833
1932	1,499	14,810	5,083	24,655	10,124	25,673	24,357	59,254	1,542	4,224	4,689	127,574	138,094
1933	1,606	16,154	5,505	25,755	10,889	31,717	27,746	96,428	1,901	4,386	5,450	122,000	152,028
1934	1,658	17,769	6,222	29,283	12,570	37,552	40,403	130,497	2,035	4,992	5,976	124,130	163,561
1935	1,946	20,972	7,408	35,057	15,008	50,498	48,539	154,989	2,373	4,896	7,260	118,340	194,603
1936	2,032	22,712	8,315	36,626	15,893	53,270	48,804	176,321	1,941	4,751	6,676	122,723	223,699
1937	2,066	23,133	8,803	39,288	17,125	57,598	59,694	176,718	1,945	6,117	6,792	125,472	250,368
1938	2,129	23,211	9,147	39,097	17,551	53,062	56,520	161,315	1,881	6,542	7,269	137,553	277,517
1939	2,120	22,967	9,150	40,615	18,055	43,786	57,775	152,453	2,073	6,251	8,009	140,840	305,999
1940	2,056	22,734	9,441	43,650	18,034	45,505	48,704	146,847	2,288	6,352	8,162	149,925	320,296
1941	1,938	23,980	10,999	47,904	20,201	34,247	43,367	146,013	2,729	6,991	8,384	135,338	313,625
1942	1,799	25,813	12,956	53,475	22,906	8,926	32,750	138,878	4,106	6,446	9,063	126,274	283,215
1943	1,807	28,101	14,835	58,417	25,923	6,296	29,783	121,600	4,322	6,155	9,671	159,799	279,359
1944	1,931	29,146	15,228	63,481	25,920	10,003	29,090	116,330	4,971	5,676	9,178	161,690	291,585
1945	2,280	30,256	15,768	68,046	27,653	24,150	25,195	117,995	4,573	5,604	10,552	166,791	302,025
1946	2,615	33,806	18,210	76,540	31,497	37,758	43,575	139,842	4,603	5,956	11,802	176,726	338,820
1947	2,788	35,967	21,471	91,252	36,708	44,086	56,450	148,695	3,955	6,974	11,999	195,497	358,221
1948	2,925	38,354	25,856	106,835	42,948	50,378	59,130	142,285	3,553	6,966	13,207	181,466	353,875
1949	3,023	40,733	30,586	127,956	52,088	58,943	60,000	153,813	3,542	6,769	15,250	159,495	368,371
1950	3,111	43,761	39,316	168,862	68,441	67,312	72,075	176,207	3,558	6,797	16,479	217,345	401,556
1951	3,267	45,097	50,769	213,143	85,491	76,884	74,680	199,447	3,680	6,705	17,433	221,846	428,056
1952	3,424	45,188	56,687	238,620	98,383	86,043	97,418	223,325	3,693	6,480	17,784	224,330	469,209
1953	3,523	47,459	63,181	269,174	110,294	101,240	125,466	241,011	3,448	6,142	17,844	187,958	520,301
1954	3,727	49,314	69,476	299,169	121,912	115,412		251,493	3,316	7,145	17,411	165,767	582,688
1955	3,871	50,108	74,413	350,293	139,466	102,350		245,138	3,231	7,404		179,362	626,928
1956	3,935	48,748	73,833	375,272	146,884	101,209		228,427	3,054	7,462		169,535	652,433
1957	3,941	48,462	75,870	392,525	150,624	111,082		233,173	2,932	6,807		148,148	688,990
1958	4,125	48,417	77,464	392,405	157,524	101,521		237,779	2,955	6,166		139,702	731,546
1959	4,279	49,651	83,285	431,165	172,747	110,359	(m)	225,461	3,177	7,376	(m)	150,774	785,147
1960	4,334	50,666	90,255	481,140	193,262	119,998		210,316	3,163	7,661		168,237	870,075
1961	4,418	51,033	92,840	486,988	196,083	119,868		213,948	3,500	7,483		141,103	929,841
1962	4,492	53,435	99,880	517,899	216,422	131,176		205,835	3,837	6,963		135,911	1,019,568
1963	4,609	55,705	108,515	555,058	230,511	155,792		218,911	3,780	6,915		143,296	1,111,948
1964	4,734	58,097	119,978	616,422	260,637	146,057		233,254	3,983	7,762		134,378	1,240,725
1965	4,906	60,282	134,171	678,751	288,803	140,611		236,125	4,288	8,095		113,665	1,371,730

(a) For statistical purposes a factory is defined as any establishment engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons are employed during any period of the year, or power other than manual is used. (b) For 1924 and earlier, calendar year; from 1927, year ended 30th June. See also note (7). (c) Average over the whole year and includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills. (d) Figures for 1929-30 and later years exclude amounts drawn by working proprietors. (e) Selling value "At Factory Door." (f) Value added in course of manufacture, representing sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. (g) For years prior to 1964-65, figures include all types of standard size bricks. Prior to 1925-26, they also include firebricks and blocks. From 1964-65 figures represent clay bricks only (all sizes). (h) Includes plywood veneers in terms of super. feet and hewn timber produced by agencies other than "Factories." (i) For 1917 and earlier years, includes butter made on farms. (j) Short ton = 2,000 lb. (k) Not available. (l) Eighteen months ended 30th June. (m) Not available for publication.

CONSUMER PRICE INDEX (a)

(Base of each Index Series: Year 1952-53 = 100)

Year (b)	Group Index Numbers— Perth (Metropolitan Area)					Combined Index (All Groups)— Capital Cities						
	Food	Clothing and Drapery	Housing	Household Supplies and Equipment	Miscellaneous	Perth	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Six Capital Cities (c)
1949	55.0	59.6	62.7	66.5	67.7	60.6	60.5	61.0	62.1	61.6	60.7	60.9
1950	61.0	68.8	66.4	71.1	69.5	66.2	65.6	66.2	67.1	66.2	64.7	66.0
1951	70.0	78.6	74.5	78.1	75.1	74.4	74.5	74.6	75.1	74.7	73.3	74.6
1952	87.2	95.3	87.2	92.7	90.7	90.4	91.9	91.0	91.8	91.4	90.4	91.4
1953	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1954	106.2	100.0	107.8	102.0	99.5	103.0	101.6	102.0	102.0	102.3	105.0	102.0
1955	109.3	100.1	119.2	102.0	99.5	105.2	102.3	102.0	102.9	103.5	104.9	102.6
1956	111.1	101.4	123.8	102.0	105.5	107.9	105.7	108.1	106.3	106.9	110.2	106.9
1957	116.0	103.1	123.6	104.5	117.0	112.9	112.9	114.0	112.0	111.1	116.9	113.1
1958	114.4	105.7	126.0	105.7	118.3	113.6	114.5	114.4	114.4	111.9	117.0	114.2
1959	115.2	107.2	130.3	105.9	118.7	114.7	115.3	116.6	118.2	114.5	118.7	116.0
1960	118.4	108.2	133.5	107.1	120.9	116.9	117.8	120.0	121.2	118.0	120.8	118.9
1961	124.4	110.8	141.7	107.3	125.2	121.2	122.1	125.9	125.4	122.9	127.5	123.8
1962	123.5	111.7	146.4	107.3	125.3	121.6	122.6	126.3	127.3	122.5	128.1	124.3
1963	123.9	112.0	150.9	107.0	125.5	122.2	123.2	126.2	127.7	122.1	128.0	124.5
1964	125.4	112.8	155.9	105.2	128.5	123.8	124.5	127.1	129.0	123.5	129.4	125.7
1965	130.5	114.1	160.0	106.4	134.2	127.6	128.8	132.2	133.9	128.6	133.6	130.4
1966	136.6	115.4	165.6	108.1	142.1	132.5	133.1	137.1	140.4	132.7	138.3	135.2

(a) The index numbers shown are so designed as to measure periodically the movement in retail prices of the specified groups of items in each city individually. They do not provide a measure of differences in absolute price level as between cities, nor of comparative costs of the groups of items. (b) Year ended 30th June. (c) Weighted average.

CIVILIAN EMPLOYMENT

NEW BUILDINGS COMPLETED

Year (a)	Wage and Salary Earners in Civilian Employment (b) (Excluding Employees in Rural In- dustry and Private Domestic Ser- vice, and Defence Forces)			New Buildings Completed				
	Males	Females	Persons	Houses		Flats (c)		All Buildings
				Number	Value (d)	Number	Value (d)	Value (d) (e)
1946	'000	'000	'000	860	\$'000	2	\$'000	\$'000
1947				1,792	1,452	4		1,948
1948				2,771	3,516			4,232
1949				3,244	5,784			6,656
1950				3,509	7,592			9,414
1951	(f)	(f)	(f)	3,509	8,974	101	194	10,704
1952				5,160	15,032	305	606	17,896
1953				6,577	24,466	215	300	28,862
1954	141.2	43.2	184.4	7,965	37,988	100	334	45,836
1955	144.5	45.1	189.6	7,627	39,768	212	834	51,570
1956	144.7	46.3	191.0	8,792	48,422	316	1,176	68,192
1957	143.3	46.1	189.4	7,760	45,084	584	2,564	67,356
1958	143.1	47.3	190.4	5,030	29,054	365	1,502	46,848
1959	144.9	48.4	193.3	6,196	36,526	171	712	54,524
1960	147.5	50.4	197.9	5,846	34,410	212	840	60,524
1961				5,997	35,454	263	986	60,240
1962	148.5	51.2	199.7	5,973	38,102	440	1,580	72,050
1963	154.7	53.4	208.1	6,082	39,470	265	1,342	68,072
1964	159.4	55.5	214.9	6,593	45,780	642	2,984	86,428
1965	164.3	58.5	222.9	7,276	51,774	1,295	5,596	92,868
1966	171.5	62.7	234.2	7,445	57,238	1,841	9,046	107,100
1967	180.7	68.0	248.7	7,265	58,089	1,624	9,096	130,178

(a) Employment estimates relate to the month of June; statistics of New Buildings Completed are for the year ended 30th June. (b) Estimated. Figures for years prior to 1954 as published in issues of the *Statistical Summary* for 1961-62 and earlier, are not comparable with this series. (c) Individual living units. (d) Excludes the value of land. (e) Includes value of houses and flats shown in preceding columns. (f) Not available on basis comparable with that for 1954 and later—see note (b).

STATE AND COMMONWEALTH BASIC WAGE RATES (a)

At 31st December	State Basic Wage		Commonwealth Basic Wage—Male Rates (b)						
	Perth (c)		Perth	Sydney	Mel- bourne	Brisbane	Adelaide	Hobart	Weighted Average Six Capital Cities
	Male	Female							
1923	\$ (d)	\$ (d)	\$ 7.80	\$ 8.90	\$ 9.15	\$ 7.60	\$ 8.55	\$ 8.90	\$ 8.75
1924	(d)	(d)	7.90	8.45	8.45	7.50	8.40	8.80	8.30
1925	(d)	(d)	8.10	8.80	8.75	7.70	8.60	8.55	8.60
1926	8.50	4.59	8.15	9.15	8.90	8.25	8.55	8.85	8.85
1927	8.50	4.59	7.95	9.05	9.00	7.95	8.80	8.50	8.80
1928	8.50	4.59	8.50	9.05	8.60	7.90	8.50	8.25	8.70
1929	8.70	4.70	8.55	9.50	9.00	8.05	8.85	8.60	9.05
1930	8.60	4.64	7.90	8.80	8.30	7.05	7.80	8.20	8.30
1931	7.35	3.97	6.21	7.07	6.34	5.85	5.81	6.43	6.52
1932	7.05	3.81	5.94	6.75	6.17	5.67	5.72	6.43	6.30
1933	6.92	3.74	6.02	6.69	6.28	5.93	5.96	6.39	6.33
1934	7.10	3.83	6.80	6.80	6.40	6.20	6.30	6.60	6.60
1935	7.05	3.81	6.80	7.00	6.60	6.40	6.70	6.90	6.80
1936	7.38	3.98	7.10	7.00	6.90	6.60	6.90	6.90	6.80
1937	7.49	4.04	7.50	7.80	7.70	7.40	7.40	7.50	7.60
1938	8.11	4.38	7.60	8.10	7.90	7.60	7.60	7.60	7.80
1939	8.22	4.43	7.70	8.20	8.00	7.60	7.70	7.70	7.90
1940	8.53	4.61	8.00	8.50	8.40	7.90	8.00	8.10	8.30
1941	9.04	4.88	8.50	8.90	8.80	8.40	8.40	8.50	8.70
1942	9.78	5.28	9.10	9.70	9.70	9.10	9.30	9.20	9.50
1943	10.11	5.46	9.40	9.90	9.80	9.30	9.40	9.50	9.70
1944	9.99	5.39	9.40	9.90	9.80	9.30	9.30	9.40	9.60
1945	10.01	5.41	9.40	9.90	9.80	9.30	9.30	9.40	9.60
1946	10.21	5.51	10.20	10.80	10.60	10.10	10.20	10.30	10.50
1947	11.08	5.98	10.60	11.20	10.90	10.50	10.60	10.70	10.90
1948	12.16	6.57	11.60	12.20	12.00	11.50	11.60	11.80	11.90
1949	13.59	7.34	12.90	13.20	13.00	12.50	12.60	12.80	12.90
1950	16.65	9.41	16.00	16.50	16.20	15.40	15.80	16.00	16.20
1951	20.57	13.37	19.70	20.70	19.90	18.50	19.50	19.90	20.00
1952	23.85	15.50	22.80	23.70	22.80	21.60	22.90	23.00	23.10
1953	24.65	16.02	23.60	24.30	23.50	21.80	23.10	24.20	23.60
1954	24.65	16.02	23.60	24.30	23.50	21.80	23.10	24.20	23.60
1955	25.24	16.41	23.60	24.30	23.50	21.80	23.10	24.20	23.60
1956	26.52	17.23	24.60	25.30	24.50	22.80	24.10	25.20	24.60
1957	27.28	17.72	25.60	26.30	25.50	23.80	25.10	26.20	25.60
1958	27.34	17.78	26.10	26.80	26.00	24.30	25.60	26.70	26.10
1959	28.15	18.30	27.60	28.30	27.50	25.80	27.10	28.20	27.60
1960	29.46	22.09	27.60	28.30	27.50	25.80	27.10	28.20	27.60
1961	29.88	22.41	28.80	29.50	28.70	27.00	28.30	29.40	28.80
1962	29.88	22.41	28.80	29.50	28.70	27.00	28.30	29.40	28.80
1963	30.15	22.61	28.80	29.50	28.70	27.00	28.30	29.40	28.80
1964	31.12	23.34	30.80	31.50	30.70	29.00	30.30	31.40	30.80
1965	31.96	23.97	30.80	31.50	30.70	29.00	30.30	31.40	30.80
1966	33.50	25.13	32.80	33.50	32.70	31.00	32.30	33.40	32.80

(a) See *Special Note* below. (b) In the period from December, 1950 to June, 1967 the female basic wage was fixed at 75 per cent. of the male rate; previously it had ranged from 54 per cent. up to 75 per cent. of the male rate. (c) The rates shown for 1964 and later apply uniformly throughout the State. (d) The first State basic wage operated from 1st July, 1926.

Special Note—The latest wage rates shown in the "State" section of this table are those which applied before a decision of The Western Australian Industrial Commission dated 27th June, 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from \$36.55 to \$37.55; "that the wage rates for adult workers not in receipt of the 'minimum wage' be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount". These increases were declared to operate from the beginning of the first pay-period commencing on or after 1st July, 1967. The latest wage rates shown in the "Commonwealth" section of the table applied before a decision of the Commonwealth Conciliation and Arbitration Commission in June, 1967 to eliminate basic wages and margins from its awards and to introduce total wages to operate from the beginning of the first pay-period commencing on or after 1st July, 1967. Total wages for adult males and adult females were increased by \$1 a week from the same date.

APPENDIX

CHAPTER III—CONSTITUTION AND GOVERNMENT

pages 90, 97

The Federal Parliament

Elections for the Senate were held on the 25th November, 1967. The following tables show the Western Australian membership of the Senate as from the 1st July, 1968 as a result of the election, and also the electors enrolled and the votes recorded.

WESTERN AUSTRALIAN MEMBERS OF THE SENATE

Due to Retire on 30th June, 1971				Due to Retire on 30th June, 1974			
Name		Political Party		Name		Political Party	
Branson, G. H.	....	Lib.		Prowse, E. W.	....	C.P.	
Cant, H. G. J.	....	A.L.P.		Sim, J. P.	....	Lib.	
Drake-Brockman, T. C., D.F.C.	....	C.P.		Wilkinson, L. D.	....	A.L.P.	
Scott, M. F.	....	Lib.		Willesee, D. R.	....	A.L.P.	
Wheeldon, J. M.	....	A.L.P.		Withers, R. G.	....	Lib.	

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = Liberal Party.

SENATE—ELECTION OF 25th NOVEMBER, 1967

Electoral Division	Number of Electors Enrolled			Number of Electors Who Voted			Percentage of Enrolled Electors Who Voted			Number of Informal Ballot Papers
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	
Canning	24,153	22,643	46,796	23,227	21,675	44,902	96.17	95.72	95.95	3,132
Curtin	19,835	24,134	43,969	18,963	22,606	41,569	95.60	93.67	94.54	2,275
Forrest	22,944	21,690	44,634	22,169	20,973	43,142	96.62	96.69	96.66	2,778
Fremantle	27,629	30,027	57,656	26,533	28,723	55,256	96.03	95.66	95.84	3,174
Kalgoorlie	19,606	16,437	36,043	17,795	15,096	32,891	90.76	91.84	91.25	2,679
Moore	24,251	22,519	46,770	23,010	21,395	44,405	94.88	95.01	94.94	2,641
Perth	14,196	16,082	30,278	13,245	14,891	28,136	93.30	92.59	92.93	2,755
Stirling	36,744	38,783	75,527	34,449	37,057	71,506	93.75	95.55	94.68	4,694
Swan	23,725	31,559	60,284	26,901	29,696	56,597	93.65	94.10	93.88	3,704
Total, Western Australia	218,083	223,874	441,957	206,292	212,112	418,404	94.59	94.75	94.67	27,832

pages 92, 95, 96

The State Parliament

At the conjoint election for the Legislative Council and the Legislative Assembly which was held on the 23rd March, 1968 the Liberal-Country Party Government, led by the Honourable David Brand, was returned to office, its majority in the Legislative Assembly being reduced from eight seats to five seats. Government representation in the Legislative Council was unchanged.

All Ministers holding office prior to the election were re-elected to Parliament and retained the portfolios held by them in the previous Parliament.

The Legislative Council

At the election of 23rd March, 1968 the Hon. E. M. Heenan (Australian Labor Party) was defeated by Mr. (now Hon.) G. W. Berry (Liberal and Country League) in the Lower North Province and the Hon. H. R. Robinson (Liberal and Country League) was defeated by Mr. (now Hon.) R. F. Claghton (Australian Labor Party) in the North Metropolitan Province. The Hon. Sir Keith Watson (Liberal and Country League) did not seek re-election to the Legislative Council and was replaced in the Metropolitan Province by Mr. (now Hon.) I. G. Medcalf (Liberal and Country League).

