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CHAPTER 28

THE TERRITORIES OF AUSTRALIA

The internal Territories of Australia are the Northern Territory and the Australian Capital Territory. External Territories under the control of Australia are: Norfolk Island; the Territory of Papua (formerly British New Guinea); the Territory of New Guinea (under Trusteeship Agreement with the United Nations); the Territory of Heard and McDonald Islands; the Australian Antarctic Territory; the Territory of Cocos (Keeling) Islands; and the Territory of Christmas Island. There is also the Territory of Ashmore and Cartier Islands, deemed to form part of the Northern Territory.

Information on all except Ashmore and Cartier Islands is contained in the following pages, and details of the acquisition of all the Territories will be found on pages 5, 22, and 23 of Chapter 1. More detailed statistics and additional descriptive matter are to be found in the Annual Reports of the Administrations of the various Territories and in the *Northern Territory Statistical Summary* (1.6) and the *Australian Capital Territory Statistical Summary* (1.7) issued by this Bureau. Statistics for the Northern Territory and the Australian Capital Territory are also included in chapters dealing with particular subjects. The Statistician, Papua New Guinea, issues a number of publications containing statistics relative to these two Territories, separate and combined.

Responsibility for the general administration of the Territories of Norfolk Island, Papua New Guinea, Cocos (Keeling) Islands and Christmas Island is vested with the Commonwealth Department of External Territories; for the Northern Territory (including Ashmore and Cartier Islands) and the Australian Capital Territory with the Department of the Interior; and for Antarctica and Heard and McDonald Islands with the Department of Supply. Matters excepted are defence and civil aviation, and, in the Northern Territory and the Australian Capital Territory, public health, justice, education (excluding Aborigines), postal and communications and the construction and operation of the basic physical services, which are the responsibility of the Department of Health, the Attorney-General's Department, the Department of Education and Science, the Postmaster-General's Department and the Department of Works, respectively.

THE NORTHERN TERRITORY

General description

Area

Upon the extension of New South Wales westwards to the 129th east meridian in 1825, the Northern Territory was incorporated in that colony, but in 1863 it was annexed by Royal Letters Patent to the province of South Australia. With the adjacent islands, it was transferred to the Commonwealth on 1 January 1911. The total area is 520,280 square miles.

Legislation and administration

On 1 January 1911 the Territory was transferred from South Australia to the Commonwealth. The terms were outlined in Year Book No. 15, page 940.

The *Northern Territory (Administration) Act* 1910-1972 provides for an Administrator, appointed by the Governor-General, to administer the Territory on behalf of the Commonwealth.

It provides for a Legislative Council for the Northern Territory to make ordinances for the peace, order and good government of the Territory. This Council consists of six official members and eleven elected members. A President of the Council is elected from among the elected members. Money votes may be proposed in the Council only upon recommendation by message of the Administrator.

Ordinances are presented to the Administrator for assent. He is obliged to reserve ordinances relating to certain matters, including Crown lands and Aborigines, for the Governor-General's pleasure. Others he may assent to, withhold assent from, or return to the Legislative Council with recommended amendments. The Governor-General may within six months, disallow any ordinance assented to by the Administrator and, in respect of an ordinance reserved for his pleasure, he may assent, withhold assent, withhold assent to part of the ordinance and assent to the remainder, or recommend to the Administrator any amendments to the laws of the Territory that he considers desirable arising out of his consideration of the ordinance.

The Act also provides for an Administrator's Council to advise the Administrator on any matter referred to it, either by the Administrator, or in accordance with the provisions of any ordinance of the Northern Territory. The Council consists of the Administrator, and two official and three elected members of the Legislative Council.

The Territory elects one member to the House of Representatives.

The Corporation of the City of Darwin was established in 1957. The Corporation comprises a Mayor and ten aldermen (two for each ward) elected by adult franchise. Alice Springs was constituted a municipality on 25 June 1971 and the first election held on 26 June 1971. The Alice Springs Corporation consists of a Mayor and eight aldermen elected by adult franchise. Elsewhere in the Territory, municipal services are provided by the Administration. Town Management Boards are established in Katherine and Tennant Creek. Each of these boards consists of five members elected by adult franchise and four members appointed by the Administrator. The function of the Boards is to advise the Administrator on local matters.

Physical geography

The Territory is within the torrid zone, with the exception of a strip about 180 miles wide which lies south of the Tropic of Capricorn.

The low flat coastline seldom reaches a height of 100 feet. Sandy beaches and mud flats, thickly fringed with mangroves, prevail. Sandstone, marl and laterite form the occasional cliffy headlands. The coastline of more than 1,000 miles is indented by bays and inlets and intersected by numerous rivers, many of which are navigable for considerable distances from their estuaries. The only practicable deep-water port for general use, however, is Darwin.

Inland the country generally is devoid of conspicuous landmarks. From the coast there is a general rise southwards to the vicinity of the seventeenth or eighteenth parallel of south latitude, where the higher lands form the watershed between the rivers that flow northwards to the sea and those that form the scanty supply for the interior system. Towards the centre of the continent the land over a wide area is of considerable elevation, and there are several mountain ranges, generally with an east and west trend.

Climate, fauna and flora

There are two main climatic divisions, the wet season, November to April, and the dry season, May to October, with uniform and regular changes of weather. Nearly all the rainfall occurs in the summer months.

The ordinary types of native Australian fauna inhabit the Territory. As elsewhere on the continent, the higher *Theria* are rare, but marsupials, birds, crocodiles, fresh-water tortoises, snakes (mostly non-venomous), and frogs abound. There are many varieties of fresh-water fish and littoral *Mollusca*. Butterflies and beetles are strongly represented. The termite is a pest which is capable of serious damage to wooden buildings unless special preventive measures are taken. Mosquitoes and sandflies are very troublesome in the "top end" particularly in the wet season. Most types of native fauna are protected and buffaloes exist in large herds on the northern coastal plains.

The vegetation is north Australian in type but a number of forms belong to the Malayan and Oceanic regions. The climate and generally poor soils associated with it give rise to tropical savannah vegetation, with the size and volume of woody material present being closely related to rainfall and the quality of the forests decreasing strikingly as one proceeds inland from the northern coastline. In the north, cypress pine which is termite resistant, ironwood, bloodwood and paperbark timbers are cut and milled for local building purposes. Further inland particularly on the Barkly Tableland and parts of the Victoria River district there are better grazing grasses and some shrubs, while the wide belt of sandy plain between the Barkly Tableland and the ranges in the Alice Springs area, carries mainly spinifex grass and low scrub. The Alice Springs ranges and uplands carry chiefly a dwarf acacia scrub known as mulga, spinifex and other sparse grasses. The principal orders represented in the interior are *Euphorbiaceae*, *Compositae*, *Convolvulaceae*, *Rubiaceae*, *Goodenoviaceae*, *Leguminosae* and *Utricaceae*.

Population

See also the chapters Population and Vital Statistics.

The estimated population of the Northern Territory at 30 June 1971 (preliminary census figures), including Aborigines, was 48,159 males, 37,360 females, 85,519 persons. The Aboriginal population at the census of 30 June 1966 totalled 10,651 males, 10,468 females, 21,119 persons. While few Aborigines now live outside settled areas and not all choose to live on reserves, a large area of reserved land totalling 94,196 square miles has been maintained to provide economic resources from which the Aborigines may benefit either directly or from royalty payments.

Advancement of Aborigines

Policy

The objectives of Commonwealth Government policies relating to the Aboriginal people as stated on 26 January 1972 are.

- (a) That they should be assisted as individuals and if they wish as groups, at the local community level, to hold effective and respected places within one Australian society with equal access to the rights and opportunities it provides and acceptance of responsibilities towards it.

At the same time they should be encouraged and assisted to preserve and develop their own culture, languages, traditions and arts so that these can become living elements in the diverse culture of the Australian society.

- (b) That the Government recognises the rights of individual Aborigines to effective choice about the degree to which, and the pace at which they come to identify themselves with that society; and believes that they will do so more readily and more happily when they are attracted to it voluntarily and when their membership of it encourages them to maintain and take pride in their identity, traditions and culture.

The concept of separate development as a long-term aim is utterly alien to these objectives.

- (c) The Government also believes that programmes to give effect to such a policy must evolve in accordance with the effects of action so far taken and the needs of the times. They must take into account the expressed wishes of Aboriginal Australians themselves. Programmes will prove ineffective unless Aboriginal Australians are voluntarily involved. The role of governments should increasingly be to enable them to achieve their goals by their own efforts.

- (d) The Government considers that a balanced strategy directed at the essential problems facing many persons of Aboriginal descent requires a programme of action worked out and administered in collaboration with the States which would:

- (i) encourage and strengthen their capacity increasingly to manage their own affairs—as individuals, as groups, and as communities at the local level;
- (ii) increase their economic independence;
- (iii) reduce existing social and other handicaps facing them in health, housing, education and vocational training; and
- (iv) promote their enjoyment of normal civil liberties and eliminate remaining provisions in law which discriminate against them.

Legal status

Under the *Nationality and Citizenship Act 1948–1966*, all Aborigines are British subjects and Australian citizens. Since the commencement of the *Social Welfare Ordinance 1964–1971* in September 1964, Aborigines in the Northern Territory have been equal at law with all other residents, although some special benefits have been retained for them or have been introduced since then. The Ordinance enables assistance to be given to any person who is socially or economically in need.

Special schools for Aborigines

While the Department of Education and Science is now responsible for community education in the Northern Territory, special schools and pre-schools for Aboriginal children remain the responsibility of the Welfare Branch of the Administration. These special schools and pre-schools are intended as an interim measure only, policy being that all Aboriginal children should eventually receive their education in the community schools. Following expert inquiries, however, it was decided that schools should be established having a syllabus and school texts which take account of the social and cultural

background of the Aborigines. In these schools there is a shift of emphasis from theoretical to practical subjects, but where progress warrants it, the child transfers to the ordinary curriculum leading to the general community schools. A transitional school system has also been established, and one of its main objectives is to provide a bridge between the special schools and the community high schools.

Fifty-eight special schools for Aboriginal children had been established by the middle of 1971. Forty-nine of these were conducted by the Administration and nine by missions. Government subsidies were provided to the missions. Twenty-four pre-school centres had also been established. Nineteen of these were conducted by the Administration and five by the missions.

Assistance to Aborigines

In recent years Aborigines have developed an interest in mineral prospecting and a number have obtained exploration licences both inside and outside reserves. Some Aboriginal holders of exploration licences are carrying out their own prospecting programmes, while others have negotiated arrangements with exploration and mining companies. Two Aboriginal groups in Central Australia are carrying out small scale mining operations, mining copper and amethyst. A policy whereby preferential treatment may be given to Aborigines applying for exploration licences was announced in a statement of Commonwealth Government policies relating to Aborigines on 26 January 1972.

Significant mining ventures have been established within reserves at Groote Eylandt and Gove and another is expected to be developed in the near future at Oenpelli. The grant of mining rights on reserves is subject to special conditions relating to the employment of Aborigines, the protection of their interests and welfare and the opportunity for their effective participation in the enterprise. The basic objective of this approach is to ensure that companies concerned co-operate with the Government to ensure that the Aboriginal communities concerned share directly in the economic benefits to be derived from mining development and conduct their efforts with respect and consideration for the traditional way of life of the Aboriginal people in the area.

Royalties from the mineral and timber activities carried on within reserves are paid into the Aborigines Benefits Trust Fund, established in 1952. The Minister for the Interior may authorise loans or grants from the fund to any Aboriginal or group of Aborigines in the Northern Territory. In this matter the Minister has the assistance of a special advisory committee which includes a majority of Aboriginal representatives. Moneys in the fund may be used for a wide variety of purposes which would benefit the Aboriginal people. Approved disbursements from the fund totalled \$1,733,000 at 30 June 1972.

In accordance with an undertaking in the Statement of Commonwealth Government policies, 10 per cent of the royalties paid by the mining company at Gove are paid into a special trust fund for the use of Aborigines at Yirrkala; it is estimated that, by 1975, \$228,000 will be paid to this fund and thereafter, until 1980, income will continue at a level of approximately \$74,000 per annum.

Financial assistance is available from the Aborigines Benefits Trust Fund to Aborigines and groups of Aborigines who wish to develop their own commercial or industrial enterprises. Assistance is also available from the Capital Fund for Aboriginal enterprises controlled by the Minister for the Environment, Aborigines and the Arts. In addition to financial assistance, Aboriginal enterprises have available to them, through the Northern Territory Administration or the Commonwealth Capital Fund for Aboriginal enterprises, technical advice and managerial expertise to further assist their establishment.

Social development

Throughout the Northern Territory, but particularly among settlement and mission communities, an intensive programme is being carried out to equip Aborigines to meet the demands of modern living. These communities provide housing, health services, education, vocational training and employment for any Aboriginal wishing to avail himself of such services. Aborigines are increasingly participating in the management of these communities through local village councils.

An Aboriginal Advisory Council of 12 Aborigines, each representing a district of the Northern Territory, was established in early 1971 to advise the Minister for the Interior on Aboriginal issues in the Territory. Its meetings, held approximately once every three months, may be attended by officers of the Northern Territory Administration only at the invitation of the Council itself.

Leases to Aborigines

An area of over 94,000 square miles has been reserved for the use and benefit of Aborigines in the Northern Territory.

Since new legislation was introduced in December 1970 Aborigines have had greater opportunities to obtain leases on reserves. Applications for leases are considered by special Land Boards which include two local Aboriginal members. The boards consult with Aborigines in the area and church organisations before making recommendations to the Administrator.

At 30 June 1972, ninety-one leases had been approved for housing, recreation, business, tourist and ceremonial purposes. In addition, three leases for pastoral purposes had also been approved for Aboriginal companies. These leases were to the Yugul Cattle Co. (over 2,100 square miles) at Roper River, the Gulperan Pastoral Co. (over 2,290 square miles) in the Bulman area and the Daly River Pastoral Co. (over 1,126 square miles) north of the Moyle River. Action is proceeding with a further thirty-eight applications for leases on reserves including twenty for pastoral purposes over significant areas ranging up to 5,000 square miles.

On 26 January 1972 it was announced that the Government would introduce legislation for a new form of lease within Aboriginal reserves which would be called general purposes leases. These leases would allow for a combination of activities such as pastoral, agricultural, market garden, plantation, orchard, vineyards, poultry farming, piggery, residential, business (not mining), commercial and social purposes. The leases would be granted where applicants could demonstrate their intention and ability to make reasonable use of the land for economic and social purposes, provided there was no conflict with the interests of any other Aboriginal community or group.

The legislation for general purposes leases was passed at the June 1972 sittings of the Northern Territory Legislative Council and was reserved for the Governor-General's pleasure.

It was also announced in January that the Government would make available \$5 million in 1972 and \$2 million in each of the next 4 years to acquire, for Aborigines living outside reserves, properties that became available in the States and the Northern Territory. The land would be purchased by agreement with the owner under the provisions of the Lands Acquisition Act.

Greater protection has been given to Aboriginal reserves by recent legislation which provides that a reserve cannot be revoked in whole or part without the proposed revocation first being tabled in the Legislative Council and in both Houses of Parliament to allow debate if desired.

Aborigines already have the right to hunt and forage over land in pastoral leases outside reserves. The legislation recently passed ensures that they have explicit rights to hunt and forage over reserved land.

Production

See also the chapters dealing with particular subjects.

Land tenure

Nearly 60 per cent of the total area of land in the Territory is held under various forms of lease or licence which are described in Year Book No. 48, pages 111–12. The remainder comprises unoccupied and unreserved areas (21.4 per cent), reserved (18.7 per cent) and freehold (0.1 per cent). The following changes should be noted.

Leases to Mission Organisations are now granted under the *Special Purpose Leases Ordinance* 1953–1965 for fixed terms or in perpetuity.

Miscellaneous Leases are now granted in perpetuity for purposes such as a market garden, plantation, orchard, vineyard, poultry farm, piggery, or the like.

Darwin Town Area Leases are granted in perpetuity for business or residential purposes, or both, in the Darwin Town Area.

Pastoral Homestead Leases—provisions relating to the granting of these leases have been repealed.

Agricultural Leases are granted in perpetuity; the farm classifications no longer apply and the maximum area which now may be included in any one agricultural lease is fifty thousand acres and a person cannot hold agricultural land in excess of one hundred thousand acres except that these figures may be increased to 100,000 acres and 200,000 acres respectively by the Administrator on the recommendation of the Land Board.

Special Purposes Leases are now granted for a term of years or in perpetuity.

Leases to Aborigines—*See* page 958. Legislation providing for new land tenure arrangements in Darwin and Alice Springs commenced during 1971. Under these arrangements land rent has in effect been abolished and a reserve price scheme introduced for new leases. The reserve price scheme enables the Commonwealth to recover development costs. Lessees may now, after compliance with lease covenants, convert to freehold on payment of an administrative fee.

The chapter Rural Industry of this issue contains statistical information concerning areas occupied under various forms of tenure.

Agriculture

Commercial agricultural production is confined to grain sorghum, vegetables and small-scale fruit production for local consumption. Townsville stylo seed production has increased considerably and has become an important contributor to the income of many small landholders.

Information concerning scientific surveys (commenced 1946), conducted by the Commonwealth Scientific and Industrial Research Organization to determine more accurately the potentialities of the Northern Territory is given in Year Book No. 51, page 101, and in earlier issues.

Increasing private investment in rural development is leading to greater pressures upon the Government for extension services and research. The work of C.S.I.R.O. and the Northern Territory Administration research stations and experimental farms is providing the basis for continuing rural development. As new knowledge is being gathered it will be followed by testing on farm scale. The research institutions in existence in the Northern Territory are as follows.

Arid Zone Research Institute (Alice Springs). With the completion of the new research laboratory in 1967 more emphasis is being placed on arid zone research in the 'Centre' and the need to conserve valuable pastoral lands while achieving maximum productivity.

Beatrice Hill Animal Husbandry Research Station. Considerable attention is being paid to the development of improved pasture systems, including establishment, maintenance and the reaction to various grazing rates. Breeding trials are being conducted with Santa Gertrudis, Brahman and cross-breds. Banteng cattle are also being tested as a suitable source of tropical blood for breeding cattle adaptable to Territory conditions and a small herd of cross-bred cattle has now been developed. Some advance has been made on the domestication of buffaloes.

Victoria River Experiment Station. At this cattle breeding centre, work is being undertaken on genetic improvement of the local breed of Shorthorn cattle.

Upper-Adelaide River Experiment Station. The main investigations have been in the utilisation of improved and native pastures by cattle, and in rice production.

Berrimah Experiment Farm. The work of this farm has been restricted mainly to pasture and fodder crop investigations and fruit, vegetables and cashew nut trials.

Katherine Experiment Farm. This farm was established mainly to test the most promising results achieved by the C.S.I.R.O. and other investigations, particularly in relation to the development of the Tipperary area. These have included utilisation of Townsville stylo, pasture improvement and sorghum.

Coastal Plains Research Station. The work on this station is mainly on rice but has included pasture improvement, particularly in relation to suitable legumes.

Douglas River Trial Area. Investigations have included cotton, grain sorghum, bulrush millet, pastures and soya beans. An experiment to evaluate sabi grass/Townsville stylo pasture under grazing is being carried out.

Forster Block. Experimental work has been mainly in relation to pastures and fodder crops.

NORTHERN TERRITORY: AREA AND PRODUCTION OF CROPS
1966-67 TO 1970-71

Crop	1966-67	1967-68	1968-69	1969-70	1970-71
AREA(a)					
(acres)					
Fruit—Bananas	29	(b)	(b)	(b)	(b)
Pineapples	17	(b)	(b)	(b)	(b)
Other	87	98	90	71	120
<i>Total fruit</i>	<i>133</i>	<i>98</i>	<i>90</i>	<i>71</i>	<i>120</i>
Peanuts	(b)	12	(b)	(b)	58
Sorghum for grain	527	(c)	(c)	(c)	3,234
Vegetables for human consumption	218	199	255	277	253
Other crops(d)	2,747	5,691	6,834	8,171	10,328
<i>Grand total(a)</i>	<i>3,625</i>	<i>6,000</i>	<i>7,179</i>	<i>8,519</i>	<i>13,993</i>

PRODUCTION

Fruit—Bananas bushels	1,684	(e)	(e)	(e)	(e)
Pineapples "	997	(e)	(e)	(e)	(e)
Peanuts cwt	(e)	32	(e)	(e)	295
Sorghum (grain) bushels	7,533	(e)	(e)	(e)	56,000

(a) Excludes rice; details are not available for publication. (b) Not available for publication, included in Other crops. (c) Not available for publication, excluded from totals. (d) Principally fodder crops. (e) Not available for publication.

Pastoral Industry

The pastoral possibilities of certain parts of the Territory were recognised at an early date, and both cattle and sheep raising have been attempted. For various reasons sheep-raising has not been very successful, but the cattle industry has progressed steadily and is continuing to expand. There is substantial potential for further expansion in the higher rainfall area of the Territory through the introduction of improved pastures and the use of superphosphate.

NORTHERN TERRITORY: LIVESTOCK, 1967 TO 1971
(000)

30 June—	Horses	Cattle	Sheep	Pigs
1967	38	1,097	8	3
1968	38	1,130	9	2
1969	39	(a)1,190	10	(a)2
1970(a)	41	1,179	8	4
1971(a)	41	1,145	9	3

(a) At 31 March.

Mining

The mining industry is the major contributor to the income of the Northern Territory. Mineral output was valued at \$39 million in 1970-71 and at \$24 million in the first half of 1971-72. The main minerals being produced are bauxite, manganese, iron ore, copper, gold, and bismuth and the main centres of production are Gove, Groote Eylandt, Frances Creek and Tennant Creek. Exploration for new ore bodies continues at a high level.

