

MANUFACTURING INDUSTRY

Natural Resources and Location

Natural Resources

Victoria's temperate climate, rainfall, soil and water resources have been used to develop the production of wool, grains, fruit, dairy products, and timber. On these the State's early secondary industries were based. There are extensive fuel resources of brown coal in the Latrobe Valley. Of special importance to the industries of the State are the oil and natural gas fields in Bass Strait, the first of which was discovered in February 1965. Commercial exploitation is to commence in March 1969.

The Latrobe Valley brown coal deposits, and to a much lesser degree those of south Gippsland and a number of small basins west of Melbourne, are the most important mineral deposits in Victoria. The open cuts of the Yallourn-Morwell area produce about 21 mill. tons of brown coal annually for briquette making, electricity generation, and conversion of briquettes into gas. Small quantities of black coal (35,000 tons annually) were mined in south-western Gippsland until the end of 1968.

Clay deposits for brick, tile and pottery industries are worked east of Melbourne and near Ballarat, Bendigo, Colac, Shepparton, and Wangaratta. Sand, for the concrete and glass industries and for use in foundries, is obtained in the Port Phillip and west Gippsland areas. Quarry stones and gravels for construction and concrete are worked in many parts of the State. The main market for quarry products is the Metropolitan Area and as these products are bulky and expensive to transport, most quarrying is located within a 50-mile radius of the capital. Local limestone deposits attracted the establishment of cement works at Geelong, Traralgon, and Port Fairy, while the Lilydale limestones are used in the manufacture of agricultural lime.

Other mineral resources of Victoria include gold mining in the Castlemaine district; salt production from deposits of the Mallee and Wimmera lakes and the western shores of Port Phillip; gypsum in the north-western Mallee; and bauxite deposits in south Gippsland.

The forests of Gippsland and the Central Highlands form the basis of important forestry activities, especially in Gippsland where paper is produced at Maryvale. Victorian forests produce approximately one-quarter of Australia's timber.

Power supplies are essential for industrial development. The lack of black coal once necessitated significant imports from New South Wales. Today, the State Electricity Commission generates 91 per cent of Victoria's electricity, mostly from steam plants fired by briquettes or brown coal in the Latrobe Valley; the balance is brought

in, or produced in factories. Electricity is now transmitted throughout the State by the high voltage grid network shown on the map on page 450.

Recent discoveries of large offshore reserves of oil and natural gas in the Gippsland Basin (the potential of which has not been determined) make Victoria's power and chemical outlook promising. Estimates from exploratory drilling rank the Gippsland, Bass, and Otway Basins as having great oil and natural gas potential.

Other sources of power for industry are gas, produced in Melbourne and principal country centres, and brought by pipeline from Morwell to Melbourne, and oil and liquid petroleum gas from the refineries at Altona, Geelong, and Crib Point.

Water, needed in large quantities for industry, is available throughout the State from the dams and storages in the catchment areas of the main rivers (see map on page 478 of *Victorian Year Book* 1966). In most years Melbourne is well supplied with water from the storages to the north and north-east of the city in the Plenty, Upper Yarra, Maroondah, and O'Shannassy river catchments. However, severe water restrictions were imposed during the 1967-68 summer due to State-wide drought conditions.

Location

The early concentration of industry in Melbourne has continued although power supplies now come largely from the Latrobe Valley. Of Victoria's 18,054 factories in 1966-67, 72.5 per cent were located in the Melbourne Statistical Division, which also had 82.2 per cent of the State's factory workers. Melbourne's factories contributed 80.6 per cent of the value added in manufacture. This concentration of manufacturing in the Metropolitan Area is partly due to the fact that Melbourne is Victoria's main port and the hub of the transport network. It is also the largest market in the State; the centre of commerce and finance; has a large labour force; and is the administrative and educational centre of Victoria.

Many types of secondary industry are well represented in Melbourne. There are particularly high concentrations of the State's chemical, metal processing, textile, paper, furniture, food, and building materials industries in the capital. In terms of numbers employed, the engineering and metal processing industry is the major industry of Melbourne. Initially, industries developed in the inner areas of Port Melbourne, South Melbourne, Richmond, Collingwood, Spotswood, Fitzroy, and Footscray. The more recently established industries such as the motor vehicle, chemical, rubber, and refining industries, have taken up land in the outer industrial areas of Altona, Broadmeadows, and Dandenong, where considerable areas of flat land are available for future expansion.