The Legislative Assembly

The composition of the Legislative Assembly as a result of the election of 23rd March, 1968 is shown on page 443.

In accordance with the provisions of the Constitution Acts Amendment Act (No. 2), 1965 membership of the Legislative Assembly was increased from 50 to 51.

MEMBERS OF THE LEGISLATIVE ASSEMBLY
AFTER GENERAL ELECTIONS OF 23rd MARCH, 1968

Name	Political Party	Electoral District
Bateman, Thomas Henry (<i>a</i>)	A.L.P.	Canning
Bertram, Ronald Edward (<i>a</i>)	A.L.P.	Mount Hawthorn
Bickerton, Arthur William (<i>b</i>)	A.L.P.	Pilbara
Bovell, Hon. William Stewart (<i>b</i>)	L.C.L.	Vasse
Brady, John Joseph	A.L.P.	Swan
Brand, Hon. David (<i>b</i>)	L.C.L.	Greenough
Burke, Terrence Joseph (<i>a</i>)	A.L.P.	Perth
Burt, Richard Paul Septimus (<i>b</i>)	L.C.L.	Murchison-Eyre
Cash, Earl Douglas (<i>a</i>)	L.C.L.	Mirrabooka
Court, Hon. Charles Walter Michael, O.B.E.	L.C.L.	Nedlands
Craig, Hon. James Frederick	C.P.	Toodyay
Davies, Ronald (<i>b</i>)	A.L.P.	Victoria Park
Dunn, Kenneth Wathen	L.C.L.	Darling Range
Evans, Hywel David (<i>a</i>)	A.L.P.	Warren
Evans, Thomas Daniel (<i>b</i>)	A.L.P.	Kalgoorlie
Fletcher, Harry Arthur	A.L.P.	Fremantle
Gayfer, Harry Walter (<i>b</i>)	C.P.	Avon
Graham, Hon. Herbert Ernst	A.L.P.	Balcatta
Grayden, William Leonard	L.C.L.	South Perth
Guthrie, Hugh Norman	L.C.L.	Subiaco
Hall, Jack	A.L.P.	Albany
Harman, John Joseph (<i>a</i>)	A.L.P.	Maylands
Henn, Guy Gavin, M.R.C.S., L.R.C.P. (<i>b</i>)	L.C.L.	Wembley
Hutchinson, Hon. Ross, D.F.C.	L.C.L.	Cottesloe
Jamieson, Colin John	A.L.P.	Belmont
Jones, Thomas Henry (<i>a</i>)	A.L.P.	Collie
Kitney, Ronald Wilfred (<i>a</i>)	C.P.	Blackwood
Lapham, Stanley Edward (<i>a</i>)	A.L.P.	Karrinyup
Lewis, Hon. Edgar Henry Mead	C.P.	Moore
Manning, Iven Wemyss (<i>b</i>)	L.C.L.	Wellington
Manning, William Allan, A.A.S.A., A.C.I.S. (<i>b</i>)	C.P.	Narrogin
May, Donald George (<i>a</i>)	A.L.P.	Clontarf
McIver, Kenneth Finlay (<i>a</i>)	A.L.P.	Northam
McPharlin, Walter Raymond (<i>b</i>)	C.P.	Mount Marshall
Mensaros, Andrew (<i>a</i>)	L.C.L.	Floreat
Mitchell, Clayton Clealand Bickley (<i>b</i>)	C.P.	Stirling
Moir, Arthur McAlister (<i>b</i>)	A.L.P.	Boulder-Dundas
Nalder, Hon. Crawford David (<i>b</i>)	C.P.	Katanning
Norton, Daniel	A.L.P.	Gascoyne
O'Connor, Hon. Raymond James	L.C.L.	Mount Lawley
O'Neil, Hon. Desmond Henry	L.C.L.	East Melville
Ridge, Keith Alan (<i>a</i>)	L.C.L.	Kimberley
Runciman, Ewart	L.C.L.	Murray
Rushton, Edgar Cyril	L.C.L.	Dale
Sewell, William Hawkins	A.L.P.	Geraldton
Stewart, Jack McKay Ardath (<i>a</i>)	L.C.L.	Merredin-Yilgarn
Taylor, Alexander Donald (<i>a</i>)	A.L.P.	Cockburn
Toms, John Mervin	A.L.P.	Ascot
Tonkin, Hon. John Trezise	A.L.P.	Melville
Williams, Maurice Clifford	L.C.L.	Bunbury
Young, William Gordon	C.P.	Roe

SUMMARY

Australian Labor Party (A.L.P.)	23
Country Party (C.P.)	9
Liberal and Country League (L.C.L.)	19

(*a*) New member. (*b*) Returned unopposed.

CHAPTER IV—POPULATION AND VITAL STATISTICS

PART I—POPULATION

pages 113 to 126

Population Census—30th June, 1966

The tables on pages 445-54 contain some final results of the Population Census taken on the 30th June, 1966.

Particulars of full-blood Aborigines and of dwellings occupied solely by them are excluded throughout the tables.

Changes in Local Government Areas : 1st July, 1961 to 30th June, 1966—A number of boundary changes, many of them minor, occurred between the Censuses of 1961 and 1966. In some cases, however, a boundary change resulted in a change in the population of the local government area. In order to eliminate population changes due to boundary changes and to provide a comparison with the 1966 population figures, the 1961 local government area populations shown in the tables on pages 446-50 have been adjusted to the boundaries used in 1966.

In addition to boundary changes, some new Shires were constituted, some municipalities were amalgamated, and there were some changes of name. These are listed below.

The Town of North Fremantle was annexed to the City of Fremantle with effect from the 1st November, 1961.

Mosman Park, formerly a Shire, was declared to be a Town with effect from the 26th January, 1962.

The Shire of Coorow was constituted, with effect from the 1st July, 1962, by severance of territory from the Shires of Carnamah, Dalwallinu and Perenjori.

Melville, formerly a Shire, was declared to be a Town with effect from the 28th September, 1962.

The Shire of Exmouth was constituted, with effect from the 1st January, 1964, by severance of territory from the Shire of Gascoyne-Minilya.

The Town of Carnarvon was amalgamated with the Shire of Gascoyne-Minilya to form the Shire of Carnarvon, with effect from the 1st March, 1965.

The Town of York was amalgamated with the Shire of York, with effect from the 15th March, 1965, to form one local government area named the Shire of York.

The name of the Shire of Geraldton-Greenough was changed to the Shire of Greenough, with effect from the 19th March, 1965.

The name of the Shire of Trayning-Kununoppin-Yelbeni was changed to the Shire of Trayning, with effect from the 10th September, 1965.

pages 112, 126

Estimates of Population

In the tables on page 455 the figures shown form part of a new series of population estimates of the States and Territories of Australia and include Aborigines in accordance with the repeal, with effect from the 10th August, 1967, of Section 127 of the Commonwealth of Australia Constitution Act which required that "In reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted".

POPULATION—STATES AND TERRITORIES OF AUSTRALIA

State or Territory	Census, 30th June, 1961			Census, 30th June, 1966			Proportion of Total	
	Males	Females	Persons	Males	Females	Persons	1961	1966
New South Wales	1,972,909	1,944,104	3,917,013	2,124,463	2,109,360	4,233,823	per cent.	per cent.
Victoria	1,474,395	1,455,718	2,930,113	1,613,904	1,605,622	3,219,526	37.28	36.66
Queensland	774,579	744,249	1,518,828	843,897	819,788	1,663,685	27.88	27.87
South Australia	490,225	479,115	969,340	548,530	543,345	1,091,875	14.45	14.40
Western Australia	375,452	361,177	736,629	426,691	409,982	836,673	9.23	9.45
Tasmania	177,628	172,712	350,340	187,380	184,036	371,416	7.01	7.24
Northern Territory	16,206	10,889	27,095	21,508	15,925	37,433	3.33	3.22
Australian Capital Territory	30,858	27,970	58,828	49,977	46,036	96,013	0.26	0.33
per cent.							0.56	0.83
AUSTRALIA	5,312,252	5,195,934	10,508,186	5,816,350	5,734,094	11,550,444	100.00	100.00

POPULATION—INTERCENSAL INCREASES: STATES AND TERRITORIES
30th JUNE, 1961 TO 30th JUNE, 1966

State or Territory	Intercensal Increase				
	Number			Per cent.	Average Annual Rate (per cent.)
	Males	Females	Persons		
New South Wales	151,554	165,256	316,810	8.09	1.57
Victoria	139,509	149,904	289,413	9.88	1.90
Queensland	69,318	75,539	144,857	9.54	1.84
South Australia	58,305	64,230	122,535	12.64	2.41
Western Australia	51,239	48,805	100,044	13.58	2.58
Tasmania	9,752	11,324	21,076	6.02	1.18
Northern Territory	5,302	5,036	10,338	38.15	6.68
Australian Capital Territory	19,119	18,066	37,185	63.21	10.29
per cent.					
AUSTRALIA	504,098	538,160	1,042,258	9.92	1.91

POPULATION OF CAPITAL CITIES (a)

Capital City (a)	Census, 30th June, 1961	Census, 30th June, 1966			Intercensal Increase	
		Males	Females	Persons	Number	Per cent.
Sydney (b)	2,303,464	1,256,354	1,284,953	2,541,307	237,843	10.33
Melbourne (b)	1,984,582	1,108,020	1,122,560	2,230,580	245,998	12.40
Brisbane (b)	692,634	382,780	394,894	777,674	85,040	12.28
Adelaide (b)	659,146	380,198	390,977	771,175	112,029	17.00
Perth (b) (c)	475,398	274,872	283,949	558,821	83,423	17.55
Hobart (b)	130,236	69,624	71,675	141,299	11,063	8.49
Darwin (d)	14,408	11,233	9,179	20,412	6,004	41.67
Canberra (e)	67,151	55,614	51,521	107,135	39,984	59.54

(a) See letterpress *Urban and Rural Populations* on pages 120-1. (b) Statistical Division. (c) Population of the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions. (d) Urban Centre. (e) Statistical District.

POPULATION—LOCAL GOVERNMENT AREAS: WESTERN AUSTRALIA, 1961 AND 1966

Local Government Area (a)	Census, 30th June, 1961	Census, 30th June, 1966			Intercensal Increase or Decrease	
		Males	Females	Persons	Numerical	Percentage
ALBANY	10,526	5,598	5,821	11,419	893	8.48
Albany	2,749	1,714	1,533	3,247	498	18.12
Armadale-Kelmscott	6,469	3,934	3,906	7,840	1,371	21.19
Ashburton	569	421	213	634	65	11.42
Augusta-Margaret River	3,590	1,689	1,549	3,238	— 352	— 9.81
Balingup	1,243	628	567	1,195	— 48	— 3.86
Bassendean	8,310	4,866	4,881	9,747	1,437	17.29
Bayswater	19,296	12,932	13,180	26,112	6,816	35.32
Belmont	20,393	13,366	13,612	26,978	6,585	32.29
Beverley	1,899	922	851	1,773	— 126	— 6.64
Boddington	967	389	372	761	— 206	— 21.80
BOULDER	5,773	2,685	2,549	5,234	— 539	— 9.34
Bridgetown	2,971	1,456	1,346	2,802	— 169	— 5.69
Brookton	1,319	729	612	1,341	22	1.67
Broome	1,462	1,184	739	1,923	461	31.53
Broomehill	783	390	355	745	— 48	— 6.13
Bruce Rock	2,291	1,146	996	2,142	— 149	— 6.50
BUNBURY	13,186	7,789	7,670	15,459	2,273	17.24
Busselton	6,120	3,427	3,406	6,833	713	11.65
Canning	17,701	11,806	11,798	23,604	5,903	33.35
Capel	1,877	1,112	1,020	2,132	255	13.59
Carnamah (b)	959	548	448	996	37	3.86
Carnarvon (b)	3,212	2,570	2,076	4,646	1,434	44.65
Chapman Valley (b)	1,006	442	364	806	— 200	— 19.88
Chittering	1,004	596	479	1,075	71	7.07
CLAREMONT	8,601	4,224	4,714	8,938	337	3.92
Cockburn	7,007	7,048	6,799	13,847	6,840	97.62
Collie	8,486	4,339	4,205	8,544	58	0.68
Coolgardie	1,043	428	334	762	— 281	— 26.94
Coorow (b)	782	447	361	808	26	3.32
Corrigin	2,123	1,157	942	2,099	— 24	— 1.13
COTTESLOE	7,827	3,769	4,353	8,122	295	3.77
Cranbrook	1,360	820	599	1,419	59	4.34
Cuballing	833	410	322	732	— 101	— 12.12
Cue	466	256	174	430	— 36	— 7.73
Cunderdin	2,014	1,159	955	2,114	100	4.97
Dalwallinu (b)	2,197	1,381	1,044	2,425	228	10.38
Dandaragan	456	384	235	619	163	35.75
Dardanup	1,606	845	820	1,665	59	3.67
Denmark	1,864	926	849	1,775	— 89	— 4.77
Donnybrook	2,258	1,113	1,025	2,138	— 120	— 5.31
Dowerin	1,392	727	573	1,300	— 92	— 6.61
Dumbleyung	1,444	799	659	1,458	14	0.97
Dundas	2,937	1,547	1,235	2,782	— 155	— 5.28
EAST FREMANTLE	6,542	3,462	3,446	6,908	366	5.59
Esperance	2,285	2,069	2,185	4,854	2,569	112.43
Exmouth (b)	41	1,841	407	2,248	2,207	5,382.93
FREMANTLE (b)	24,343	13,045	12,239	25,284	941	3.87
GERALDTON	10,894	6,245	5,880	12,125	1,231	11.30
Gingin	769	541	480	1,021	252	32.77
Gnowangerup	3,190	2,076	1,739	3,815	625	19.59
Goomalling	1,567	829	738	1,567	—	—
Gosnells	9,504	5,726	5,648	11,374	1,870	19.68
Greenbushes	666	366	314	680	14	2.10
Greenough (b)	1,784	865	729	1,594	— 190	— 10.65
Halls Creek	436	380	197	577	141	32.34
Harvey	6,834	3,464	3,079	6,543	— 291	— 4.26
Irwin	657	423	387	810	153	23.29
Kalamunda	7,524	4,847	4,938	9,785	2,261	30.05
KALGOORLIE	9,696	4,831	4,343	9,174	— 522	— 5.38
Kalgoorlie	7,294	3,568	3,095	6,663	— 631	— 8.65
Katanning	4,293	2,278	2,210	4,488	195	4.54
Kellerberrin	2,420	1,224	1,143	2,367	— 53	— 2.19
Kojonup	2,667	1,468	1,253	2,711	44	1.65
Kondinin	1,278	700	562	1,262	— 16	— 1.25
Koorda	935	642	438	1,080	145	15.51
Kulin	1,261	820	573	1,393	132	10.47
Kwinana	4,663	2,951	2,826	5,777	1,114	23.89
Lake Grace	1,843	1,119	867	1,986	143	7.76
Laverton	216	118	88	206	— 10	— 4.63
Leonora	1,241	375	248	623	— 618	— 49.80
Mandurah	2,236	1,473	1,535	3,008	772	34.53
Manjimup	10,195	4,799	4,369	9,168	— 1,027	— 10.07
Marble Bar	404	369	198	567	163	40.35
Meekatharra	1,071	574	437	1,011	— 60	— 5.60
MELVILLE	39,207	23,561	24,326	47,887	8,680	22.14
Menzies	512	275	129	404	— 108	— 21.09
Merredin	4,563	2,941	2,356	5,297	734	16.09
MIDLAND	9,256	4,766	4,569	9,335	79	0.85
Mingenew	985	568	410	978	— 7	— 0.71

For footnotes, see end of table.

POPULATION—LOCAL GOVERNMENT AREAS : WESTERN AUSTRALIA
1961 AND 1966—continued

Local Government Area (a)	Census, 30th June, 1961	Census, 30th June, 1966			Intercensal Increase or Decrease	
		Males	Females	Persons	Numerical	Percentage
Moorabidgee	3,082	1,642	1,339	2,981	— 101	— 3.28
Morawa	1,317	965	753	1,718	401	30.45
MOSMAN PARK	5,862	2,647	3,146	5,793	— 69	— 1.18
Mount Magnet (b)	1,119	590	426	1,016	— 103	— 9.20
Mount Marshall	1,091	759	546	1,305	214	19.62
Mukinbudin	707	499	370	869	162	22.91
Mullewa	1,627	1,077	748	1,825	198	12.17
Mundaring	8,104	4,511	4,414	8,925	821	10.13
Murchison	320	177	106	283	— 37	— 11.56
Murray	3,592	1,699	1,630	3,329	— 263	— 7.32
Nannup	1,636	727	545	1,272	— 364	— 22.25
Narembeen	1,558	868	722	1,590	32	2.05
NARROGIN	4,620	2,396	2,465	4,861	241	5.22
Narrogin	972	592	418	1,010	38	3.91
NEDLANDS	23,218	11,349	11,971	23,320	102	0.44
NORTHAM	7,200	3,825	3,575	7,400	200	2.78
Northam (b)	2,863	1,486	1,208	2,694	— 169	— 5.90
Northampton	1,821	1,093	928	2,021	200	10.98
Nullagine	171	170	41	211	40	23.39
Nungarin	608	294	245	539	— 69	— 11.35
Nyabing-Pingrup	834	625	442	1,067	233	27.94
Peppermint Grove	1,502	619	982	1,601	99	6.59
Perenjori	1,277	758	553	1,311	34	2.66
PERTH	94,508	46,691	49,532	96,223	1,715	1.81
Perth	84,045	56,086	58,324	114,410	30,365	36.13
Pingelly	1,639	726	727	1,453	— 186	— 11.35
Plantagenet	1,602	2,483	2,183	4,666	164	3.64
Port Hedland	1,120	2,149	859	3,008	1,888	168.57
Quairading	1,789	893	794	1,687	— 102	— 5.70
Ravensthorpe	587	476	306	782	195	33.22
Rockingham	2,583	2,220	2,163	4,383	1,800	69.69
Roebourne	568	1,443	339	1,782	1,214	213.73
Sandstone	163	83	52	135	— 28	— 17.18
Serpentine-Jarrahdale	1,830	990	738	1,728	— 102	— 5.57
Shark Bay	387	305	168	473	86	22.22
SOUTH PERTH	29,941	15,421	16,621	32,042	2,101	7.02
SUBIACO	16,033	7,449	9,172	16,621	588	3.67
Swan-Guildford	9,397	5,348	4,452	9,800	403	4.29
Tableland	980	1,416	399	1,815	835	85.20
Tambellup	940	503	448	951	11	1.17
Tammin	847	440	388	828	— 19	— 2.24
Three Springs	972	546	492	1,038	66	6.79
Toodyay	1,365	722	666	1,388	23	1.40
Trayning	935	533	447	980	45	4.81
Upper Blackwood	2,381	1,210	1,017	2,227	— 154	— 6.47
Upper Gascoyne	354	246	108	354	—	—
Victoria Plains	2,034	992	793	1,785	— 249	— 12.24
Wagin	2,627	1,457	1,317	2,774	147	5.60
Wandering	661	325	286	611	— 50	— 7.56
Wanneroo	1,732	1,238	1,199	2,437	705	40.70
Waroona	1,793	935	894	1,829	36	2.01
West Arthur	1,398	782	645	1,427	29	2.07
West Kimberley	2,249	1,668	1,027	2,695	446	19.83
Westonia	435	371	241	612	177	40.69
Wickepin	1,276	773	607	1,380	104	8.15
Williams	1,330	641	552	1,193	— 137	— 10.30
Wiluna	316	114	105	219	— 97	— 30.70
Wongan-Ballidu	2,145	1,321	1,012	2,333	188	8.76
Woodanilling	603	317	263	580	— 23	— 3.81
Wyalkatchem	1,383	660	592	1,252	— 131	— 9.47
Wyndham-East Kimberley	1,521	1,652	797	2,449	928	61.01
Yalgoo (b)	525	246	146	392	— 133	— 25.33
Yilgarn	2,558	1,444	1,002	2,446	— 112	— 4.38
York (b)	2,416	1,193	1,084	2,277	— 139	— 5.75
Total	733,612	424,183	409,452	833,635	100,023	13.63
Migratory (c)	3,017	2,508	530	3,038	21	0.70
TOTAL, WESTERN AUSTRALIA	736,629	426,691	409,982	836,673	100,044	13.58

NOTE—Minus sign (—) indicates decrease in population.