A bauxite mining and treatment project based on extensive bauxite deposits has been developed at Gove at a cost of about \$310 million. Under an agreement with the Commonwealth, ratified by a special Ordinance in 1968, Nabalco Pty Ltd undertook to develop the deposits. A supplementary

agreement signed in 1969 set the minimum Australian equity in the project at 30 per cent. A joint venture now operates the project in which the respective rights are held, 70 per cent by Swiss Aluminium Australia Pty Ltd and 30 per cent by Gove Alumina Limited (a consortium of seven Australian companies). The first stage of an alumina plant to process the bauxite was opened on 1 July 1972. The capacity of the plant will be expanded from 500,000 tons to 1 million tons per annum by July 1973. The agreement also provides that Gove Alumina Limited can export a total of 40 million tons of untreated bauxite over 20 years and exports commenced in June 1971.

Manganese ore is being produced from extensive deposits at Groote Eylandt in the Gulf of Carpentaria. Production capacity has been increased since the commencement of operations in 1966 and should reach about 1.6 million tons per annum of lump ore and by-products by late 1972 or early 1973. Groote Eylandt supplies all Australia's requirements of metallurgical grade manganese ore and large tonnages are exported to Japan, Europe and the U.S.A. Total shipments of ore in 1970-71 amounted to 736,633 tons valued at about \$13.6 million.

Frances Creek is the only iron ore mine in the Territory following the closure of the Mt Bunday mine in December 1971. All iron ore produced is exported through Darwin to Japan. Total iron ore shipments in 1970-71 were 1,234,977 tons valued at about \$9.3 million.

Most of the copper, gold and bismuth produced in the Territory is obtained from the underground mines of Peko Wallsend Ltd, at Tennant Creek. Production from these mines in 1970-71 was 5,615 tons of copper, 88,342 ounces of gold, 78,673 ounces of silver and 206 tons of bismuth, valued at about \$11.3 million. Three mines are currently in production and a major expansion programme costing \$39 million is underway. A new mine, Warrego, commenced operation in July 1972 and the Gecko mine is expected to open early in 1974. A flash smelter is due to be commissioned early in 1973.

Large deposits of uranium ore have been discovered in the Alligator Rivers region, about 150 miles east of Darwin. The most important discoveries so far are Ranger 1, Nabarlek and Koongarra and the companies are negotiating individually with the Commonwealth for the development of the deposits, with special emphasis on protection of the environment. The Commonwealth is examining the feasibility of a regional centre to serve the mining industry as well as the forestry, pastoral and tourist industries in the region. The Alligator Rivers region is considered to be a uranium province of world importance and there are good prospects for the discovery of further deposits of commercial significance.

Investigations are continuing into possible methods of treating the extensive lead/zinc deposits located in the McArthur River district. Conventional metallurgical processes are not considered suitable for the treatment of these ores. Other mineral deposits of possible economic significance exist in the Rum Jungle, Jinka Plains and Jervis Range areas of the Northern Territory.

The following table shows preliminary results of the Mining Censuses taken in respect of the years ended 30 June 1969 and 1970.

NORTHERN TERRITORY: MINING ESTABLISHMENTS 1968-69 AND 1969-70

NOTE. Direct comparisons with figures for previous years are not possible because of changes in the census units, the scope of the census and the items of data. For details see Chapter 26, Mineral Industry.

	1968-69	1969-70
Establishments operating during year	No. 20	26
Persons employed(a)	No. 1,160	1,446
Wages and salaries	\$m 6.6	8.0
Turnover	\$m 36.3	38.2
Opening stocks at 30 June	\$m 4.4	4.7
Closing stocks at 30 June	\$m 5.1	5.2
Purchases, transfers in and selected expenses	\$m 14.8	13.2
Value added(b)	\$m 22.2	25.9

(a) At end of June. Includes working proprietors. (b) Sales, transfers out and other operating revenue plus increase (or less decrease) in the value of stocks, less purchases, transfers in and selected expenses.

Petroleum and natural gas. Offshore operations again represented the main activity in petroleum exploration with 6 wells being drilled in Territory waters during 1971-72. In June 1972, three new offshore petroleum permits in the Arafura Sea and the Gulf of Carpentaria were offered to companies and this will increase the already substantial activity in offshore exploration.

Drilling of the Petrel structure in the Bonaparte Gulf during 1969 resulted in a promising discovery of gas. Further exploration to date has not however revealed the presence of gas in commercial quantity.

On-shore evaluations of the Mereenie oil and gas field have indicated reserves of 300 million barrels of oil and up to 1 U.S. trillion cubic feet of gas. The recovery of the oil presents some difficulties but the feasibility of establishing a small refinery at Alice Springs is being examined by the exploration companies and the Government.

A substantial natural gas reservoir at Palm Valley about 70 miles west of Alice Springs has been known to exist since the mid-sixties. An agreement covering proposals for the export of the gas to California was announced in June 1972. The proposals, which are subject to the Governments' approval, and to the proving of gas reserves of about 7 U.S. trillion cubic feet, involve the construction of a large diameter pipeline either to the Gulf of Carpentaria or to the Cooper Basin for connection to the proposed Cooper Basin—Sydney pipeline, the building of a liquefaction plant, establishment of port facilities and a township (if shipping through the Gulf of Carpentaria), the construction of large tankers to carry the liquefied gas and further facilities at the American end. It is estimated that these proposals will cost about \$900 million.

Forestry

A programme of forest improvement and development to conserve existing forest areas and increase timber resources is undertaken by the Forestry Branch of the Northern Territory Administration and aims to eventually reduce the Territory's dependence on imported timber. Basic forestry research is carried out by the Forestry and Timber Bureau at a Regional Research Station established at Berrimah. The Territory forestry programme includes the regeneration and utilisation of native forests, the establishment of 1,000 acres of softwood plantations (mainly native cypress pine) per year and makes provision for the employment and training of Aborigines in forestry work. Local production of log timber, mainly cypress pine, amounted to 819,000 super feet in 1970-71 but this was insufficient to meet local needs and some 4,714,000 super feet of sawn timber was imported from interstate and overseas.

Fisheries

Following preliminary surveys indicating the existence of valuable prawn resources off the Northern Territory coast, prawning operations by a number of companies were approved for waters adjacent to the Northern Territory. All companies were required to establish shore processing plants following an initial survey period. Three of these companies are now operating. Two are joint Australian—Japanese ventures which have been permitted to use foreign vessels and crews for limited periods and which have been required to establish processing plants in Darwin. The third company is operating a shore processing plant at Groote Eylandt. For a limited establishment period this company has been given protection against the establishment of other processing plants in that area although this protective arrangement would not preclude Aborigines from undertaking their own prawn fishing and processing on Aboriginal reserves should they wish to do so. During 1971, Territory based prawn ventures exported prawns valued at \$4.2 million, the bulk of which went to Japan.

The other main fishery in the Territory is an inland fishery based on barramundi which produced more than 138 tons live weight of fish during 1970-71. A small cultured pearl industry has also been established.

NORTHERN TERRITORY: FISHING^(a) 1966-67 TO 1970-71

	1966-67	1967-68	1968-69	1969-70	1970-71	
Prawning—						
Estimated gross weight of prawn catch	'000 lb	1	23	2,375	8,682	9,905
Gross value of prawns	\$'000	1	14	831	3,646	4,160
Other fisheries—						
Estimated landed weight of fish catch	'000 lb	550	555	533	253	398
Gross value of fish	\$'000	73	92	96	51	80
All fisheries—						
Number of boats engaged		60	53	110	82	127
Number of men employed		133	123	573	437	542

(a) Excluding pearl shell fisheries and pearling.

Secondary industries

The secondary industries that have so far been established in the Territory have been largely the service industries normally associated with a developing area, such as electrical repairs, printing, motor and marine engineering, plumbing, welding, joinery, sheet metal work, and blue metal crushing. Industrial investments by private interests in recent years include plants to manufacture bitumen, clay bricks, concrete bricks, reinforcing steel, concrete products and fencing materials.

The following table shows preliminary results of the Manufacturing Censuses taken in respect of the years ended 1969 and 1970.

NORTHERN TERRITORY: MANUFACTURING ESTABLISHMENTS, 1968-69 AND 1969-70

NOTE. Direct comparisons with figures for previous years are not possible because of changes in the census units, the scope of the census and the items of data. For details see Chapter 21 Manufacturing Industry.

	1968-69	1969-70
Establishments operating during year	No. 73	69
Persons employed(a)	No. 1,012	1,101
Wages and salaries	\$m 3.6	3.9
Turnover	\$m 20.4	19.3
Opening stocks at 30 June	\$m 1.8	1.9
Closing stocks 30 June	\$m 2.2	2.8
Purchases, transfers in and selected expenses	\$m 11.4	12.1
Value added(b)	\$m 9.5	8.2

(a) At end of June. Includes working proprietors. (b) Sales, transfers out and other operating revenue plus increase (or less decrease) in the value of stocks, less purchases, transfers in and selected expenses.

Tourism

Tourism has become one of the Territory's major industries in recent years. There were about 80,000 visitors to the Northern Territory in 1969-70. The industry is estimated to be worth over \$20 million a year and is expanding at a rate around 14 per cent per annum.

A firm of consultants has reported on the tourism potential of Central Australia, and in particular the Ayers Rock-Mount Olga National Park. Their findings have been published in the reports *Tourism Plan for Central Australia* and *Ayers Rock-Mount Olga National Park Development Plan*. The reports are being evaluated and further investigations are being undertaken to assist the Government's consideration of tourism development proposals for the Centre.

National Parks and Reserves

Large areas in the Territory have been set aside as wildlife sanctuaries under the provisions of the Wildlife Conservation and Control Ordinance. They cover about 18,000 square miles and are controlled by the Chief Inspector of Wildlife in the Northern Territory Administration. A further 92,704 square miles of Aboriginal reserves are also wildlife protected areas.

There are some thirty-nine national parks and reserves totalling about 946 square miles which are administered by the Northern Territory Reserves Board. The Board is responsible for the care, control and management of these reserves, and its functions include preservation and protection of natural and historical features, and the encouragement of public use and enjoyment of land set aside in such reserves.

Trade, transport and communication

Trade

No comprehensive record is kept of the trade between the States and the Territory. The following table shows the values of the principal commodities imported into and exported from the Northern Territory from or to overseas countries during the years 1966-67 to 1970-71.

**NORTHERN TERRITORY: PRINCIPAL OVERSEAS
IMPORTS AND EXPORTS, 1966-67 TO 1970-71**
(\$'000)

Commodity	1966-67	1967-68	1968-69	1969-70	1970-71
IMPORTS					
Petroleum and shale spirit—					
Aviation kerosene	615	1,099	1,513	1,093	1,119
Automotive spirit	542	587	577	706	1,051
Automotive distillate	387	324	589	1,103	930
Furnace fuel	393	473	659	567	837
Other(a)	390	531	743	1,077	1,226
Timber	183	206	380	548	324
Portland cement	311	370	650	741	985
Iron and steel manufactures	3	1,195	893	1,172	833
Machinery and transport equipment(b)	3,914	2,376	12,757	23,534	11,464
Other articles	648	2,246	3,039	9,288	4,901
Total imports	7,386	9,407	21,800	39,829	23,670
EXPORTS(c)					
Meats	3,422	4,864	4,806	4,807	5,002
Fresh prawns and shrimps . . . . .	..	..	605	4,897	5,627
Hides and skins, raw	227	135	209	269	183
Iron ore . . . . .	..	3,053	6,467	9,124	7,094
Manganese ore	2,682	4,474	8,243	8,329	10,202
Other ores and concentrates	13	959	287	762	737
Other articles	2,624	4,370	8,317	21,537	7,614
Total exports	8,968	17,855	28,934	49,725	36,459

(a) Includes industrial and marine diesel fuel, oil for use as refinery stock, etc. (b) Includes value of oil search equipment (floating structures, etc.) which were brought to the Northern Territory for temporary operation and moved overseas after the planned exploration activities were completed. (c) Includes domestic exports and re-exports.

Shipping

Shipping services to Darwin are provided from the eastern States by the Australian National Line and from the west by the Western Australian State Shipping Service. Increasing numbers of oil tankers and overseas general cargo vessels visit Darwin while iron ore carriers continue to load lump and fine ore for Japan. The prawning and fishing industry accounts for approximately one-third of the shipping entries into the port and activity is increasing as a result of visits by oil rig tenders.

John Burke Pty Ltd operates a subsidised shipping service from Brisbane to the Gulf of Carpentaria ports and serves Aboriginal missions and settlements as well as the mining centres of Gove and Groote Eylandt. Gove is also served by Australian Territory Liner Services. Other shipping services to Groote Eylandt and Gove are in connection with the export of the mining production.

Mission and privately owned boats and barges also provide services from Darwin to Aboriginal communities and ports along the coast.

In 1970 the Australian National Line replaced its vessels calling at Darwin with a new container/bulk ore vessel, the *Darwin Trader*, which carries general cargo to Darwin and backloads manganese ore from Groote Eylandt to Tasmania.

In 1971 the Western Australian State Shipping Service introduced two unit-load vessels and expects to introduce a further two unit-load vessels; these vessels will replace all the conventional cargo and passenger/cargo vessels previously in use. In early 1972, the Commonwealth Government offered the Western Australian Government a capital grant of \$2.5 million to assist in the purchase of the fourth unit-load vessel. The significant improvement in port operations as a result of the introduction of these vessels has been one of several factors which has led to a review of the previously approved proposals for the development of the port of Darwin.

Air services

At 30 June 1971 there were 125 aerodromes in the Territory, nine of which are maintained by the Commonwealth Department of Civil Aviation. The overseas passenger services using the Darwin international airport are Lufthansa (Sydney to Frankfurt); Qantas/B.O.A.C. (Sydney to London); B.O.A.C. (Sydney to Hong Kong); Union de Transports Aeriens (Paris to Los Angeles via Noumea); and T.A.A. on behalf of Transportes Aeres de Timor (Darwin to Baucau). Regular internal services to Darwin, with, in some cases, intermediate stops at Territory centres, are operated by Trans-Australia Airlines and Ansett Airlines (from Adelaide, Melbourne, Sydney and Brisbane), and MacRobertson-Miller Airways Ltd (from Perth and Derby), MacRobertson-Miller Airways Ltd and Connellan Airways Ltd operate a network of air services throughout the Territory, the latter company's base being at Alice Springs. The Royal Flying Doctor Service also operates aircraft, while charter services can be secured at Darwin and Alice Springs.

Railways

The Commonwealth Railways Commissioner operates the Central Australia Railway from Port Augusta in South Australia to Alice Springs over a distance of 822 miles, of which about 200 are in the Northern Territory. The line is standard gauge from Port Augusta to Marree, a distance of 217 miles, and 3 ft 6 in gauge from Marree to Alice Springs. The Commonwealth Government has approved in principle the construction of standard gauge line between Tarcoola and Alice Springs to replace the Marree-Alice Springs section of the Central Australia Railway and survey work has commenced. The Commissioner also operates the North Australia Railway between Darwin and Birdum on a 3 ft 6 in gauge over a distance of 317 miles. The two inland terminals, Alice Springs and Birdum are about 630 miles apart and are connected by road transport along the Stuart Highway. Larrimah, on the highway and 6 miles north of Birdum, is the point of trans-shipment for passengers and goods and is, at present, the effective terminal. A road-rail freight service operates between Adelaide and Darwin via Alice Springs.

Roads

The Stuart Highway, 954 miles long, connects Alice Springs with Darwin and runs via Katherine and Tennant Creek. The Barkly Highway, 403 miles long, connects Mount Isa (Queensland) with Tennant Creek and joins the Stuart Highway some 16 miles north of Tennant Creek. These highways are used for carrying various freights, including cattle, particularly to and from the railheads at Alice Springs, Larrimah and Mount Isa. The routes are used also for overland tourists and travellers from the southern States to Darwin. The Government has approved a three-year programme of improvement and maintenance of these highways at a cost of \$16 million. The work involves the construction of 12 bridges, 9 large culverts, the re-alignment of 55 miles of road associated with bridge work, the strengthening of 218 miles of road and resealing of 237 miles of the existing pavements. An amount of \$3 million was appropriated for this work in 1971-72. There are now approximately 11,300 miles of roads in the Territory of which 2,584 miles are sealed.

Work on a programme for reconstruction and development of beef cattle roads was commenced in 1961-62. To June 1971 \$32.2 million has been authorised for the improvement of 1,600 miles including the sealing of 950 miles. Expenditure to 30 June 1971 was \$27.9 million. The transport of cattle by road is expected to increase the number, quality and value of cattle turned off.

The Government has approved the sealing of a 90 mile section of the road between Alice Springs and Erihdunda at a cost of \$3.4 million. It has also approved the sealing of 86 miles of new road to serve the Alligator Rivers region east of Darwin at a cost of \$4.6 million.

Posts, telegraph, telephones and wireless

Postal communication is maintained by road, rail and air transport between Darwin and the capital cities of Australia. In addition, vessels belonging to the Western Australian State Shipping Service provide a regular service between Fremantle and Darwin. Inland, the northern part of the Territory receives its mail via Darwin or by means of the aerial services, and the southern districts are served via Adelaide.

The overland telegraph line, covering 2,230 miles runs from Adelaide to Darwin and links Darwin in telegraphic communication with other parts of the world. Trunk telephone lines extend from Adelaide and Townsville to Darwin, providing telephone communication with the capital cities of Australia. These lines also carry interstate telegram and telex traffic and serve the towns along the routes.

Darwin is connected by high frequency radio to Gove Peninsula and to Groote Eylandt. In addition high frequency radio telephone exchanges have been established at Alice Springs and Katherine which provide connections to the telephone network for pastoral, mining, tourist and other organisations throughout the Northern Territory and across the borders into Queensland, South Australia and Western Australia. The majority of homesteads on pastoral leases are equipped with radio transceivers operated under licence from the Postmaster-General's Department.

Regional national broadcasting stations are situated at Darwin, Alice Springs, Tennant Creek and Katherine, and there are two commercial stations situated at Darwin and Alice Springs respectively. Two television stations, ABD Channel 6 of the national broadcasting system and NTD Channel 8, a commercial station, commenced operations in the second half of 1971.

Education

See also the chapter Education, Cultural Activities and Research.

Community schools

Since February 1968 the Commonwealth Minister for Education and Science has been responsible for community education in the Northern Territory. Community schools are operated by the Commonwealth under an agreement with the South Australian Department of Education which has until recently provided all teachers and curricula.

In July 1970 the South Australian Education Department announced that it had decided upon a planned withdrawal of South Australian teachers from the Northern Territory over a five year period. As a result of this withdrawal seventy teachers of the total 534 teachers employed, formed the nucleus of the first Commonwealth Teaching Service. At 29 February 1972, there were 34 Government primary, infant and secondary schools in the Territory, 2 special schools for mentally and physically handicapped children and 2 schools of the air serving students in outback areas.

The total enrolment at 29 February 1972 was 11,564 pupils. At 1 August 1972 a total of 590 teachers, 200 through the Commonwealth Teaching Service, served in the Northern Territory Government Community schools. Instruction, in general, is according to the South Australian curriculum with modifications to suit Territory conditions.

High schools have been established with classes to matriculation level at Darwin, Nightcliff and Alice Springs. Area schools provide classes up to fourth year high school level at Katherine, Tennant Creek and Nhulunbuy (fourth year by correspondence), and to third year high school level at Batchelor and Alyangula.

Special boarding-away-from-home allowances, correspondence supervision allowances and conveyance allowances are paid to school-age students in the Northern Territory. In addition, limited numbers of special Northern Territory secondary and tertiary scholarships supplement normal Commonwealth scholarship provisions. For details of these special allowances *see* Year Book No. 56, page 974.

At 1 August 1972 there were 24 government pre-school centres (including one play group) in the Territory, with an enrolment of 1,300 pupils.

Theoretical training for apprentices

The recognition that technical school training is an extension of workshop training has led to the introduction of day-time classes which apprentices attend without loss of pay. Full trade courses are provided in the more popular trades in Darwin; correspondence courses are arranged for apprentices outside Darwin and for those in Darwin following the less popular trades.

Finance

Details of receipts and expenditure of the Territory for the years 1966-67 to 1970-71 are shown in the table following. In this table the receipts and expenditure of the Northern Territory have been classified into a National Accounts form. The table covers transactions relating to the Northern Territory in the Commonwealth Consolidated Revenue Fund and the following trust funds: Aborigines Benefits, Northern Territory Government Settlements Canteens, Northern Territory Housing Commission, Northern Territory Housing Loans, Northern Territory Transport and Northern Territory expenditure from the Aboriginal Advancement Trust Account. Details of the financial

transactions of the following Northern Territory semi-government authorities are also included: the Northern Territory Port Authority and the Northern Territory Housing Commission (from 1969-70). Details of the financial transactions of the Darwin City Council are also incorporated in the table. Revenue derived by the Commonwealth from income taxes, customs duties, etc., levied in the Northern Territory and expenditure by the Commonwealth in the Northern Territory on such items as defence, civil aviation, railways, etc., and payments to residents from the National Welfare Fund are not included.

NORTHERN TERRITORY: RECEIPTS AND EXPENDITURE, 1966-67 TO 1970-71
(**\$'000**)

	1966-67	1967-68	1968-69	1969-70	1970-71
RECEIPTS					
Taxation—					
Stamp duties	55	73	86	94	177
Motor registration	273	321	517	586	647
Other taxes, fees, fines, etc.	521	589	696	840	1,434
Interest, rent, etc.	538	919	1,058	1,581	1,338
Public enterprises income	1,789	2,209	2,468	3,059	5,509
Net sale of local authority and public corporation securities	-3	-393	90	92	-16
Other receipts(a)	256	450	425	-52	-559
Net charge to Commonwealth budget	50,722	53,291	57,964	74,820	90,103
Total receipts	54,151	57,459	63,304	81,020	98,634
EXPENDITURE					
Net current expenditure on goods and services—					
Law, order and public safety	328	426	490	422	861
Education	1,763	3,387	4,562	5,609	7,853
Public health and welfare	7,627	8,859	12,542	16,630	16,171
Other	12,677	13,984	13,975	15,511	20,554
Net capital expenditure on new assets and stocks—					
Roads	4,756	7,243	8,099	8,621	12,002
Housing	4,443	3,654	3,414	7,120	7,626
Other	20,416	17,002	16,963	22,819	25,851
Net purchase of existing assets(b)	264	-878	-358	-591	2,784
Interest paid	145	174	113	146	267
Cash benefits	316	369	450	498	592
Subsidies	298	311	337	648	473
Net advances—					
Housing	567	2,191	1,956	2,886	1,625
Other	544	602	513	441	1,475
Grants towards private capital expenditure	7	135	248	260	501
Total expenditure	54,151	57,459	63,304	81,020	98,634

(a) Includes movements in cash, investments, etc. (b) Minus sign (-) denotes excess of receipts (from sales) over expenditure on, or purchases of, existing assets, including housing.