Concerned at the growth of Melbourne's population and increasing concentration of the State's industries there, the State Government has encouraged decentralisation of industry by offering freight concessions, long-term low interest loans, and cheap power and water supplies to country areas. The main drawback to decentralised industry is the shortage of skilled labour and small markets in these areas.

Outside the Metropolitan Area, Geelong is the most important industrial centre, with port facilities, close proximity to the Melbourne

market, and rich surrounding rural areas. Industries established in the area include petroleum refining, and the manufacture of agricultural machinery, motor vehicles, aluminium ingots and extruded products, textiles, chemical fertilizers, clothing, carpets, foodstuffs, and cement.

The other country urban areas in which more than 1,000 persons are employed in factories (ranked in order of the number of persons employed in factories) are the Latrobe Valley, Ballarat Urban Area, Bendigo Urban Area, Warrnambool City, Wangaratta City, Shepparton City, Maryborough City, and Castlemaine Town. Apart from the Latrobe Valley, which is primarily engaged in power generation and ancillary activities, the factory population elsewhere is engaged in the production of food, textiles and clothing from locally produced raw materials, in engineering plants, which sometimes had their origin in the gold mining era of the 19th century, and more recently, in decentralised plants with defence significance.

In the ten-year period to June 1964, the Gippsland, Northern, and Central Statistical Divisions showed considerable increases in the number of factories and factory workers, but elsewhere in country areas little expansion has occurred in industrial activities.

Manufacturing Activity

Manufacturing Development during 1967

The discovery of substantial reserves of natural gas and oil offshore has resulted in the State Government and private enterprise being jointly responsible for the development of a \$200m natural gas production and distribution programme to supply consumers by March 1969.

Westernport began to operate as a deep sea port in July 1966 when the \$30m oil refinery at Crib Point received its first cargo of crude oil for processing. The refinery has an initial capacity of 1.5 mill. tons of crude oil a year.

At Altona, a new reformer unit and additions to a catalytic cracking unit were installed at a cost of \$9m, and full production was reached there at a new \$5m polybutadiene rubber plant. Local production of this general purpose rubber has resulted in the filling of a significant gap in Australian manufacturing industry. The same company also produces styrene-butadiene rubber. Other developments in the chemical field included a new \$1.1m pharmaceutical plant at Noble Park to produce a wide range of prescription medicines, antibiotics, and veterinary products.

The automotive industry in Victoria continued to expand, the latest development being a nodular iron foundry at Fishermen's Bend, the cost of which is about \$7.6m. Work has also been completed on a proving ground at Lang Lang at a cost of \$448,000, bringing the total investment in this area to \$3m. A new \$10m tyre plant with an initial rated capacity of more than 2,000 passenger car tyres each day was completed at Thomastown early in 1967. However, one manufacturer decided to continue the assembly of cars in Victoria rather than engage in direct manufacture.

In the telecommunications field new developments included the manufacture of microwave antenna equipment involving planned expenditure of \$4m by 1970. The electric power tool and cutting tool industries also expanded during 1966-67.

A total of \$2m was expended on development in the farm machinery industry, the principal items being the construction of a new foundry, a laboratory for investigating grain threshing techniques, and an engineering test track. Land and buildings have been purchased at Bendigo for further developments in farm machinery. Other decentralised expansion included a \$7.25m fertilizer plant at Portland, a new pet food cannery at Wodonga, and plant extension to the fruit canneries at Shepparton.

A significant development which occurred in the food industry was the commencement of construction of a new brewery at Broadmeadows, designed to be fully operational by 1968. An initial output of 8 mill. gals a year is planned. A new beef treatment plant and cold store have been completed at Brooklyn; new plants for manufacturing pies and cakes and processing frozen vegetables have been constructed at Clayton; and a modern chocolate and confectionery factory was built at Ringwood.

In order to provide power for the aluminium smelter and extrusion and rolling plant at Point Henry, a steam-generated power plant of 150 MW capacity is being erected at Anglesea, about 25 miles from Geelong. The new plant will use brown coal from nearby deposits as fuel. It is expected that about 128 men will be employed when the generating plant is in operation.

Government Activities

Industrial Legislation

The *Labour and Industry Act* 1958 represents the development and consolidation of industrial legislation which had its beginnings in 1873. Amongst other matters, the Act deals with the registration and inspection of factories, guarding of machinery, and conditions of employment. It also provides for the appointment of Wages Boards and of the Industrial Appeals Court. Further information on these matters may be found on pages 175 to 197.

Decentralisation of Manufacturing Industries : Division of State Development

Since the early stages of the Second World War, successive State Governments have encouraged the development of existing manufacturing facilities and the establishment of new industries in country areas.