(a) The names of Cities and Towns are shown in capital letters ; all other local government areas are Shires. (b) Indicates those local government areas where a boundary change between the 1961 and 1966 Censuses resulted in a change in the population of the local government area ; see also page 444. In order to eliminate population changes due to boundary changes and to provide a comparison with the 1966 population figures, the 1961 local government area populations shown in the table have been adjusted to the boundaries used in 1966. (c) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

POPULATION AND DWELLINGS—LOCAL GOVERNMENT AREAS AND
STATISTICAL DIVISIONS: WESTERN AUSTRALIA

Local Government Area (a)	Census, 30th June, 1961	Census, 30th June, 1966				
		Population			Dwellings (b)	
		Persons	Males	Females	Persons	Occupied	Un-occupied
PERTH STATISTICAL DIVISION (c)						
Armada-le-Kelmscott	6,469	3,934	3,906	7,840	2,108	180
Bassendean	8,310	4,866	4,881	9,747	2,651	70
Bayswater	19,296	12,932	13,180	26,112	6,925	207
Belmont	20,393	13,366	13,612	26,978	6,877	173
Canning	17,701	11,806	11,798	23,604	6,012	207
CLAREMONT	8,601	4,224	4,714	8,938	2,562	92
Cockburn	7,007	7,048	6,799	13,847	3,477	410
COTTESLOE	7,827	3,769	4,353	8,122	2,918	218
EAST FREMANTLE	6,542	3,462	3,446	6,908	1,997	65
FREMANTLE (c)	24,343	13,045	12,239	25,284	6,808	227
Gosnells	9,504	5,726	5,648	11,374	3,049	166
Kalamunda	7,524	4,847	4,938	9,785	2,597	243
Kwinana	4,663	2,951	2,826	5,777	1,351	105
MELVILLE	39,207	23,561	24,326	47,887	12,831	301
MIDLAND	9,256	4,766	4,569	9,335	2,479	60
MOSMAN PARK	5,862	2,647	3,146	5,793	1,733	71
Mundaring	8,104	4,511	4,414	8,925	2,483	275
NEDLANDS	23,218	11,349	11,971	23,320	6,115	184
Peppermint Grove	1,502	619	982	1,601	458	20
PERTH	94,508	46,691	49,532	96,223	28,466	1,110
Perth	84,045	56,086	58,324	114,410	30,848	1,026
Rockingham	2,583	2,220	2,163	4,383	1,376	1,627
Serpentine-Jarrahdale.....	1,830	990	738	1,728	437	67
SOUTH PERTH	29,941	15,421	16,621	32,042	9,836	328
SUBIACO	16,033	7,449	9,172	16,621	5,605	203
Swan-Guildford	9,397	5,348	4,452	9,800	2,339	191
Wanneroo	1,732	1,238	1,199	2,437	646	386
TOTAL	475,398	274,872	283,949	558,821	154,984	8,211
SOUTH-WEST STATISTICAL DIVISION						
Augusta-Margaret River	3,590	1,689	1,549	3,238	906	187
Balingup	1,243	628	567	1,195	319	41
Boddington	967	389	372	761	216	39
Bridgetown	2,971	1,456	1,346	2,802	784	87
BUNBURY	13,186	7,789	7,670	15,459	4,019	245
Busselton	6,120	3,427	3,406	6,833	1,894	517
Capel	1,877	1,112	1,020	2,132	533	40
Collie	8,486	4,339	4,205	8,544	2,301	159
Dardanup	1,606	845	820	1,665	432	28
Donnybrook	2,258	1,113	1,025	2,138	569	68
Greenbushes	666	366	314	680	185	24
Harvey	6,834	3,464	3,079	6,543	1,655	240
Mandurah	2,236	1,473	1,535	3,008	1,196	1,650
Manjimup	10,195	4,799	4,369	9,168	2,371	531
Murray	3,592	1,699	1,630	3,329	897	490
Nannup	1,636	727	545	1,272	320	56
Upper Blackwood	2,381	1,210	1,017	2,227	624	79
Waroona	1,793	935	894	1,829	482	144
TOTAL	71,637	37,460	35,363	72,823	19,703	4,625
SOUTHERN AGRICULTURAL STATISTICAL DIVISION						
ALBANY	10,526	5,598	5,821	11,419	3,097	329
Albany	2,749	1,714	1,533	3,247	898	112
Broomehill	783	390	355	745	190	24
Cranbrook	1,360	820	599	1,419	382	64
Denmark	1,864	926	849	1,775	504	256
Dumbleyung	1,444	799	659	1,458	387	33
Gnowangerup	3,190	2,076	1,739	3,815	926	80
Katanning	4,293	2,278	2,210	4,488	1,134	95
Kojonup	2,667	1,468	1,253	2,711	717	83
Lake Grace	1,843	1,119	867	1,986	496	14
Nyabing-Pingrup	834	625	442	1,067	272	7
Plantagenet	4,502	2,483	2,183	4,666	1,221	210
Tambellup	940	503	448	951	260	17
Wagin	2,627	1,457	1,317	2,774	689	56
West Arthur	1,398	782	645	1,427	374	55
Woodanilling	603	317	263	580	141	45
TOTAL	41,623	23,345	21,183	44,528	11,638	1,480

For footnotes, see end of table.

**POPULATION AND DWELLINGS—LOCAL GOVERNMENT AREAS AND
STATISTICAL DIVISIONS : WESTERN AUSTRALIA—continued**

Local Government Area (a)	Census, 30th June, 1961		Census, 30th June, 1966				
			Population			Dwellings (b)	
	Persons		Males	Females	Persons	Occupied	Un-occupied
CENTRAL AGRICULTURAL STATISTICAL DIVISION							
Beverley	1,899		922	851	1,773	500	56
Brookton	1,319		729	612	1,341	341	41
Bruce Rock	2,291		1,146	996	2,142	535	65
Corrigin	2,123		1,157	942	2,099	529	33
Cuballing	833		410	322	732	196	15
Cunderdin	2,014		1,159	955	2,114	516	30
Dowerin	1,392		727	573	1,300	315	21
Goomalling	1,567		829	738	1,567	384	63
Kellerberrin	2,420		1,224	1,143	2,367	580	67
Kondinin	1,278		700	562	1,262	292	10
Koorda	935		642	438	1,080	241	1
Kulin	1,261		820	573	1,393	362	31
Merredin	4,563		2,941	2,356	5,297	1,207	53
Mount Marshall	1,091		759	546	1,305	329	7
Mukinbudin	707		499	370	869	222	15
Narembeen	1,558		868	722	1,500	379	25
NARROGIN	4,620		2,396	2,465	4,861	1,242	81
Narrogin	972		592	418	1,010	229	27
NORTHAM	7,200		3,825	3,575	7,400	1,832	65
Northam (c)	2,863		1,486	1,208	2,694	627	64
Nungarin	608		294	245	539	142	4
Pingelly	1,639		726	727	1,453	395	39
Quairading	1,789		893	704	1,687	427	39
Tammin	847		440	388	828	217	29
Toodyay	1,365		722	666	1,388	366	48
Trayning	935		533	447	980	232	....
Wandering	661		325	286	611	136	31
Westonia	435		371	241	612	146	14
Wickepin	1,276		773	907	1,380	347	27
Williams	1,330		641	552	1,193	313	23
Wyalkatchem	1,383		660	592	1,252	324	15
York (c)	2,416		1,193	1,084	2,277	637	87
TOTAL	57,590		31,402	26,994	58,396	14,540	1,126
NORTHERN AGRICULTURAL STATISTICAL DIVISION							
Carnamah (c)	959		548	448	996	239	3
Chapman Valley (c)	1,006		442	364	806	206	9
Chittering	1,004		596	479	1,075	277	19
Coorow (c)	782		447	361	808	197	13
Dalwallinu (c)	2,197		1,381	1,044	2,425	578	44
Dandaragan	456		384	235	619	175	1
GERALDTON	10,894		6,245	5,880	12,125	2,971	236
Gingin	769		541	480	1,021	265	290
Greenough (c)	1,784		865	729	1,594	424	97
Irwin	657		423	387	810	212	30
Mingenew	985		568	410	978	239	20
Moora	3,082		1,642	1,339	2,981	778	100
Morawa	1,317		965	753	1,718	394	11
Mullewa	1,627		1,077	748	1,825	400	19
Northampton	1,821		1,093	928	2,021	506	123
Perenjori	1,277		758	553	1,311	321	16
Three Springs	972		546	492	1,038	246	30
Victoria Plains	2,034		992	793	1,785	368	24
Wongan-Ballidu	2,145		1,321	1,012	2,333	549	87
TOTAL	35,768		20,834	17,435	38,269	9,345	1,172
EASTERN GOLDFIELDS STATISTICAL DIVISION							
BOULDER	5,773		2,685	2,549	5,234	1,497	150
Coolgardie	1,043		428	334	762	219	45
Dundas	2,937		1,547	1,235	2,782	649	55
Esperance	2,255		2,669	2,185	4,854	1,246	136
KALGOORLIE	9,696		4,831	4,343	9,174	2,565	233
Kalgoorlie	7,294		3,568	3,095	6,663	1,894	180
Laverton	216		118	88	206	54	....
Leonora	1,241		375	248	623	194	88
Menzies	512		275	129	404	150	57
Ravensthorpe	587		476	306	782	206	94
Yilgarn	2,558		1,444	1,002	2,446	582	28
TOTAL	34,142		18,416	15,514	33,980	9,256	1,066

For footnotes, see end of table.

**POPULATION AND DWELLINGS—LOCAL GOVERNMENT AREAS AND
STATISTICAL DIVISIONS : WESTERN AUSTRALIA—continued**

Local Government Area (a)	Census, 30th June, 1961	Census, 30th June, 1966				
	Persons	Population			Dwellings (b)	
		Males	Females	Persons	Occupied	Un-occupied
CENTRAL STATISTICAL DIVISION						
Cue	466	256	174	430	128	38
Meekatharra	1,071	574	437	1,011	249	21
Mount Magnet (c)	1,119	590	426	1,016	296	48
Murchison	320	177	106	283	49	....
Sandstone	163	83	52	135	43	6
Wiluna	316	114	105	219	64	10
Yalgoo (c)	525	246	146	392	97	19
TOTAL	3,980	2,040	1,446	3,486	926	142
NORTH-WEST STATISTICAL DIVISION						
Ashburton	569	421	213	634	114	1
Carnarvon (c)	3,212	2,570	2,076	4,646	1,060	18
Exmouth (c)	41	1,841	407	2,248	270	....
Shark Bay	387	305	168	473	98	11
Upper Gascoyne	354	246	108	354	82	....
TOTAL	4,563	5,383	2,972	8,355	1,624	30
PILBARA STATISTICAL DIVISION						
Marble Bar	404	369	198	567	122	....
Nullagine	171	170	41	211	40	3
Port Hedland	1,120	2,149	859	3,008	461	13
Roebourne	568	1,443	339	1,782	194	....
Tableland	980	1,416	399	1,815	229	22
TOTAL	3,243	5,547	1,836	7,383	1,046	38
KIMBERLEY STATISTICAL DIVISION						
Broome	1,462	1,184	739	1,923	357	13
Halls Creek	436	380	197	577	105	....
West Kimberley	2,249	1,668	1,027	2,695	567	36
Wyndham-East Kimberley	1,521	1,652	797	2,449	518	23
TOTAL	5,668	4,884	2,760	7,644	1,547	72
MIGRATORY (d)						
Migratory (d)	3,017	2,508	530	3,038	n.a.	n.a.
STATE SUMMARY						
Statistical Division—						
Perth (e)	475,398	274,872	283,949	558,821	154,984	8,211
South-West	71,637	37,460	35,363	72,823	19,703	4,625
Southern Agricultural	41,623	23,345	21,183	44,528	11,688	1,480
Central Agricultural	57,594	31,402	26,994	58,396	14,540	1,126
Northern Agricultural	35,764	20,534	17,435	38,269	9,345	1,172
Eastern Goldfields	34,142	18,416	15,514	33,930	9,256	1,066
Central	3,980	2,040	1,446	3,486	926	142
North-West	4,563	5,383	2,972	8,355	1,624	30
Pilbara	3,243	5,547	1,836	7,383	1,046	38
Kimberley	5,668	4,884	2,760	7,644	1,547	72
Migratory (d)	3,017	2,508	530	3,038	n.a.	n.a.
TOTAL, WESTERN AUSTRALIA	736,629	426,691	409,982	836,673	224,659	17,962

n.a. denotes "not applicable".

(a) The names of Cities and Towns are shown in capital letters; all other local government areas are Shires. (b) For definitions, see page 177. Dwellings occupied solely by full-blood Aborigines are excluded. (c) Indicates those local government areas where a boundary change between the 1961 and 1966 Censuses resulted in a change in the population of the local government area; see also page 444. In order to eliminate population changes due to boundary changes and to provide a comparison with the 1966 population figures, the 1961 local government area populations shown in the table have been adjusted to the boundaries used in 1966. (d) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft. (e) Comprises the area formed by amalgamation of the former Metropolitan and Swan Statistical Divisions.

POPULATION AND DWELLINGS—CENSUSES, 1961 AND 1966
METROPOLITAN, OTHER URBAN, RURAL, AND MIGRATORY (a)

NOTE—For Metropolitan and other urban centres, which are delineated by moving boundaries (see letterpress *Urban and Rural Populations* on pages 120-1), boundaries for 1961 have been redrawn according to the new criteria. The urban populations and dwelling numbers (partly estimated) within these boundaries are shown in this table for comparison with 1966 figures. The intercensal increase or decrease between 1961 and 1966 may therefore reflect (i) population changes within the original 1961 boundaries, (ii) urban growth beyond the original boundaries, or (iii) the merging of Other Urban areas with the Metropolitan Area.

Area	Census, 30th June, 1961	Census, 30th June, 1966				
		Population			Dwellings (b)	
		Persons	Males	Females	Persons	Occupied Un-occupied
Perth Metropolitan Area (a)	423,930	244,762	255,207	499,969	139,508	4,722
Other Urban Centres (c)—						
Kalgoorlie-Boulder	21,247	10,358	9,550	19,908	5,630	531
Bunbury	13,186	7,789	7,670	15,459	4,019	245
Geraldton	10,894	6,245	5,880	12,125	2,971	236
Albany	10,526	5,598	5,821	11,419	3,097	329
Collie	7,547	3,843	3,785	7,628	2,065	132
Northam	7,200	3,825	3,575	7,400	1,832	65
Narrogin	4,620	2,396	2,465	4,861	1,242	81
Busselton	3,495	2,091	2,187	4,278	1,211	134
Medina-Calista	3,269	2,085	2,047	4,132	966	16
Rockingham-Safety Bay	1,726	1,911	1,856	3,767	1,205	1,216
Merredin	3,029	1,927	1,672	3,599	840	25
Katanning	3,360	1,782	1,724	3,506	923	58
Armadale	2,565	1,694	1,769	3,463	942	30
Manjimup	2,914	1,578	1,608	3,186	857	48
Kalamunda-Gooseberry Hill	2,488	1,522	1,546	3,068	910	84
Carnarvon	1,809	1,572	1,384	2,956	681	11
Mandurah	2,121	1,332	1,398	2,730	1,089	943
Esperance	1,111	1,414	1,263	2,677	716	116
Harvey	2,046	1,048	1,018	2,066	539	31
Norseman	1,980	995	968	1,863	463	44
Port Hedland	(c) 1,865	1,087	691	1,778	367	7
Wagin	1,608	902	848	1,750	432	19
Mount Barker	1,532	814	780	1,594	409	14
Broome	1,222	963	607	1,570	299	12
Bridgetown	1,565	796	773	1,569	445	32
Derby	(d) 994	760	664	1,424	335	8
York	1,524	734	686	1,343	324	19
Kellerberrin	1,323	657	596	1,272	306	85
Kwinana Industrial (e)	1,104	676	560	1,185	316	8
Moora	1,145	625	560	1,156	252	16
Wyndham	(d) 958	759	397	1,080	53	....
Dampier	(f) 1,007	73	73	1,040	232	16
Wundowie	1,102	555	485	1,013	283	12
Waroona	1,005	510	503	981	234	10
Gnowangerup	(g) 740	494	487	(h)	(h)	(h)
Donnybrook	1,011	(i)	(i)	(i)	(i)	(i)
Pemberton	1,201	(i)	(i)	(i)	(i)	(i)
Total, Other Urban (j)	124,427	72,344	67,923	140,267	36,904	4,668
Total, Urban (j)	548,357	317,106	323,130	640,236	176,412	9,390
Rural	185,255	107,077	86,322	193,399	48,247	8,572
Migratory (k)	3,017	2,508	530	3,038	n.a.	n.a.
TOTAL, WESTERN AUSTRALIA	736,629	426,691	409,982	836,673	224,659	17,962

n.a. denotes "not applicable"

(a) See letterpress *Urban and Rural Populations* on pages 120-1. (b) For definitions, see page 177. Dwellings occupied solely by full-blood Aborigines are excluded. (c) Non-urban in 1961. (d) Classified as urban in 1961, as population inclusive of full-blood Aborigines exceeded 1,000. (e) Excludes Medina-Calista. (f) Non-urban in 1961. Population not available. (g) Non-urban in 1961. Classified as urban in 1966, as population inclusive of full-blood Aborigines exceeded 1,000. (h) Non-urban in 1966; population 981, dwellings (including unoccupied) 305. (i) Non-urban in 1966; population 931, dwellings (including unoccupied) 295. (j) Figures for 1961 exclude populations of Port Hedland and Gnowangerup; see notes (c) and (g). (k) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