THE AUSTRALIAN CAPITAL TERRITORY

General description

The Commonwealth Constitution provides that the Seat of Government of the Commonwealth shall be in the State of New South Wales but distant not less than 100 miles from Sydney. After a number of alternative sites were considered, an area of 911 square miles lying approximately 200 miles south-west of Sydney was transferred to the Commonwealth as from 1 January 1911. A further 28 square miles at Jervis Bay were transferred as from 4 September 1915 to serve as a port for the Territory.

The primary responsibility for administering the Australian Capital Territory lies with the Department of the Interior, whose functions include housing, police, and municipal services. Education, public health, justice and the provision of basic physical services, including water supply, sewerage and roads, are the responsibility of the Departments of Education and Science, Health, Attorney-General's, and Works. The National Capital Development Commission has the responsibility for the planning and development of the Canberra city area.

The Australian Capital Territory Advisory Council was established in 1930. It has eight elected members and a representative from each of the Departments of Interior, Works, and Health, and the National Capital Development Commission, as well as an observer from the Department of Education and Science. The Council advises the Minister for the Interior on matters affecting the Australian Capital Territory. Ordinances are submitted in draft form to the Council for advice and comment before being implemented.

At the census of 30 June 1971 the population of the Australian Capital Territory was 144,063, made up of 140,864 in the urban Canberra (excluding Queanbeyan) area and 3,199 in rural areas (including Jervis Bay). The estimated population of the Territory at 31 December 1971 was 77,100 males and 73,500 females, 150,600 persons. *See also* the chapters Population and Vital Statistics.

National Capital Development Commission

The *National Capital Development Commission Act 1957-1960* provides for a Commission to undertake and carry out the planning, development and construction of the City of Canberra as the National Capital of the Commonwealth. The year 1970-71 was the thirteenth year of the Commission's operations. Construction work was carried out by means of agency arrangements with the Commonwealth Department of Works and private consultants. Details of the expenditure by the Commission in each year from 1966-67 to 1970-71 are included in the table on page 794.

Total expenditure in 1970-71 was \$55.8 million comprising: land development and services \$10.5 million; water, sewerage and stormwater services and headworks \$2.5 million; housing, flats and other accommodation \$7.6 million; educational facilities \$4.9 million; roads, bridges and traffic control \$6.8 million; city works and associated facilities \$4.6 million; Commonwealth offices \$13.6 million; national works \$0.9 million; others \$4.4 million.

The following major works were completed during the 1970-71 financial year by the Commission: Belconnen High School; Higgins, Weston and Waramanga Primary Schools; extensions to the Australian War Memorial; Scarborough House at Phillip; Russell Offices—Buildings Nos 11 and 14; C.S.I.R.O. Headquarters Building; Phillip Police Station; Fyshwick Retail Fruit and Vegetable Market; Yarralumla and Long Gully Creek stormwater channel; Fyshwick sewerage, filter and humus tanks; Belconnen Reservoir No. 3; Weston Creek Reservoirs Nos 8 and 10; Barton Highway re-construction; Commonwealth Avenue/Parkes Way Interchange; Page/Latham—construction of Southern Cross Drive and Kingsford Smith Drive.

Works under construction at the beginning of the 1971-72 financial year included the following projects: Weston Creek High School; Fisher, Rivett and Latham Primary Schools; Parliament House extensions; Campbell Park Offices; Cameron Offices; Russell Offices—Building No. 10; Juliana House at Phillip; Weston Creek Reservoirs Nos 7 and 9; Capital Hill Ring Road; Yarra Glen Roundabout; Construction of roads and services in Belconnen Town Centre; Phillip Swimming Centre; Lake Ecology Laboratory at Kingston; Pavilion at Phillip Enclosed Oval; Weston Park development.

Works and services

Housing

Until the period following the 1939–45 War most houses and flats in the Australian Capital Territory were built and rented by the Department of the Interior. More recently, an increasing number of houses and flats have been built by private enterprise, and as a result the proportion of houses and flats in the Australian Capital Territory occupied by tenants of the Department of the Interior has fallen from 79.7 per cent of total occupied houses and flats in 1954 to 58.3 per cent in 1961 and 38.8 per cent in 1966. Although the bulk of rented accommodation is provided by public authorities and will continue thus in the foreseeable future, there has been a considerable increase in the proportion of home ownership in the Australian Capital Territory, since 1954. The proportion of houses and flats owned or being purchased by instalments has risen from 19.5 per cent in 1954 to 29.0 per cent in 1961 and 45.6 per cent in 1966. In June 1966, 38.6 per cent of the total occupied private dwellings in the Canberra City District were owned by the Department of the Interior, and in June 1969, 33.3 per cent. Home building activity in the Woden Valley and Weston Creek, south-west of the former city area and Belconnen, north-west of the former city area, has continued to expand, and at June 1969 there were 7,396 occupied private dwellings in the Woden Valley and Weston Creek area, and 2,264 occupied private dwellings in the Belconnen area. *See also* the chapter Housing and Building.

Municipal services

Canberra has been developed as a garden city. More than eleven million trees and many acres of lawns have been planted since 1927. The development of new areas of parkland and the maintenance of existing tree and lawn areas is the responsibility of the City Parks Administration of the Department of the Interior. Municipal services are also provided by the Department of the Interior.

At 30 June 1971, 37,400 meters were connected to the city water supply, drawn through twenty-two service reservoirs from three storages on the Cotter River with a total capacity of nearly 20,000 million gallons. In 1970–71 some 6,300 million gallons of water were consumed in Canberra, and in addition the system supplied 420 million gallons to Queanbeyan, New South Wales. Treatment works at Weston Creek, Belconnen and Fyshwick dispose of Canberra's sewage. At 30 June 1970, 725 miles of sewers, 9 miles of rising sewerage mains and 736 miles of storm water drains were laid.

Department of Works

Apart from the work it carries out for the National Capital Development Commission, the Department of Works acts as design and supervision agent for other Commonwealth departments and instrumentalities. Total expenditure during 1970–71 on all operations amounted to \$16.8 million (\$11.9 million in 1969–70), comprising: building works—housing \$97,562, other building \$8,654,538; engineering works \$1,670,569, repairs and maintenance—buildings \$2,640,483, engineering \$3,597,536, and purchase of plant \$160,115.

Production

See also the chapters dealing with particular subjects.

Lands

Reference has been made in earlier issues of the Year Book to the general conditions of land tenure in the Territory and to the area of alienated and leased land, and the chapter Rural Industry of this issue contains statistical information on the subject. (*See also* § 1. Canberra: Fifty Years of Development, page 123 of Year Book No. 49.)

Under the *Seat of Government (Administration) Act* 1910–1965, no Crown lands in the Territory may be sold or disposed of for any estate in freehold except in pursuance of some contract entered into before the commencement of the Act. In general, leases of land in the city area are granted under the *City Area Leases Ordinance* 1936–1971. In special circumstances land may be leased for purposes other than business or residential under the *Leases (Special Purposes) Ordinance* 1925–1970 and for church purposes under the *Church Lands Leases Ordinance* 1924–1966. As considerable areas of Commonwealth owned land in the Territory are not immediately required in connection with the establishment of the City, they have been leased for agricultural or grazing purposes for terms consistent with the anticipated growth of Canberra under the *Leases Ordinance* 1918–1966. Some lands in the Territory, in areas generally remote from the City, remain in private ownership under freehold title.

The Commonwealth Territory at Jervis Bay, comprising about 28 square miles, was acquired from New South Wales for the possible provision of port facilities in connection with the Australian Capital Territory. A portion of the area is occupied by the Royal Australian Naval College (H.M.A.S.

Creswell) and a Royal Australian Navy airfield. Several blocks fronting Sussex Inlet have been leased for guest houses and holiday camps, etc., under the *Leases Ordinance 1918-1966*, and an area of land in the Murray's Beach area has been set aside for possible use as an atomic power station under the control of the Australian Atomic Energy Commission. Apart from picnic and camping areas, experimental planting, afforestation and soil conservation activities, the remainder of the area is being maintained in its natural state.

Forestry

Forestry operations in the Australian Capital Territory began in 1915 when the denuded slopes of Mount Stromlo were planted with pines to arrest soil erosion and improve the visual quality of the landscape. In 1926 a comprehensive review was made of the Territory's potential for forest development and a programme for the development of commercial forests was approved. Major reviews of the programme were made in 1932, 1954 and 1964 without substantially changing the basic policy of systematic conservation and development. Most of the better native forest has since been placed under management, and forestry operations including fire-control have been extended to 100,000 acres of eucalypt forest in the Cotter Catchment and adjacent forested areas. In these areas the better stands were harvested extensively to provide timber for Canberra's post-war expansion, and were subsequently treated to promote regeneration and to protect the quality of water harvested. Currently, hardwood logging is restricted to incidental production from silvicultural operations.

The total area of softwood plantations within the Australian Capital Territory at 30 June 1972 was 30,581 acres, of which 28,348 acres were *Pinus radiata*, the balance consisting chiefly of *Pinus ponderosa* and *Pinus nigra*, plus 796 acres at Jervis Bay, mainly *Pinus radiata* and *Pinus elliotii*.

In 1971-72 there was no significant commercial production of hardwood timber from the Australian Capital Territory or Jervis Bay. However the volume of softwood cut increased to 2.21 million cubic feet (1.93 million in 1970-71). This yielded a stumpage of \$372,000, bringing the total net stumpage earnings from Australian Capital Territory plantations to date to \$2,485,000.

In 1972, Australia's first plantation-based integrated timber-converting complex commenced production. Shortly, structural plywood will be added to the production of sawn, kiln dried and dressed products and the production of chips. Consumption of logs by the complex is scheduled to reach 4.2 million cubic feet by 1975.

Over the last 5 years provision has been made for recreational use of both native and plantation forests. Public use continues to increase rapidly as better facilities are provided and the areas become better known.

Agricultural, pastoral and secondary industries

During 1970-71 the production of the more important items of the agricultural and pastoral industry was: wheat 28,090 bushels; wool 2,205,000 lb; whole milk 773,000 gallons; meat (carcass weight), fresh 6,814 tons. The numbers of livestock depastured at 31 March 1971 were: horses 836; cattle 17,910; sheep 251,187; pigs 121.

As in the Northern Territory, the secondary industries established in the Australian Capital Territory are largely the service industries associated with the growth of the Territory.

The following table shows preliminary results of the Manufacturing Censuses taken in respect of the years ended 30 June 1969 and 1970.

**AUSTRALIAN CAPITAL TERRITORY:
MANUFACTURING ESTABLISHMENTS, 1968-69 AND 1969-70**

NOTE. Direct comparisons with figures for previous years are not possible because of changes in the census units, the scope of the census and the items of data. For details see Chapter 21 Manufacturing Industry.

		1968-69	1969-70
Establishments operating during year	No.	115	116
Persons employed(a)	No.	2,745	3,072
Wages and salaries	\$m	9.5	11.2
Turnover	\$m	31.2	37.0
Opening stocks at 30 June	\$m	3.3	3.7
Closing stocks at 30 June	\$m	3.7	3.4
Purchases, transfers in and selected expenses	\$m	16.9	19.4
Value added(b)	\$m	14.8	17.2

(a) At end of June. Includes working proprietors. (b) Sales, transfers out and other operating revenue plus increase (or less decrease) in the value of stocks, less purchases, transfers in and selected expenses.

Transport and communication

Canberra is connected with the railway system of New South Wales at Queanbeyan by a line 5 miles long. This line was opened for goods traffic on 25 May 1914 and for passenger traffic on 15 October 1923. Direct or linking services operate between Canberra and Sydney and Canberra and Melbourne. Two airlines provide many services daily each way on the Sydney-Canberra-Melbourne route. Regular motor-coach services link Canberra with towns in New South Wales, Victoria and South Australia. The total length of roads in the Territory at 30 June 1971 was: bitumen and concrete, 646 miles; gravel, 246 miles; other formed roads, 26 miles; total, 918 miles. There are three radio broadcasting stations in the Territory, 2CY and 2CN of the national broadcasting system and 2CA, a commercial station, and two television stations, ABC Channel 3 of the national broadcasting system and CTC Channel 7, a commercial station.

Social

See also the chapter Education, Cultural Activities and Research.

Education

The *Education Ordinance 1937-1966* provides for the compulsory attendance at school of children between the ages of six and fifteen years. The Commonwealth Department of Education and Science is primarily responsible for the education of children in the Australian Capital Territory. By agreement, however, the New South Wales Department of Education arranges the teaching programme in accordance with its own curriculum and provides teaching staff. It is reimbursed for expenses incurred.

From the beginning of 1973 changes in this arrangement will occur. The Commonwealth Teaching Service will provide approximately 200 assistant teachers for Australian Capital Territory schools in 1973 and from the beginning of 1974 the Commonwealth will assume complete responsibility for education in the Australian Capital Territory and the involvement of the New South Wales Education Department will be phased out. An education authority will be set up to administer Australian Capital Territory education following an inquiry to be conducted by the Joint Parliamentary Committee on the Australian Capital Territory on the powers and responsibilities of the authority, the form it should take and the timing of its establishment.

At 4 August 1972, there were 12 government secondary schools in the Australian Capital Territory providing courses proceeding to the Higher School Certificate. Thirty-nine schools provided courses at infants and primary levels, three of these being in rural districts and one in the Jervis Bay area.

A school for physically handicapped children is located at Turner Infants School. Special units for deaf children are situated at Ainslie and Mawson Primary Schools and at Telopea Park High School. Classes for mildly intellectually handicapped children are provided at Ainslie, Mawson, Turner, Narrabundah, and Scullin Primary Schools, and at Narrabundah High School. Two special schools and one pre-school serve the needs of moderately intellectually handicapped children. Aphasic children are catered for in a special class at Forrest Primary School, and two reading centres operate at Downer and Hughes Primary Schools. Special English classes are available at five primary schools and five high schools. Educational guidance services are provided by the Education Clinic and through counselling staff.

The 54 pre-schools including 2 in the Jervis Bay area and a mobile unit which visits outlying areas of the Australian Capital Territory provide pre-school facilities for approximately 3,700 children between the ages of 3 and 5 years. It is anticipated that new pre-schools will be opened in 1973 at Duffy, Holt, Melba and Weetangera. A second unit will be provided at Farrer. Four new primary schools are planned for occupation early in 1973, these will be 'open plan' schools at Duffy and Weetangera and partial 'open plan' at Melba and Holt. No new secondary schools will open in 1973.

At 4 August 1972, there were 18,522 pupils enrolled in primary grades of government schools and 9,764 pupils in secondary forms of government schools.

At 4 August 1972, there were 25 non-government schools in Canberra including 7 secondary schools which provide courses leading to the Higher School Certificate. At the same date 6,345 pupils were enrolled in the primary grades of non-government schools and 4,247 pupils were enrolled in the secondary forms of non-government schools.

The Canberra Technical College, which follows generally the curriculum set by the New South Wales Department of Technical Education, provides trade, post-trade, certificate, and some hobby courses. In 1972 the Technical College provided instruction in 109 courses in 21 different schools of study. Student enrolments in June 1972 were 7,200.

The Canberra School of Music provides a diploma course and individual study in a range of instruments and voice. At 1 August 1972, enrolments totalled 720. A new school to accommodate between 1,000 and 1,200 students will be available during 1975.

For information about the Australian National University, refer to the section on universities, page 636, Chapter 19, Education Cultural Activities and Research.

The Canberra College of Advanced Education was established following a decision by the Commonwealth Government in October 1966 to accept the recommendations of a committee of inquiry into the need for a college of advanced education in the Australian Capital Territory. The College is organised into schools and in 1972 courses were offered in the School of Administrative Studies, the School of Applied Science, the School of Liberal Studies and the School of Teacher Education. It is envisaged that additional schools will be established as other specialised fields of study are introduced.

Health

The Canberra Hospital serves the population of Canberra and the surrounding region. At 30 June 1972 it had 683 beds, a visiting medical staff of 230, 44 salaried medical staff, and a nursing staff of 837. For further information about health services in the Australian Capital Territory see the Public Health chapter in Year Book No. 53 (pages 549-50) and Year Book No. 56 (page 431) for administrative changes which took place in 1969.

Justice

The Australian Capital Territory has a Supreme Court and a Court of Petty Sessions. There is an Australian Capital Territory Police Force which at 30 June 1972 numbered 398 including the Commissioner and Superintendent. Of the total, 132 were engaged in Number 1 Division located at headquarters including 2 at the Canberra Police Citizen's Youth Club. Number 2 Division which is located at Woden Centre Police Station comprised 67 members including 2 at Jervis Bay and is also responsible for both Embassy and Parliament House Security. The Traffic Division comprised 95 members including the specialised Water Police, those involved in accident investigation, the Breath Analysis and the Safety Education Sections. There were 41 in the Criminal Investigation Division containing a Women Police Section of 5. There were also 50 in the Planning and Research Division including one member of the Women Police. The Recruitment and Training Division located at Woden Centre Police Station had a staff of 8 and there were three in the Special Branch.

Finance

In the following table identifiable receipts and outlay relating to the Australian Capital Territory have been classified in a National Accounts form. The table covers transactions of the Commonwealth Government in respect of the Australian Capital Territory in the Commonwealth Consolidated Revenue Fund and the following trust funds: Australian Capital Territory Forestry, Australian Capital Territory Housing, Australian Capital Territory Transport and Australian Capital Territory Suspense. In addition, details of the financial transactions of the following semi-government authorities are also covered: Australian Capital Territory Electricity Authority, Commonwealth Brickworks, National Capital Development Commission, and the Canberra Theatre Trust. Revenue derived by the Commonwealth from income taxes, sales tax, etc., levied in the Australian Capital Territory and expenditure by the Commonwealth in the Australian Capital Territory on such items as defence, civil aviation, railways, etc., and payments to residents from the National Welfare Fund are not included.

AUSTRALIAN CAPITAL TERRITORY: RECEIPTS AND OUTLAY
1966-67 TO 1970-71
(\$'000)

	1966-67	1967-68	1968-69	1969-70	1970-71
RECEIPTS					
Taxation—					
Liquor	197	226	259	285	332
Motor registration	669	760	890	912	1,038
Stamp duties(a)	305	298	383	1,969	2,475
Other taxes, fees, fines, etc.,	950	762	759	911	1,539
Interest, rent, etc.	1,964	2,128	2,382	2,855	1,639
Public enterprises income	6,564	7,778	7,870	9,546	8,474
Net sale of public corporation securities	533	2,207	260	588	511
Other receipts(b)	2,451	93	1,136	1,319	1,092
Net charge to Commonwealth budget	57,166	63,151	64,877	70,498	84,330
Total receipts	70,800	77,403	78,815	88,882	101,430
OUTLAY					
Net current expenditure on goods and services—					
Law, order and public safety	1,237	1,584	1,810	2,140	3,218
Education	5,254	6,200	7,663	9,376	13,001
Public health and welfare	3,710	4,195	4,401	5,189	7,105
Other	7,156	8,031	9,517	11,456	13,076
Net capital expenditure on new assets and stocks—					
Education	4,574	5,240	5,549	8,334	9,052
Cultural and recreational facilities	3,675	4,111	2,054	3,171	1,813
Public health and welfare	1,162	244	301	1,159	394
Water supply and sewerage	13,534	10,416	7,041	7,359	7,076
Roads and bridges	8,038	10,631	14,774	14,431	16,983
Power, fuel and light	3,089	2,946	2,698	1,985	2,795
Housing	1,886	4,156	6,189	2,420	474
Other	8,549	11,303	12,118	13,324	24,285
Net purchase of existing assets(c)	-2,165	-2,967	-7,219	-7,693	-15,346
Interest paid	260	310	426	446	419
Cash benefits	365	441	481	345	388
Net advances for housing	10,281	10,398	10,254	14,385	15,761
Grants towards private capital expenditure	195	164	757	1,055	936
Total outlay	70,800	77,403	78,815	88,882	101,430

(a) Estimated for years prior to 1969-70. (b) Includes movements in cash, investments, etc. (c) Minus sign (-) denotes excess of receipts (from sales) over expenditures on, or purchases of, existing assets, including housing.

NORFOLK ISLAND

General description

Norfolk Island, discovered by Captain Cook in 1774, is situated in latitude 29°S., longitude 168°E. approximately. Its total area is approximately 14 square miles, the island being about 5 miles long and 3 miles wide. It is 1,035 miles from Sydney and 660 miles from Auckland. The length of the coast line is 20 miles, and its form that of an irregular ellipse. Except for a portion on the south side and the landing place at Cascade on the northern side, almost inaccessible cliffs rise from the water's edge. The climate is equable, the temperature ranging between 45° and 81°F. The average annual rainfall is 53 inches.

After serving as a penal station from 1788 to 1813 and from 1825 to 1855, Norfolk Island in 1856 became the home of the remaining descendants of the *Bounty* mutineers. The population recorded at the Census of 30 June 1971 was 1,422.

Administration

In 1856 the island was created a distinct and separate settlement under the jurisdiction of New South Wales. In 1896 it was made a dependency under the Governor of that Colony, and finally, by the passage of the *Norfolk Island Act* 1913, it was accepted by the Commonwealth Parliament as a Territory of Australia. It is controlled by the Minister for External Territories through an Administrator. The Norfolk Island Council was established pursuant to the *Norfolk Island Act* 1957-1969 and is constituted in accordance with the provisions of the *Norfolk Island Council Ordinance* 1960-1970. The Council may consider and tender advice to the Administrator on any matter affecting the peace, order and good government of Norfolk Island, and must be consulted on certain legislative and financial matters. The Council comprises the Administrator as *ex officio* chairman and voting member and eight members elected biennially.