Concentration of Victoria's population in the Metropolitan Area of Melbourne is of increasing concern to both individuals and Government alike. The inroads of mechanisation into primary industry and the subsequent lessening of employment opportunities have emphasised the need to develop other avenues for labour in the non-metropolitan parts of the State. In order to encourage establishment or expansion of secondary industry and to reduce costs associated with these developments the Government offers a variety of incentives.

Where available, it may make Crown land available with or without consideration. This enables an industry to acquire a site adequate to meet all likely needs of future expansion and at the same time provide for a range of staff amenities.

To provide housing, Crown land, where available, can be negotiated or priority given for houses built by the State Housing Commission for "imported" key personnel. Funds can also be made available to co-operative building societies for the express use of personnel nominated by a sponsored industry. As a further inducement to set up or expand manufacturing industry in non-metropolitan areas, loans at a moderate rate of interest are available through the Rural Finance and Settlement Commission.

To offset any locational disadvantages as compared with Melbourne, rail freight rates on raw materials and finished products are reduced to a nominal figure (as low as 10 per cent); charges for power, gas, and water can be subsidised, if necessary, to bring them in line with Melbourne rates; and, in respect of an approved decentralised industry, restriction on the use of road transport by company vehicles is eliminated.

There are also several other concessions which in themselves are minor but which when applied in conjunction with the above make country operations attractive for many industries.

In an effort to promote the development of several important provincial centres, the Victorian Government recently agreed in principle with certain recommendations made by a Decentralisation Advisory Committee which was headed by the Minister of State Development. It suggested that five particular areas in Victoria—Ballarat, Bendigo, the Latrobe Valley, Portland, and Wodonga appeared to be the most suitable for extra promotion and development. Such development could help to check the imbalance of population in the State.

Development Committees have been set up in each of these centres, membership of which includes representatives of local government and leaders of commerce and industry.

These committees work towards the general development of their areas with emphasis on the development and diversification of secondary industry, and the promotion of commercial services and other opportunities. In addition to these centres, the Government has pledged its interest and support for all other areas wishing to pursue a policy of industrial development.

Further Reference, 1968

Commonwealth Department of Trade and Industry

The functions of this Department relate chiefly to the policy aspects of Australian overseas trade, both imports and exports, and the encouragement and development of Australian manufacturing industry.

It deals, among other things, with the development and diversification of Australian exports (including exports of manufactures) and, through the Office of Secondary Industry, with questions of protection to local industry against import competition, the special problems of small industries, the location of industry (decentralisation, etc.), and the

efficiency of industry. It maintains liaison with such bodies as the Manufacturing Industries Advisory Council, the Export Development Council, and the Export Payments Insurance Corporation, and controls the Australian Trade Commissioner Service.

Protection of Industry

The established policy of the Australian Government is to accord adequate and reasonable protection against import competition to economic and efficient industry. The Government seeks the advice of the Tariff Board on questions of protection for individual industries. The Board holds public inquiries into and reports on questions referred to it by the Minister. In cases of urgency, temporary protection may be accorded on the recommendation of a Special Advisory Authority pending review by the Tariff Board.

The Customs Tariff is the accepted and normal instrument of protection to Australian industry. However, for some industries in special circumstances, assistance is accorded by means of bounties on local production. As a last resort, when other methods are inadequate, quantitative restrictions on imports are applied.

The Department of Customs and Excise administers the Customs Tariff and also operates the By-law system, under which plant and materials normally subject to protective duty may be admitted at concessional rates if no suitably equivalent products are reasonably available from local sources.

Scientific Research and Standardisation

Commonwealth Scientific and Industrial Research Organisation

The functions of this Organisation, as described in the Science and Industry Research Act, are to initiate and conduct research in connection with industries in Australia, to train research workers, to establish industrial research studentships and fellowships, to make grants in aid of pure scientific research, to establish industrial research associations in various industries, to provide for testing and standardisation of scientific equipment, to conduct an information service relating to scientific and industrial matters, and to act for Australia in liaison with other countries in matters of scientific research.

Standards Association of Australia

This Association is the national standardising organisation of Australia and issues standard specifications for materials and codes of practice. Specifications and codes are prepared and revised periodically in accordance with the needs of industry and standards are evolved and accepted by general consent. It is the Australian member body of the International Organisation of Standardisation and of the International Electrotechnical Commission.

National Association of Testing Authorities

This is the Australian organisation for approval of testing laboratories. The Association registers laboratories of governmental and industrial testing authorities, thereby organising a national testing service. Registration of laboratories is voluntary. Owners of registered laboratories are members of the Association. They have the right to endorse their test documents in the name of the Association, to indicate their technical and managerial competence.