AGE DISTRIBUTION OF THE POPULATION (a)—CENSUSES, 1961 AND 1966

Age last Birthday (years)	Census, 30th June, 1961		Census, 30th June, 1966					
	Total Persons	Per cent. of Total	Males	Females	Persons			
					Total	Per cent. of Total	Increase or Decrease(b) since 1961	
							Numerical	Per cent.
0-4	81,916	11.12	43,524	41,286	84,810	10.14	2,894	3.53
5-9	80,754	10.96	45,791	43,428	89,219	10.66	8,465	10.48
10-14	77,041	10.46	44,022	42,129	86,151	10.30	9,110	11.82
15-19	57,738	7.84	40,714	38,580	79,294	9.48	21,556	37.33
20-24	47,877	6.50	31,032	28,476	59,508	7.11	11,631	24.29
25-29	44,321	6.02	28,135	25,912	54,047	6.46	9,726	21.94
30-34	49,647	6.74	25,488	23,930	49,418	5.91	— 229	— 0.46
35-39	50,634	6.87	28,204	25,986	54,190	6.48	3,556	7.02
40-44	48,665	5.93	27,700	25,535	53,235	6.36	9,570	21.92
45-49	45,275	6.15	22,907	22,142	45,049	5.38	— 226	— 0.50
50-54	40,376	5.48	22,747	22,103	44,850	5.36	4,474	11.08
55-59	34,833	4.73	20,634	18,848	39,482	4.72	4,649	13.35
60-64	27,455	3.73	17,462	15,732	33,194	3.97	5,739	20.90
65-69	20,240	2.75	12,023	12,652	24,675	2.95	4,435	21.91
70-74	15,742	2.14	7,513	9,709	17,222	2.06	1,480	9.40
75-79	10,065	1.37	5,020	6,895	11,915	1.42	1,850	18.38
80-84	5,811	0.79	2,481	3,986	6,467	0.77	656	11.29
85-89	2,474	0.34	991	1,928	2,919	0.35	445	17.99
90-94	651	0.09	252	604	856	0.10	205	31.49
95-99	107	0.01	49	109	158	0.02	51	47.66
100 and over	7	0.00	2	12	14	0.00	7	100.00
Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58
0-4	81,916	11.12	43,524	41,286	84,810	10.14	2,894	3.53
5-14	157,795	21.42	89,813	85,557	175,370	20.96	17,575	11.14
15-20	67,762	9.20	46,865	44,212	91,077	10.89	23,315	34.41
Under 21	807,473	41.74	180,202	171,055	351,257	41.98	43,784	14.24
21-44	226,120	30.70	134,408	124,207	258,615	30.91	32,495	14.37
45-64	147,939	20.08	83,750	78,825	162,575	19.43	14,636	9.89
65 and over	55,097	7.48	28,331	35,895	64,226	7.68	9,129	16.57
Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58

(a) Recorded ages adjusted by the distribution of ages "not stated".

(b) Minus sign (—) denotes decrease.

BIRTHPLACE AND NATIONALITY OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30th June, 1961		Census, 30th June, 1966					
	Total Persons	Per cent. of Total	Males	Females	Persons			
					Total	Per cent. of Total	Increase or Decrease(a) since 1961	
							Numerical	Per cent.
BIRTHPLACE								
Australia—								
Western Australia	501,770	68.12	276,471	277,156	553,627	66.17	51,857	10.33
Elsewhere in Australia	70,412	9.56	41,727	42,528	84,255	10.07	13,843	19.66
Total	572,182	77.68	318,198	319,684	637,882	76.24	65,700	11.48
New Zealand	1,913	0.26	1,431	1,237	2,668	0.32	755	39.47
Europe—								
United Kingdom and Republic of Ireland	83,365	11.32	54,932	49,188	104,120	12.44	20,755	24.90
Austria	1,068	0.14	621	489	1,110	0.13	42	3.93
Germany	5,583	0.76	2,939	2,996	5,935	0.71	352	6.30
Greece	4,088	0.55	3,113	2,330	5,443	0.65	1,355	33.31
Italy	25,249	3.43	16,005	12,136	28,141	3.36	2,892	11.45
Latvia	1,247	0.17	633	501	1,134	0.14	113	9.06
Netherlands	11,163	1.52	5,755	4,614	10,369	1.24	794	7.11
Poland	4,711	0.64	2,775	1,952	4,727	0.56	16	0.34
Union of Soviet Socialist Republics (b)	1,672	0.23	836	792	1,628	0.19	44	2.63
Yugoslavia	5,876	0.80	4,641	2,860	7,501	0.90	1,625	27.65
Other	5,761	0.78	4,402	2,618	7,020	0.84	1,259	21.85
Total	149,783	20.33	96,652	80,476	177,128	21.17	27,345	18.26
Other Birthplaces	12,751	1.73	10,410	8,585	18,995	2.27	6,244	48.97
Grand Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58
NATIONALITY								
British (c)—								
Born in Australia	572,182	77.68	318,198	319,684	637,882	76.24	65,700	11.48
Born outside Australia	130,708	17.74	90,412	77,089	167,501	20.02	36,793	28.15
Total British (c)	702,890	95.42	408,610	396,773	805,383	96.26	102,493	14.58
Foreign—								
Austrian	431	0.06	224	103	327	0.04	104	24.13
Dutch	7,367	1.00	2,148	1,837	3,985	0.48	3,382	45.91
German	1,897	0.26	956	570	1,526	0.18	371	19.56
Greek	1,882	0.26	1,499	1,066	2,565	0.31	683	36.29
Italian	13,905	1.89	6,723	6,099	12,822	1.53	1,083	7.79
Polish	1,783	0.24	560	400	960	0.11	823	46.16
Spanish	49	0.01	336	150	486	0.06	437	891.84
U.S. American	464	0.06	1,214	730	1,944	0.23	1,480	318.97
Yugoslav	2,177	0.30	1,957	1,080	3,037	0.36	860	39.50
Stateless	914	0.12	388	239	627	0.07	287	31.40
Other	2,870	0.39	2,076	935	3,011	0.36	141	4.91
Total Foreign	33,739	4.58	18,081	13,209	31,290	3.74	2,449	7.26
Grand Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58

(a) Minus sign (—) denotes decrease. (b) Includes Ukraine. (c) Includes all persons who, by virtue of the Nationality and Citizenship Act 1948–1966, are deemed to be British subjects. Also included as "British" are persons who, under the Nationality and Citizenship Act, are Australian citizens or citizens of any other country declared by Regulation 5A of the Citizenship Regulations to be "a country within the Commonwealth of Nations." In addition, for the purpose of this table, Irish nationality is included with British.

RELIGION AND MARITAL STATUS OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30th June, 1961		Census, 30th June, 1966					
	Total Persons	Per cent. of Total	Males	Females	Persons			
					Total	Per cent. of Total	Increase or Decrease (a) since 1961	
							Numer- ical	Per cent.
RELIGION								
Christian—								
Baptist	8,961	1.22	5,118	5,602	10,720	1.28	1,759	19.63
Brethren	857	0.12	393	406	799	0.10	— 58	— 6.77
Catholic (b)	74,121	10.06	48,389	50,729	99,118	11.85	24,997	33.72
Catholic, Roman (b)	106,052	14.40	60,705	53,836	114,541	13.69	8,489	8.00
Church of England	289,863	39.35	159,309	156,844	316,153	37.79	26,290	9.07
Churches of Christ	10,261	1.39	5,369	6,127	11,496	1.37	1,235	12.04
Congregational	8,026	1.09	4,016	4,359	8,375	1.00	349	4.35
Lutheran	4,460	0.61	2,640	2,513	5,153	0.62	693	15.54
Methodist	76,465	10.38	39,423	41,417	80,840	9.66	4,375	5.72
Orthodox	9,057	1.23	6,560	5,275	11,835	1.41	2,778	30.67
Presbyterian	40,583	5.51	22,080	21,975	44,055	5.27	3,472	8.56
Salvation Army	4,545	0.62	2,388	2,534	4,922	0.59	377	8.29
Seventh-day Adventist	3,790	0.51	1,927	2,430	4,357	0.52	567	14.96
Protestant (undefined).....	5,234	0.71	3,470	3,209	6,679	0.80	1,445	27.61
Other (including Christian undefined)	8,756	1.19	5,818	6,346	12,164	1.45	3,408	38.92
Total—Christian	651,031	88.38	367,605	363,602	731,207	87.39	80,176	12.32
Non-Christian—								
Hebrew	2,782	0.38	1,510	1,486	2,996	0.36	214	7.69
Other	836	0.11	768	298	1,066	0.13	230	27.51
Total—Non-Christian	3,618	0.49	2,278	1,784	4,062	0.49	444	12.27
Indefinite	2,028	0.28	1,558	1,216	2,774	0.33	746	36.79
No Religion	3,156	0.43	5,060	2,759	7,819	0.93	4,663	147.75
Total Replies	659,833	89.57	376,501	369,361	745,862	89.15	86,029	13.04
No Reply	76,796	10.43	50,190	40,621	90,811	10.85	14,015	18.25
Grand Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58
MARITAL STATUS								
Never Married—								
Under 15 years of age	239,711	32.54	133,337	126,843	260,180	31.10	20,469	8.54
15 years of age and over	128,813	16.81	91,188	60,192	151,380	18.09	27,567	22.27
Total	368,524	49.35	224,525	187,035	411,560	49.19	48,036	13.21
Married	328,294	43.89	185,239	183,053	368,292	44.02	44,998	13.92
Married but permanently separated (c)	9,830	1.33	5,534	5,986	11,520	1.38	1,690	17.19
Divorced	6,524	0.89	3,741	3,774	7,515	0.90	991	15.19
Widowed	33,457	4.54	7,652	30,134	37,786	4.52	4,329	12.94
Grand Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58

(a) Minus sign (—) denotes decrease. (b) As stated in individual census schedules. (c) Legally or otherwise.

POPULATION—ANNUAL ESTIMATES (a) : WESTERN AUSTRALIA

Year	Population at end of Year (b)			Increase during Year			Mean Population for Year (e)			
	Males	Females	Persons	Natural Increase (c) (d)	Estimated Net Migra- tion (d)	Total Increase (e)				
CALENDAR YEARS										
1961	384,773	370,440	755,213	11,349	2,571	13,920	737,596
1962	395,891	381,357	777,248	11,254	10,499	22,035	766,205
1963	407,024	391,871	798,895	11,314	10,068	21,647	788,457
1964	417,023	401,098	818,121	10,256	8,705	19,226	808,300
1965	427,330	410,918	838,248	9,912	9,963	20,127	826,481
1966	439,680	423,005	862,685	10,235	14,046	24,437	848,837
FINANCIAL YEARS										
1960-61	(f)(g)380,740	(f)(g)366,010	(f)(g)746,750	11,790	2,759	14,549	729,770	
1961-62	390,168	375,794	765,962	11,323	7,605	19,212	755,770	
1962-63	401,731	386,613	788,344	11,309	10,811	22,382	777,413	
1963-64	412,103	396,340	808,443	10,787	9,028	20,099	798,824	
1964-65	421,017	404,508	825,525	9,825	6,987	17,082	817,157	
1965-66	(f)432,569	(f)415,531	(f)848,100	9,878	12,491	22,575	837,290	
1966-67	446,709	429,653	876,362	11,027	17,151	28,262	862,130	

NOTE—A line drawn across a column between the figures indicates a break in continuity in the series.

(a) See note *Estimates of Population* on page 444. (b) Including Aborigines. (c) Excess of births registered over deaths registered. (d) Excluding full-blood Aborigines. (e) Including Aborigines, except in respect of the years 1961 and 1960-61, figures for which exclude full-blood Aborigines. (f) Final Census figure. (g) Includes an estimate for full-blood Aborigines out of contact at the Census.

POPULATION—ANNUAL ESTIMATES (a) : STATES AND TERRITORIES OF AUSTRALIA

State or Territory	Population at 31st December—						
	1961	1962	1963	1964	1965	1966	1967
New South Wales	3,951,651	4,022,361	4,077,743	4,142,121	4,211,049	4,273,307	4,347,309
Victoria	2,955,299	3,011,043	3,071,046	3,137,921	3,195,860	3,249,870	3,303,631
Queensland	1,540,251	1,562,845	1,595,446	1,620,525	1,659,423	1,687,882	1,718,266
South Australia	979,351	998,245	1,022,387	1,051,954	1,082,958	1,104,590	1,118,477
Western Australia	755,213	777,248	798,895	818,121	838,248	862,685	892,763
Tasmania	353,258	358,087	362,799	366,508	369,608	373,905	379,628
Northern Territory	45,299	46,684	49,891	52,754	55,464	58,099	60,639
Australian Capital Territory	62,332	69,546	77,275	84,525	92,798	100,049	108,176
AUSTRALIA	10,642,654	10,846,059	11,055,482	11,280,429	11,505,408	11,710,387	11,928,889

(a) Including Aborigines.

CHAPTER V—SOCIAL CONDITION**PART 4—HOUSING**

pages 177 to 181

Housing and the Census

The tables on pages 448-51 contain some final results of the Census of 30th June, 1966. The figures include both "Private Dwellings" and "Non-private Dwellings" but exclude dwellings occupied solely by full-blood Aborigines.

CHAPTER VI—FINANCE**PART 2—PRIVATE FINANCE**

pages 229-230

Rates of Exchange

For the month of December, 1967 the average daily telegraphic transfer buying and selling exchange rates of the Australian dollar in terms of sterling currency was \$A214·7 to £100 stg, Sydney on London. The direct selling rate of the Australian dollar in terms of American currency was \$US 1·118 to \$A1, Sydney on New York.

NOTE ON STATISTICAL DIVISIONS

Western Australia is divided into a number of municipal districts for the purposes of local government administration. At the 1st January, 1966 there were 144 such districts, which are used as the basis of presentation of data derived not only from the population census but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form.

The partition of the Australian States into Statistical Divisions originated from a resolution of a conference of 1928 between the Federal Health Council of Australia and the Statisticians of the Commonwealth and the States concerning the need for the delineation of areas appropriate for the purposes of statistical tabulation. They first became operative in 1929 after consultation between the Commonwealth Statistician, the Statisticians of the States in collaboration with the State health authorities, and the Commonwealth Department of Health. Although Statistical Divisions were devised initially for use in the compilation and presentation of vital statistics, the advantages of extending the system to other fields of statistical investigation were recognized at once and it soon came to have general application in cases where consideration of geographic areas was relevant.

The Statistical Divisions of Western Australia and their component local government districts as at the 1st January, 1966 are listed on the following pages and are shown on the map of the State following the Index. The population of each Division as recorded at each of the four most recent Population Censuses is shown in the following table. The areas of the Divisions at the 30th June, 1967 are also given.

STATISTICAL DIVISIONS—POPULATION (a) AND AREA

Statistical Division	Population at Census of 30th June—				Area at 30th June, 1967
	1947	1954	1961	1966 (b)	
	persons	persons	persons	persons	square miles
Perth (c)	302,968	395,049	475,398	558,821	2,072
South-West	51,973	68,553	71,637	72,823	11,030
Southern Agricultural	24,948	36,125	41,623	44,528	22,025
Central Agricultural	43,790	55,924	57,594	58,396	30,270
Northern Agricultural	24,665	32,068	35,785	38,269	33,921
Eastern Goldfields	37,722	34,578	34,142	33,930	249,035
Central	6,370	4,794	3,959	3,486	218,011
North-West	2,638	4,220	4,563	8,355	75,731
Pilbara	1,651	2,650	3,243	7,383	171,462
Kimberley	2,774	3,543	5,668	7,644	162,363
Migratory (d)	2,981	2,267	3,017	3,038	....
WHOLE STATE	502,480	639,771	736,629	836,673	975,920

(a) Excluding full-blood Aborigines. (b) Final Census figures. (c) See letterpress on page 123. (d) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

LIST OF STATISTICAL DIVISIONS

with component Local Government Areas at 1st January, 1966

PERTH	SOUTHERN AGRICULTURAL	NORTHERN AGRICULTURAL
Cities	Town	Town
FREMANTLE NEDLANDS PERTH SOUTH PERTH SUBIACO	ALBANY	GERALDTON
Towns	Shires	Shires
CLAREMONT COTTESLOE EAST FREMANTLE MELVILLE MIDLAND MOSMAN PARK	Albany Broomehill Cranbrook Denmark Dumbleyung Gnowangerup Katanning Kojonup Lake Grace Nyabing-Pingrup Plantagenet Tambellup Wagin West Arthur Woodanilling	Carnamah Chapman Valley Chittering Coorow Dalwallinu Dandaragan Gingin Greenough Irwin Mingenew Moora Morawa Mullewa Northampton Perenjori Three Springs Victoria Plains Wongan-Ballidu
Shires		
Armadale-Kelmscott Bassendean Bayswater Belmont Canning Cockburn Gosnells Kalamunda Kwinana Mundaring Peppermint Grove Perth Rockingham Serpentine-Jarrahdale Swan-Guildford Wanneroo		EASTERN GOLDFIELDS
		Towns
		BOULDER KALGOORLIE
		Shires
		Coolgardie Dundas Esperance Kalgoorlie Laverton Leonora Menzies Ravensthorpe Yilgarn
	CENTRAL AGRICULTURAL	CENTRAL
	Towns	Shires
	NARROGIN NORTHAM	Cue Meekatharra Mount Magnet Murchison Sandstone Wiluna Yalgoo
	Shires	
	Beverley Brookton Bruce Rock Corrigin Cuballing Cunderdin Dowerin Goomalling Kellerberrin Kondinin Koorda Kulin Merredin Mount Marshall Mukinbudin Narembeen Narrogin Northam Nungarin Pingelly Quairading Tammin Toodyay Trayning Wandering Westonia Wickepin Williams Wyalkatchem York	NORTH-WEST
SOUTH-WEST		Shires
Town		Ashburton Carnarvon Exmouth Shark Bay Upper Gascoyne
BUNBURY		
Shires		
Augusta-Margaret River Balingup Boddington Bridgetown Busselton Capel Collie Dardanup Donnybrook Greenbushes Harvey Mandurah Manjimup Murray Nannup Upper Blackwood Warroona		PILBARA
		Shires
		Marble Bar Nullagine Port Hedland Rooiborn Tableland
		KIMBERLEY
		Shires
		Broome Halls Creek West Kimberley Wyndham-East Kimberley