Economic activity

The major economic activities of the island are the tourist trade, primary production, and Government instrumentalities.

Primary industries. The soil on the island is particularly fertile, the climate equable and the rainfall fairly evenly distributed except for a pronounced dry period in November. This enables a wide range of temperate and semi-tropical products to be cultivated. However, the island's comparative isolation presents trading difficulties, and production of bean seed, formerly the major export, has declined rapidly since 1962-63.

Fish abound off the island. In the past a number of ventures have been formed to exploit this resource, but they have been short-lived, mainly because of the lack of a sheltered harbour. A modern whaling station was started on the island in 1955, and production commenced during the second half of 1956. Owing to a marked scarcity of whales after 1961, however, the station was closed down.

An active forestry programme is being carried out to increase the resources of Norfolk Island pine and to introduce suitable types of eucalypts.

Tourists. Regular sea and air services to the island are available for those who seek a quiet holiday in surroundings of beauty and historic interest. There are at present, apart from flats and unlicensed guest houses, hotels and licensed guest houses, and further accommodation is being built to meet the steadily increasing number of visitors.

Employment. A large proportion of the population derives its income from various aspects of the tourist industry including the operation of hotels and duty-free stores. The Commonwealth Government provides services through staff from the Departments of Civil Aviation and Interior (Meteorological Branch) and teachers are seconded by the N.S.W. State Education Department. A number of clerical and other positions are available to islanders in the Norfolk Island Administration. Very few people rely for their income entirely on agricultural pursuits.

Trade, transport and communication

Imports to Norfolk Island since the 1939-45 War have risen from \$65,000 in 1945-46 to \$3,678,000 in 1970-71. The major proportion (\$1,883,000) in 1970-71 come from Australia and the Pacific Islands while New Zealand supplied \$558,000. Exports rose from \$18,500 in 1945-46 to \$420,000 in 1960-61, but declined after whaling ceased in 1962-63 and in 1970-71 amounted to \$279,000. Exports to Australia and the Pacific Islands, the principal market, amounted to \$189,000, while exports to New Zealand amounted to \$73,000. No duties are chargeable on goods imported into Australia from Norfolk Island if the goods are the produce of manufacture of Norfolk Island, shipped direct to Australia, and not goods which if manufactured or produced in Australia would be subject to excise duty.

A shipping service to the island operates at approximately two-week intervals from Sydney via Norfolk Island to Noumea and Vila, thence to Sydney. A service linking Sydney and Noumea includes a call at Norfolk Island on the outward voyage about every three weeks. A link with New Zealand is maintained by a service operating from Auckland at approximately 26-day intervals and calling at Norfolk, Noumea, Brisbane, Lyttleton and Auckland.

A passenger and air freight service between Sydney and Norfolk Island is operated by Qantas Airways Ltd twice a week, and more frequently in peak periods. The service extends to New Zealand under charter to Air New Zealand Ltd.

There are approximately fifty miles of motor road on the island. A substantial section of the population possesses private motor cars, and taxi-cab and bus services are available.

The island has an automatic telephone service and a radio telephone link with Sydney. A local broadcasting service is operated by the Administration.

Education

Education is free and compulsory between the ages of 6 and 15 years. The school, which is conducted by the New South Wales Department of Education, conforms to the Australian standard of public education, ranging from kindergarten to the School Certificate (Fourth Form) examination. The teachers are provided by the New South Wales Education Department, although they receive salaries from the Norfolk Island Administration. The number of scholars enrolled at 30 June 1971 was 318.

Bursaries are available for pupils who wish to attend a mainland school either to continue their studies beyond the School Certificate level or undertake high school courses not available on the Island. Trainee scholarships are available for pupils who have left school and wish to undertake apprenticeship or similar training away from the Island.

Judiciary

The judicial system of Norfolk Island consists of a Supreme Court and a Court of Petty Sessions. The Supreme Court is the highest judicial authority in the Territory and is a superior court of record with original criminal and civil jurisdiction. The jurisdiction of this Court is exercised by one judge sitting in Court or, to the extent and in the cases provided by or under ordinance, sitting in Chambers. The jurisdiction of the Court of Petty Sessions is exercised by the Chief Magistrate or any three magistrates other than the Chief Magistrate.

Finance

The revenue of the Territory, together with an annual grant from the Commonwealth Government for administrative expenses, is paid to the credit of the Norfolk Island Trust Fund, and advances for administrative and developmental expenses are drawn from the account. The principal items of revenue and expenditure for the five years 1966-67 to 1970-71 were as follows.

NORFOLK ISLAND: REVENUE AND EXPENDITURE, 1966-67 TO 1970-71
(\$'000)

	1966-67	1967-68	1968-69	1969-70	1970-71
REVENUE					
Commonwealth subsidy	66	66	66	66	66
Customs duties	90	110	105	116	146
Sale of liquor	53	56	61	68	69
Post office	138	122	260	219	236
All other	50	71	87	130	154
Total revenue	397	425	579	599	671
EXPENDITURE					
Administrative	73	89	104	124	149
Miscellaneous services	27	20	25	26	79
Social expenditure	97	126	142	154	176
Repairs and maintenance	66	67	87	87	136
Capital works and services	126	232	87	120	98
Postal services	32	59	56	57	122
Other business undertakings	7	7	..	..	..
Total expenditure	428	600	501	568	760

PAPUA NEW GUINEA

Greater detail on the subjects dealt with in this section is available in the Papua New Guinea Administration Annual Reports. The sections on pages 977–83 have been prepared by the Director of the Commonwealth Bureau of Meteorology.

General description

Papua New Guinea comprises the Australian Territory of Papua and the United Nations Trust Territory of New Guinea. The total area of 178,260 square miles lies in the equatorial zone between the equator and 12°S latitude and longitudes 141°E and 160°E.

Papua lies wholly within the tropics. The northernmost point touches 5°S latitude; its southernmost portion, comprising Tagula and Rossel Islands, lies between 11°S and 12°S latitude. It is separated from Australia by Torres Strait. The total area is 86,100 square miles of which 83,325 are on the mainland and 1,936 on the islands of the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups.

The Trust Territory of New Guinea extends almost from the equator to latitude 8°S, a distance of almost 500 nautical miles, and from longitude 141°E to 160°E, a distance of 1,000 nautical miles. The total area is 92,160 square miles, of which 69,095 are on the mainland and 23,065 on the islands, including the two northernmost islands of the Solomon Islands, Buka and Bougainville, and the Bismark Archipelago.

Weather and climate

The climate, particularly the rainfall, over so wide an area as Papua New Guinea, with its numerous islands and varying elevations, presents many variations. Generally speaking, the climate is hot and humid, except in the highlands where days are mild to warm and nights are cool. Mean temperatures vary little throughout the year, and there are no winter and summer seasons comparable to those of higher latitude.

The predominant seasonal feature is the regular alternation between two major air-streams, the south-east trade winds and north-west monsoon. The 'south-east' season prevails approximately from May to October, and the 'north-west' season persists for a shorter period from about December to early April. Two short spells of calm weather occur between these two seasons.

Rainfall

There are great spatial variations in the amount of rainfall received over Papua New Guinea. The variations depend mainly upon the direction and speed of the air streams. These streams are moist, requiring only a small amount of lifting for condensation of water vapour to occur. Topography therefore has a dominating influence on the rainfall distribution.

Average annual rainfall

The table on page 979 shows the average annual and monthly rainfall for selected stations. It may be seen that the spatial distribution of average annual rainfall varies greatly, being dependent mainly on topography in relation to prevailing winds. The annual averages vary from 39 inches at Port Moresby (township) to 227 inches at Kikori at the head of the Gulf of Papua. There are few rainfall observing stations above 6,000 feet, so that rainfall above that height must generally be estimated. The map on page 983 shows the rainfall distribution over the region for the year 1971.

Seasonal distribution of rainfall

Places in Papua such as Port Moresby, where the south-east trade wind does not blow directly onshore, have a dry season during May–October. Places such as Kikori have heavier rainfall during May–October because of the onshore south-east winds. In New Guinea, where conditions are more equatorial, rainfall occurs throughout the year, but is heaviest in the November–April period at most places.

Variability of rainfall

There are marked variations from year to year in annual rainfall totals. At Port Moresby (township), for example, in forty-two years of record the annual rainfall has varied from 72 inches to 23 inches; at Daru in fifty-four years of record the annual rainfall has varied from 156 inches to 46 inches; and at Madang in forty years of record the variation has been from 180 inches to 92 inches. The table on page 980 shows the annual rainfall at Port Moresby and Lae for the years 1946 to 1971 inclusive.

Heavy rainfalls

Highest twenty-four hour rainfall registrations have included 21.60 inches at Pondo Plantation in New Britain and 17.60 inches at Cape Nelson on the east coast of the main island. Twenty-four hour falls greater than 15 inches have been recorded at a number of other stations in the Papua New Guinea region. The highest twenty-four hour fall recorded in Australia was 36 inches at Crohamhurst, Queensland. All these registrations were for the restricted twenty-four hours period from 9 a.m. to 9 a.m. Higher falls, possibly approaching 30 inches, have probably occurred in Papua New Guinea in unrestricted periods of twenty-four consecutive hours.

Temperature

Although the region generally has no summer and winter seasons, it has a wide range in temperature because of elevation differences. For each month the mean daily maximum temperature decreases by about 2°F and the mean daily minimum temperature by about 4°F for each 1,000 feet increase in elevation up to 5,000 feet.

A table on page 980 shows temperature and humidity data for five lowland and two highland stations. Mount Hagen, elevation 5,350 feet, is the highest station for which temperature data are available. However, both day and night temperatures continue to decrease with elevation above this level.

Average seasonal temperature distribution

In the lowland areas there is a difference in temperature pattern between the areas south of the highlands and those to the north. In the south there is a tendency for temperatures to be lower in the May–October period than in the November–April period (e.g. Samarai). In the north there is little difference throughout the year (e.g. Madang). In the highlands, temperatures are appreciably lower than in the lowlands and are slightly lower in the middle of the year than they are at the beginning of the year (e.g. Goroka). The nights are cold in the highlands throughout the year; the mean daily minimum at Mount Hagen for July is 54.7°F.

Extreme temperatures

The highest air temperature recorded at Lae (in twenty-two years of record) was 101.7°F and the lowest was 66.3°F; at Port Moresby (in thirty-two years of record) the highest was 97.4°F and the lowest was 57.3°F. The mean daily range of temperature is about 15°F at lowland stations and 20°F at highland stations up to 5,000 feet elevation.

Humidity

Humidity is high generally throughout the year. In the lowlands persistently high humidity in association with high temperatures is responsible for the human discomfort experienced. The average relative humidity for January and July is shown for selected stations in a table on page 980.

In the lowland areas the average monthly 9 a.m. relative humidity (*see* table on page 980) is in the range 75–95 per cent throughout the year. There is little variation from month to month at any station. This is in contrast with northern Australian localities where the south-east winds of the dry season result in low relative humidities. For example, Darwin's average relative humidity at 9 a.m. ranges from 81 per cent in February to 62 per cent in July.

In the highland areas up to 6,000 feet elevation the average monthly 9 a.m. relative humidity is within the range 80–90 per cent throughout the year. The lower temperatures experienced on the highlands result in conditions being generally more comfortable in those areas.

Evaporation

The only evaporation data available are records for Port Moresby. These show that the mean monthly tank evaporation varies from 5–6 inches per month in the early part of the year to 6–7 inches per month in the latter part of the year. The average annual tank evaporation at Port Moresby over an eleven-year period was 73.59 inches. It is probable that evaporation is less than this value in the higher humidity areas.

Sunshine and cloud

Mean daily sunshine hours are recorded for each month at Port Moresby, and the figures show a variation from 6.1 hours per day in February and March to 8.4 hours per day in November. The mean daily amount of sunshine at Port Moresby for the year is 6.9 hours, which is significantly less than Darwin (8.4 hours) but comparable with Brisbane (7.5 hours).

At Port Moresby the mean cloud amount varies from 5.1 eighths per day in June to 6.7 eighths in February; at Lae the variation is from 6.0 eighths in May, October and November to 6.7 eighths in January, February and March. The mean daily cloud amounts for the year at Port Moresby and Lae are 5.7 and 6.3 eighths respectively, which are high in comparison with Darwin (3.1).

Winds

As mentioned previously the south-east trade winds prevail from May to October and the north-west monsoonal winds prevail from December to March over most of the region. However, the broad-scale wind pattern may be completely masked by the effects of local topography and land and sea breezes. The mean 9 a.m. and 3 p.m. wind speeds and prevailing directions are shown in the tables on pages 987-8 for Port Moresby and Lae.

At Port Moresby the mean winds are stronger during the period May-November than during December-April; for example, the 3 p.m. mean wind for August is 13.2 mph and for March is 8.0 mph. The winds at 3 p.m. are much stronger than at 9 a.m.; for example, for the year the 3 p.m. mean wind is 10.3 mph and the 9 a.m. mean wind is 3.7 mph. The prevailing direction of the wind is south-east during May-November and north-north-west to south-west during December-April.

At Lae the winds are mainly lighter than at Port Moresby. In the period May-October the winds at Lae are lighter than in the period November-April. The winds at 3 p.m. are greater than at 9 a.m. except in February and March. The prevailing direction is north-west at 9 a.m. and south-east at 3 p.m. throughout the year.

Storms and cyclones

The Papua New Guinea region is subject to thunderstorm activity, squall lines and local storms throughout the year. Severe thunderstorms are frequent in the mountainous areas, but also occur in coastal lowlands. The main tropical cyclone belt lies to the south of the region, but occasionally a tropical cyclone affects the region, causing loss of life and property.

Climatological tables

The averages and extremes for a number of elements recorded at Port Moresby and Lae are given in the tables on pages 981-2. These tables generally follow the format given for Australian capital cities included in Chapter 2 of this Year Book, the observational data being for available years of record to 1971 inclusive unless otherwise stated. Some elements included in the Australian capital city tables have been omitted from the tables for Port Moresby and Lae because of the inadequacy of observational records.

PAPUA NEW GUINEA: AVERAGE MONTHLY AND ANNUAL RAINFALL FOR SELECTED STATIONS^(a)

(Inches)

Station (lat. long.)	Years of record	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Bwagaia ^(b) (10° 42' 152° 50')	42	10.20	12.45	10.86	11.60	12.04	10.13	7.01	8.73	9.35	9.87	9.85	8.92	121.01
Daru ^(b) (9° 04' 143° 12')	70	11.01	10.22	12.81	12.77	8.91	4.25	3.71	2.04	1.70	2.20	4.32	8.06	82.00
Dogura ^(b) (10° 00' 149° 55')	45	9.18	8.63	8.74	6.10	3.63	3.66	3.06	2.57	3.08	3.22	3.43	4.72	60.02
Gobaragere ^(b) (9° 50' 147° 45')	39	7.66	6.87	7.71	8.32	4.26	3.07	1.80	2.02	2.40	3.09	5.08	6.54	58.82
Kairuku ^(b) (8° 51' 146° 32')	47	9.53	10.81	8.96	5.23	1.91	1.83	1.09	0.54	1.57	1.57	2.11	5.24	50.39
Kerema ^(b) (7° 57' 145° 46')	50	9.08	9.08	10.49	11.23	17.07	15.17	13.68	12.97	13.25	11.79	8.14	8.20	140.15
Kikori ^(b) (7° 24' 144° 15')	52	12.46	13.21	14.44	17.08	29.47	28.89	25.82	22.03	24.31	18.78	12.82	11.79	231.10
Kokoda ^(b) (8° 58' 147° 43')	49	13.33	13.08	14.14	12.86	10.15	7.37	7.11	8.68	10.72	12.68	16.02	14.13	140.27
Kokopo ^(c) (4° 20' 152° 15')	39	8.41	7.40	8.65	6.63	4.73	4.71	6.54	5.74	4.34	4.58	6.32	8.90	76.95
Kwikila ^(b) (9° 44' 147° 44')	47	6.21	5.25	6.95	5.97	3.23	2.08	1.80	1.71	2.30	2.03	2.60	4.28	44.41
Lae ^(c) (6° 43' 147° 00')	34	10.62	9.24	12.90	15.92	16.54	16.29	19.49	20.14	18.40	15.35	13.31	12.95	181.15
Lindenhafen ^(c) (6° 16' 150° 28')	36	6.45	5.64	6.85	11.42	25.10	33.27	38.41	42.56	29.33	17.01	11.08	7.50	234.62
Losuia ^(b) (8° 32' 151° 04')	50	17.00	16.53	15.15	13.47	13.16	12.11	12.28	10.62	10.89	10.18	9.39	10.88	151.66
Madang ^(c) (5° 13' 145° 47')	22	14.39	11.41	13.18	17.48	14.52	8.27	6.86	5.20	5.92	12.36	15.26	14.98	139.83
Port Moresby ^{(b)(d)} (9° 26' 147° 13')	26	6.68	8.69	7.79	6.35	2.04	1.67	0.78	1.26	1.61	1.57	2.73	6.19	47.36

(a) With twenty or more years of record to 1971. (b) Papua. (c) New Guinea. (d) See page 981.

RAINFALL: PORT MORESBY AND LAE, 1946 TO 1971

Year	Port Moresby (Papua)		Lae (New Guinea)	
	Amount	No. of days	Amount	No. of days
	in		in	
1946	61.79	137	(a)168.64	(a)248
1947	40.61	154	180.37	261
1948	45.82	138	179.26	267
1949	43.20	164	174.78	275
1950	47.67	137	158.51	251
1951	45.51	108	191.59	250
1952	54.88	150	165.58	274
1953	36.20	126	197.76	264
1954	46.49	118	173.70	277
1955	39.33	128	155.26	261
1956	56.60	141	122.39	233
1957	51.89	129	238.66	282
1958	46.02	107	190.02	250
1959	41.65	126	185.78	245
1960	34.17	116	167.50	260
1961	42.75	136	193.09	267
1962	43.98	133	182.84	261
1963	58.76	138	165.18	254
1964	55.02	151	163.10	244
1965	40.73	103	175.93	265
1966	41.25	116	206.19	291
1967	57.05	147	198.86	263
1968	44.44	116	185.68	265
1969	44.50	125	220.46	262
1970	57.49	154	210.57	277
1971	45.59	162	160.48	230

(a) Incomplete for July and August.

PAPUA NEW GUINEA: TEMPERATURE AND RELATIVE HUMIDITY FOR
SELECTED STATIONS

Station	Lat.	Long.	Altitude ft	Years of record	Temperature °Fahr.				Relative humidity			
					Mean max. Jan.	Mean max. July	Mean min. Jan.	Mean min. July	Mean 9 a.m. Jan.	Mean 9 a.m. July	Mean 3 p.m. Jan.	Mean 3 p.m. July
Daru(a)	9° 04'	143° 12'	15	14	89.3	83.2	74.1	72.5	87	78	72	75
Goroka(b)	6° 04'	145° 23'	5,140	15	78.6	76.6	59.3	56.9	84	83	56	51
Kikori(a)	7° 24'	144° 15'	244	5	89.7	80.4	71.5	69.8	91	95	72	86
Madang(b)	5° 13'	145° 47'	14	21	86.3	85.2	73.7	73.0	87	82	75	75
Mount Hagen(b)	5° 52'	144° 14'	5,350	8	75.8	72.9	56.0	54.7	83	88	66	66
Samarai(a)	10° 37'	150° 40'	136	13	88.5	80.6	76.2	73.0	79	82	76	82
Wewak(b)	3° 34'	143° 38'	16	12	86.3	86.3	73.4	73.0	83	82	76	75

(a) Papua. (b) New Guinea.

CLIMATOLOGICAL DATA: PORT MORESBY (PAPUA)

(Jackson's Strip, Lat. 9° 26' S., Long. 147° 13' E., Height above M.S.L. 92 ft)

BAROMETER, WIND, EVAPORATION AND CLOUD

Month	Bar. corrected to 32° F. mm sea level and standard gravity from 9 a.m. and 3 p.m. readings (m. bars)	Wind (height of anemometer 32 ft)				Mean amount evaporation (in)	Mean amount of clouds, 9 a.m., 3 p.m., 9 p.m.(a)	
		Average miles per hour		Highest gust speed (mph)	Prevailing direction			
		9 a.m.	3 p.m.		9 a.m.			3 p.m.
No. of years of observations	23	25	25	25	25	25	15	25
January	1,007.0	3.6	8.4	56	N	W	6.58	6.6
February	1,007.1	3.7	8.2	62	NNW	W	5.65	6.8
March	1,007.4	3.4	8.0	49	NNW	W	6.00	6.5
April	1,008.1	2.0	7.6	40	N	S	5.48	6.1
May	1,008.5	2.9	9.8	43	SE	SSE	5.79	5.1
June	1,009.7	4.5	11.5	46	SE	SSE	5.51	5.0
July	1,009.9	5.5	12.9	46	SE	SE	6.32	5.2
August	1,009.9	5.4	13.2	47	SE	SSE	6.77	5.3
September	1,010.0	5.2	14.0	46	SE	SSE	7.09	5.3
October	1,009.1	3.6	11.8	46	SE	SE	7.93	5.4
November	1,008.1	2.6	9.9	40	SE	SSE	7.93	5.3
December	1,007.0	2.7	8.6	54	N	SW	7.28	5.9
Year {								
Total Averages	1,008.5	3.7	10.3	..	SE	SSE	78.33	..
Extremes	..	..	..	55	..	..	..	5.7

(a) Scale 0-8.