Definitions in Factory Statistics

The statistics relating to factories have been compiled from returns supplied annually by manufacturers under the authority of the Commonwealth Census and Statistics Act. A return must be supplied for every factory, which is defined for this purpose as an establishment where four or more persons are employed or where power (other than manual) is used in any manufacturing process.

If a manufacturing business is conducted in conjunction with any other activity, particulars relating to the manufacturing section only are included in the statistics. Where two or more industries are conducted in the same establishment, a separate return is obtained for each industry, if practicable.

Manufacturers are requested to state in their returns particulars about the number, age, wages, etc., of their employees, the value of premises and equipment and of factory stocks, the horse-power of machinery, the value, and, in many cases, the quantities of raw materials and fuel used, and quantities and values of principal articles produced. These returns are not intended to show a complete record of the income and expenditure of factories, nor to show the profits or losses of factories collectively or individually.

The *average number of persons* employed is quoted on two different bases : the average during the period of operation and the average over the whole year. Of these, the former is simply the aggregate of the average number of persons employed in each factory during its period of operation (whether the whole or only part of the year). This average is used only for details dealing with the classification according to the number of persons employed. The latter, which is used in all other instances, is calculated by reducing the average number working in the factories (irrespective of period of operation) to the equivalent number working for a full year.

Working proprietors are included in all employment figures other than those dealing with monthly employment and age dissections, but salaries and wages paid in all cases exclude drawings by working proprietors.

The *value of factory output* is the value of the goods manufactured or their value after passing through the particular process of manufacture and includes the amount received for repair work, work done on commission, and receipts for other factory work. The basis of valuation of the output is the selling value of the goods at the factory, exclusive of all delivery costs and charges and excise duties, but inclusive of bounty and subsidy payments to the manufacturer of the finished article.

The *value of production* is the value added to raw materials by the process of manufacture. It is calculated by deducting from the value of factory output the value (at the factory) of those items of cost specified on the factory statistical collection form, namely, materials used, containers and packing, power, fuel and light used, tools replaced, and materials used in repairs to plant (but not depreciation charges) ; the remainder constitutes the value added to raw materials in the process of manufacture, and represents the fund available for the payment of wages, taxation, rent, interest, insurance, etc., and profit.

It is considered that, because of the duplication of materials used (which means that the finished product of one process of manufacture often forms the raw material for another), an inaccurate impression would be obtained by using the total value of output of manufacturing industries in year to year comparisons. Woollen manufactures might be cited as an example. Greasy wool forms the raw material for the woolscouring industry, the product of which is scoured wool. This is afterwards combed into wool tops which are used in the spinning mills for the manufacture of yarn. In due course the yarn is woven into cloth, the raw material for the clothing industry. If these processes are carried out separately in different factories, it is evident that the value of the wool would be counted five times by using value of output as the basis for the annual comparisons of manufacturing production.

The concept of value added prevents this double counting and gives a truer picture of the relative economic importance of industries.

Classification of Factories

General

In the compilation of statistical data dealing with factories in Australia, a standard classification of manufacturing industries, formulated at a conference of Australian statisticians in 1902 and revised from time to time, was used until 1929-30. A new classification based on that used in Great Britain for census purposes was introduced in 1930-31, and this, revised and extended to a minor degree in regard to sub-classes of industry in accordance with decisions of the Statisticians' Conference, 1945, still obtains. The construction of a new classification, compatible with the United Nations International Standard Industrial Classification, is being undertaken and it is expected that this will be introduced for the 1968-69 Factory Census.

It should be noted that where a factory, engaged in the production of such goods as would entitle it to classification in more than one sub-class of industry, is unable to give separate production costs, etc., for such activities, it is classified to its predominant activity.

The classes and sub-classes in the current classification of factories are as follows :

CLASSIFICATION OF FACTORIES

CLASS 1.—TREATMENT OF NON-METALLIFEROUS MINE AND QUARRY PRODUCTS

1. Coke Works
2. Briquetting and Pulverised Coal
3. Carbide
4. Lime, Plaster of Paris, and Asphalt
5. Fibrous Plaster and Products
6. Marble, Slate, etc.
7. Cement, Portland
8. Asbestos Cement Sheets and Mouldings
9. Other Cement Goods
10. Other

CLASS 2.—BRICKS, POTTERY, GLASS, ETC.