LIST OF LOCAL GOVERNMENT AREAS

at 1st January, 1966

Local Government Area	City (C) Town (T) Shire (S)	Statistical Division in which Situated	Local Government Area	City (C) Town (T) Shire (S)	Statistical Division in which Situated
ALBANY	T.	Southern Agricultural	Marble Bar	S.	Pilbara
Albany	S.	Southern Agricultural	Meekatharra	S.	Central
Armada-Kelmscott	S.	Perth	MELVILLE	T.	Perth
Ashburton	S.	North-West	Menzies	S.	Eastern Goldfields
Augusta-Margaret River	S.	South-West	Merredin	S.	Central Agricultural
Balingup	S.	South-West	MIDLAND	T.	Perth
Bassendean	S.	Perth	Mingenew	S.	Northern Agricultural
Bayswater	S.	Perth	Moora	S.	Northern Agricultural
Belmont	S.	Perth	Morawa	S.	Northern Agricultural
Beverley	S.	Central Agricultural	MOSMAN PARK	T.	Perth
Boddington	S.	South-West	Mount Magnet	S.	Central
BOULDER	T.	Eastern Goldfields	Mount Marshall	S.	Central Agricultural
Bridgetown	S.	South-West	Mukinbudin	S.	Central Agricultural
Brookton	S.	Central Agricultural	Mullewa	S.	Northern Agricultural
Broome	S.	Kimberley	Mundaring	S.	Perth
Broomehill	S.	Southern Agricultural	Murchison	S.	Central
Bruce Rock	S.	Central Agricultural	Murray	S.	South-West
BUNBURY	T.	South-West	Nannup	S.	South-West
Busselton	S.	South-West	Narembene	S.	Central Agricultural
Canning	S.	Perth	NARROGIN	T.	Central Agricultural
Capel	S.	South-West	Narrogin	S.	Central Agricultural
Carnamah	S.	Northern Agricultural	NEDLANDS	C.	Perth
Carnarvon	S.	North-West	NORTHAM	T.	Central Agricultural
Chapman Valley	S.	Northern Agricultural	Northam	S.	Central Agricultural
Chittering	S.	Northern Agricultural	Northampton	S.	Northern Agricultural
CLAREMONT	T.	Perth	Nullagine	S.	Pilbara
Cockburn	S.	Perth	Nungarin	S.	Central Agricultural
Collie	S.	South-West	Nyabing-Pingrup	S.	Southern Agricultural
Coolgardie	S.	Eastern Goldfields	Peppermint Grove	S.	Perth
Coorow	S.	Northern Agricultural	Perenjori	S.	Northern Agricultural
Corrigin	S.	Central Agricultural	PERTH	C.	Perth
COTTESLOE	T.	Perth	Perth	S.	Perth
Cranbrook	S.	Southern Agricultural	Pingelly	S.	Central Agricultural
Cnballing	S.	Central Agricultural	Plantagenet	S.	Southern Agricultural
Cue	S.	Central	Port Hedland	S.	Pilbara
Cunderdin	S.	Central Agricultural	Quairading	S.	Central Agricultural
Dalwallinu	S.	Northern Agricultural	Ravensthorpe	S.	Eastern Goldfields
Dandragan	S.	Northern Agricultural	Rockingham	S.	Perth
Dardanup	S.	South-West	Roebourne	S.	Pilbara
Denmark	S.	Southern Agricultural	Sandstone	S.	Central
Donnybrook	S.	South-West	Serpentine-Jarrahdale	S.	Perth
Dowerin	S.	Central Agricultural	Shark Bay	S.	North-West
Dumbleyung	S.	Southern Agricultural	SOUTH PERTH	C.	Perth
Dundas	S.	Eastern Goldfields	SUBIACO	C.	Perth
EAST FREMANTLE	T.	Perth	Swan-Guildford	S.	Perth
Esperance	S.	Eastern Goldfields	Tableland	S.	Pilbara
Exmouth	S.	North-West	Tambellup	S.	Southern Agricultural
FREMANTLE	C.	Perth	Tammin	S.	Central Agricultural
GERALDTON	T.	Northern Agricultural	Three Springs	S.	Northern Agricultural
Gingin	S.	Northern Agricultural	Toodyay	S.	Central Agricultural
Gnowangerup	S.	Southern Agricultural	Trayning	S.	Central Agricultural
Goomalling	S.	Central Agricultural	Upper Blackwood	S.	South-West
Gosnells	S.	Perth	Upper Gascoyne	S.	North-West
Greenbushes	S.	South-West	Victoria Plains	S.	Northern Agricultural
Greenough	S.	Northern Agricultural	Wagin	S.	Southern Agricultural
Halls Creek	S.	Kimberley	Wandering	S.	Central Agricultural
Harvey	S.	South-West	Wanneroo	S.	Perth
Irwin	S.	Northern Agricultural	Waroona	S.	South-West
Kalamunda	S.	Perth	West Arthur	S.	Southern Agricultural
KALGOORLIE	T.	Eastern Goldfields	West Kimberley	S.	Kimberley
Kalgoorlie	S.	Eastern Goldfields	Westonia	S.	Central Agricultural
Katanning	S.	Southern Agricultural	Wickepin	S.	Central Agricultural
Kellerberrin	S.	Central Agricultural	Williams	S.	Central Agricultural
Kojonup	S.	Southern Agricultural	Wiluna	S.	Central
Kondinin	S.	Central Agricultural	Wongan-Ballidu	S.	Northern Agricultural
Koorda	S.	Central Agricultural	Woodanilling	S.	Southern Agricultural
Kulin	S.	Central Agricultural	Wyalkatchem	S.	Central Agricultural
Kwinana	S.	Perth	Wyndham-East Kimberley	S.	Kimberley
Lake Grace	S.	Southern Agricultural	Yalgoo	S.	Central
Laverton	S.	Eastern Goldfields	Yilgarn	S.	Eastern Goldfields
Leonora	S.	Eastern Goldfields	York	S.	Central Agricultural
Mandurah	S.	South-West			
Manjimup	S.	South-West			

INDEX

Information on the same subject appearing on succeeding pages, whether in letterpress, tabular or diagrammatic form, has generally been indexed only to the first of such pages.

	Page
A	
'A' Series Retail Price Index	396, 413, 419
Aboriginal, Aborigines 1, 54, 90, 93, 126, 170, 241, 374	
Education	150
Legislation	126
Offences by	208
Population	112, 126
Social Service Benefits	189
Voting Rights	90, 93
Abrolhos Islands	59, 64, 72, 261, 306
Accidents	
Deaths from	137, 371
Road Traffic	371
Acclimatisation Board, Committee	66, 247
Acids, Production of	330, 331
Administration	
Commonwealth	88, 97
State	88, 97
Administrator, Administrators	
of the Commonwealth	89
Western Australia	89
Adoption of Children	204
Adult Education Board	157
Aerated Waters	330, 331, 337
Aerial Medical Services	374
Age, Ages	
of Bridegrooms and Brides	139, 140
Employees in Factories	324
Parties of Marriages Dissolved	143
Population	113, 115, 385, 452
Pupils at Schools	146, 147
Pensions, Pensioners	189, 198, 201, 216
Aged Persons' Home Grants	175
Agent-General, London	107
Agricultural	
Advisory Services	300
Areas, Definition of	284
Bank of Western Australia	7, 8, 223, 230, 245
Bureau	7
College, Muresk	152, 222, 299
Education	150, 152
Employment	266, 387, 389, 390
Entomology	77, 167, 299
Lands Purchase—see also Land	240
Machinery	266, 348, 349, 407
Population	266
Produce, Bushel Weights	268
Production	258, 435
Research	165, 256, 270, 271, 299
Seasonal Calendar	267, 268
Water Supply	248, 249
Agriculture—see also specific crops 221, 258, 270, 424, 435	
Department of 8, 152, 218, 225, 245, 253, 256, 270, 292, 299	
Employment in	266, 387, 389, 390
Institute of	165
Minimum Wage Rates	406
Protection Board	224, 301
Tropical	255, 261, 300
Value of Production	259, 266, 269, 437
Air	
Pressures	26, 41
Transport	373
Albany Harbour Board	359

	Page
Alcoholic Beverages	
Excise	355
Exports	354
Imports	348, 349, 350
Production	259, 269, 284, 408, 438
Ships' Stores	354
Ale—see Alcoholic Beverages	
Alienation of Crown Lands	240, 242, 243, 434
Altitude of Climatological Stations	28, 45
Alumina	23, 258, 309, 320
Aluminium	23, 25
Alunite	15, 24
Antimonial Concentrates	318
Apiculture—see Bee Keeping	
Appendix	442
Apple, Apples	259, 268, 282
Area	269, 282
Exports	282, 351, 353
Production	268, 269, 282
Sales Advisory Committee	99
Apricots	268, 281, 283
Arbitration Authorities	
Commonwealth	395, 396, 406
State	395, 396, 403, 406
Area, Areas	
Agricultural, Definition of	284
Irrigated	255
Local Government—see also map inside back cover	107, 446, 459
Metropolitan Traffic	225, 367, 368, 369
North of 26°S. Latitude	125
of Australia	126
Crops—see also specific crops	261, 262, 435
Crown Lands	242, 243, 434
Rural Holdings	261, 262, 263, 273, 286, 287, 291, 293, 295
South-West Land Division	125
States and Territories	126
Statistical Divisions	125, 457
Western Australia	24, 125
Pastoral, Definition of	284
Statistical—see Statistical Divisions	
under Pasture	261, 262, 277
Unincorporated	107
Argentine Ants	81
Arrivals—see Migration	
Arsenious Oxide	318
Art Gallery	163
Artesian Water Supplies	16, 20, 22, 86, 249
Artificial	
Fertilizers—see Fertilizers, Artificial	
Insemination of Dairy Cattle	292, 301
Asbestos	19, 258, 267, 309, 312, 351, 352, 353, 432
Assembly, Legislative	7, 8, 88, 91, 95, 442, 443
Assistance to	
Education	144, 158, 215, 219, 220, 222
Gold Mining	311, 436
Indigent and Distressed Persons	200
Industry	222, 311, 341
Primary Producers	165, 215, 230, 245, 271, 279, 292, 294, 299
Schools	144
Universities	158, 215, 219, 220, 223

	Page
Assurance, Life— <i>see</i> Insurance, Life	
Atmospheric Pressure	26, 41
Auction Sales	
Crown Lands	241
Tobacco Leaf	277
Wool	287
Auriferous Ores— <i>see also</i> Gold; Goldfields	17, 318
Australia	
Area of	126
Commonwealth of	88
Australian	
Broadcasting	
Commission	150, 380
Control Board	380
Constitution	88, 126
Labor Party	90, 95
Life Tables	137
Loan Council	213
Population at Censuses	113, 126
Primary Production	269
Universities Commission	159
Wheat Board	271
Awards, Industrial	395, 396, 403, 406, 409

B

Baby Health Centres	170, 224
Bacon, Ham	
Factories	336, 408
Production	296, 330, 331, 336, 438
Retail Price	413
Bags and Sacks	
Factories	407
Imports	350
Bakeries	408
Bananas	255, 268, 283
Bank, Banks	230, 426
Advances	231, 426
Agricultural, of Western Australia	7, 8, 223, 230, 245
Commonwealth, of Australia	230
Commonwealth Development, of Australia	230
Commonwealth Savings, of Australia	230, 233
Commonwealth Trading, of Australia	229, 230
Debits to Customers' Accounts	233, 426
Deposits	231, 426
Employment	392
Exchange Rates	233, 456
Interest Rates	234
Reserve, of Australia	230
Rural and Industries, of Western Australia	224, 230, 231, 233, 234
Savings	230, 233, 426
Trading	230, 426
Banking	
Corporation, Commonwealth	230
Employment	392
Institutions, Commonwealth	230
Bankruptcy	106, 205, 239
Bark, Tanning	54, 304
Barley	
Area	269, 276, 277, 435
Exports	276, 351, 353
Marketing Board, Western Australian	276
Production	261, 267, 269, 276, 435
Barytes	309, 318
Basalt	23, 25, 318
Basic Wage, Wages	101, 395
Fixation	396, 403
"Harvester" Judgment	396
History	396, 403
Loadings	
Prosperity	397
Other	392, 395, 409
Margins	400, 406, 409, 410
"Needs" Portion	397
"Piddington" Commission	396
Rates	396, 403, 409, 411, 440

Basic Wage, Wages—*continued*

Variation by Retail Price Index Numbers	
" A " Series Index	396, 397
Automatic Adjustment	396, 397
" C " Series Index	397, 404
Consumer Price Index	399, 404
" Court " Series	397
" D " Series Index	397
Suspension of	398, 404
Batteries	
Electrical	349
Gold	165, 311
Bauxite	12, 23, 309, 313, 320, 360
Beans	255, 268, 280, 281, 301, 352
Beds in Hospitals	172
Bee Keeping	259, 266, 267, 269, 298, 304, 437
Beef	
Cattle	288
Roads	224
Exports	351, 353, 429
Retail Prices	413
Beer— <i>see</i> Alcoholic Beverages	
Bees-wax	298
Beetroot	281
Benefactions, University	156
Benefits	
Friendly Societies	237
Funeral	191, 216, 237
Hospital, Medical and Pharmaceutical	196, 219
Repatriation	194
Social Services	189, 216
Unemployment and Sickness	189, 191, 216
Bentonite	318
Bequests, University	156
Beryl, Beryllium	261, 309, 313
Birds	58, 64
Birth, Births	128, 423
Ex-nuptial	128, 129
Maternity Allowances for	192, 216
Multiple	128
Rates	131, 136, 423
Registration of	128
Stillbirths	128, 134
Birthplaces of Population	116, 453
Bismuth Concentrates	318
Blind, Pensions for the	189
Blue	
Books (Colonial)	iii, 258, 412
Bush	53
Board— <i>see specific Boards</i>	
Boarded-out Children	202, 203
Books, Blue (Colonial)	iii, 258, 412
Boots and Shoes— <i>see also</i> Footwear	330, 331, 334, 408
Botanic Garden	163, 247
Bran	331, 335
Bread	
Bakeries	408
Production	331
Retail Price	412
Bricks, Brickworks	324, 329, 331, 333, 407, 438
Bridegrooms, Ages and Conjugal Condition of	139, 140
Brides, Ages and Conjugal Condition of	139, 140
Bridges	222
Broadcasting, Wireless	150, 380
Building, Buildings	
Control	186
Employment in	387
Factory, Value of	321, 322, 327, 330
Minimum Wage Rates	406
Operations	186, 439
Societies	183, 238
Stone	309, 318

	Page
Bulk Handling of Grain	271
Bullion, Gold	351, 352, 432
Bunbury Harbour Board	359
Bunker Coal— <i>see</i> Coal	
Bursaries, Scholarships	144, 156
Buses	
Motor	222, 363, 367, 370, 375, 409
Registrations	367, 428
Trolley	370
Bushel Weights	268
Butter	
Exports	430
Factories	292, 337, 408
Marketing	292
Production	258, 331, 337, 438
Retail Price	413

C

"C" Series Retail Price Index	397, 404, 413, 419
Cabbages	281
Cabinet, Cabinets	88, 91, 92
Cabinet Making	338, 408
Cable Communication	379
Caesium	318
Cancer	137, 169
Cargo, Shipping	357
Carrots	281
Cases tried in	
Higher Courts	206, 208
Magistrates' Courts	206, 209
Cattle	258, 261, 263, 265, 285, 288, 290, 296, 363, 430, 434
Beef	288
Dairy	288
Exports	351, 352, 430
for Meat Production	263, 264, 265, 290, 291, 296
Milk Production	263, 264, 265, 290, 293, 294, 295
Herds, size of	265, 290, 291, 293, 294
Research	165, 301
Slaughter Levy	216
Slaughtered	269, 290, 292
Cauliflowers	280, 281
Causes of Death	134, 137
Caves	247
Cement	320, 332, 407, 438
Cemeteries	100
Census of Retail Establishments	391, 415
Censuses of Population 113, 121, 122, 123, 383, 390, 415, 444	
Aborigines	126
Age	113, 385, 452
Birthplace	116, 453
Conjugal Condition	117, 140, 385, 454
Density	125
Expectation of Life	137
Geographical Distribution	120, 446, 448, 457
Industry	387, 391
Intersexual Increase	119, 445, 446
Masculinity	113, 124
Nationality	116, 453
Occupation	390
Occupational Status	383, 389
Population of	
Local Government Areas	446, 448
Statistical Divisions	124, 125, 448, 457
Towns	446, 448
Urban Centres	122, 451
Religions	116, 454
Urban Population	120, 451
Work Force	383, 388, 390
Central Road Trust Fund	105, 224, 368
Cereals— <i>see specific cereals</i>	
Cerium	318
Charitable Institutions	175, 202, 224
Cheese	258, 259, 292, 331, 337, 408, 413
Chemical Fertilizers— <i>see</i> Fertilizers, Artificial	
Cheque-paying Banks— <i>see</i> Bank, Banks	

	Page
Cherries	268, 281, 283
Chest	
Clinics	170
Hospital, Perth	173
Chief Justice	89, 93, 106
Child— <i>see also</i> Juvenile	
Endowment	189, 193, 201, 216
Welfare	200
Children, Children's	
Adoption of	204
Boarded-out	202, 203
Courts	201, 205
Employment of	202, 204
Endowed	193
Handicapped	150
Health Services for	170, 198, 216
in Institutions	202
Neglected	202
Private	202
School	144, 198, 236, 383
Churches— <i>see</i> Religion of Population	
Cigarettes, Cigars— <i>see</i> Tobacco	
Cities— <i>see also map inside back cover</i>	107, 108
Citrus Fruits— <i>see also specific fruits</i>	259, 282
Citrus Sales Advisory Committee	99
Civil Aviation, Department of	373, 379
Clays	309
Climate	24, 26, 37, 50
Climatological Stations	28, 32, 45
Clothing	
Factories	324, 325, 326, 328, 329, 408
Imports	348, 349, 350
Items of, Production	330, 331, 334
Clover, Subterranean	165, 261, 268, 277, 285, 292, 301
Coal	16, 20, 23, 165, 261, 322, 339
Bunker	354
carried on Railways	363
Discovery	309, 313
Excise on	355
Gas	165, 331, 340, 341, 408
Mines, Men Working at	314
Mining	
Minimum Wage Rates	409
Production	267, 309, 313, 436
used in Factories	327, 340
Value	267, 309, 313, 436
Coastal Configuration	16
Coastline, Length of	16, 59
Cockburn Sound	71
Coinage	229
Coke	165, 327, 331, 340
College, Colleges	
Advanced Education	159
Agricultural	152, 222, 299
Teachers'	152
Technical	144, 151
University	157, 159
Commission— <i>see also</i> Royal	
Broadcasting, Australian	150, 380
Conciliation and Arbitration, Commonwealth	101, 395, 398, 400, 404, 406, 409
Electricity, State	104, 222, 224, 322, 339
Grants, Commonwealth	213
Housing, State	181, 187, 222, 224, 225
Industrial, Western Australian	101, 396, 406
Lotteries	102, 171, 203
National Debt	213, 223
Overseas Telecommunications	379
Universities, Australian	159
Whaling, International	307
Commissioner, Commissioners	
Conciliation	395
Electoral	93
Industrial	396
of Main Roads	102, 366, 369
Police	210, 368, 369, 375
Public Health	103, 169
Public Service	104
Rural and Industries Bank	230
Transport	374, 375
Town Planning	186