TEMPERATURE AND SUNSHINE

Month	Mean temperature (° Fahr.)			Extreme shade temperature (° Fahr.)		Extreme temperature (° Fahr.)	Mean daily hours of sunshine
	Mean max.	Mean min.	Mean	Highest	Lowest		
						Lowest on grass	
No. of years of observations	32	32	32	32	32	13	13
January	89.3	73.6	81.5	97.2 11/64	68.8 27/49	65.3 21/66	6.2
February	88.7	73.4	81.1	97.0 12/47	65.8 17/57	62.2 3/68	6.1
March	88.6	73.3	80.9	95.8 26/46	65.0 23/61	58.0 31/66	6.2
April	87.7	72.9	80.3	93.6 5/46	62.3 11/46	56.6 1/66	7.0
May	87.3	73.0	80.1	92.9 2/64	58.1 28/53	59.0 18/66	7.4
June	86.0	71.9	78.9	93.0 25/58	58.0 23/54	54.0 29/65	7.0
July	85.4	71.1	78.3	92.0 11/64	57.3 8/46	50.8 30/65	6.6
August	85.9	71.5	78.7	92.8 12/58	58.6 14/61	50.3 31/67	6.8
September	86.8	72.3	79.5	94.6 17/65	58.0 10/61	48.0 1/67	6.8
October	88.5	73.0	80.7	95.9 4/65	61.3 11/55	52.2 5/65	7.4
November	89.8	73.0	81.4	97.3 11/65	62.1 10/67	55.0 4/63	8.4
December	90.0	73.5	81.7	97.4 16/67	67.2 1/63	62.9 16/67	7.3
Year {							
Averages	87.8	72.7	80.3	..	..	..	6.9
Extremes	..	..	..	97.4 16/12/67	57.3 8/7/46	48.0 1/9/67	..

HUMIDITY, RAINFALL AND FOG

Month	Vapour pressure mean 9 a.m. (m. bars)	Mean relative humidity % at 9 a.m.	Rainfall (inches)				Fog mean No. days	
			Mean of days mthly	Greatest monthly	Least monthly	Greatest in one day		
								Mean No. of days of rain
No. of years of observations	23	23	26	24	26	26	24	
January	28.1	77	6.68	17	18.30 1967	1.02 1950	4.18 26/67	3.3
February	28.5	81	8.69	19	17.08 1957	2.37 1947	5.54 14/49	3.8
March	28.4	80	7.79	18	17.42 1951	1.11 1950	4.42 16/51	7.2
April	28.6	81	6.35	15	28.65 1946	0.36 1966	12.89 12/46	7.7
May	28.2	79	2.04	8	7.35 1952	0.08 1958	3.02 18/60	6.9
June	26.4	78	1.67	6	12.33 1963	0.00 1957	8.06 5/63	3.7
July	25.2	77	0.78	6	2.75 1949	0.01 1958	1.33 1/52	2.5
August	25.0	75	1.26	7	5.43 1953	0.02 1959	1.94 22/53	2.4
September	25.4	73	1.61	7	13.53 1958	0.00 (a)	5.90 5/58	1.9
October	26.2	69	1.57	7	7.12 1948	0.06 1951	2.13 31/64	2.4
November	26.4	68	2.73	8	9.22 1952	0.00 1965	3.56 29/54	3.3
December	27.6	73	6.19	13	10.57 1954	0.99 1967	4.83 29/65	2.9
Year {								
Totals	..	..	47.36	131	..	..	..	48.0
Averages	27.0	76	..	11	..	..	..	..
Extremes	..	..	..	..	28.65 4/1946	0.00 (b)	12.89 12/4/46	..

(a) 1948 and 1950.

(b) June 1957, September 1948 and 1950, and November 1965.

CLIMATOLOGICAL DATA: LAE (NEW GUINEA)

(Meteorological Office: Lat. 6° 43' S., Long. 147° 00' E., Height above M.S.L. 25 ft)

BAROMETER, WIND AND CLOUD

Month	Bar. corrected to 32° F. mn sea level and standard gravity from 9 a.m. and 3 p.m. readings (m. bars)	Wind (height of anemometer 32 ft)					Mean amount of clouds 9 a.m., 3 p.m., 9 p.m.(a)
		Average miles per hour		Highest gust speed (mph)	Prevailing direction		
		9 a.m.	3 p.m.		9 a.m.	3 p.m.	
No. of years of observations	23	25	25	25	27	27	21
January	1,006.8	6.7	6.9	51	NW	SE	6.6
February	1,006.8	7.2	6.9	43	NW	SE	6.8
March	1,007.2	6.7	6.3	44	NW	SE	6.8
April	1,008.4	3.7	6.0	45	NW	SE	6.4
May	1,009.5	2.2	5.5	36	NW	SE	5.9
June	1,010.5	2.3	5.4	42	NW	SE	6.1
July	1,011.0	1.9	5.3	40	NW	SE	6.5
August	1,011.0	2.0	5.5	40	NW	SE	6.3
September	1,010.9	2.0	6.4	38	NW	SE	6.0
October	1,010.1	2.7	6.7	40	NW	SE	6.1
November	1,008.5	3.9	7.4	45	NW	SE	6.1
December	1,007.4	5.4	6.9	46	NW	SE	6.5
Year { Averages	1,009.0	3.9	6.2	..	NW	SE	6.3
Extremes	..	..	..	51	..	..	..

(a) Scale 0-8.

TEMPERATURE

Month	Mean temperature (° Fahr.)			Extreme shade temperature (° Fahr.)	
	Mean max.	Mean min.	Mean	Highest	Lowest
	No. of years of observations	22	22	22	22	22
January	87.9	74.7	81.3	100.8 20/59	69.2 7/60
February	88.1	74.9	81.5	99.1 14/57	70.0 24/62
March	87.4	74.7	81.0	101.7 6/56	71.1 16/56
April	86.1	74.0	80.0	93.0 4/56	70.4 22/66
May	85.0	73.3	79.1	91.8 24/52	67.0 30/53
June	83.4	72.3	77.9	92.2 8/58	67.0 20/53
July	82.0	71.6	76.8	89.9 16/64	66.7 31/65
August	82.3	71.6	76.9	90.4 28/64	67.0 27/55
September	83.6	72.0	77.8	90.0 12, 13/50	66.3 13/61
October	85.3	72.7	79.0	95.3 31/49	66.4 4/65
November	86.7	73.5	80.1	94.0 30/61	69.6 (a)
December	87.3	74.3	80.8	96.1 24/59	68.5 19/64
Year { Averages	85.4	73.3	79.3	101.7 ..	66.3 ..
Extremes	..	..	..	6/3/56	13/9/61

(a) 13/1965 and 11/1968.

HUMIDITY, RAINFALL AND FOG

Month	Vapour pressure mean 9 a.m. (m. bars)	Rainfall (inches)					Fog mean No. days
		Mean monthly	Mean No. of days of rain	Greatest monthly	Least monthly	Greatest in one day	
January	28.0	10.62	21	20.54 1964	4.21 1958	7.84 9/59	0.1
February	28.5	9.24	19	15.88 1967	2.09 1957	5.26 8/53	0.1
March	28.3	12.90	21	20.63 1952	5.52 1968	6.38 10/52	0.1
April	28.7	15.92	22	23.71 1955	9.32 1968	7.84 15/53	0.0
May	28.3	16.54	22	33.08 1957	2.65 1956	6.52 17/61	0.1
June	26.5	16.29	22	30.32 1965	4.51 1964	8.90 4/51	0.0
July	25.4	19.49	25	41.66 1953	5.63 1956	11.76 16/53	0.1
August	25.0	20.14	24	33.99 1957	6.32 1951	10.18 14/47	0.0
September	25.6	18.40	23	36.30 1926	7.58 1960	6.16 10/51	0.0
October	26.5	15.35	21	27.36 1970	4.82 1956	5.77 20/63	0.1
November	26.7	13.31	21	22.73 1948	5.04 1956	7.26 2/45	0.0
December	27.7	12.95	21	23.81 1957	6.06 1951	8.96 16/68	0.0
Year { Totals	..	181.15	262	.. ..	.. ..	.. ..	0.6
Averages	27.1	..	..	.. ..	.. ..	.. ..	..
Extremes	..	..	..	41.66 7/1953	2.09 2/1957	11.76 16/7/53	..

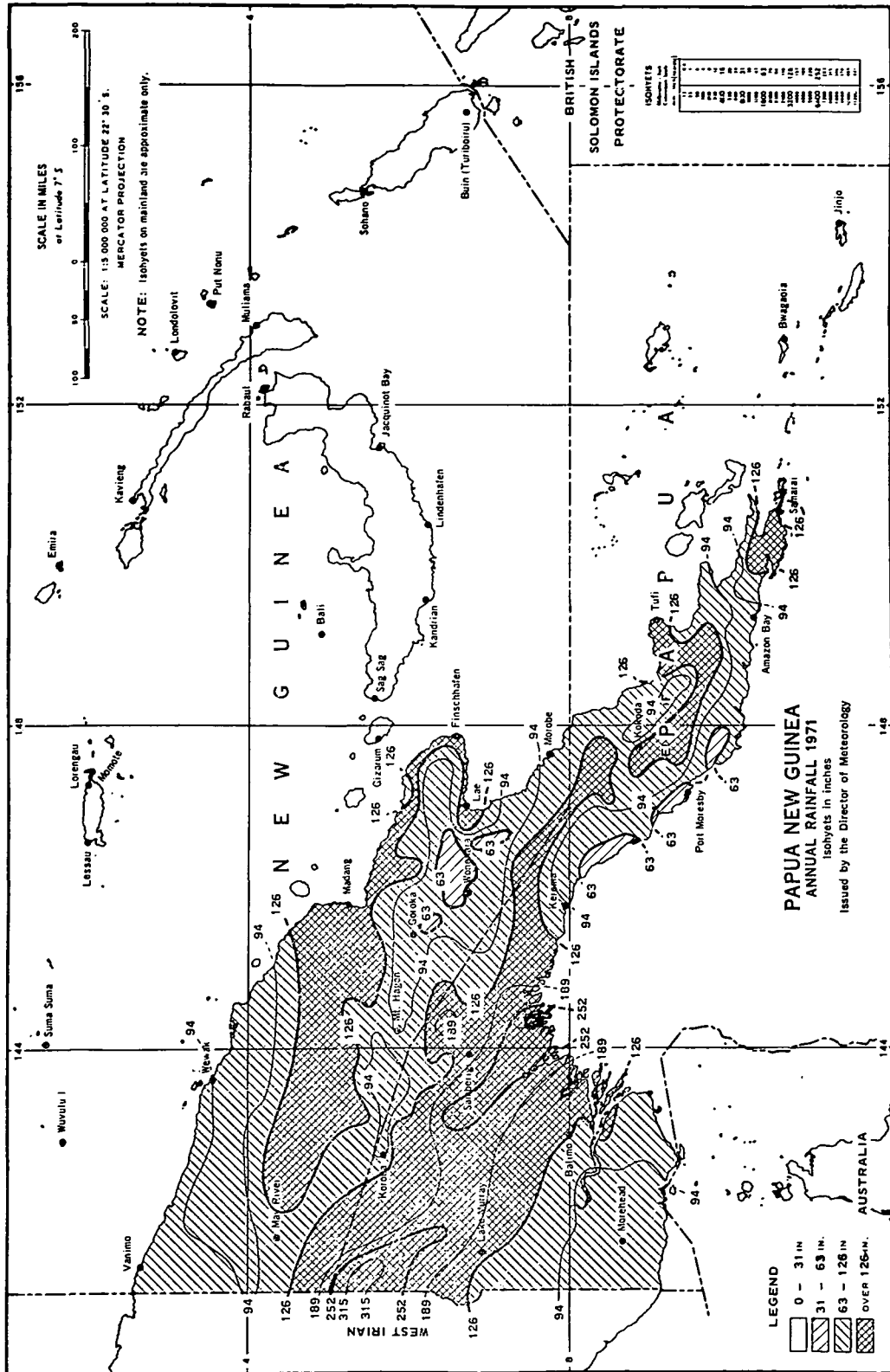


PLATE 55

Population

The indigenous people of Papua New Guinea may in general be grouped with the Melanesians who occupy the greater part of the Western Pacific. They may be divided into two main types—Melanesian and Papuan—the former representative of the eastern mainland of Papua and the island archipelagos to the east and south-east of Papua, the Bismark Archipelago, the Solomon Islands and the coastal districts of the New Guinea mainland, the latter representative of the western third and interior of Papua and the interior of the mainland of New Guinea. Some negrito traits have been noted in a few of the inland mountain groups. There is a strain of Papuan, and, possibly, of Polynesian blood in the Admiralty Islanders, while the Western Islanders and the inhabitants of the small islands east and south-east of New Ireland are Micronesians.

Censuses of the non-indigenous population of Papua New Guinea have been taken in conjunction with censuses of the Commonwealth of Australia. For the indigenous population of Papua New Guinea, estimates of size, geographic location, and the broad age distribution of the population were available from the results of the Division of District Administration census (formerly known as the Tax Census). This was conducted over most of the country, but was continuous rather than conducted at a common date for all areas covered. No regular pattern of operations was adopted, although once the census had been taken in an area it was in general repeated fairly frequently. Although these estimates were of great value, the limitations of the information on population characteristics and the lack of simultaneous collection for all areas made them insufficient for many purposes. The 1966 census covered both indigenous and non-indigenous population, and provided, for the first time, an almost complete picture of the population of Papua New Guinea.

Figures for the non-indigenous population as enumerated at censuses held in conjunction with Commonwealth censuses and estimates of the indigenous population based on the Division of District Administration censuses are set out below.

PAPUA NEW GUINEA: POPULATION AT CENSUSES, 1921 TO 1966

Year	<i>Indigenous</i>			<i>Persons estimated</i>	<i>Total persons</i>	<i>Non-indigenous</i>		
	<i>Enumerated</i>	<i>Males</i>	<i>Females</i>			<i>Persons</i>	<i>Males</i>	<i>Females</i>	Persons
PAPUA								
1921.	59,825	52,687	112,512	..	..	1,408	670	2,078
1933.	..	..	170,836	..	..	1,232	941	2,173
1941.	..	..	..	..	..	..	..	..
1947.	..	..	..	..	..	2,057	1,182	3,239
1950.	117,455	104,474	221,929	146,630	368,559	..	..	..
1954.	151,464	134,732	286,196	202,200	488,396	3,867	2,446	6,313
1961.	236,676	209,632	446,308	67,340	513,648	5,490	4,304	9,794
1966.	310,153	281,806	591,959	..	591,959	8,307	6,070	14,377
NEW GUINEA								
1921.	(a)100,445	(a)66,276	(a)166,721	..	..	2,502	671	3,173
1933.	218,218	182,911	401,129	..	..	3,709	1,507	5,216
1941.	324,830	318,988	(b)684,284	300,000	984,284	..	..	..
1947.	..	..	..	..	..	4,369	1,831	6,200
1950.	415,939	354,116	770,055	301,050	1,071,105	..	..	..
1954.	538,113	472,480	1,010,593	184,714	1,195,307	7,201	4,241	11,442
1961.	721,806	647,277	1,369,083	64,300	1,433,383	9,158	6,378	15,536
1966.	810,153	748,205	1,558,358	..	1,558,358	11,746	8,546	20,292

(a) 1920; figures for 1921 not available. (b) Includes 34,087 indentured labourers, 1,127 native constabulary, 4,823 attending approved mission schools, and 429 patients at Anelaura Leprosarium and Taskul Observation Colony (New Ireland), for which particulars of sex are not available.

The total indigenous population of Papua New Guinea at the 1966 census was 2,150,317 persons, and the total non-indigenous, 34,669 persons. For details of selected characteristics of Population Census 1966 see Year Book No. 55, pages 1165–69. Estimated totals for 30 June 1971 are 2,466,986 and 53,132 persons respectively.

Population Census, 1971

Full details from the Population Census 1971 are not yet available. The census was conducted in July 1971 and covered both indigenous and non-indigenous populations. For census purposes respondents were asked to state whether they considered themselves to be indigenous, European, Chinese or of some other race or mixture of these, without the guidelines provided in 1966, however, it is doubtful that this will affect comparability between the two censuses.

Preliminary figures of the population (indigenous and non-indigenous) of the major towns at the census, July 1971, was as follows: Port Moresby, 66,244; Lae, 34,699; Rabaul, 34,778; Madang, 15,751; Wewak, 12,154; Goroka, 10,756; Mount Hagen, 9,609; Daru, 5,074; Popondetta, 4,591; Lorengau, 4,009 (including Lombrum); Bulolo, 3,548; Kavieng, 3,010; Alotau, 2,516; Mendi, 2,277.

The Census completely enumerated virtually all the non-indigenous population, together with all the indigenous population located in areas outside rural villages. The rural village population was estimated by means of a representative sample of approximately 10 per cent of rural villages. Consequently the figures published for the population of rural villages are estimates of total figures based on a representative sample, while those published for other areas are totals based on complete enumeration. Totals for a district or the country as a whole are the sums of these estimated and actual figures.

Constitutional development

The *Papua-New Guinea Provisional Administration Act 1945-1946*, which provided for the transfer back of control from the military authorities to civil authorities after the 1939-45 War, was repealed by the *Papua and New Guinea Act 1949*, which came into force on 1 July 1949. The latter Act approved the placing of the Territory of New Guinea under the International Trusteeship system and provided for an Administrative Union of the Territory of Papua and the Territory of New Guinea with one Administrator, a Legislative Council and an Executive Council, one Supreme Court, and one Public Service.

For an outline of the development of the Legislative and Executive (later Administrator's) Councils between 1949 and 1963, see Year Book No. 51, page 117.

In May 1963 the Commonwealth Government passed an amendment to the Papua and New Guinea Act, making provision for a House of Assembly of sixty-four members to replace the Legislative Council. The house then consisted of ten official members appointed by the Governor-General on the advice of the Administrator, forty-four members elected by the people of the Territory on a common roll in forty-four open electorates, and ten non-indigenous persons elected on a common roll in ten special electorates comprising one or more open electorates. The first elections for the House of Assembly were held in February-March 1964, and the inaugural meeting of the new House was convened on 8 June 1964.

The 1963 Act also increased the membership of the Administrator's Council from seven to eleven, seven of whom must be elected members of the House of Assembly.

In October 1966 the Commonwealth Parliament passed a further amendment to the Papua and New Guinea Act, providing for an increase in the membership of the House of Assembly to ninety-four, sixty-nine members representing open electorates, fifteen from regional electorates and ten official members.

The second general election for the House of Assembly was held from 17 February-16 March 1968, and the Second House was convened on 4 June 1968. The Ministerial Nomination Committee in conjunction with the Administrator chose fifteen elected members who were appointed to seven Ministerial Member and eight Assistant Ministerial Member positions.

The *Papua and New Guinea Act 1968* provides for the Administrator's Council to become the Administrator's Executive Council, deciding major matters of Territory policy. In June 1968 it had its first meetings. It consists of the Administrator, the seven Ministerial Members, three official Members, and a twelfth Councillor who is an elected M.H.A. but a non-office holder.

The result of constitutional instruments signed in August, 1970 by the Governor-General and the Minister for External Territories was to transfer full authority in relation to specified matters to designated ministerial office holders. This effectively enhanced the role of the Administrator's Executive Council as the Administrator became bound to accept its advice in respect of these specified matters. Ministerial office holders are fully responsible for the functions of the specified departments, or parts thereof.

The third general election for the House of Assembly was held from 19 February to 11 March 1972, and the Third House was convened on 20 April 1972. Following recommendations made by the Select Committee on Constitutional Development appointed by the Second House, the number of

elected members was increased to 100; 82 members representing open electorates and 18 representing regional electorates. In addition, the number of official members was reduced to 4, and provision was made for up to 3 nominated members to be nominated by the House for special purposes. The Ministry was increased to 17, all with the designation of Minister. The Administrator's Executive Council now consists of the Administrator and 10 Ministers, one of whom is chosen by the full Ministry to be the Deputy Chairman of the Council, or in effect, the Chief Minister.

In 1972 the Papua New Guinea Act was amended to provide for the limit on the number of ministerial offices to be removed.

In August 1972, constitutional discussions were held between the leaders of Papua New Guinea and the Minister for External Territories at which it was agreed that final powers over various matters could be transferred to the Papua New Guinea Ministry now. Further discussions on the transfer of final powers are to be held, and will continue until the achievement of full internal self-government by Papua New Guinea.

Local government was introduced in 1949 by the Native Village Councils Ordinance which was replaced by the *Local Government Ordinance 1963*. The Administrator may establish by proclamation local government councils with authority in defined areas.

To enable the people to participate more fully at district level in the affairs of government in areas of planning and decision making, Area Authorities, consisting of representatives of Local Government Councils in the area, have been set up in the New Ireland District, the Northern District, and the Fly River Area in the Western District. The primary functions of the Area Authorities are to advise the Administrator on district development, and the Minister for Local Government on the allocation of rural development funds.

Development planning. In 1968 the Commonwealth Government and the Papua New Guinea House of Assembly endorsed as a working basis for planning the objectives and targets of a development programme covering the five years from 1968-69 to 1972-73. In August 1971 the Development Programme was reviewed to take account of major changes, mainly resulting from the development of large scale copper deposits on Bougainville.

The programme has the following main objectives.

Maximum increase in production consistent with financial and manpower resources and market capacity.

Maximum participation by Papua New Guineans at all levels.

Maximum progress towards financial self-reliance.

Maximum practicable contribution to meeting social needs and raising the level of living of the people.

A new development programme is being prepared to cover the period 1973-74 to 1977-78. Consultants have been engaged under the United Nations Development Programme to assist the Government to formulate the strategy for the new programme. The aim is to produce a programme that reflects technical expertise and experience from both inside and outside Papua New Guinea and at the same time is fully endorsed by the House of Assembly.

Following representation by a delegation of Papuan parliamentarians to the Minister for External Territories, seeking special economic consideration for Papua, consultants were engaged to study the problems of the less-developed areas in both Papua and New Guinea. The report of this study will also be used in the preparation of the next development programme.

Judiciary

The courts which exercise jurisdiction within Papua New Guinea are: the Supreme Court of Papua New Guinea, *District Courts*, *Local Courts*, *Children's Courts* and *Wardens' Courts*.