1. Bricks and Tiles
2. Earthenware, China, Porcelain, and Terracotta
3. Glass (Other than Bottles)
4. Glass Bottles
5. Other

CLASS 3.—CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE

1. Industrial and Heavy Chemicals and Acids
2. Pharmaceutical and Toilet Preparations

CLASS 3.—CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE
—continued

3. Explosives (Including Fireworks)
4. White Lead, Paints, and Varnish
5. Oils, Vegetable
6. Oils, Mineral
7. Oils, Animal
8. Boiling-down, Tallow-refining
9. Soap and Candles
10. Chemical Fertilizers
11. Inks, Polishes, etc.
12. Matches
13. Other

CLASS 4.—INDUSTRIAL METALS, MACHINES, CONVEYANCES

1. Smelting, Converting, Refining, Rolling of Iron and Steel
2. Foundries (Ferrous)
3. Plant, Equipment, and Machinery, etc.
4. Other Engineering
5. Extracting and Refining of Other Metals; Alloys
6. Electrical Machinery, Cables, and Apparatus
- 7-16. Construction and Repair of Vehicles (10 Groups)
- 17-18. Ship and Boat Building and Repairing, Marine Engineering (Government and Other)
19. Cutlery and Small Hand Tools
20. Agricultural Machines and Implements
21. Non-ferrous Rolling and Extrusion
22. Non-ferrous Founding, Casting, etc.
24. Sheet Metal Working, Pressing, and Stamping
25. Pipes, Tubes, and Fittings—Ferrous
26. Wire and Wire Netting (Including Nails)
27. Stoves, Ovens, and Ranges
28. Gas Fittings and Meters
29. Lead Mills
30. Sewing Machines
31. Arms and Ammunition (Excluding Explosives)
32. Wireless and Amplifying Apparatus
33. Other Metal Works

CLASS 5.—PRECIOUS METALS, JEWELLERY, PLATE

1. Jewellery
2. Watches and Clocks (Including Repairs)
3. Electroplating (Gold, Silver, Chromium, etc.)

CLASS 6.—TEXTILES AND TEXTILE GOODS (NOT DRESS)

1. Cotton Ginning
2. Cotton Spinning and Weaving
3. Wool—Carding, Spinning, Weaving
4. Hosiery and Other Knitted Goods
5. Silk, Natural
6. Rayon, Nylon, and Other Synthetic Fibres
7. Flax Mills
8. Rope and Cordage
9. Canvas Goods, Tents, Tarpaulins, etc.
10. Bags and Sacks
11. Textile Dyeing, Printing, and Finishing
12. Other

CLASS 7.—SKINS AND LEATHER (NOT CLOTHING OR FOOTWEAR)

1. Furriers and Fur-dressing
2. Woolscouring and Fellmongery
3. Tanning, Currying, and Leather-dressing
4. Saddlery, Harness, and Whips
5. Machine Belting (Leather or Other)
6. Bags, Trunks, etc.

CLASS 8.—CLOTHING (EXCEPT KNITTED)

1. Tailoring and Ready-made Clothing
2. Waterproof and Oilskin Clothing
3. Dressmaking, Hemstitching
4. Millinery
5. Shirts, Collars, and Under-clothing
6. Foundation Garments
7. Handkerchiefs, Ties, and Scarves
8. Hats and Caps
9. Gloves
10. Boots and Shoes (Not Rubber)
11. Boot and Shoe Repairing
12. Boot and Shoe Accessories
13. Umbrellas and Walking Sticks
14. Dyeworks and Cleaning, etc.
15. Other

CLASS 9.—FOOD, DRINK, AND TOBACCO

1. Flour-milling
2. Cereal Foods and Starch
3. Animal and Bird Foods
4. Chaffcutting and Corncrushing
5. Bakeries (Including Cakes and Pastry)
6. Biscuits
7. Sugar mills
8. Sugar refining

CLASS 9.—FOOD, DRINK, AND TOBACCO—*continued*

9. Confectionery (Including Chocolate and Icing Sugar)
10. Jam, Fruit, and Vegetable Canning
11. Pickles, Sauces, and Vinegar
12. Bacon Curing
13. Butter Factories
14. Cheese Factories
15. Condensed and Dried Milk Factories
16. Margarine
17. Meat and Fish Preserving
18. Condiments, Coffee, and Spices
19. Ice and Refrigerating
20. Salt
21. Aerated Waters, Cordials, etc.
22. Breweries
23. Distilleries
24. Wine-making
25. Cider and Perry
26. Malting
27. Bottling
28. Tobacco, Cigars, Cigarettes, and Snuff
29. Dehydrated Fruit and Vegetables
30. Ice Cream
31. Sausage Casings
32. Arrowroot
33. Other