	Page
Commonwealth	
Aid (Roads)	215, 224, 368
Bank of Australia	230
Banking Corporation	230
Basic Wage	395, 396, 410, 440
Conciliation and Arbitration Commission	101, 395, 398, 400, 404, 406, 409
Constitution	88, 126
Court of Conciliation and Arbitration	395
Development Bank of Australia	230
Grants Commission	213
Industrial Court	106, 395
of Australia	88
Parliament	88, 90, 97, 99, 442
Rehabilitation Service	190, 216
Savings Bank of Australia	230, 233
Scientific and Industrial Research Organization	166, 256, 300, 307
Trading Bank of Australia	229, 230
Commonwealth-State	
Financial Agreement	213, 215
Housing Agreement	182, 188, 222, 224, 238
Communication	365, 376, 387, 389, 392, 427
Compensation, Workers'	106, 224, 236
Comprehensive Water Supply Scheme— <i>see also</i> Water	249, 250
Conciliation and Arbitration Commission, Commonwealth	101, 395, 398, 400, 404, 406, 409
Commonwealth Court of	395
Conditional Purchase of Freehold Land	240
Confectionery	
Imports	348, 349
Production	335
Congenital Malformation, Deaths from	134
Congugal Condition of Population	117, 385, 386, 454
Consolidated Revenue Fund....	105, 215, 217, 424
Constitution	
Commonwealth	88, 126, 442
State	7, 88, 91, 93, 442
Consumer Price Index	414, 439
Convictions, Court	206
Convicts	4, 5, 6, 112, 258
Cook, James	2
Copper, Copper Ores	165, 261, 270, 300, 309, 314, 353, 360
Coral, Corals	59, 72
Correspondence Tuition	150
Corrigenda	xv
Cotton	222, 256, 267, 269, 279, 321
Council, Councils	
Cancer	169
Executive	88
Health Education	169
Legislative	6, 7, 8, 88, 91, 93, 95, 97, 98, 442
Loan, Australian	213
Municipal— <i>see also</i> Municipalities	102, 107, 225
National Fitness	247
Privy	106, 205
Country Party	90, 91, 92, 95
Country Women's Association	157
Court, Courts	
Appeal, Western Australian Industrial	107, 396
Bankruptcy	106, 205, 239
Children's	201, 205
Coroners'	206
Full	106, 205
High, of Australia	106, 205
Industrial, Commonwealth	106, 395
Judges'	106, 205, 206, 208
Civil Cases	206
Convictions	208
Licensing	206
Local	206
Magistrates'	205
Civil Cases	206
Convictions	206

	Page
Court, Courts— <i>continued</i>	
of Arbitration, Western Australian	107, 396, 403
Conciliation and Arbitration, Commonwealth	395
Police	205
Session	205
Summary Relief	201, 206
Supreme	106, 205
Crayfish	168, 258
Exports	306, 351, 353, 431
Production	261, 267, 305, 306
Species of	60, 72, 306
Crime	206
Crops— <i>see also specific crops</i>	261, 262, 263, 269, 435
Crown Land— <i>see</i> Land	
Cupreous Ore	309, 314
Currants	259, 269, 284, 353
Currency	229
Customs	
Collections....	216, 355
Tariff	343, 355, 356
Cycles, Motor	367, 372, 428
Cyclones	26, 37, 255
D	
"D" Series Retail Price Index	397
Dairy	
Cattle	288
Produce	
Levy	216
Retail Prices of	413
Products, Marketing of	292
Dairying 9, 165, 245, 258, 259, 263, 267, 269, 292, 406, 437	
Dampier, William	1
Dams— <i>see</i> Reservoirs; Water	
Day Hospitals	174
Death, Deaths	132, 423
Causes	134, 137
Infant	132, 134, 423
Rates	133, 371, 423
Registration of	128
Road Traffic Accident	371
Sentences	208
Debt, Public	213, 223, 424
Decimal Currency	229
Degrees Conferred, University	155
Democratic Labor Party	13
Demography	112, 128, 422
Density of Population	125
Dental Services	
School	171
Departures— <i>see</i> Migration	
Deserted Wives, Assistance to	191, 201
Development Bank of Australia, Commonwealth	230
Diabetes Mellitus, Deaths from	137
Diarrhoea and Enteritis, Deaths from	134, 137
Dingoes	62, 63, 301
Diorite	309, 318
Diphtheria	170
Direction of Trade	344, 346
Disabled Persons' Accommodation Grants	176
Diseases	
Deaths from	134, 137
Infectious	134, 138, 169
Notifiable	170
of Early Infancy, Deaths from	134
Venereal	170
Divorce, Divorces	141, 206
Dried Fruits— <i>see</i> Fruits	
Drivers' and Riders' Licences, Vehicle	210, 218, 367, 369
Drug Plants	54
Drunkness	207, 209
Duty, Duties	
Customs	216, 355
Estate	216
Excise	216, 355
Gift	216
Probate and Succession	100, 218
Stamp	164, 218

	Page
Dwellings	
Class of	177
Completed	187, 188, 439
Facilities of	180
Inmates	178
Local Government Areas	448
Material of Outer Walls	178
Nature of Occupancy	179
Occupied	177, 448
Rent, Rented	179, 413, 414, 415
Rooms	179
Unoccupied	177, 181, 448

E

Eastern Goldfields Transport Board	370
Education	144
Adult	157
Agricultural	150, 152
Assistance to	144, 158, 215, 219, 220, 222
Council, Health	169
Department	144, 146, 163
Employment in	149, 152, 153, 155, 392
Examinations, Public	148, 157
Expenditure on	158, 219, 221, 222
of Handicapped Children	150
Natives	150
Parents' and Citizens' Associations	150
Pre-school	150, 153, 154
Provision for, in Remote Areas	150, 374
Scholarships and Bursaries	144, 156
School, Schools	
Agricultural	150, 152
Attendance, Attendances at	100, 146
Broadcasts to	150
Correspondence	150
Enrolments	146, 147, 148
Government	144, 146, 147, 148, 221, 222
Age of Pupils	146, 147, 148
Primary Enrolments	147
Secondary Enrolments	148
Sex of Pupils	146
Leaving Age	100, 144
Non-Government	146, 147, 148, 153
Age of Pupils	146, 147, 148
Primary Enrolments	147
Secondary Enrolments	148
Sex of Pupils	146
of Medicine	154
Mines	146, 153
the Air	150, 374
Primary	146, 147, 148
Secondary	146, 148, 149, 154
Teacher Training	152
Technical	144, 151
University	10, 154, 159
Visual Aids in	150
Vocational Guidance	150, 151
Egg, Eggs	
Exports	297, 354
Marketing Board, Western Australian	297
Production	259, 267, 297, 298
Retail Price	413
Elections	
Commonwealth	90, 97, 442
Local Government	108
State	88, 93, 94, 98, 442
Electoral	
Commissioners	93
Provisions	
Commonwealth	90
Local Government	108
State	93, 95
Electric Motors	321, 327
Electrical Appliances and Equipment	
Imports	348, 349, 350
Electricity	
Commission, State	104, 222, 224, 322, 339
Generation and Distribution	322, 330, 331, 340, 387, 392, 408, 425, 438
Undertakings, Local Government	227
used in Factories	327

Employment	383, 439
at Mines	310
Classification by Industry	387, 392
Estimates	390, 391, 439
Government	393
in Factories	259, 261, 319, 320, 321, 322, 323, 330, 332, 340, 341, 342
Fishing	307, 308
Hospitals	172
Manufacturing	387, 388, 389, 392
Statistical Divisions	259, 261, 322, 323
Teaching	
School	149, 151, 153
University	155
Transport	362, 364, 370, 387, 388, 389, 390, 392
of Children	202, 204
Postmaster-General's Department	376
on Rural Holdings	266
Work Force	383, 388, 390, 392
Endowment, Endowments	
Child	189, 193, 201, 216
Land	241
University	154, 156
Engineering Works	334, 407
Engines in Factories	321, 327, 332, 340
Enrolments	
School	146, 149, 151, 154
Teachers' College	152
Technical Education	151
University	155
Enteritis and Diarrhoea, Deaths from	134, 137
Entertainments Tax	218
Entomology—see also Insects	77, 167, 299
Estate Duty	216
Evaporation	36, 37, 45
Examination, Examinations	
Dental, in Schools	171
Medical	
for Venereal Diseases	170
in Schools	171
of Bankrupts	239
Public	148, 157
Board	157
X-ray, for Tuberculosis	170
Exchange Rates	220, 456
Excise	
Collections	216, 355
Commodities subject to	355
Rates	355
Executive Council	88
Ex-nuptial Births	128, 129
Expectation of Life	137
Experiment, Experimental Farms	270, 299
Export Charges, Primary Products	216
Exports—see also specific items	
Classification	343
Destination	353
Items of, Principal	351, 352, 353, 428, 429
Valuation of	344
Value	345, 346, 347, 351, 352, 353, 354, 428, 429, 433
External Trade—see also Direction of Trade; Exports; Import, Imports	343, 344, 433

F

Factory, Factories—see also specific types of factory	
Classification	323, 324, 325, 326, 329, 341
Definition of, Statistical	319
Development of	319
Distribution of, Geographical	259, 321
Employment	259, 261, 319, 320, 321, 322, 323, 324, 329, 330, 332, 340, 341, 342, 438
Engines used in	321, 327, 332, 340
Government	330, 339
Land and Buildings	321, 327, 329, 330, 332, 340, 342
Materials used in	322, 329, 330, 332, 340, 342
Number of	319, 321, 323, 329, 330, 332, 340, 341, 342, 438

	Page		Page
Factory, Factories,— <i>continued</i>		Flour, Wheaten	
Output, Value of	319, 322, 328, 329, 330, 332, 340, 342, 438	Exports	271, 351, 353, 430
Plant and Machinery	321, 322, 327, 329, 330, 332, 340, 342	Milling	261, 408
Power, Fuel and Light used in	322, 327, 329, 340, 342	Production	331, 335, 438
Production		Retail Prices	412
Items of	329, 330, 331, 332, 340, 438	Fluoridation of Public Water Supplies Advisory Committee	101
Net	319, 321, 328, 329, 330, 340, 342, 438	Flying Doctor Service, Royal	150, 374, 375, 379
Salaries and Wages	319, 322, 326, 329, 330, 340, 342, 438	Fodder Crops	276
Summary according to Industry of Australian Statistics	329, 332, 340, 341	Foodstuffs— <i>see also specific foodstuffs</i>	
Farm, Farms		Exports	271, 351, 352, 353, 354, 429
Experiment, Experimental	270, 299	Imports	348, 349, 350
Production— <i>see also</i> Agricultural; Agriculture; Farming; Primary	258, 259, 435, 437	Retail Prices	412, 413
State	299	Footwear	330, 331, 408
Farmers, Assistance to		Factories	334
Financial	215, 230, 245, 271, 279, 292, 294	Imports	348, 349
Technical	165, 245, 270, 292, 299	Forest, Forests	302
Farming	258, 406	Administration and Conservation	220, 224, 242, 304
Bee— <i>see</i> Bee Keeping		Fire Protection	304
Dairy	165, 245, 258, 259, 263, 267, 269, 292, 406, 437	Products— <i>see also specific products</i>	54, 258, 267, 304
Ley	80, 261	Situation of	52, 302, 303
Pig	165, 245, 259, 263, 267, 269, 297	State	242, 302, 303
Poultry	165, 259, 263, 267, 269, 297	Tree Species	52, 87, 302, 303, 304
Sheep	165, 258, 261, 263, 285	Forestry Production, Value of	259, 266, 267, 269, 437
Wheat	165, 258, 261, 264, 270, 360, 435	Forrest	
Fauna	55, 58, 167, 246	Alexander	285
Federation, Commonwealth	88	John	8, 9, 92, 247
Fellmongering— <i>see</i> Wool		Fossils	17, 23, 72
Felspar	261, 309	Foxes	63, 301
Ferries	370	Free	
Fertility and Reproduction Rates	131	Grants of Crown Land	241
Fertilizers, Artificial	267, 375	Milk for School Children	198, 216
carried on Railways	361, 362, 363	Freight	
Factories	261, 324, 333	Air	374
Imports	348, 350	Railway	362, 363, 364, 427
Production	317, 330, 331, 333	Road	362, 375
Ores used in	309, 314, 333	Sea-borne	357
Use of	165, 270, 277, 300	Fremantle, Charles H.	2
Finance		Fremantle Port Authority	359
Commonwealth-State	183, 198, 200, 213, 215, 217, 224, 238, 250, 256, 368	Friendly Societies	237
Hospitals	173	Frosts	32
Local Government	109, 225	Fruits— <i>see also specific fruits</i>	
Private	229, 426	Canned	
Public	213, 424	Charge	216
Railways	361, 362, 364, 425, 427	Factories	408
Research	160	Imports	348, 349
Roads	215, 224, 226, 366, 368	Retail Prices	412
Financial		Dried	
Agreement, Commonwealth-State	213, 215	Exports	284, 353
Assistance Grants	159, 160, 214, 215, 217	Imports	349
Fire, Fires		Production	284
Brigades	225, 227	Fresh	
Board, Western Australian	101, 236	carried on Railways	363
Insurance	236	Exports	282, 351, 353, 354, 430
Protection, Forest	304	Imports	348, 349
Firewood	304, 327, 363	used in Factories	336
Fish— <i>see also</i> Crayfish; Fisheries, Fishing		Production	255, 259, 263, 267, 281
Exports	306, 351, 352, 353, 354, 431	Fuel Oil— <i>see also</i> Oil, Oils	327, 340
Production	258, 259, 267, 269, 305	Fuel, Power and Light consumption in Factories— <i>see also</i> Power, Electric	322, 327, 340, 342
Species of	60, 68, 305, 306	Fund— <i>see</i> <i>specific Funds</i>	
Fisheries, Fishing— <i>see also</i> Fish; Pearls, Pearl-shell; Whales, Whaling	258, 259, 269, 305	Funeral Benefits	191, 216, 237
Employment in	307, 308	Furniture Factories	320, 338, 408
Research	167, 307		
Value of	259, 267, 269, 307, 308, 437		
Fitness Council, National	247		
Flats	177, 178, 187, 188, 439		
Flax			
Area	278		
Fibre Bounty	278		
Production	268, 279		
Fleece Weights	287, 288		
Flinders, Matthew	2, 4		
Flora— <i>see also</i> Forest, Forests	47, 163, 246		

G

Gaols	211
Gas	
Coal— <i>see</i> Coal	
Natural	16, 20, 318
Gauges, Railway	364
Geology	16, 86
Gift Duty	216

	Page
Gold— <i>see also</i> Goldfields	
Discovery	6, 14, 112, 258, 308, 310
Exports	351, 352, 432
Mining	
Assistance to	311, 436
Employment in	310, 311, 312
Leases	312
Minimum Wage Rates	409
Price	311
Production	7, 8, 267, 269, 309, 310, 436
Refined	311
Value	267, 309, 436
Goldfields	
Basic Wage	403, 405
Employment	310
Proclaimed	310
Water Supply	248, 251
Goods Traffic, Railway	362, 363, 364, 427
Government	
Commonwealth	88, 90, 97, 393, 442
Employees' Housing Authority	184
Employment	391
Local	88, 107, 391
Representative	88
Responsible	88, 91
State	88, 91, 97, 391, 442
Governor, Governors	89
Governor-General	89
Grain— <i>see also specific grains</i> <i>carried on Railways</i>	261, 263, 264, 268, 269, 435 363
Grants	
Aged Persons' Homes	175
by Local Government Authorities	227
Commission, Commonwealth	213
Disabled Persons' Accommodation	176
Financial Assistance	214, 215, 217
for Waterworks	215, 249, 256
Homes Savings	185, 216
of Crown Land	241
Special, Commonwealth	214, 215, 217
States (Tax Reimbursement)	214
under Section 96 of Constitution	213
University, Universities	158, 215, 219
Grapefruit	268, 282, 283
Grapes— <i>see also</i> Vine Fruits	259, 268, 269, 284
Graphite	318
Grasses	52, 53, 166, 270, 277
Grazing— <i>see also</i> Cattle; Pastoral; Pasture; Sheep, Lambs; Wool	261, 277, 285
Gregory, F. T.	285
Grey, George	285
Group Settlement Scheme	9, 245, 292
Guano	65
Guardian's Allowance....	190, 195
Guidance, Educational	150, 151
Gums and Resins	54, 304
Gypsum	15, 24, 261, 309

H

Hackett, John W.	154, 156
Hall	37
Ham— <i>see</i> Bacon, Ham	
Handicapped Children	150
Harbour Boards	359
Harbours— <i>see</i> Ports	
Hardwoods— <i>see also</i> Jarrah; Karri; Tuart; Wandoo	52, 54, 258, 302, 338
Hartog, Dirk	1
"Harvester" Judgment	396
Hay	
Area	269, 276, 436
Production	267, 269, 276, 436

Health

Boards of, Local	169
Department of	169
Education Council	169
Insurance	196, 237
Laboratories	169
Public, Commissioner of	169
Services	169, 173, 196, 198, 216
Heart Diseases, Deaths from	137
Heights above Sea-Level	14, 26, 28, 45
Hides and Skins	302, 351, 352, 353, 431
High	
Court of Australia	205
Schools	148, 150
Highways— <i>see</i> Road, Roads	
Historical Survey	1
Hives, Bee	298
Holdings, Agricultural and Pastoral	261, 262, 273, 286, 291, 293, 295
Homes	
Aged Persons', Grants for	175
for the Aged and Infirm	175, 184
Savings Grants	185, 216
Homicide	137
Houey	298, 353
Horsepower of Engines in Factories	327, 332, 340
Horses	296, 363, 434
Hospital Benefits	196, 200, 216, 224, 237
Hospitals	171, 200, 221, 222, 224, 227, 406
Hotels	387, 389, 407
House	
of Representatives	91, 97
Rents	179, 413, 415
Houses	177, 188, 439
Housing	177, 220, 415
Agreement, Commonwealth-State	182, 188, 222, 224, 238
at Census	177, 448
Authority, Government—Employees'	184
Commission, State	104, 181, 188, 222, 224, 225
Death Benefit Scheme	183
Government	181
Loans	182, 185, 231, 238
Trust, McNess	184, 188
Humidity	45, 46
Hutt, John	4
Hydro-electric Power	20, 256, 339

I

Illegitimacy	128
Ilmenite....	24, 258, 261, 267, 309, 315, 351, 352, 353
Immigration— <i>see also</i> Migration	220, 245, 270
Import, Imports— <i>see also specific items</i>	
Classification	343
Items of, Principal	348, 349, 350
Origin	350
Valuation of	344
Value	345, 346, 347, 348, 349, 350, 354, 433
Income Tax	214, 216
Indebtedness, Public	213, 223, 425
Index Numbers, Retail Price	396, 397, 404, 413, 419, 439
Industrial	
Appeal Court, Western Australian	107, 396
Awards	400, 403, 404, 406, 409
Commission, Western Australian	101, 396, 406
Court, Commonwealth	106, 395