The Supreme Court is the highest judicial authority and has unlimited criminal and civil jurisdiction. Appeals lie from decisions of a single judge to the Full Court of the Supreme Court and, subject to prescribed conditions, from decisions of the Full Court to the High Court of Australia. District Courts have criminal jurisdiction over all summary offences, i.e. generally, all offences punishable by less than 12 months' imprisonment, and conduct preliminary hearings in respect of indictable offences. They also exercise civil jurisdiction over claims for amounts up to \$2,000. Local Courts have criminal jurisdiction over summary offences and may impose penalties not greater than a fine of \$100 or six months' imprisonment, plus civil jurisdiction over matters involving up to \$200. Children's Courts have jurisdiction over all offences by persons under the age of 16 years, except the most serious offences, and in affiliation and other child welfare cases. Wardens' Courts exercise jurisdiction over offences against mining laws and civil cases concerning mining or mining lands.

In addition, there is the Land Titles Commission set up under the *Land Titles Commission Ordinance* 1962–1972 to inquire into and determine rights in land, particularly native land. The Commission has a specific function under the *New Guinea Land Titles Restoration Ordinance* 1951–1968 to inquire into and determine claims to interest in land where the official records were lost or destroyed as a result of the Japanese invasion of New Guinea.

Agriculture and animal industry

Soils

Although many parts of Papua New Guinea are covered by skeletal soils unsuitable for agriculture, there are extensive areas in all districts where fertile soils occur suitable for growing a variety of crops. Soils on the coastal plains consist mainly of alluvium and podsolised alluvium. The coastal swamp soils, of which there are extensive areas in the delta plains of the Sepik and Fly rivers and intermittently around the coasts and along the lower reaches of other rivers, are in general quite unsuited to any form of agricultural development.

Volcanic soils probably offer the greatest prospects for development. They are found mostly on the central plateau and southern foothills of the main island, but there are also areas in New Britain (particularly in the Gazelle and Willaumez Peninsulas), Bougainville and New Ireland, as well as in numbers of smaller islands. Other rich soils are the alluvials of the river valleys. The largest single area of this type is in the valley occupied by the Ramu and Markham Rivers.

Land tenure

The *Land Ordinance* 1962–1969 of Papua New Guinea, which came into operation in 1963, replaced much land legislation previously in force separately in the two Territories. This simplification in legislation was a major step towards applying uniform principles to land tenure throughout the whole of Papua New Guinea. All land in Papua New Guinea other than native land or land subject to any estates, rights, titles or interests in force from time to time is Administration land.

There is considerable variation throughout Papua New Guinea in the nature of customary ownership of land. In most areas some rights remain in the landholding group, and individuals within the group have limited rights or use, either for life or for a shorter period. Thus the normal system by which the rights of ownership in land use are acquired is by birth to a landholding group. Transfer of rights between individuals by sale and purchase appears to have been unusual in the past, but this practice is now an established custom in some localities and appears to be increasing. Inheritance may be based on either patrilineal or matrilineal descent, or both. In parts of Papua New Guinea, however, there is a tendency for the whole inheritance system to change, particularly in communities where it is based on matrilineal descent. Following a close study of the problems in relation to land holdings by indigenes, the Government has laid down the following broad principles of policy.

The ultimate and long-term objective in Papua New Guinea is to introduce a single system of land holding regulated by the central Administration by statute, administered by the Department of Lands, Surveys and Mines of the central Administration and providing for secure individual registered titles after the pattern of the Australian system.

Only the Administration working through the Department of Lands, Surveys and Mines and through the Registrar of Titles may issue and register land titles.

Land subject to native custom remains subject only to native custom until it is taken out of custom either by acquisition by the Administration or by a process, provided for by the *Land (Tenure Conversion) Ordinance* 1963–1967, of conversion of title to an individual registered title. Upon either acquisition or conversion of title, compensation is provided in respect of extinction of rights under native custom.

Land held under native custom may not be acquired outside of native custom by other than the Administration. Land may not be acquired by the Administration except for prescribed public purposes unless the native owners are willing to sell and the Administration is convinced, through its Division of District Administration, Department of the Administrator, that the land is not required by them, and conversion of title from native custom to individual registered title may take place only if all those interested in the land under native custom consent to conversion and the method of conversion.

The services of Commissioners under the *Land Titles Commission Ordinance* 1962–1972 are used, as a first priority, on investigations into claims by the Administration that land is ownerless and may therefore be declared administration land, on investigation into the ownership under native custom of land proposed to be acquired by the Administration, on settlement of disputes about the ownership of land held under native custom, and on investigations into the rights held under native custom in land proposed to be converted to individual registered title. The

Commissioners, as opportunity offers, continue investigations into the holding of land under native custom; the results of such investigations are recorded for use in connection with future acquisitions or conversions of title.

The legislation and administrative steps necessary to put the remainder of this policy into effect are well advanced.

At 30 June 1972, the distribution of alienated land in Papua New Guinea according to tenure was as follows.

Held by private non-indigenous inhabitants—freehold land, 535,071 acres; leasehold land, 1,005,702 acres; land tenure conversion (freehold), 9,255 acres;

Native reserves, 94,033 acres;

Other Administration land including land reserved for public purposes, 3,797,240 acres.

Primary industries

General

The products of Papua New Guinea are obtained principally from its agricultural, forestry, mining, and fishing industries. Indigenous subsistence agriculture, fishing and hunting produce most of the food requirements of the indigenous population. The main indigenous agricultural products are taro, yams, sweet potatoes, bananas, and pawpaws. Peanuts are becoming of increasing importance in the indigenous diet. Non-indigenous enterprise produces most of the commodities exported. Indigenous in recent years have taken up the production of introduced crops such as peanuts, rice, cucurbits, and maize for their own consumption and produce copra, coffee, cocoa, tea, passion-fruit, pyrethrum and palm oil for export.

The principal agricultural products for the export trade are copra and coconut oil, cocoa, coffee and rubber, but exports of timber and timber products are substantial and the export of tea and palm oil is increasing.

Non-indigenous crop production

In 1969-70 there were 1,241 holdings in use by non-indigenous persons, 333 being in Papua and 908 in New Guinea. The total area of these holdings was 1,012,706 acres, 260,163 in Papua and 752,543 in New Guinea. The following tables summarise the information available for principal activities.

PAPUA NEW GUINEA: NUMBER OF HOLDINGS AREA, PRODUCTION AND NEW PLANTINGS, 1966 TO 1970

(Source: *Rural Industries Bulletin*, 1969-70, Papua New Guinea Bureau of Statistics)

Year ended 30 June—	Holdings	Area under crop(a)	Trees(a)	Production	New plantings	
					Area	Trees(b)
		acres	'000	tons	acres	'000
Coconuts—						
1966(c)	667	264,391	12,006	90,209	5,512	377
1967(c)	683	269,127	12,704	81,159	5,208	460
1968	681	270,176	12,809	86,736	4,902	586
1969	685	271,623	12,972	89,115	4,062	382
1970	678	271,831	12,854	84,482	3,755	304
Cacao—						
1966(c)	439	122,226	20,696	14,427	8,354	1,870
1967(c)	447	126,147	21,830	15,059	4,981	1,366
1968	447	129,706	21,400	18,092	5,446	1,749
1969	443	133,235	22,180	18,134	5,095	1,690
1970	441	132,003	21,714	16,748	3,830	1,330
Coffee—						
1966(c)	257	13,415	8,779	3,874	1,323	1,254
1967(c)	248	14,365	9,912	4,492	1,090	1,212
1968	249	14,817	10,004	4,705	810	937
1969	237	14,685	9,798	6,196	664	828
1970	229	15,037	10,466	6,258	801	983
Rubber—						
1966(c)	81	35,417	3,998	5,333	1,847	344
1967(c)	86	37,043	4,177	5,437	1,260	305
1968	89	35,878	4,126	5,711	484	167
1969	83	33,964	3,901	5,850	471	134
1970	79	33,958	3,810	5,191	561	122

(a) Includes mature and immature areas. (b) Includes replacements. (c) 31 March.

PAPUA NEW GUINEA: AREA UNDER PRINCIPAL CROPS AND
CROP PRODUCTION, YEAR ENDED 30 JUNE 1970(Source: *Rural Industries Bulletin*, 1969-70, Papua New Guinea Bureau of Statistics)

Crop	Recorded area in acres			Recorded production			Average yield per mature acre			
	Papua	New Guinea	Total	Unit	Papua	New Guinea	Total	Papua	New Guinea	Total
Permanent crops—										
Copra—										
Plantation	33,886	237,945	271,831	ton	9,423	75,059	84,482	0.31	0.36	0.36
Trade(a) . . . . .	..	..	..	..	265	4,100	4,365	..	..	..
Coconuts, for use as such . . . . .	..	..	..	..	26	1,415	1,441	..	..	..
Cacao—										
Plantation	8,386	123,617	132,003	..	739	16,009	16,748	0.10	0.16	0.16
Trade(a) . . . . .	..	..	..	..	33	1,160	1,193	..	..	..
Coffee—										
Plantation	857	14,180	15,037	..	47	6,211	6,258	0.09	0.54	0.52
Trade(a) . . . . .	..	..	..	..	11	1,609	1,620	..	..	..
Oil palms	30	2,680	2,710	..	(b)	(b)	(b)	(b)	(b)	(b)
Rubber	32,460	1,498	33,958	ton	5,191	..	5,191	0.20	..	0.19
Tea	510	6,150	6,660	lb (dry)	(c)	1,994,503	1,994,503	..	606.00	606.00
Grain crops—										
Maize	18	365	383	bushel	175	5,361	5,536	9.72	14.69	14.45
Rice	157	248	405	ton (paddy)	121	116	237	0.77	0.47	0.59
Sorghum	491	1,338	1,829	bushel	13,331	37,293	50,624	27.15	27.87	27.68
Crops for green fodder—										
Maize . . . . .	..	109	109	..	..	..	..	..	..	..
Sorghum	17	659	676	..	..	..	..	..	..	..
Other	105	1,029	1,134	..	..	..	..	..	..	..
Industrial crops—										
Peanuts	31	1,998	2,029	cwt (kernel)	157	7,330	7,487	5.06	3.67	3.69
Vegetable crops—										
Grown for sale—										
Beans (green)	3	17	20	cwt	40	409	449	13.33	24.06	22.45
Tomatoes	38	19	57	..	550	1,168	1,718	14.47	61.47	30.14
Potatoes, English	1	15	16	..	60	749	809	60.00	49.93	50.56
Potatoes, sweet	37	495	532	..	842	40,796	41,638	22.76	82.42	78.27
Pumpkins	35	24	59	..	932	1,600	2,532	26.63	66.67	42.92
Other	82	123	205	..	..	..	..	..	..	..
For consumption on holding—										
Potatoes, sweet	998	3,692	4,690	..	62,137	180,366	242,503	62.26	48.85	51.71
All other	481	1,135	1,616	..	..	..	..	..	..	..
All other crops	275	976	1,251	..	..	..	..	..	..	..
Total	78,898	398,312	477,210	..	..	..	..	..	..	..

(a) Production from crops purchased from Indigenous growers. (b) Not available for publication. (c) An insignificant production included in New Guinea.

Indigenous agriculture

Most of the indigenous inhabitants of Papua New Guinea are agriculturalists producing fruit and vegetables for their own consumption. The crops grown vary according to environment and altitude and include yams, taro and sweet potatoes, coconuts, bananas, papaws, maize, sugar cane, cassava, beans, peanuts, rice, cucurbits, and tobacco. Sago is the staple food in the extensive semi-inundated areas which occur along the lower valleys of the major rivers. In these areas it is cut largely from naturally occurring stands. In other parts of the country small areas of sago are grown along stream banks and in swampy patches and are regarded as a reserve in times of poor harvest. In recent years the indigenes have taken up the production of introduced crops such as peanuts, rice, cucurbits, tobacco and maize for their own consumption, and cocoa, coffee, tea, palm oil, passion fruit and pyrethrum for export. Some small-scale rubber growing is now being undertaken. In coastal areas large quantities of copra are produced. In 1969-70 estimated indigenous production was: copra, 47,276 tons; coffee, 22,425 tons; cocoa, 6,984 tons. In many localities the indigenes follow a farming system known as bush fallowing rotation, which is described in Year Book No. 48, and earlier issues.

The growing of food is done by both the men and the women. The division of work is usually clearly defined within the village itself, but this division is not necessarily the same in all areas. Generally the felling of forests is done by the men, and carrying the harvested food home to the village is done by the women. Other work, however, such as cultivating, planting and weeding may be done by either men or women according to the customs of the particular village or area.

The advancement of indigenous agriculture for local food supply and improved land use in village gardens as well as for economic production of crops for sale have a high priority in Government policy for Papua New Guinea. In recent years the Administration has intensified the programme of agriculture extension work among the indigenes. Indigenous cattle projects are increasing rapidly, and the greater part of the country's coffee crop is produced by the indigenous sector.

**PAPUA NEW GUINEA: AREA OF PRINCIPAL CROPS AND
CROP PRODUCTION, YEAR ENDED 30 JUNE(a)**

(Sources: Rural Industries Bulletin 1969-70; Papua New Guinea Bureau of Statistics and Indigenous Crop and Cattle Statistics; Department of Agriculture, Stock and Fisheries, Papua New Guinea)

	Area under crop (acres)			Quantity of production (tons)			
	Indigenous	Non-indigenous	Total	Indigenous (b)	Non-indigenous	Total	
Coconuts—							
1966	292,615	264,391	557,006	36,991	90,209	127,200	
1967	305,630	269,127	574,757	34,504	81,159	115,663	
1968	344,540	270,176	614,716	38,644	86,736	125,380	
1969	348,742	271,623	620,365	43,801	89,115	132,916	
1970	235,414	271,831	607,245	42,911	84,482	127,393	
Cocoa—							
1966	35,915	122,226	158,141	4,131	14,427	18,558	
1967	38,075	126,147	164,222	5,032	15,059	20,091	
1968	39,569	129,706	169,275	5,546	18,092	23,638	
1969	44,285	133,235	177,520	5,883	18,134	24,017	
1970	46,720	132,003	178,723	5,792	16,748	22,540	
Coffee—							
1966	41,590	13,415	55,005	6,791	3,874	10,665	
1967	46,613	14,365	60,978	10,566	4,492	15,058	
1968	47,691	14,817	62,508	9,634	4,705	14,339	
1969	49,666	14,685	64,351	14,942	6,196	21,138	
1970	53,195	15,037	68,232	20,895	6,258	27,153	
Pyrethrum—							
1966	3,224	..	3,224	252	..	252	
1967	3,815	..	3,815	551	..	551	
1968	2,867	..	2,867	457	..	457	
1969	4,104	..	4,104	398	..	398	
1970	3,275	..	3,275	500	..	500	
Rubber—							
1966	1,538	35,417	36,955	31	5,333	5,364	
1967	2,617	37,043	39,660	23	5,438	5,461	
1968	3,404	35,878	39,282	13	5,711	5,724	
1969	4,222	33,964	38,186	26	5,850	5,876	
1970	5,994	33,958	39,952	28	5,191	5,219	
Tea(c)—							
1967	256	n.a.	n.a.	..	n.a.	n.a.	
1968	359	3,746	4,105	5	68	73	
1969	522	5,270	5,792	41	340	381	
1970	646	6,660	7,306	81	890	971	

(a) Non-indigenous figures refer to year ended 31 March, for 1967 and earlier years. (b) Includes all produce acquired by purchase during the year from sources outside the non-indigenous holdings. Excludes amount consumed by growers. (c) No data available for 1966.

Livestock

Total cattle on non-indigenous holdings at June 1970 was 67,552. Indigenous involvement in the cattle industry is being encouraged. An estimated 8,862 head of cattle were owned by indigenes in 1970. Dairy farming is carried out on a small scale near major towns.

A number of British breeds of cattle are represented, but for best results the use of Zebu cross-bred types of cattle is desirable. For dairying the Jersey seems to be the best breed and adapts quite well to tropical conditions.

A central abattoir controlled by the Administration has been set up at Lae and Administration slaughterhouses at Port Moresby, Goroka and Mount Hagen. There are smaller private slaughterhouses at other centres.

The following table shows the numbers of the various kinds of livestock on non-indigenously occupied holdings in Papua New Guinea at 30 June 1970.

PAPUA NEW GUINEA: LIVESTOCK NUMBERS, 30 JUNE 1970

(Source: *Rural Industries Bulletin*, 1969-70, Papua New Guinea Bureau of Statistics)

<i>Kind of stock</i>	<i>Papua</i>	<i>New Guinea</i>	<i>Total</i>
Horses	353	622	975
Cattle—			
For dairying—			
Cows—in milk	370	1,135	1,505
dry	393	914	1,307
Heifers, one year and over	253	587	840
Heifer calves, under one year	236	648	884
Bulls, one year and over	53	136	189
Bulls, under one year	45	164	209
Total dairying cattle	1,350	3,584	4,934
For beef—			
Cows and heifers, one year and over	6,669	27,630	34,399
Calves, under one year	1,349	5,956	7,305
Bulls, one year and over	587	1,452	2,039
Bulls, under one year	328	572	900
Other, one year and over	3,041	15,034	18,075
Total beef cattle	11,974	50,644	62,618
Total all cattle	13,324	54,228	67,552
Sheep	35	237	272
Pigs—			
Boars	89	263	352
Breeding sows	413	1,032	1,445
Suckers, weaners, and slips	1,366	2,792	4,158
Other	58	673	731
Total pigs	1,926	4,760	6,686
Goats	710	552	1,262
Poultry(a)—			
Fowls	(a)	(a)	193,811
Ducks	2,401	1,422	3,823
Turkeys	49	236	285
Geese	62	43	105
Total poultry	(a)	(a)	198,024

(a) Only recorded where poultry products are marketed or flocks exceed 100 birds.

Survey of indigenous agriculture and ancillary surveys, 1961-62

A survey of the agriculture of indigenes of Papua New Guinea was carried out in 1961-62 by the Papua New Guinea Bureau of Statistics in conjunction with the Commonwealth Bureau of Census and Statistics and the Papua New Guinea Department of Agriculture, Stock and Fisheries. A comprehensive report on the surveys was published by the Papua New Guinea Statistician in 1963, and reference should be made to this for further information. A summary of the principal results of the survey appears on pages 1104-10 of Year Book No. 52. Statistics of indigenous cash crop and cattle projects are compiled annually by the Administration's Department of Agriculture, Stock and Fisheries.

Forestry

Many species of tropical timbers are found in Papua New Guinea, and there is a large pure stand of *Klinkii* pine in the Bulolo Valley. This timber is used mainly for the production of plywood and veneer. The Papua New Guinean forests produce all local timber requirements as well as exports of logs, sawn timber, plywood and veneer. The administration operates a forestry school at Bulolo to train forestry officers, and has established a research centre for forest products at Hohola near Port Moresby as well as regional silvicultural stations and a large herbarium at Lae.

The Administration is making available for public application a number of extensive timber areas estimated to contain a total of about 14,000 million super feet of logs and possibly twice this quantity of pulpwood. It is intended that those areas should form the basis for the development of integrated forest industries, which would be large and economically viable. Feasibility studies have been undertaken by consultants and some interested firms. Subject to negotiation the areas will be allocated on long-term permits. The Administration has acquired from the indigenous peoples timber rights over 4.9 million acres of forest for industrial development. Reforestation of permanently dedicated land is being undertaken by the administration, the area planted to date being 25,423 acres.

At 30 June 1971, 69 permits and 59 licences were current, the total area of forest involved being 851,560 acres. The total number of sawmills was 60 and the total sawn timber produced during 1970-71 was 44.6 million super feet. Total log production was 295 million super feet (true volume) of which 140.7 million was exported.

Fisheries

Over 1,400 different species of fish are to be found in the coastal and inland waters of Papua New Guinea and many are important food fish. Those of greatest commercial significance are tunas (mainly skipjack), prawns, barramundi, and tropical lobster. Efforts are being made to encourage indigenous fishermen to regard fishing as a source of cash income and not merely as a means of subsistence. This involves the Administration in research and extension work and requires the improvement of refrigeration, transportation and marketing facilities throughout the country. In the Highlands there is increasing interest in fish culture in freshwater ponds.

Commercial fishing for prawns by joint venture companies is increasing and considerable expansion is likely in the tuna fishery, in which three Japanese and one United States of America joint venture companies are at present engaged.

In 1970-71 the main exports of marine produce from Papua New Guinea were 19,802,000 lb of tuna and 811,630 lb of frozen crayfish tails and prawns valued respectively at \$1,317,000 and \$876,000. Exports of cultured pearls amounted to \$867,000. Other important exports are crocodile skins, marine shell and barramundi.

Mining

A large number of minerals have been found in Papua New Guinea, including platinum, gold, silver, copper, tin, lead, zinc, cinnabar, iron, osmiridium, manganese, sulphur, chromite, gypsum, lignite and brown coal.

A large low grade copper deposit with ore reserves of 900 million tons of ore containing 0.48 per cent copper and 0.36 dwt per ton gold has been developed by Bougainville Copper Pty Ltd, a partly owned subsidiary of Conzinc Rio Tinto Australia Ltd, with a 20 per cent shareholding by the Administration. Production began in 1972 and ore is expected to be mined at the rate of 30 million tons per annum to produce concentrates containing some 150,000 tons of copper, 500,000 oz of gold and 1,000,000 oz of silver for export.

Before the 1939-45 War, gold was an important item in Papuan production, but it has since dwindled to insignificance. Large quantities of copper ore were mined and exported up to 1940. A large low grade copper ore body is being considered for development in the Star Mountains, near the West Irian border. Extensive deposits of magnetite sands exist along the Gulf of Papua coastline, but these contain the undesirable impurity titanium, and ways of separating this from magnetite are under investigation. The production of gold in New Guinea decreased from \$1,414,238 in 1959-60 to \$792,290 in 1971-72, but will increase greatly in 1972-73.