CLASS 10.—SAWMILLS, JOINERY, BOXES, ETC., WOOD TURNING AND CARVING

1. Sawmills
2. Plywood Mills (Including Veneers)
3. Bark Mills
4. Joinery
5. Cooperage
6. Boxes and Cases
7. Woodturning, Woodcarving, etc.
8. Basketware and Wickerware (Including Sea-grass and Bamboo Furniture)
9. Perambulators (Including Pushers and Strollers)
10. Wall or Ceiling Board (Not Plaster or Cement)
11. Other

CLASS 11.—FURNITURE OF WOOD, BEDDING, ETC.

1. Cabinet and Furniture Making (Including Billiard Tables and Upholstery)
2. Bedding and Mattresses (Not Wire)

CLASS 11.—FURNITURE OF WOOD, BEDDING, ETC.—*continued*

3. Furnishing Drapery
4. Picture Frames
5. Blinds

CLASS 12.—PAPER, STATIONERY, PRINTING, BOOKBINDING, ETC.

1. Newspapers and Periodicals
- 2-3. Printing (Government and Other)
4. Manufactured Stationery
5. Stereotyping, Electrotyping
6. Process and Photo Engraving
7. Cardboard Boxes, Cartons, and Containers
8. Paper Bags
9. Paper-making
10. Pencils, Penholders, Chalks, and Crayons
11. Other

CLASS 13.—RUBBER

1. Rubber Goods (Including Tyres Made)
2. Tyre Retreading and Repairing

CLASS 14.—MUSICAL INSTRUMENTS

1. Gramophones and Gramophone Records
2. Pianos, Piano-Players, and Organs
3. Other

CLASS 15.—MISCELLANEOUS PRODUCTS

1. Linoleum, Leather-cloth, Oil-cloth, etc.
2. Bone, Horn, Ivory, and Shell
3. Plastic Moulding and Products
4. Brooms and Brushes
5. Optical Instruments and Appliances
6. Surgical and Other Scientific Instruments and Appliances
7. Photographic Material (Including Developing and Printing)
8. Toys, Games, and Sports Requisites
9. Artificial Flowers
10. Other

CLASS 16.—HEAT, LIGHT, AND POWER

- 1-3 Electric Light and Power
- 4-6 Gas Works

Summary of Factories

The table below shows, at intervals between 1901 and 1966-67, the development of manufacturing industry in Victoria :

VICTORIA—SUMMARY OF FACTORY DEVELOPMENT

Year	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
1901	3,249	66,529	\$	\$	\$	\$	24,596
1911	5,126	111,948	17,822	51,334	32,162	83,496	27,516
1920-21 ..	6,532	140,743	42,754	135,171	76,846	212,017	70,985
1932-33 ..	8,612	144,428	42,437	122,070	81,900	203,970	135,655
1940-41 ..	9,121	237,636	104,590	240,696	178,002	418,698	184,100
1946-47 ..	10,949	265,757	155,988	367,883	262,992	630,875	243,755
1953-54 ..	15,533	331,277	472,073	1,154,381	816,629	1,971,010	678,535
1960-61 ..	17,173	388,050	775,998	1,913,978	1,417,546	3,331,524	1,641,886
1962-63 ..	17,501	397,851	838,862	2,105,058	1,601,792	3,706,850	1,957,456
1963-64 ..	17,597	413,120	912,424	2,305,046	1,749,776	4,054,822	2,061,518
1964-65 ..	17,925	432,389	1,028,492	2,551,121	1,949,665	4,500,786	2,233,660
1965-66 ..	17,980	439,149	1,077,234	2,597,230	2,027,685	4,624,915	2,385,957
1966-67 ..	18,054	445,557	1,167,872	2,814,145	2,236,370	5,050,515	2,616,977

NOTE.—See also definitions on pages 397-8.

- * Average employment over whole year, including working proprietors.
- † Excludes drawings of working proprietors.
- ‡ Value of output less value of materials, etc.
- § Not available.

A graph showing the distribution of the components of Value of Output of the years 1957-58 to 1966-67 is shown on page 407.