	Page		Page
Industrial— <i>continued</i>		J	
Development		Jam	
Department of	341	Production	408
History of	319	Retail Price	412
Industry		Jarraah	52, 54, 57, 87, 258, 302, 303
Geographical Distribution	259, 321	Jelly Crystals	331
of Work Force	387, 388, 389	Judges	93, 94, 102, 106, 205, 395
Primary— <i>see also</i> Primary; Rural	260, 261	Judges' Courts	106, 205, 206, 208
Secondary— <i>see also</i> Factory, Factories;		Judicature	106, 205, 395
Manufacturing	319	Judicial Separations	206
Inebriates	174, 211	Junior Farmers' Movement	157
Infant		Jury, Juries	205
Deaths	132, 134, 423	Justice— <i>see</i> Court, Courts	
Health Centres	170, 224	Juvenile— <i>see also</i> Child; Children, Children's	
Mortality Rate	133, 135, 423	Convictions in Courts	207
Infectious Diseases		Employment	202, 204, 324
Cases Notified	170		
Deaths from	134, 137	K	
Information Service	lii	Kangaroo, Kangaroos	60, 167, 302
Insects	76, 77	Paw (flower)	56
Insolvencies	239	Karri	52, 54, 87, 258, 302, 303
Institute		Kimberley	15, 60, 77, 112, 258, 261, 284, 309
of Agriculture	165	Research Station	168, 256, 300
Technology, Western Australian	105, 159	Timber Resources	53, 54
Swan River Mechanics'	162	Kindergartens	150, 153, 154
Institutions, Charitable	175, 202, 224	King, Phillip P.	2
Instruction, Public— <i>see</i> Education		King's Park Board	247
Insurance		Knitting Mills	407
Fire, Marine and General	236, 426	Kwinana	122, 222, 224, 320, 321, 361, 365
Health, Hospital	196, 237	Kyanite	318
Life	235, 426		
Motor Vehicle, Third Party	218, 235, 237	L	
Office, State Government	221, 235	Laboratories, State Government	164, 169
of Housing Loans	185	Labour— <i>see</i> Employment	
Interest Rates, Bank	234	Labour Parties	9, 90, 91, 95, 442
Interim Retail Price Index	414	Lakes	15, 24, 60, 86
Internal Combustion Engines in Factories	327	Lamb— <i>see</i> Mutton, Lamb	
International Monetary Fund	229	Lambs— <i>see</i> Sheep, Lambs	
International Whaling Commission	307	Land	
Interstate		and Buildings, Factory	321, 327, 329, 330, 332, 340, 342
Air Services	374	Crown	
Cargo, Shipping	358	Administration	240
Comparison		Alienation of	240, 242, 243, 434
Areas	126	Classification of	242
Basic Wage Rates	401, 440	Conditional Purchase	240
Factories	341	Endowment	240
Home Building Activity	188	Grants	240
Livestock Numbers	296	Leases and Licences	242, 434
Motor Vehicle Usage	373	Agricultural	240
Net Production, Manufacturing	320	Mining	312
Population	120, 121, 122, 125, 188, 445, 455	Pastoral	243, 261
Primary Production	269	Reservations	55, 240, 246
Railways, Government	364, 365	Sales	241
Retail Price Index Variations	415, 418, 439	Occupation	242
Weather	45, 46	Settlement Schemes	
Wheat Production	275	Group	245, 292
Railway	360, 364	Peel, Thomas	2, 3
Representation	107	Soldiers'	245, 270
Shipping	358	3,500 Farms	246
Trade	344, 346, 347, 348, 349, 351, 352, 433	War Service	166, 215, 224, 245, 285
Invalid Pensions, Pensioners	189, 198, 216	Tax	103, 218
Investment Societies	238	Utilization	261
Iron— <i>see also</i> Pig-Iron		Lands and Surveys, Department of	240, 242, 243
Ore	12, 14, 17, 19, 23, 25, 258, 261, 309, 315, 360	Laterite	15, 23, 52
Exports	261, 315, 351, 352, 353, 432	Lead, Lead Ores	261, 309, 312, 316, 353, 360, 432
Production	267, 309, 315		
Railways and Ports	316		
Pellets	316		
Pyrites	308, 317		
Irrigation	14, 248, 250, 253, 292, 360		

	Page
Leases of Crown Land— <i>see also</i> Land	
Agricultural	240
Mining	312
Pastoral	243, 261
Leather	
Goods Factories	334, 407
used in Factories	334
Lecturers, University	155
Legal Tender	229
Legislation	
during 1966	
Commonwealth	99
State	99
Legislative	
Assembly	7, 8, 88, 91, 95, 442, 443
Council	6, 7, 8, 88, 91, 93, 95, 97, 98, 442
Legislature	
Commonwealth	88, 90, 97
State	88, 91, 97
Lemons	268, 282, 283
Leprosaria	173
Leprosy	170
Lettuce	281
Leucosene	309, 315
Ley Farming	80, 261
Liberal and Country League	92, 95, 96, 442, 443
Liberal Party	9, 90, 91, 92, 97, 442
Libraries	161
Library Board of Western Australia	161
Licences— <i>see also</i> Land	
Broadcast Listeners'	380, 381
Broadcasting Station	380
Liquor	206, 218
Motor	
Drivers' and Riders'	210, 218, 367, 369
Vehicle	210, 218, 225, 367, 368, 369, 428
Radio	380, 381
Revenue from	218, 367, 369, 382
Television	380, 381
Transport	375
Licensing Court	206
Lieutenant-Governors	89
Life	
Expectation of	137
Insurance	235, 426
Lime and Plaster Factories	330, 332, 407
Limestone	15, 21, 22, 309, 318, 332
Linseed, Linseed Oil	278, 279
Liquor Licences	206, 218
Lithium	318
Livestock— <i>see also specific types</i>	
carried on Railways	363
Exports	351, 352, 430
Imports	348, 349
on Rural Holdings	258, 261, 269, 285, 293, 294, 295, 434
Slaughter Levy	216
Slaughtering	267, 269, 290, 292, 296, 336
Loan, Loans	
Bank	231, 426
Building Society	238
Council, Australian	213
Expenditure	
Local Government	228
State Government	221, 425
Fund, General	221, 425
Housing	182, 185, 231, 238
Indebtedness	
Local Government	228
State Government	213, 223, 425
Raisings, Local Government	227

	Page
Local Government	88, 102, 107
Areas— <i>see also map inside back cover</i>	107, 446, 459
Changes in	444
Population in	446, 448
Authorities, Functions of	109
Finance	102, 109, 225
Reserves	247
Lockyer, Edmund	2
Locomotives	361
Lotteries Commission	102, 171, 203
Lucerne	276, 277

M

Machinery and Plant, Factory	322, 327, 329, 330, 332, 340, 342
Machines, Machinery	
Exports	351, 352, 353
Imports	348, 349, 350
in Factories	322, 327, 329, 330, 332, 340, 342
Production	334, 407
McNess Housing Trust	184, 188
Magistrates' Courts	205, 206, 209
Magnesite	309
Mails— <i>see</i> Posts, Telegraphs, Telephones	
Main Roads— <i>see</i> Road, Roads	
Maize	268, 277
Malformations, Congenital, Deaths from	134
Malting Barley	276
Mandarins	268, 282
Manganese, Manganese Ore	258, 261, 309, 316, 351, 352, 353, 432
Manufacturing— <i>see also</i> Factory, Factories	258, 319, 387, 389, 392, 407, 437, 438
Manures— <i>see</i> Fertilizers, Artificial	
Margins, Wage.... ..	400, 406, 409, 410
Marine Insurance	236
Marital Status of Population	117, 385, 386, 454
Marketing Board	
Barley, Western Australian	276
Dairy Products	292
Egg, Western Australian	297
Onion, Western Australian	280
Potato, Western Australian	278
Marriage, Marriages	128, 136, 139, 140, 423
Ages of Bridegrooms and Brides	139, 140
Dissolution of	141, 143
Duration of	143
of Minors	140
Rates	141, 423
Religious and Civil	141
Marsupials	61
Masculinity	113, 124, 134
Maternal Deaths	137
Maternity Allowances.... ..	192, 216
Matriculation	148
Mean Population	119, 422
Means Test for Social Service Benefits	189, 198
Meat— <i>see also specific meats</i>	
Exports	290, 294, 302, 351, 352, 353, 354, 429
Production	290, 292, 296
Retail Prices	413
Medical	
Benefits	197, 200, 216, 237
Board	103
School, University	154
Members of Parliament	88, 90, 93, 95, 96, 442
Mental Health	
Institutions	173, 200, 215
Services	173, 219
Metals and Metal Manufactures	
Exports	351, 352, 353
Imports	348, 349, 350
Production	334, 407
Meteorology	26

	Page
Olives	268
Omnibuses— <i>see</i> Buses	
Onion, Onions	
Area	269, 280
Marketing Board, Western Australian	280
Production	268, 269, 280
Retail Price	412
Oranges	268, 269, 282
Orchards— <i>see also specific fruits</i>	255, 267, 281
Orchids	48
Ord River	222, 248, 256, 285, 300
Ores— <i>see also specific ores</i>	17, 19, 23, 261, 309, 311, 312, 351, 352, 353, 363, 432
Orphanages	202
Output, Factory, Value of	319, 322, 328, 329, 330, 332, 340, 342, 438
Oversea, Overseas	
Air Services	374
Cargo, Tonnage of	358
Representation	107
Shipping	359
Telecommunications Commission	379
Trade— <i>see also</i> Exports; Import, Imports	343, 344, 346, 347, 348, 350, 353, 354, 355, 433
Oysters	71
P	
Paint, Paints	330, 331, 349, 351
Paper, Paper Products	
Factories	320, 324, 328
Imports	348
Parasitic Diseases, Deaths from	134
Parents and Citizens' Associations; Federation	150, 157
Parks and Reserves	55, 163, 226, 241, 246
Parliament, Parliaments	
Commonwealth	88, 90, 97, 99, 442
State	88, 91, 97, 99, 442
Parole Board	212
Parsnips	281
Passengers Carried	
Ferries	370
Omnibuses	370
Railways	362
Railways Road Services	362, 363, 370
Pastoral— <i>see also</i> Cattle; Grazing; Sheep, Lambs; Wool	166, 242, 284, 299, 406, 437
Appraisal Board	240
Areas, Definition of	284
Industry	258, 263, 264, 265, 267, 284, 406, 437
Leases	243, 261
Pasture	166, 255, 261, 269, 277, 292, 300
Paterson Plan	292
Patients in Hospitals	172, 174, 175
Pay-roll Tax	216, 391, 411
Peaches	268, 283, 412
Pearls, Pearl-shell	9, 71
Culture	261, 308
Exports	308, 431
Production	261, 267, 308
Pears	268, 282, 412
Peas	261, 268, 276, 277, 281
Peel, Thomas	2
Penal Offences	206
Pensions, Pensioners	
Age	189, 198, 201, 216
Invalid	189, 198, 201, 216
Medical Service	198, 216
Reciprocal Arrangements with other Countries	194
Service	171, 189, 195, 198
War	171, 189, 194
Widows'	189, 191, 198, 201, 216
Perth	
City Council	107, 206, 368
Foundation of	3
Medical Trust	103
Statistical Division	124, 125, 259, 321, 445, 457
Town Trust	107

	Page
Pesticides, Effect of	82
Petrol, Petroleum, Petroleum Products— <i>see also</i> Oil, Oils	
Customs	355
Excise	355
Exports	351, 352, 353, 354, 431
Imports	348, 349, 350
Leases, Licences	103
Pharmaceutical Benefits	189, 198, 200, 216, 224
Phillip, Arthur	2
Phosphate, Rock— <i>see also</i> Fertilizers, Artificial	333
Physical Features	14, 85
Pickles, Sauces	330, 331, 336
"Piddington" Commission	396
Pig-iron	261, 304, 316, 320, 331
Pigs	263, 269, 294, 295, 336, 363, 434
Pines	223, 304, 338
Plant and Machinery, Factory	321, 322, 327, 329, 330, 332, 340, 342
Plantations	255, 283, 304
Plaster	331, 332, 407
Plums	268, 283
Plywood	304
Pneumonia, Deaths from	137
Police	210, 219, 225, 367, 368, 371
Policies, Life Insurance	235, 426
Poliomyelitis	169, 170
Political Parties	90, 91, 92, 442
Australian Labor Party	90, 95, 442
Country Party	90, 95, 442
Labour	90, 91, 92, 95
Liberal and Country League	92, 95, 442, 443
Liberal Party	90, 91, 92, 97, 442
Nationalist Party	92
Pollard	331, 335
Pome Fruits— <i>see</i> Apple, Apples; Pears	
Population	4, 7, 12, 112, 422, 444
Aboriginal	112, 126
Age Distribution	115, 452
Birthplace	116, 453
Capital Cities	445
Censuses— <i>see also</i> Censuses of Population	113, 121, 122, 123, 137, 383, 390, 415, 444
Conjugal Condition	117, 385, 386, 454
Density	125
Estimates	112, 118, 422, 444, 455
Geographical Distribution	120, 446, 448, 457
Increase	112, 119, 423, 445
Industry of	387, 388, 389, 392
Intercensal Increases	119, 445
Interstate Comparison	120, 121, 122, 126, 445, 455
Local Government Areas	446, 448
Masculinity	113, 124
Mean	119, 422, 455
Metropolitan	121, 122, 451
Migratory	121, 122, 124, 125, 422, 447, 450, 451
Nationality	116, 453
Occupational Status of	383, 384, 385, 386, 389, 390
Occupations of	389, 390
Perth Statistical Division	124, 259, 422, 445, 448, 457
Principal Towns	122, 446, 448
Rates of Increases	112, 120, 423, 445
Religion	117, 454
Reproduction	131
Rural	120, 121, 122
Holdings	206
Statistical Divisions	120, 123, 124, 125, 448, 457
Urban	120, 121, 122
Centres	120, 121, 122, 451
Work Force	383, 387, 388, 389, 390, 391
Pork	
Exports	294, 351, 429
Retail Prices	413
Ports	316, 354, 357
Administration	359
Cargo Tonnages	357, 358
Shipping	357
Trade	354, 359
Postmaster-General's Department	376, 379
Posts, Telegraphs, Telephones	376, 427

	Page
Potash	15, 24
Potato, Potatoes	
Area	255, 269, 278
Exports	430
Marketing Board, Western Australian	102, 278
Production	259, 261, 263, 268, 269, 278
Retail Price	412
Poultry	105, 166, 259, 263, 267, 269, 297, 437
Power, Electric— <i>see also</i> Electricity; Hydro- electric Power	
Generation and Distribution	322, 331, 339, 340, 408, 425, 438
used in Factories	327, 342
Prawns	72, 168, 261, 267, 305, 306
Premier, Premiers	7, 8, 92
Premiums, Insurance	235, 426
Pre-school Education	153, 154
Price Indexes— <i>see</i> Index Numbers, Retail Price	
Prices, Retail	412
Primary	
Producers, Assistance to	
Financial	215, 230, 245, 271, 279, 292, 294
Technical	165, 245, 270, 292, 299
Production	258, 261, 269, 387, 389, 434, 437
Schools— <i>see also</i> Education	146, 147, 148, 149, 154
Prime Minister of Australia	97, 213
Printing Works	408
Prisons, Prisoners	211
Private	
Children	202
Dwellings	177
Finance	229, 426
Hospitals	173
Omnibus Services	370
Railways	360, 363, 427
Privy Council	106, 205
Probate Duties	100, 218
Probation and Parole Service	212
Production, Value of	
Manufacturing	259, 322, 328, 342, 457, 458
Primary	259, 266, 267, 269, 437
Professors, University	155
Proportional Representation	90
Public	
Debt	213, 223, 425
Examinations— <i>see</i> Education	
Finance	213, 424
Child Welfare	202
Customs and Excise	216, 355
Education	158, 219, 220
Hospitals	173, 224
Infant Health	171
Posts, Telegraphs and Telephones	377, 427
Social Service Benefits	189, 216
Transport Services	217, 219, 221, 222, 361, 362, 425, 427
Vehicle Licences	218, 225, 367
Health	103, 109, 169, 219
Hospitals	171, 196, 221, 222, 224, 406
Instruction— <i>see</i> Education	
Service Arbitrator	104
Transport Services	217, 219, 360, 363, 369, 425, 427
Trustee	224
Publications, List of	477
Pumpkins	281
Pyrites— <i>see also</i> Iron	261, 267, 309, 317

Q

Quarantine	169
Quarrying— <i>see</i> Mining and Quarrying	
Quartzite	318
Quicklime	330, 331, 332

R

Rabbits	62, 167, 301, 302
Racing, State Revenue from	218
Radio Broadcasting Services	150, 380
Rail Standardization	361, 365
Railways— <i>see also</i> map inside back cover	104, 222, 224, 316, 360, 374, 409, 427
Rainfall— <i>see also</i> map inside back cover	26, 28, 44, 45, 50, 86, 124, 256, 270
Raisins	259, 269, 284
Rates	
Local Government	109, 225
of Exchange	229, 456
Readers, University	155
Refining	
Gold	311
Oil	258, 259, 320, 407
Sugar	408
Refrigerating Machines and Appliances, Imports of	348, 349
Regions, Natural	85
Rehabilitation Service, Commonwealth	190, 216
Relief Payments, State	200
Religion of Population	117, 454
Religious and Civil Marriages	141
Rent, Rents of Dwellings	179, 413, 415
Repatriation Services	171, 189, 194
Representation	
Overseas and Interstate	107
Parliamentary	88, 90, 91, 93, 95, 96
Vice-Regal	89
Representatives, House of	91, 97
Reproduction Rates	131
Reptiles	67
Research	
Agricultural	165, 256, 270, 271, 299
Financial Assistance for	160
Organization, Commonwealth Scientific and	
Industrial	166, 256, 300, 307
Reserves of Land	55, 104, 241, 246, 315
Reservoirs— <i>see also</i> Water	248
Resins and Gums	54, 304
Retail	
Establishments, Census of	391, 415
Price, Prices	412
Index Numbers	396, 397, 404, 413, 419, 439
Trade	
Employment in	392
Minimum Wage Rates	409
Rice	256, 276, 412
Rivers	15, 255, 285
Road, Roads— <i>see also</i> map inside back cover	366
Beef Cattle	224
Boards	107, 225
Commonwealth Aid	215, 224, 368
Districts— <i>see also</i> Shires	107
Finance	215, 224, 226, 366, 368
Main	366, 368, 374
Traffic	
Accidents	371
Control	210, 367
Transport	225, 362, 363, 369, 374
Employment	362, 370, 387, 389, 392
Minimum Wage Rates	406, 409
Vehicles	363, 367, 370, 375, 428
Trust Fund, Central	224, 368
Rock Phosphate— <i>see</i> Phosphate, Rock	
Rocks	16
Rottneet Island Board	247
Route Mileage— <i>see</i> Mileage	
Royal	
Commission, Commissions	301
on Basic Wage	396, 403
University	154