The laws in operation governing mining are the *Mining Ordinance* 1928-1966, the *Mines and Works Regulation Ordinance* 1935-1962 and the *Mining Development Ordinance* 1955-1960 and the regulations made thereunder.

Indications of oil have been found at scattered locations over a large area, but commercial quantities have not been discovered. Natural gas has been found in several wells in the Gulf District (including offshore), but its commercial use is not yet economically feasible.

At 30 June 1972, 36 permits and licences were effective under the provision of the *Petroleum (Prospecting and Mining) Ordinance* 1951-1968 and the (*Commonwealth*) *Petroleum (Submerged Lands) Act* 1967-1968.

Secondary industries

The major manufacturing industries are generally those processing primary products, mainly for exports. Examples of these are plywood, coconut oil, copra by-products, desiccated coconut and pyrethrum.

Nevertheless industries catering for the rapidly expanding local market remain numerically predominant. These include the brewing of beer, furniture making and assembly of electrical appliances; the production of cigarettes and twist tobacco, aerated waters, clothing, plastic articles, concrete products, glass bottles, drums, industrial gases, chemicals, fibreglass products, nails and other wire products, packaging and paper products, paints, metal louvre frames, wood preservative, metal roofing, water heaters, cast-iron stoves and other building materials, tyre repairs, fire protection equipment, agricultural machinery, matches, printing and ship-building.

A wide variety of services has also been established such as engineering workshops, plumbing establishments, motor repairs and electrical services.

PAPUA NEW GUINEA: SUMMARY OF FACTORY OPERATIONS 1968-69 AND 1969-70

(Source: *Secondary Industries Bulletin* 1969-70, Papua New Guinea Bureau of Statistics)

	Papua		New Guinea		Total	
	1968-69	1969-70	1968-69	1969-70	1968-69	1969-70
Number of factories(a)	203	234	406	435	609	669
Average number employed(b)	4,261	4,658	9,026	9,181	13,287	13,839
Salaries and wages paid(c)	5,218	5,847	8,798	10,143	14,016	15,990
Value of power, fuel, light, etc., used(d)	484	531	1,322	1,532	1,806	2,053
Value of materials used(e)	9,148	10,997	29,234	33,254	38,382	44,251
Value of production(f)	11,937	14,093	23,106	25,346	35,043	34,939
Value of output(g)	21,569	25,621	53,661	60,623	75,231	86,244
Value of land and buildings(h)	7,960	9,667	11,891	13,188	19,852	22,855
Value of plant and machinery(h)	13,391	13,418	10,814	12,120	24,206	25,538

(a) Any factory, workshop or mill in which four or more persons are employed or power other than hand is used.
 (b) Average weekly employment including working proprietors. (c) Excludes drawings by working proprietors.
 (d) Includes water and lubricating oil. (e) Includes value of containers, packing, etc., tools replaced, and repairs to plant.
 (f) Value added in process of manufacture (i.e. value of output less value of materials and power, fuel, etc. used).
 (g) Value of goods produced including amounts received for repair work and other work done. (h) Depreciated or book value at end of year, including estimated value of rented premises and machinery.

PAPUA NEW GUINEA: FACTORY OPERATIONS BY CLASS OF INDUSTRY, 1969-70

(Source: *Secondary Industries Bulletin* 1969-70, Papua New Guinea Bureau of Statistics)

	Class of industry					Total
	Industrial metals machines and conveyances	Food, drink and tobacco	Sawmills, plywood and joinery	Other industries		
Number of factories	328	100	153	88		669
Number of employees—						
Non-indigenous	n.a.	n.a.	n.a.	n.a.		2,464
Indigenous	n.a.	n.a.	n.a.	n.a.		11,375
Total employees	4,858	3,304	3,958	1,719		13,839
Salaries and wages paid	8,540	2,217	3,111	2,122		15,900
Value of power, fuel and light, etc.	386	625	346	670		2,053
Value of materials used	12,018	15,032	6,976	10,255		44,251
Value of production	14,919	9,315	8,104	7,600		34,939
Value of output	27,323	24,972	15,426	18,522		86,244

See footnotes to previous table.

NOTE. Electricity generation is included in 'Other industries'.

Electric power generation and distribution

Electric power generation and distribution

Papua and New Guinea Electricity Commission. Responsibility for the operation and establishment of the electrical undertakings in Papua New Guinea is vested in the Papua New Guinea Electricity Commission, whose headquarters are located at Port Moresby. The Papua and New Guinea Electricity Commission was established by the *Papua and New Guinea Electricity Commission Ordinance* 1961-1969, and on 1 July 1963 acquired the assets of the Electrical undertakings Branch of the Department of Public Works. In Papua New Guinea, the Commission owns and operates major stations at Port Moresby, Lae, Rabaul, Madang, Wewak, Goroka, Kavieng and Samarai. It also maintains, operates and carries out administrative functions at Mount Hagen, Kundiawa and Kainantu and will carry out similar work in several of the faster growing 'minor' centres in the near future. In addition, it has also regulatory functions associated with the licensing of electricians and contractors, the control of franchise holders, the approval of appliances and electrical materials for use in the Territory, and operates showrooms at major centres for the purpose of selling electrical appliances.

Generating facilities. Except for Port Moresby and Goroka, where the Commission owns and operates hydro-electric generating facilities, supply is from diesel stations. In Lae, the Commission purchases power in bulk from Placer Development at Bulolo where there are privately-owned hydro stations. The installed capacity of plant in the Commission-owned centres at 1 April 1972 was as follows.

<i>Centre</i>	<i>kW</i>
Port Moresby	(a)35,500
Lae	(b)9,840
Rabaul	5,360
Madang	5,120
Goroka	(c)2,786
Wewak	2,300
Kavieng	450
Samarai	440
Total	61,796

(a) All hydro. (b) Lae supply is supplemented by power purchased in bulk from Placer Development at Bulolo. (c) Includes 600 kW hydro.

The total substation capacity of all the Commission systems combined amounts to approximately 99,985 kVA divided up among 639 stations. The number of consumers served by the Commission at 1 April 1972 was 20,496.

The Commission also maintains the generating plant and distribution systems in all minor centres acting as an agent of, and from funds provided by, the Administration. The installed capacity of the 135 Administration-owned power stations at 1 April 1972 was 8,900 kW. The township of Wau and Bulolo are supplied exclusively with power generated by Placer Development Ltd.

The demand for power throughout Papua New Guinea continues to increase. In Port Moresby, contracts have been let for the construction of Rouna No. 3 station to be built alongside the existing Rouna No. 1 Station. The new station will contain two 6 MW sets and will boost the city's available power capacity to 47.5 MW. Preliminary plans have also been drawn up for a Rouna No. 4 station, again of 12 MW, to be constructed further down-stream from Rouna Nos. 1 and 3. In Lae, Madang and Goroka new diesel sets were installed during the present financial year, and at Goroka a small hydro set was recently installed and is currently undergoing acceptance tests.

Contracts have been let for the design and manufacture of three 15 MW hydro-electric sets for the Upper Ramu Hydro-electric Scheme and for two 6 MW sets for Rouna No. 3 station in Port Moresby.

Orders have been placed for the following diesel generating sets.

Lae—two 3200 kW Fuji sets.

Madang—a second 1500 kW Niigata set.

Goroka—three 600 kW sets.

Kerevat—two 600 kW sets will be installed in the Power Station. This station will be taken over by the Commission in October 1972.

Future development. The development of the first stage of the Upper Ramu Hydro-electric Scheme will consist of an underground power station containing three 15 MW generators and is expected to be in operation by July 1975. It will supply the towns of Lae, Madang, Goroka, Mount Hagen and small centres of the Eastern Highlands. Investigations will shortly commence for the construction of Yonki Dam and Ramu Stage 2, which includes the installation of two 15 MW generators. The estimated total cost of the project including the installation of 320 miles of transmission lines is \$48.6 million.

The Commission is proceeding with the design of Rouna No. 3 station on the Laloki River alongside Rouna No. 1 station and construction will commence in late 1972. The station will contain two 6 MW sets and it is planned to begin operation in July 1974.

The Commission is also investigating other power developments for Port Moresby. These include Rouna No. 4 power station of 12 MW, Musa River Hydro-electric Scheme of about 400 MW which will become part of an interconnection system with the Upper Ramu Scheme, a diesel station at Baruni near Port Moresby, and Sogeri Pond on the Laloki River.

In Rabaul the power station which was to have been constructed at Kabaira Bay has been unavoidably delayed because of native land problems and it will be reviewed in 1973. The installation of two additional 600 kW sets at Kerevat Power Station and the construction of a transmission line between Kerevat and Rabaul will supplement the town's supply.

Trade, transport and communication

Value of imports and exports

PAPUA NEW GUINEA: IMPORTS AND EXPORTS, 1966-67 TO 1970-71

(\$A'000)

(Source: Overseas Trade Statistics, Papua New Guinea Bureau of Statistics)

	1966-67	1967-68	1968-69	1969-70	1970-71
Total imports(a)	127,379	(b)145,303	150,455	213,051	254,599
Exports—					
Domestic exports	46,113	59,089	64,896	71,443	77,447
Re-exports	7,107	11,161	10,348	22,117	24,485
Total exports	53,220	70,250	75,244	93,560	101,932

(a) Includes value of outside packages. (b) Includes floating oil rig valued at \$8 million, re-exported in July 1969.

Country of origin or destination

PAPUA NEW GUINEA: COUNTRY OF ORIGIN OF IMPORTS, 1966-67 TO 1970-71

(\$A'000 f.o.b. port of shipment)

(Source: Overseas Trade Statistics, Papua New Guinea Bureau of Statistics)

Country of origin	1966-67	1967-68	1968-69	1969-70	1970-71
Australia	71,160	78,108	82,165	114,332	130,395
Canada	736	852	1,162	3,012	2,066
Ceylon	320	366	341	342	329
China (mainland)	2,257	1,715	2,758	2,254	2,201
France	573	825	1,402	1,668	1,031
Germany, Federal Republic of	2,687	2,739	3,448	3,933	3,893
Hong Kong	4,306	4,583	4,760	5,654	7,542
Italy	363	1,449	746	1,122	895
Japan	13,073	14,448	17,849	26,393	42,650
Malaysia and Singapore	3,471	3,874	4,357	5,692	6,685
Netherlands	4,468	880	913	2,046	2,795
New Zealand	249	77	841	2,618	2,727
Sweden	455	480	610	613	640
United Kingdom	7,141	7,213	8,574	12,347	9,823
United States of America	7,804	(a)19,613	11,589	22,556	29,585
Other countries	8,314	8,081	8,940	8,469	10,342
Total	127,379	145,304	150,455	213,051	254,599

(a) Includes floating oil rig valued at \$8 million.

PAPUA NEW GUINEA: COUNTRY OF DESTINATION OF EXPORTS, 1966-67 TO 1970-71
 (\$A'000 f.o.b. port of shipment)

(Source: Overseas Trade Statistics, Papua New Guinea Bureau of Statistics)

<i>Country of destination</i>	<i>1966-67</i>	<i>1967-68</i>	<i>1968-69</i>	<i>1969-70</i>	<i>1970-71</i>
Australia	24,857	29,288	29,548	41,295	43,373
Germany, Federal Republic of	3,030	4,656	8,403	7,549	5,377
Japan	2,794	4,652	3,732	8,560	11,813
Netherlands	1,192	2,194	3,869	4,303	2,066
United Kingdom	14,543	20,279	18,769	15,394	19,567
United States of America	3,311	5,403	5,662	11,076	13,337
Other countries	3,493	3,778	5,261	5,383	6,399
Total	53,220	70,250	75,244	93,560	101,932

Principal commodities exported

PAPUA NEW GUINEA: PRINCIPAL DOMESTIC EXPORTS, 1966-67 TO 1970-71
 (\$A'000 f.o.b. port of shipment)

(Source: Overseas Trade Statistics, Papua New Guinea Bureau of Statistics)

<i>Commodity</i>	<i>1966-67</i>	<i>1967-68</i>	<i>1968-69</i>	<i>1969-70</i>	<i>1970-71</i>
Copra	9,994	13,943	14,804	13,340	14,209
Other coconut products(a)	5,840	7,405	6,361	7,619	9,901
Coffee beans	10,208	14,320	15,531	20,182	20,572
Cocoa beans	9,545	11,794	16,060	15,549	13,643
Timber(b)	2,264	2,662	2,296	3,796	6,401
Plywood(c)	2,167	2,429	2,504	2,529	2,505
Rubber(d)	3,481	1,956	2,276	2,798	2,297
Gold	914	825	807	824	720
Crayfish and prawns	33	978	268	659	875
Crocodile skins	737	509	473	452	264
Peanuts	521	430	469	550	518
Pyrethrum extract	390	417	313	332	286
Passionfruit juice	112	202	122	131	1
Tea	3	42	297	645	1,094
Other	904	1,177	2,315	2,037	4,161
Total	46,113	59,089	64,896	71,443	77,447

(a) Deseccated coconut, copra oil and copra pellets. (b) Logs and sawn timber. (c) Plywood, veneer and battery veneer. (d) Raw and scrap rubber.

Shipping

In 1970-71 shipping entries (excluding coastal shipping and cargoes) at Papua New Guinea ports totalled 2,019, and 1,498,000 tons of cargo were discharged and 865,000 tons were loaded. Corresponding figures for 1969-70 were 1,903, 1,289,000 and 623,000 respectively.

Regular passenger and freight services operate between Australia and Papua New Guinea. Vessels trading between Australia and the East also call at Papua New Guinea ports, and there are services from continental and United Kingdom ports. Coastal and inter-island shipping services are maintained by vessels operating from the principal ports of the country.

Other forms of transport and communication

Scheduled flights provide a network of air transport throughout Papua New Guinea and regular air services link the country with Australia and neighbouring Territories, also with Manila, Hong Kong, Honiara and Jaipura. There were 418 licensed aerodromes in the whole of Papua New Guinea at 30 June 1971, and of these 12 were the responsibility of the Department of Civil Aviation, 136 are Administration owned commercial airfields, 81 are privately (i.e. not Administration) owned commercial airfields and 189 are restricted airfields either Administration or privately owned. Much of the internal traffic and freight is carried on a charter basis.

At January 1972 there were 10,117 miles of roads in the country. Total motor vehicle registrations (excluding defence force vehicles) at 31 December 1971 were 38,163.

Telephone services operate between the main centres by radio telephone. These together with telex and telegraph services are operated within the country by the Department of Posts and Telegraphs, while overseas traffic is handled by the Overseas Telecommunications Commission. The Australian Broadcasting Commission broadcasts on medium wave and short wave from Port Moresby and Rabaul. The Administration Department of Information and Extension Services operates transmitters at a number of centres, broadcasting programmes in several local languages.

Indigenous labour

At 30 June 1970 there were approximately 305,000 Papua New Guineans wholly or mainly engaged in the money-raising work force, of whom 177,945 were wage and salary earners.

Minimum wages and conditions of employment for Papua New Guinean workers are prescribed by statute under the *Native Employment Ordinance* 1958-1971, and the *Public Service (Papua and New Guinea) Ordinance* 1964-1971, and are determined by the Minimum Wages Board under the *Industrial Relations (Minimum Wages Board) Ordinance* 1971. Conditions of employment and wage rates are also prescribed by awards negotiated by agreement between organisations of employers and employees and by determinations of arbitral tribunals established under the *Industrial Relations Ordinance* 1962-1971 and the *Public Services Conciliation and Arbitration Ordinance* 1969-1970.

The minimum statutory wage for an unskilled worker is \$5.90 a week. Where a worker is provided with accommodation, food, clothing and other issues, deductions may be made from the cash wage by agreement between employer and employee up to legally prescribed limits. The maximum permissible deductions for accommodation and food are 87 cents and \$2.50 a week respectively.

General employment agreements are in force in Lae, Goroka, Mount Hagen, Madang, Wewak, Vanimo, Kavieng, Rabaul, Lorengau, Daru, Popondetta, Samarai-Alotau-Bwagaioia and Port Moresby. These agreements apply to all workers employed by members of the Employers' Federation regardless of whether or not they are members of a Workers' Organisation (other than those employees directly engaged in primary production, domestic duties, stevedoring operations or in shipping services). In many of the above centres or localities the agreements are applied to all workers engaged not only by members of the Employers' Federation but also by employers who are not members of the Federation due to common rules being declared. The agreements cover annual and sick leave entitlements and rates of pay and conditions of employment for workers in those areas. In all cases the agreements are negotiated between the Employers' Federation of Papua New Guinea and the local workers' association or union.

In addition to agreements applying to workers in particular localities there are also awards which apply to workers in particular industries, e.g. stevedoring, timber, building and construction and mining.

The minimum wage rates for adult unskilled workers in industries and locations covered by awards and agreements range between \$6.50 and \$8.00 a week. Margins for skill are prescribed for semi-skilled and skilled workers ranging up to about \$30 a week.

The *Industrial Organizations Ordinance* 1962-1970 provides for the registration and control of industrial organisations. At 30 June 1972 there were thirty-six registered employees' organisations in Papua New Guinea with a total membership of 30,478 workers, including 25,825 Papua New Guineans. Nine of the above employee organisations have joined together to form the Federation of Workers' Associations of Papua New Guinea which was registered on 4 March 1970. There was one employers' organisation registered under the *Industrial Organizations Ordinance*.

The Bureau of Industrial Organisations was established under Statute on 23 March 1972 and the board of management held its inaugural meeting on 29 May 1972. The functions of the Bureau are to encourage and assist the formation and development of industrial organisations of employers and employees.

The Papua New Guinea Labour Advisory Council advises the Administrator's Executive Council and the Government on labour matters generally, and in particular on:

- methods of improving industrial relations,
- measures needed to achieve full and efficient use of the country's manpower,
- methods of bringing about rapid localisation of the work force in the private sector and incentives and other measures to achieve this end,
- measures to improve productivity, and
- trade union development.

By December 1971, 1,137 Papua New Guinean apprentices had completed their training. There were 1,514 indigenous apprentices indentured under the Apprenticeship Ordinance training in thirty-six trades. The public sector was responsible for 807 indentures and the private sector for 707. At the same date 52 non-indigenous apprentices were indentured. Outputs of qualified artisans from the apprenticeship scheme have increased from 137 in 1969 to 326 for the year ending 30 June 1971.

Housing

Village housing is constructed to traditional patterns using local materials including bush timber, bamboo, grass, pit-pit and sago palm leaves. Town housing is generally constructed from comparatively expensive imported material including fibrous asbestos cement, aluminium and galvanised iron. The majority of houses are timber framed and made from both locally milled and imported timber.

The rapid growth of urban areas consequent upon increased economic development has created a housing shortage. Major programmes are directed towards reducing this shortage.

The Housing Commission was established in 1968, with charter to construct housing and accommodation for all sections of the community. The intention is for the Commission to progressively assume responsibility for all Administration houses in its areas of operation. The Commission currently operates in Port Moresby, Lae, Madang, Rabaul and Goroka.

The major urban centres in Papua New Guinea have squatter settlement problems. Squatter houses are mostly of the substandard shanty type. The Administration and the Housing Commission are assisting squatters with self-help housing schemes in both existing squatter settlements and new resettlement areas by providing housing allotments, supervisory staff, building materials at cost price, and basic services. Self-help housing schemes are to be expanded significantly over the next five years, particularly in the major urban centres.

Education and health

Education

Schools in Papua New Guinea are conducted by the Administration and various Christian missions. In February 1970 the Australian Government adopted the recommendations of the Advisory Committee on Education in Papua New Guinea, and the House of Assembly subsequently passed the *Education (Papua New Guinea) Ordinance, 1970* and the *Teaching Service (Temporary Provisions) Ordinance 1970*. The new legislation provided for the voluntary merger as from 1 July 1970 of mission schools and colleges and teaching staff, with those of the Administration, into a unified National Education System and a single National Teaching Service. A representative National Education Board and a number of District Education Boards were created to advise on educational planning and administration at the national and district levels respectively. A Teaching Service Commission was also created to employ teachers and to determine their salaries and conditions of service.

At 30 June 1971 there were 216,528 children enrolled in 1,503 primary schools in the Papua New Guinea national education system; and a further 24,404 enrolled in 135 secondary technical and vocational schools. Some 6,000 of the 8,000 teachers employed in schools were Papua New Guineans. Teachers are recruited from Australia and overseas and some are trained at the Canberra College of Advanced Education, and in 11 teachers' colleges in Papua New Guinea conducted by the missions and the Administration.

At the post-secondary and tertiary level of education, as well as the University of Papua New Guinea and the Institute of Technology, there are a range of specialised institutions operated by Administration and Commonwealth Departments, including technical and teachers' colleges. Vudal Agricultural College, Bulolo Forestry School, a police training college, a dental college and others. The University of Papua New Guinea has faculties of Arts, Law, Science, Education and Medicine. In 1971 there were 1,032 students enrolled in degree and post graduate courses, of whom 578 were Papua New Guineans. At May 1972, 99 students had graduated from the University, of whom 50 were Papua New Guineans. The Papua New Guinea Institute of Technology conducts diploma courses in civil, electrical and mechanical engineering, surveying, architecture and building technology, accountancy and business studies and in 1971 there were 326 enrolments of whom approximately 10 were expatriates. At May 1972 twenty-two students had graduated, of whom all but one were Papua New Guineans.

School of Pacific Administration. In November 1971, the Commonwealth Government decided that the Australian School of Pacific Administration at Mosman, Sydney, would be developed as an important centre for training Papua New Guineans.

In its new role, the School is supplementing training and undertaking specially structured training which cannot be better or more conveniently provided in Papua New Guinea or elsewhere in Australia. The School is concentrating on administrative and specialised training to prepare Papua New Guinean Public Servants.

The School's programme provided for over 150 Papua New Guineans to attend courses during 1972. Of this number, 90 have undertaken vocationally oriented courses of 8 months duration to upgrade their qualifications for advancement within the Papua New Guinea Public Service. The balance of trainees undertook shorter courses in advanced administrative and executive development training, industrial relations and local government practice.