A comparison of Victorian factory activity with that in other States is shown in the following table :

AUSTRALIA—FACTORIES, 1966-67

State	Factories	Employment*	Salaries and Wages Paid †	Value of—			
				Materials and Fuel Used	Pro-duction ‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
New South Wales	24,849	524,054	1,399,746	3,704,247	2,938,227	6,642,474	3,622,459
Victoria	18,054	445,557	1,167,872	2,814,145	2,236,370	5,050,515	2,616,977
Queensland ..	6,013	117,937	282,209	1,029,845	592,607	1,622,451	896,055
South Australia ..	6,222	118,220	299,105	781,184	563,975	1,345,159	767,310
Western Australia	5,167	63,757	153,597	429,437	335,788	765,224	421,166
Tasmania ..	1,771	34,879	90,756	243,392	194,571	437,964	403,142
Northern Territory	187	1,423	4,349	8,160	7,847	16,007	13,307
Australian Capital Territory ..	238	3,631	10,483	15,653	18,860	34,514	33,147
Total ..	62,501	1,309,458	3,408,118	9,026,063	6,888,245	15,914,308	8,773,563

* † ‡ See notes to table above.

NOTE.—Australian Capital Territory and Northern Territory factories are not included in the above table.

Factories Classified According to Class of Industry

The following table contains a summary of factories by class of industry in Victoria during the year 1966-67 :

VICTORIA—FACTORIES BY CLASSES, 1966-67

Class of Industry	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production ‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
1. Treatment of Non-metallic Mine and Quarry Products ..	485	7,641	23,299	69,268	51,792	121,060	87,940
2. Bricks, Pottery, Glass, etc. ..	178	7,773	22,858	29,955	43,943	73,898	51,601
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	402	18,154	58,093	329,253	193,123	522,376	280,298
4. Industrial Metals, Machines, Conveyances ..	7,582	189,176	532,554	924,618	859,163	1,783,781	859,200
5. Precious Metals, Jewellery, Plate ..	253	2,180	5,122	5,964	9,582	15,547	6,368
6. Textiles and Textile Goods (Not Dress) ..	742	43,316	96,404	245,585	171,973	417,558	157,760
7. Skins and Leather (Not Clothing or Footwear) ..	222	3,740	8,841	23,189	15,096	38,285	13,136
8. Clothing (Except Knitted) ..	2,384	48,636	91,525	136,915	149,396	286,311	94,896
9. Food, Drink, and Tobacco ..	1,864	44,130	111,107	585,869	284,187	870,056	325,547
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving ..	1,394	15,430	37,815	79,140	65,252	144,392	55,761
11. Furniture of Wood, Bedding, etc. ..	641	7,094	15,500	31,972	28,317	60,289	23,113
12. Paper, Stationery, Printing, Bookbinding, etc. ..	1,106	30,354	85,574	180,580	170,802	351,382	175,827
13. Rubber ..	176	8,092	23,444	52,166	39,789	91,955	53,932
14. Musical Instruments ..	16	211	539	608	782	1,390	696
15. Miscellaneous Products ..	562	14,353	37,187	78,107	71,719	149,826	75,961
Total, Classes 1 to 15	18,007	440,280	1,149,862	2,773,189	2,154,916	4,928,105	2,262,036
16. Heat, Light, and Power ..	47	5,277	18,011	40,955	81,452	122,407	354,940
GRAND TOTAL ..	18,054	445,557	1,167,872	2,814,145	2,236,370	5,050,515	2,616,977

For footnotes see page 401.

Industrial Metals, Machines, and Conveyances with 189,176 persons or 42·2 per cent of the total employment in factories during 1966-67, employed considerably more persons than any other class of industry. Next in order of employment was Clothing with 48,636 or 10·9 per cent, followed by Food, Drink, and Tobacco, and Textiles and Textile Goods with 44,130 and 43,316, respectively, or 9·85 per cent and 9·66 per cent of the total.

The total value of production (added value) in 1966-67 was \$2,236,370,000. Of this amount the metals group contributed \$859,163,000 which represented 38·4 per cent of the total. The food group followed with \$284,187,000 or 12·7 per cent, and next in order were Chemicals, Dyes, etc., \$193,123,000, 9·5 per cent, Textiles with \$171,973,000, 8·5 per cent, Paper \$170,802,000, 8·4 per cent, and Clothing \$149,396,000, 7·4 per cent.