	Page
Royal—continued	
Flying Doctor Service	150, 374, 375, 379
Mint	229, 311
Rubber, Rubber Goods	329
Rubidium	318
Rural	
and Industries Bank of Western Australia	224, 230
.....	231, 233, 234
Holdings	261, 262, 269, 273, 286, 287
.....	291, 293, 294, 295
Industry	258, 383, 389, 406, 434
Population	120, 121, 122, 451
Seasonal Calendar	267, 268
Rutile	24, 309, 315
Rye	268, 276, 277

S

Safflower	256
Salaries and Wages —see also Basic Wage, Total	
Wage, Wages	395, 410
Factories 219, 322, 324, 326, 329, 332, 340, 342, 438	
Hospitals	173
Infant Health Services	171
Minimum Rates	406
Postmaster-General's Department	377
University	158
Sales Tax	216
Salt	15, 24, 301
Bush	24
Lakes	15, 24, 86
Sandalwood	54, 302
Sandstone	17, 20, 22, 309, 318
Sauce—see Pickles, Sauces	
Savings Banks—see Bank, Banks	
Sawmills, Sawmilling	261, 305, 324, 338
Employment	324, 329, 338
Minimum Wage Rates	408
Salaries and Wages	326, 338
Scale Fish	267
Scholarships, Bursaries	144, 156
Schools—see Education	
Scientific Institutions	164, 256, 299
Seasonal Calendar, Rural	267, 268
Secession Referendum	10
Secondary	
Industry	319
Production—see Factory, Factories; Manu-	
facturing	
Schools—see Education	
Sedimentary Basins	16, 20
Senate	
Commonwealth Parliament	90, 97, 442
University of Western Australia	155
Separations, Judicial	206
Sequestration Orders	239
Service, Services	
Advisory, Agricultural	300
Broadcasting	150, 380
Dental, School	171
Flying Doctor, Royal	150, 374, 375, 379
Health	
Infant	170
National	169, 196, 216
Hospital	171
Library	162
Medical	169
Pensioner	198, 216
School	171
Pensions	171, 189, 195, 198
Post, Telegraph and Telephone	376, 427
Radiocommunication	379
Rehabilitation, Commonwealth	190, 216
Repatriation	171, 189, 194
Reservoirs	249
Shipping, State	219, 223, 358

Service, Services—continued	
Social	189, 200, 216
Soil Conservation	299, 391
Statistical	iii
Television	150, 380, 381
Transport	357, 369, 374, 409, 427
Veterinary	299
War, Land Settlement	166, 215, 224, 245, 285
Settlement—see Land	
Sheep, Lambs	
Breeds	287
carried on Railways	363
Exports	351, 352, 353, 430
Fleece Weights	287, 288
Numbers	258, 261, 269, 285, 296, 434
Research	165, 301
Shorn	288
Size of Flocks	264, 286, 287
Skins Exported	351, 352, 353
Slaughtered	269, 292
Shipping	105, 357, 387, 392, 427
Cargo	357
Service, State	219, 223, 358
Ships' Stores	354, 433
Shires—see also map inside back cover	107, 444, 458, 459
Shoes—see Boots and Shoes	
Sickness Benefits	189, 191, 216, 237
Sillimanite	318
Silver, Silver-lead Ores	261, 309, 312, 316, 432
Sinking Funds	213, 215, 223, 228, 425
Skins and Hides	302, 351, 352, 353, 431
Slaughterings, Livestock	267, 269, 290, 292, 296, 336
Sleepers, Railway	305, 331, 351, 352, 353
Slippers	331, 334
Snakes	67
Snow	37
Soap, Soap Substitutes	
Factories	407
Imports	348, 349
Production	331
Retail Price	412
Social Services	189, 200, 216
Softwoods—see Pines	
Soil, Soils	14, 24, 52, 166, 242, 256, 270, 299, 300
Conservation	270, 299, 301, 302
Types	24, 52
Soldiers' Settlement Scheme	245, 270
Sorghum	276, 277
South-West Land Division	124, 403, 405
Spinifex	24, 52, 54, 57, 86
Spirits	
Beverage—see Alcoholic Beverages	
for Industrial Purposes	355
Spodumene	318
Standardized Death Rates	135
State	
Basic Wage	101, 395, 402, 411, 440
Batteries	165, 311, 312
Cabinet	88, 91, 92
Court of Arbitration	107, 396, 403
Education System	144
Electricity Commission	104, 222, 224, 322, 339
Government Insurance Office	221, 235
Housing Commission	104, 181, 188, 222, 224, 225
Library of Western Australia	161
Relief Payments	200
Shipping Service	219, 223, 358
States, Australian	88, 120, 126, 188, 269, 296, 341, 342, 364, 365, 373, 445, 455
Statistical Districts	120, 445
Statistical Divisions—see also map inside back cover	284, 448, 457
Areas of	125, 457
Components of	458
Dwellings in	448
Factories in	321, 322

	Page
Statistical Divisions—continued	
Industries in	259
Population in 120, 123, 124, 125, 448, 457	
Roads in	366
Steam Engines in Factories	327
Steel 258, 315, 320, 330, 348, 349, 350, 365	
Stevedoring	
Industry Charge	216
Minimum Wage Rates	409
Stillbirths	128, 134
Stirling, James	2, 4
Stone 15, 16, 309, 318, 332	
Fruits— <i>see also specific fruits</i> 259, 268, 281, 283	
Quarry Production	309, 318
Storms	26, 35
Street Lighting	227
Student Children	146, 147, 189
Students— <i>see Education</i>	
Subterranean Clover 165, 261, 268, 277, 285, 292, 301	
Succession Duty	218
Sugar	
Cane	256
Refining, Minimum Wage Rates	408
Retail Price	412
used in Factories	337
Suicides	137
Sulphur	317, 333
Sulphuric Acid..... 317, 330, 331	
Sultanas 259, 269, 284	
Summary Relief Court	201, 206
Sunshine, Periods of	37
Superphosphate— <i>see Fertilizers, Artificial</i>	
Supreme Court	
Federal 106, 205	
of Western Australia 106, 205	
Swans	66
Syphilis	170
T	
Tailoring	408
Talc 309	
Tallow 330, 331, 351, 353	
Tanneries	407
Tannin 54, 304	
Tanning Bark— <i>see also Bark</i>	54, 304
Tantalum Ores 261, 309, 318	
Tariff	
Board 343	
Customs 343, 355, 356	
Taxation 99, 100, 103, 105, 214, 216, 225, 262, 271, 285	
Taxi-cars 372, 375	
Control Board	375
Tea 350, 412	
Teachers— <i>see Education</i>	
Technical Education— <i>see Education</i>	
Telecommunications Commission, Overseas	391
Telegraph, Telegraphy— <i>see Posts, Telegraphs, Telephones</i>	
Television 150, 380, 381	
Temperature 31, 45, 50	
Tetanus 170	
Textile, Textiles	
Factories 324, 325, 326, 328, 329, 407	
Imports 348, 349, 350	
Third Party	
(Motor Vehicle) Insurance 103, 218, 235, 237	
Claims Tribunal	103
Thorium	318
Thunderstorms	35
Tiles 331, 332	
Timber— <i>see also Forest, Forests; Hardwoods; Jarrah; Karri; Pines; Plywood; Sandalwood; Sawmills, Sawmilling; Tuart; Wandoo</i>	
carried on Railways	363
Exports 302, 304, 305, 351, 352, 353, 431	
Minimum Wage Rates	408

	Page
Timber—continued	
Production 305, 331, 338, 438	
Railways	360, 363
Reserves	302
Revenue from	424
Species 52, 87, 302	
Tin, Tin Ore 261, 309, 317, 351, 352, 353, 432	
Titanium Oxide 261, 320	
Tobacco	
Area	277
Charge	216
Customs and Excise	355
Imports 348, 349	
Marketing	277
Production	277
Tomatoes 255, 261, 268, 280	
Topography 14, 26, 85	
Total Wage	400, 409
Tourist	
Bureau	107
Development Authority	223, 225
Fund	224
Town Planning	
Board	186
Commissioner	186
Scheme	103
Towns	
Municipal— <i>see also map inside back cover</i> 122, 458, 459	
Trachoma 170	
Tractors— <i>see also Agricultural</i> 266, 320, 348, 349, 350, 351, 352	
Trade	
Classification of Commodities 343	
Constitutional Provisions and Legislation 343	
Interstate and Oversea 343, 344, 345, 346, 347, 348, 350, 351, 353, 354, 433	
Retail, Wholesale	
Employment in	392
Minimum Wage Rates	406, 409
Unions 397, 398, 400, 404	
Traffic	
Accidents, Road 371	
Act 105, 206, 225, 367, 368, 369	
Area, Metropolitan 225, 367, 368, 369	
Control, Road 210, 367	
Fees 218, 225, 367	
Passenger Ferry 370	
Rail 362, 364, 427	
Road 210, 362, 366, 368, 369, 374, 375	
Transport— <i>see also Air Transport; Buses; Employment; Ferries; Motor, Motors; Railways; Road, Roads; Shipping; Tramways; Trolley-buses</i> 357, 387, 389, 392, 406, 409, 425, 427	
Advisory Council..... 104, 374	
Board, Eastern Goldfields	225, 370
Commissioner of	374, 375
Director General of	374
Services, Municipal	225, 370
Trust, Metropolitan (Perth) Passenger	13, 219, 222, 369, 375
Users' Board	104
Trapping 259, 267, 269, 302, 437	
Tree Species 52, 87, 302	
Trolley-buses 370	
Tropical	
Agriculture 255, 261, 300	
Cyclones 37	
Trust Funds 216, 217, 223, 368, 369	
Tuart— <i>see also Hardwoods</i> 53, 302, 303	
Tuberculosis	
Allowances— <i>see also War and Service Pensions</i> 169, 189, 198, 200, 216	
Campaign 170, 198, 200, 216	
Cases Notified	170
Deaths from	137
Hospital	173
Tungsten Ores 318	
Turnips 281	
Typhoid Fever..... 170	

	Page
U	
Unemployment	393
Relief	189, 191, 201, 202, 216
Rates	391, 394
Unincorporated Area	107
United Kingdom	
Representation in	107
Trade with	346, 347, 350, 353
Universities	
Commission, Australian	159
Financial Aid for	158, 159, 215, 219, 220, 223
University	
Degrees	154, 155
of Western Australia— <i>see</i> Education	
Unoccupied Dwellings	177, 181, 448
Upholstering, Minimum Wage Rates	408
Uranium	318
Urban Centres	120, 121, 122, 451
V	
Valuation for Rating, Local Government	109
Value of Production	
Manufacturing	259, 322, 328, 342, 437, 438
Primary	259, 266, 267, 269, 437
Vanadium	318
Veal— <i>see</i> Beef	
Vegetables— <i>see also specific vegetables</i>	
Fresh	
Exports	278, 351, 352, 353, 354, 430
Imports	280
Production	255, 259, 263, 267, 278, 280
used in Factories	336
Vegetation	24, 47, 86
Provinces	50
Vehicles, Motor— <i>see</i> Motor, Motors	
Veneers, Plywood— <i>see</i> Plywood	
Venereal Diseases	170
Vermiculite	318
Vermis	63, 66
Bonus, Bounty	66, 225
Taxation	218
Vetches	276, 277
Vice-Regal Representation	89
Vine Fruits	259, 267, 284
Dried— <i>see also</i> Currants; Raisins; Sultanias	259, 284
Grapes	
Area	284
Production	259, 284
Vinegar	331
Vineyards	263, 269, 284
Vital Statistics	128, 423
Viticultural Research	300
Vocational Guidance	150, 151
Voting— <i>see</i> Electoral Provisions	

W

Wage and Salary Earners, Number of	334, 339, 439
Wages— <i>see</i> Salaries and Wages	
Wandoo— <i>see also</i> Hardwoods	52, 54, 87, 302, 303
War	
Pensions	171, 189, 194
Service	
Homes	184, 224
Land Settlement	
Board	262
Scheme	166, 215, 224, 245, 285
War and Service Pensions	171, 189, 194
Water	
Artesian	16, 20, 22, 86, 249
Boards	225, 248, 253
Conservation	248

Water—continued

Supply 7, 86, 217, 219, 221, 222, 226, 228, 248, 387	
Commonwealth Grants for	215, 251
Metropolitan	248, 249
Scheme, Schemes	
Comprehensive	249, 250
Goldfields	248, 251
Other	253
Sewerage, and Drainage Board, Metro-	
politan	248
Weather	26
Webworm Moth	80
Weirs— <i>see</i> Reservoirs; Water	
Whale Oil	258, 307
Whales, Whaling	60, 62, 258, 261, 307
Catch	307
Commission, International	307
Wheat	
Area	258, 264, 269, 273, 277, 299, 360, 435
Board, Australian	271
Bulk Handling of	363
carried on Railways	9, 271, 351, 353, 428
Exports	436
Prices, Export	267, 269, 270, 360, 435
Production	165, 270, 271, 299
Research	271
Stabilization Plan	271
Tax	335
used in Milling	273, 300
Varieties	270, 273, 435
Yield per Acre	392
Wholesale Trade	189, 191, 198, 201, 216
Widows' Pensions	55, 164
Wildflowers	26, 37, 42, 45
Wind	
Wine— <i>see</i> Alcoholic Beverages	
Wineries	259
Wireless Communication	379
Wood, Wood Products— <i>see also</i> Firewood; Sandal-	
wood; Timber	
Fuel used in Factories	327
Imports	348, 349
Manufacture	328, 329, 331, 338, 408
Wool	
Auctions	287
carried on Railways	363
Exports	288, 351, 352, 353, 429
Fleece Weights	287, 288
Prices, Export	436
Production	261, 267, 269, 272, 288, 331, 434
Scouring	407
Shearing	268, 406
Tax	216
Value of	267, 434, 436
Work Force— <i>see also</i> Employment	
Industry of	387, 389, 392
Occupations of	389
Participation Rate	391
Survey	390
Workers' Compensation	106, 224, 236
Workers' Homes Board	181

Y

Yarn, Yarns	348, 349, 350
Yttrium	318

Z

Zinc, Zinc Ores	270, 300, 309, 312, 316, 318, 353
Zircon	24, 267, 309, 315
Zoogeography	58
Zoological Gardens Board	247

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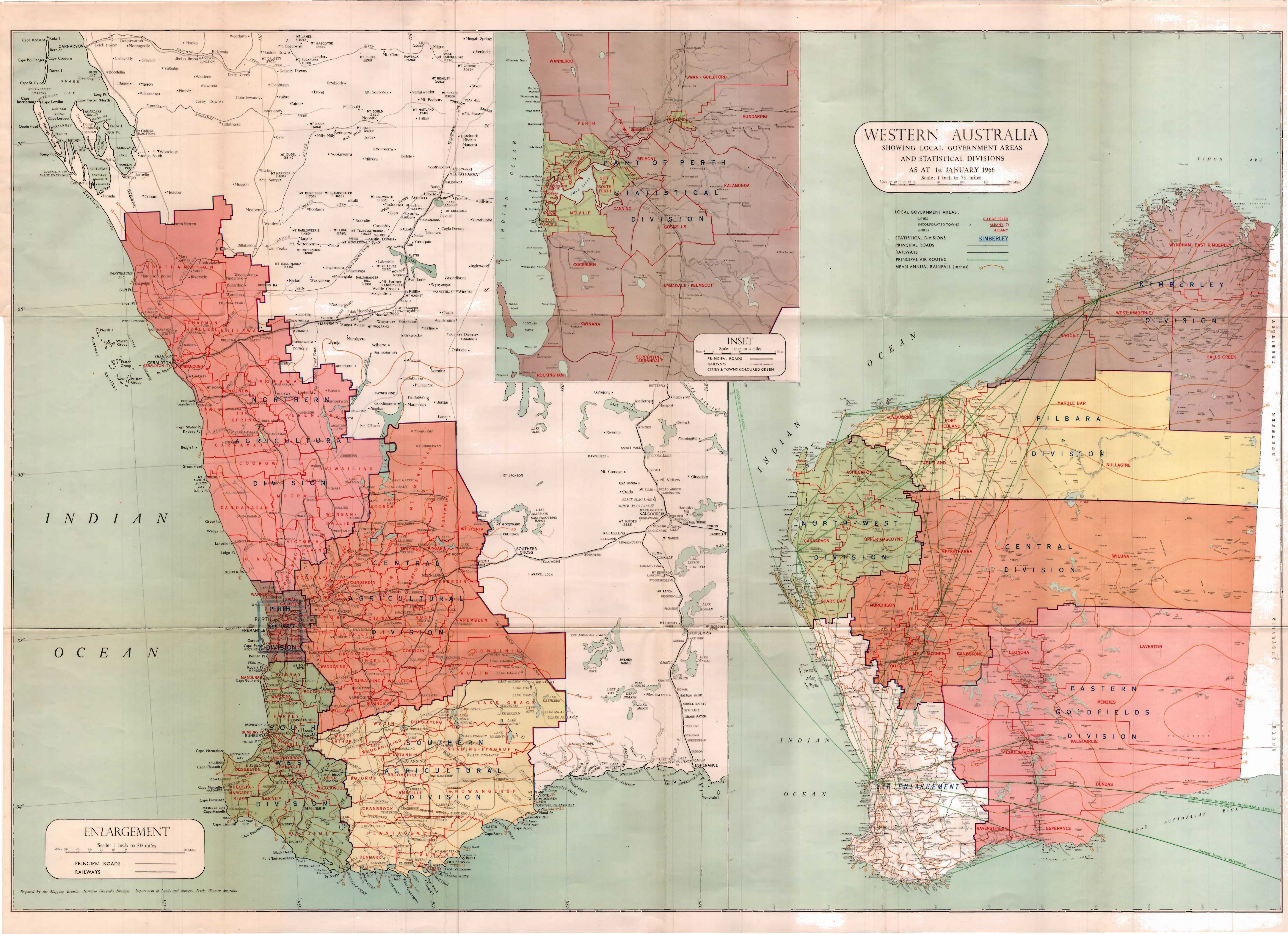
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Wage and Salary Earners in Civilian Employment	Annually	Annually
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Cereal Crops	Annually	Annually
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External Trade (Overseas and Interstate)	Annually	Annually
Interstate Trade	Annually	Annually
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Wholesale Sales and Stocks of Wine and Brandy	Annually	Annually
GENERAL—		
Monthly Statistical Summary	Monthly	Monthly



WESTERN AUSTRALIA

SHOWING LOCAL GOVERNMENT AREAS
AND STATISTICAL DIVISIONS

AS AT 1st JANUARY 1966

Scale: 1 inch to 75 miles

LOCAL GOVERNMENT AREAS:

CITIES

INCORPORATED TOWNS

SHIRES

STATISTICAL DIVISIONS

PRINCIPAL ROADS

RAILWAYS

PRINCIPAL AIR ROUTES

MEAN ANNUAL RAINFALL (inches)

CITY OF PERTH

ALBANY (T)

ALBANY

KIMBERLEY

INSET

Scale: 1 inch to 4 miles

PRINCIPAL ROADS

RAILWAYS

CITIES & TOWNS COLOURED GREEN

ENLARGEMENT

Scale: 1 inch to 30 miles

PRINCIPAL ROADS

RAILWAYS