Health

The Department of Public Health of Papua New Guinea has the general oversight of all medical and dental services. The Department has the following seven functional divisions: medical services, preventive medicine, medical training, maternal and child health, dental education, administrative services, and mental health. To facilitate administration and co-ordination of the field services of the Department of Public Health, Papua New Guinea is divided into four geographical regions: the New Guinea Mainland, Highlands, New Guinea Islands Region and Papua.

Finance

Revenue and expenditure

PAPUA NEW GUINEA: REVENUE AND EXPENDITURE, 1967-68 TO 1971-72 (\$'000)

	1967-68	1968-69	1969-70	1970-71	1971-72
REVENUE					
Customs	16,555	17,669	23,951	30,960	33,135
Licences	738	814	907	1,038	1,440
Stamp duties	508	553	870	683	964
Postal	3,543	4,682	5,289	(a)	(a)
Land revenue	748	832	1,102	1,098	1,200
Mining receipts	47	72	116	241	153
Fees and fines	283	364	459	567	647
Health revenue	317	352	464	676	725
Forests	640	547	684	923	938
Agriculture	1,087	1,015	1,011	1,021	1,053
Public utilities	905	1,173	1,273	1,653	1,791
Direct taxation	15,904	17,187	21,075	29,375	36,117
Miscellaneous	5,397	4,614	5,381	5,653	6,708
Recoverable services	3,229	5,264	9,862	9,478	10,382
<i>Total internal revenue</i>	<i>49,900</i>	<i>(b)55,137</i>	<i>(b)72,442</i>	<i>(b)83,366</i>	<i>(b)95,253</i>
Papua New Guinea loans	8,397	7,183	(c)6,736	(c)11,986	25,540
Grant by Commonwealth of Australia	77,594	87,271	97,271	(d)70,000	(d)69,875
International loans . . . . .	..	51	1,384	2,620	8,131
Commonwealth loans . . . . .	..	..	5,000	6,600	11,700
Special Loan—Purchase of Equity in Bougainville Copper Ltd . . . . .	..	..	12,500	12,500	..
Consolidated revenue . . . . .	..	..	344	203	..
Total revenue	135,892	149,642	195,677	187,275	210,499

For footnotes see end of table next page.

PAPUA NEW GUINEA: REVENUE AND EXPENDITURE, 1967-68 TO 1971-72—*continued*
(\$'000)

	1967-68	1968-69	1969-70	1970-71	1971-72
EXPENDITURE					
Special appropriations	2,785	5,734	(c)5,567	(c)9,694	13,943
Administrator	1,329	1,327	9,278	6,491	8,056
House of Assembly	420	291	383	409	377
Information and extension services	1,001	1,187	1,239	1,171	1,600
Public Service Board	1,270	1,550	1,838	1,155	1,367
Treasury	11,576	11,623	3,313	4,928	3,948
Public health	11,124	12,217	14,255	13,231	14,491
Social development and home affairs(e) . . . . .	..	..	6,953	5,297	6,911
District administration(f)	6,012	6,570	..	..	..
Labour	632	778	957	741	880
Education	15,062	17,214	21,204	17,939	20,758
Agriculture, stock and fisheries	6,427	7,492	8,751	7,209	7,983
Royal Papua New Guinea Constabulary	6,143	6,671	7,965	7,689	7,908
Law	2,545	2,930	4,009	3,705	4,556
Lands, surveys and mines	3,177	3,270	5,321	4,780	4,398
Forests	2,369	2,469	2,677	2,082	2,367
Posts and telegraphs	4,750	5,688	7,661	6,774	6,519
Trade and industry	2,607	2,826	3,243	817	647
Transport(g) . . . . .	..	..	..	2,504	2,984
Business development(h) . . . . .	..	..	..	377	865
Stores for resale	1,474	1,625	5,677	5,368	6,410
Public works	5,740	7,115	8,105	5,564	5,677
General overheads	2,291	2,241	2,745	2,540	2,817
Maintenance	10,581	12,217	14,046	15,698	17,040
Capital works	22,503	21,379	28,215	29,675	40,000
Other institutions	8,623	11,498	15,474	15,022	23,046
Motor transport	2,792	3,214	3,555	3,482	3,659
Government printer	312	361	446	417	538
Purchase of investments—Bougainville Copper Ltd . . . . .	..	..	12,500	12,500	..
Total(i)	133,547	149,485	195,377	187,259	209,745

(a) Postal Revenue is retained by the Department of Posts and Telegraphs in accordance with the change to commercial accounting for that Department. (b) From 1 July 1968 refunds of revenue have been deducted from gross collections by items. (c) The Budget figure for Papua New Guinea Loans and Special Appropriations is reduced by \$8.9 million in 1969-70 and by \$3.6 million in 1970-71 as these amounts were incurred and repaid during each of those years; the Budget shows these additional amounts for book-keeping purposes. (d) In addition, amounts of \$31.5 million and \$38.5 million were provided in 1970-71 and 1971-72 respectively by the Commonwealth towards the cost of allowances and salaries of expatriate officers of the Papua New Guinea Public Service, and these amounts are not included in the Papua New Guinea Budget. (e) New department established 1969-70; includes former sections of the Department of the Administrator, Department of the Treasury and the former Department of District Administration. (f) Abolished in 1969-70—functions taken over by the Department of the Administrator and the Department of Social Development and Home Affairs. (g) New Department established in 1971 from former sections of Departments of the Administrator, Treasury and Trade and Industry. (h) New Department established in 1970-71 which includes former sections of Department of Trade and Industry. (i) Amount reduced by taxation refunds and refunds of revenue.

Taxation

The main forms of taxation are income tax and import duties. *Income Tax* was imposed on 1 August 1959 to operate from 1 July 1959. In the case of individuals two different methods of calculating tax payable are used. Tax on taxable incomes has applied since 1 July 1959 and is calculated on a similar basis to that in Australia. Income Tax is about two thirds of the tax payable on the same taxable income in Australia. Tax on chargeable income was introduced to apply from 1 January 1967 and has supplanted a previous *Personal Tax* of \$4 payable by all males eighteen years and over. Chargeable income consists of gross income less expenses directly incurred in earning the income. No deductions are allowable for dependants or any other private expenditure such as medical or education expenses. The tax is a flat rate of 2.00 cents in the \$1 applying on income above \$416 with a maximum of \$20.00. The two methods of calculating tax payable are supplementary, the method applied to any particular taxpayer being the one resulting in the greater amount of tax payable. Companies are taxed on a similar basis to that in Australia, and deductions allowable are generally comparable to those in Australia. From 1 July 1959 to 30 June 1967 the rates on public and private companies differed, public companies being taxed at a flat rate of 20 cents in the \$1 and private companies at 12.5 cents in the \$1 for the first \$10,000 and 17.5 cents in the \$1 for the remainder. From 1 July 1971 a flat rate of 25 cents in the \$1 applies to all companies, and from the same date

private companies are no longer required to distribute a portion of their income in dividends each year. To encourage industry in Papua New Guinea certain companies manufacturing products new to Papua New Guinea may be granted complete tax exemption for the first five years of operation under the *Industrial Development (Incentive to Pioneer Industries) Ordinance 1965-1969*. In addition to income taxes the Native Local Government Councils (which are formed voluntarily by the indigenes) are empowered to levy local taxes for the purpose of providing for local services carried out by the councils. These taxes are set off against the taxpayers' personal taxation.

Papua New Guinea has a single column tariff applying to all goods regardless of country of origin. The present *Customs Tariff* provides high revenue rates on imports of ale, spirits, tobacco and cigarettes, timepieces, cigarette papers, fancy goods, and jewellery, but allows entry duty free or at a low rate of duty on most necessities affecting living and building costs. Under the Customs Tariff, plant, machinery and chemicals to be used mainly for industrial and developmental purposes are generally duty-free. A by-law covers goods imported by passengers. No preferential rates are specified in the schedule. Export duties imposed on copra, cocoa, rubber, mother-of-pearl, trochus and burgos shell, and gold were repealed in July 1959.

Provision is made in the *Australian Customs Tariff* for the free entry into Australia of certain goods produced in and imported direct from Papua New Guinea (see Chapter Overseas Transactions). In addition, goods produced or manufactured in Papua New Guinea and imported directly into Australia are exempted from primage duty.

Effective from 2 September 1970, a general levy of 2½ per cent was imposed, subject to certain exemptions on all goods imported into Papua New Guinea. Exemptions apply in the main to goods imported by the Administration and/or the Australian Government and their statutory authorities, goods imported for the use of charitable organisations and goods used for educational, health or medical services or for scientific research.

This levy, although administered by the Comptroller of Customs is not a Customs Duty and does not affect rates of duty imposed under the Customs Tariff.

Banking

The banking system in Papua New Guinea is based on Australia's, and provides full trading and savings bank facilities. Four Australian trading banks have branches in the main centres. They are: the Commonwealth Trading Bank of Australia, the Bank of New South Wales, Australia and New Zealand Banking Group and the National Bank of Australasia Ltd. Affiliates or subsidiaries of banking institutions operate savings banks in the Territory. Rates of interest for bank deposits and advances are the same as those applying in Australia. A branch of the Reserve Bank of Australia in Port Moresby carries out central bank functions and acts as banker for the Administration and Commonwealth Government Departments in the Territory. The Territory uses the same currency as Australia.

The Banking (Foreign Exchange) Regulations of the Commonwealth of Australia apply to Papua New Guinea. The Regulations are administered by the Reserve Bank of Australia in a way that is consistent with the policy of encouraging overseas investment in Australia and Papua New Guinea. All remittances abroad require exchange control approval, though in practice no restrictions are imposed on current transactions and the trading banks have been authorised to deal with the great majority of these transactions as agents of the Reserve Bank.

Average weekly deposits of cheque-paying banks in Papua New Guinea for the year 1970-71 were \$49,948,000 and loans, advances, including term loans and farm development loans, \$64,163,000. Average weekly debits to customers' accounts amounted to \$31,002,000. Savings banks depositors' balances at 30 June 1971 amounted to \$44,790,000, comprising indigenous \$17,508,000 and non-indigenous \$27,282,000 having increased since June 1961 from \$2,999,000 and \$9,663,000 respectively.

The Papua New Guinea Development Bank was established in 1967 to provide finance for primary production, manufacturing and commerce. In early 1972 the Papua New Guinea Investment Corporation was established to acquire equity interests in major enterprises in Papua New Guinea for disposal to Papua New Guinea institutions and individuals.

Co-operative societies

Co-operatives are under the guidance of the Department of Business Development. The present structure of the co-operative movement is based on primary societies, associations of societies, regional unions and a Territory-wide Federation formed by the unions. At 31 March 1971 there were 340 primary societies with 139,000 members. Turnover exceeded \$7 million including \$5 million from produce. In addition there are service organisations for wholesale trade, insurance and shipping. A Co-operative College is being set up near Port Moresby with United Nations Development Programme and International Labour Organisation assistance. The first buildings were opened in May 1971.

HEARD ISLAND AND McDONALD ISLANDS

These islands, about 2,500 miles south-west of Fremantle, were transferred from the United Kingdom to Australia as from 26 December 1947. The laws of the Australian Capital Territory were declared to be in force in the Territory of Heard Island and McDonald Islands by the *Heard and McDonald Islands Act* 1953. In 1968, the responsibility for the administration of this Act was transferred from the Minister for External Affairs to the Minister for Supply.

In December 1947 an Australian scientific station was established on Heard Island, and meteorological investigations were conducted until the station was closed in March 1955 following the establishment of Mawson station on the Antarctic mainland. Australian expeditions have since visited the island from time to time. Heard Island is about twenty-seven miles long and thirteen miles wide. The McDonald Islands are twenty-six miles to the west of Heard Island. They are small, rocky and precipitous. The first known landing on McDonald Island, the largest of the group of the same name, took place on 27 January 1971 when two members of the Australian National Antarctic Research Expeditions (ANARE) paid a short visit on their way to the Heard Island Station.

AUSTRALIAN ANTARCTIC TERRITORY

An Imperial Order in Council of 7 February 1933 placed under Australian authority all the islands and territories other than Terre Adélie situated south of 60° S. latitude and lying between 160° E. longitude and 45° E. longitude. The Order came into force with a Proclamation issued by the Governor-General on 24 August 1936 after the passage of the *Australian Antarctic Territory Acceptance Act* 1933. The boundaries of Terre Adélie were definitively fixed by a French Decree of 1 April 1938 as the islands and territories south of 60° S. latitude lying between 136° E. longitude and 142° E. longitude. The *Australian Antarctic Territory Act* 1954 declared that the laws in force in the Australian Capital Territory, are so far as they are applicable and are not inconsistent with any ordinance made under the Act, in force in the Australian Antarctic Territory. In 1968, responsibility for the administration of this Act was transferred from the Minister for External Affairs to the Minister for Supply.

On 13 February 1954 the Australian National Antarctic Research Expeditions (ANARE) established a station on Mac-Robertson Land at latitude 67° 36' S. and longitude 62° 53' E. The Station was named Mawson in honour of the late Sir Douglas Mawson and was the first permanent Australian station to be set up on the Antarctic continent. Meteorological and other scientific research is conducted at Mawson, which is the centre for coastal and inland survey expeditions.

A second Australian scientific research station was established on the coast of Princess Elizabeth Land on 13 January 1957 at latitude 68° 35' S. and longitude 77° 58' E. The station was named in honour of Captain John King Davis, second in command of two of Mawson's expeditions and master of several famous Antarctic ships. The station was temporarily closed on 25 January 1965 and reopened on 15 February 1969. On 4 February 1959 the Australian Government accepted from the United States Government custody of Wilkes Station, which was established by the United States on 16 January 1957 on Vincennes Bay at latitude 66° 15' S. and longitude 110° 32' E. The station was named in honour of Lieutenant Charles Wilkes who commanded the 1838-42 United States expedition to the area. The station was closed on 19 February 1969 when activities were transferred to Casey Station built about 1½ miles south of Wilkes. Casey Station, which was opened on 19 February 1969, was named in honour of Baron Casey, former Governor-General of Australia, in recognition of his long association with Australia's Antarctic effort.

On 1 December 1959 Australia signed the Antarctic Treaty with Argentina, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the U.S.S.R., the United Kingdom, and the United States of America, Poland, Czechoslovakia, Denmark, the Netherlands and Romania have subsequently acceded to the Treaty. The Treaty reserves the Antarctic area south of 60° S. latitude for peaceful purposes, provides for international co-operation in scientific investigation and research, and preserves, for the duration of the Treaty, the *status quo* with regard to territorial sovereignty, rights and claims. The Treaty entered into force on 23 June 1961. Since then the Antarctic Treaty powers have held six consultative meetings under the Treaty, the first at Canberra in July 1961, the second at Buenos Aires in July 1962, the third at Brussels in June 1964, the fourth at Santiago in 1966, the fifth in Paris in 1968 and the sixth in Tokyo 1970. The seventh is to be held in Wellington in 1972.

COCOS (KEELING) ISLANDS

General description

The Cocos (Keeling) Islands, two separate atolls comprising some twenty-seven small coral islands with a total area of about 5½ square miles, are situated in the Indian Ocean in latitude 12° 05' S. and longitude 96° 53' E. They lie some 1,720 miles north-west of Perth and 2,290 miles almost due west of Darwin, while Johannesburg is some 3,800 miles further distant to the south-west and Colombo is 1,400 miles to the north-west of the group.

The main islands of the Territory are West Island, the largest, about six miles from north to south, on which are the aerodrome and most of the European community; Home Island, the headquarters of the Clunies-Ross Estate; Direction Island; South Island; and Horsburgh Island. North Keeling Island, which forms part of the Territory, lies about fifteen miles to the north of the groups and has no inhabitants.

Main settlements are on West Island and Home Island. The group of atolls is low-lying, flat and thickly covered by coconut palms, and surrounds a lagoon which has a harbour in the northern part but which is extremely difficult for navigation.

The climate is equable and pleasant, usually being under the influence of the south-east trade winds for about three-quarters of the year. However, the winds vary at times, and meteorological reports from the Territory are particularly valuable to those engaged in forecasting for the eastern Indian Ocean. The temperature varies between 70° and 89° F., and the average rainfall is about 86 inches. There are occasional violent storms. The population recorded by the census taken on 30 June 1971 was 625 (314 males and 311 females).

History and administration

Summarised particulars of the discovery of the islands and their history up to 1946, when they became a dependency of the Colony of Singapore, are given in Year Book No. 51, page 140, and in earlier issues. On 23 November 1955 the Cocos Islands ceased to form part of the Colony of Singapore and were placed under the authority of the Commonwealth of Australia. The transfer was effected by an Order in Council made by Her Majesty Queen Elizabeth the Second under the Imperial Act entitled the Cocos Islands Act 1955 and by the *Cocos (Keeling) Islands Act 1955* of the Commonwealth whereby the islands were declared to be accepted by the Commonwealth as a Territory under the authority of the Commonwealth, to be known as the Territory of Cocos (Keeling) Islands.

Responsibility for the administration of the Territory rests with the Minister for External Territories. The first Official Representative was appointed on 23 November 1955 to take charge of the local administration of the Territory. Under the *Official Representative Ordinance 1955-1961* of the Territory, the Official Representative is given such powers and functions in relation to the Territory as are delegated to him by the Minister under the *Cocos (Keeling) Islands Act 1955-1966* or are otherwise conferred on him under that Act or by or under any other law of the Territory. The laws of the Colony of Singapore which were in force in the islands immediately before the date of the transfer were, with certain exceptions, continued in force by the *Cocos (Keeling) Islands Act 1955-1966*. They may be amended or repealed by Ordinances made under the provisions of that Act which empower the Governor-General to make Ordinances for the peace, order and good government of the Territory.

Transport and communication

There is an international airport at West Island under the control of the Commonwealth Department of Civil Aviation. A fortnightly air service is provided between Perth and the Cocos Islands by Ansett and T.A.A. alternately. Although there is no regular shipping service, vessels from Australia and Singapore call at intervals. A radio teletype link with Perth is maintained by the Administration. Local postal and telephone services exist, and a non-commercial broadcasting station operates.

CHRISTMAS ISLAND

Christmas Island is an isolated peak situated in the Indian Ocean in latitude 10° 25' 22" S., longitude 105° 39' 59" E. It is approximately 224 miles south from Java Head at the south entrance to Sunda Strait, 815 miles from Singapore and 1,630 miles from Fremantle. Christmas Island covers an area of about fifty-two square miles. It consists of a central plateau of about 600 to 800 feet with several prominent rises up to 1,170 feet. The plateau descends to the sea in a series of steep slopes alternating with terraces, the last dropping in a cliff of 200 to 300 feet to a shore terrace, terminating in a sea cliff of 10 to 150 feet, which is continuous round the island except in a few places, the chief of which is Flying Fish Cove, where the principal settlement is located and which is also the only known anchorage.

The climate is healthy and pleasant, and the prevailing winds come from the south-east to east-south-east from May to December, but from then to April (the wet season) they occasionally shift round to between north and west. The average yearly rainfall is about 64 inches with a marked summer incidence. The porous nature of the ground prevents the formation of pools of water, but there are several good springs which maintain an adequate supply of fresh water for the small population and the installations. The mean average temperature is about 80° F., and does not vary greatly throughout the year.

The economy of the Territory is based almost entirely on the mining and extraction of phosphate. Because of the nature of the land there appears little prospect of establishing any other economic activity.

At 30 June 1971 the preliminary census population was 3,044 (2,033 males and 1,011 females).

Education

The Christmas Island education system comprises a primary school and a secondary school following the Singapore curriculum, a primary school following an Australian curriculum and a technical training centre. The Singapore curriculum schools provide classes to Form 4 level and scholarships are available for students wishing to proceed to Singapore for education beyond that level.

At 30 June 1971, 648 children were enrolled at the primary and secondary schools following the Singapore curriculum. The combined staff establishment consisted of a headmaster, two senior teachers, 23 trained teachers, 1 trainee teacher and 2 temporary teachers. The Australian curriculum primary school had 67 pupils at 30 June 1971, with teachers seconded from the Western Australian Department of Education. There is also a Technical Training Centre, which opened in 1969.

History and administration

Summarised particulars of the history of Christmas Island up to its administration by the United Kingdom as a separate Crown Colony from 1 January 1958, pending transfer to Australia, are given in Year Book No. 51, page 141, and in earlier issues. On 1 October 1958 the island was transferred to the Commonwealth of Australia by the *Christmas Island Act* 1958 and is now administered as a Territory under the authority of the Commonwealth. Responsibility for the administration and government of the Territory rests with the Minister for External Territories, and day to day affairs on the island are administered by an Administrator under delegation from the Minister. The laws which were in force on the island at 30 September 1958 were continued as the laws of the Territory after its transfer to Australia. They may be amended or repealed by Ordinances or by laws made under Ordinances of the Territory.

Phosphate deposits

The only commercial activity carried out is the mining of phosphate. The British Phosphate Commissioners act as managing agents for the Christmas Island Phosphate Commission. There are three principal phosphate deposits on the islands, of which the largest is that now being worked at South Point. This field is situated on the 600 feet to 800 feet level and is approximately 12 miles from the drying and shipping plant at Flying Fish Cove. During 1970-71, 883,189 tons of phosphate were exported to Australia and New Zealand. In addition 103,796 tons of phosphate dust were exported to South-east Asia and Australia.

Transport and communication

Transport to and from the island is maintained by vessels operated under charter by the Christmas Island Phosphate Commission. One vessel makes regular trips between Christmas Island and Singapore, and other vessels carry phosphate to Australian ports and New Zealand.

A post office and internal telephone system are operated by the Administration. The latter comprises four automatic exchanges and three small subscriber-attended exchanges. A radio station is used for messages via Perth and Singapore and for communication with ships at sea. A limited broadcasting station commenced operating during 1966-67.

CORAL SEA ISLANDS

The Coral Sea Islands were declared to be a Territory of the Commonwealth by the *Coral Sea Islands Act* 1969. The scattered reefs and islands, often little more than sandbanks, spread over a sea area of 400,000 square miles with only a few square miles of actual land area, between the Great Barrier Reef and longitude 157° 10' E.