The next table shows the number of factories in Victoria during the years 1962-63 to 1966-67 classified according to industry :

VICTORIA—NUMBER OF FACTORIES IN INDUSTRIAL CLASSES

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	478	480	484	488	485
2. Bricks, Pottery, Glass, etc. ..	183	189	182	176	178
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	390	395	393	391	402
4. Industrial Metals, Machines, Conveyances	6,944	7,041	7,332	7,470	7,582
5. Precious Metals, Jewellery, Plate ..	247	251	263	252	253
6. Textiles, and Textile Goods (Not Dress)	781	773	793	775	742
7. Skins and Leather (Not Clothing or Footwear)	240	246	235	224	222
8. Clothing (Except Knitted)	2,545	2,506	2,471	2,439	2,384
9. Food, Drink, and Tobacco	1,989	1,957	1,944	1,918	1,864
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,332	1,323	1,341	1,361	1,394
11. Furniture of Wood, Bedding, etc. ..	635	644	636	621	641
12. Paper, Stationery, Printing, Book-binding, etc.	987	1,038	1,069	1,071	1,106
13. Rubber	180	183	187	188	176
14. Musical Instruments	24	21	17	16	16
15. Miscellaneous Products	484	494	519	538	562
Total, Classes 1 to 15	17,439	17,541	17,866	17,928	18,007
16. Heat, Light, and Power	62	56	59	52	47
GRAND TOTAL	17,501	17,597	17,925	17,980	18,054

The size classification of factories is based on the average number of persons employed during the period of operation (including working proprietors). The following tables show the number of factories classified on this basis for each of the years 1962-63 to 1966-67 :

VICTORIA—FACTORIES CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED DURING PERIOD OF OPERATION

Year	Number of Factories Employing, on the Average, Persons Numbering—							
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	Total
1962-63	6,331	1,347	4,124	2,424	1,856	709	710	17,501
1963-64	6,256	1,361	4,154	2,437	1,919	735	735	17,597
1964-65	6,251	1,418	4,244	2,499	1,970	758	785	17,925
1965-66	5,935	1,497	4,393	2,553	2,006	807	789	17,980
1966-67	5,920	1,523	4,371	2,604	2,011	808	817	18,054

VICTORIA—AVERAGE NUMBER OF PERSONS EMPLOYED
DURING PERIOD OF OPERATION

Year	Average Number Employed (Including Working Proprietors) in Factories Employing, on the Average, Persons Numbering—							
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	Total
1962-63	12,665	5,388	29,129	35,766	58,914	49,734	208,257	399,853
1963-64	12,217	5,444	29,181	35,854	61,022	51,945	219,246	414,909
1964-65	12,108	5,672	29,769	36,796	62,028	53,156	234,897	434,426
1965-66	11,591	5,988	30,627	37,581	63,066	57,050	236,430	442,333
1966-67	11,705	6,092	30,431	38,076	63,176	56,970	241,755	448,205

NOTE.—Average employment during the period of operations : includes working proprietors. The use of averages during period of operation has the arithmetic effect of increasing the average number of persons working in factories over the 1966-67 year—445,557 in total by 2,648 persons to total of 448,205 persons.

The relative importance of large and small factories is illustrated in the above table. In 1966-67, 5,920 factories employing less than four employees had a total employment of 11,705 persons. Expressed in terms of percentages, 32·7 per cent of factories—those employing less than four persons—employed 2·5 per cent of the persons engaged in factories. The most numerous of the factories with less than four persons were Motor Repair Workshops, Bakeries, General Engineering Workshops, and Boot and Shoe Repairing.

The relative and absolute increases in the number of small factories using power other than manual, i.e., those employing less than four persons, is shown in the table which follows. In 1902, factories employing less than four persons numbered 525 and constituted 13·1 per cent of the total. By 1966-67, this figure had increased to 5,920 i.e., 32·7 per cent of the total. This increase is believed to be due not so much to an increase in the number of small factories, but to a greater use over the years of fractional horsepower electric motors in small factories, with the result that such establishments came within the statistical definition of a factory. The table also shows that in 1966-67, factories employing less than four persons accounted for only 1·8 per cent of the total Value of Production, and that Value of Production per person employed is lowest in the smallest factories and, in general, rises as size increases.

VICTORIA—NUMBER OF FACTORIES : PERSONS EMPLOYED AND VALUE OF PRODUCTION ACCORDING TO NUMBER OF PERSONS EMPLOYED DURING PERIOD OF OPERATION, 1902 and 1966-67

Average Number of Persons Employed during Period of Operation	1902				1966-67						
	Factories		Persons Employed*		Factories		Persons Employed*		Value of Production‡		
	No.	%	No.	%	No.	%	No.	%	\$'000	%	Per Person Employed \$
Under 4	525	13·1	1,636	2·2	5,920	32·7	11,526	2·5	40,511	1·8	3,515
4 ..	398	9·9	1,603	2·2	1,523	8·5	5,907	1·4	22,048	0·9	3,733
5-10 ..	1,629	40·7	11,303	15·5	4,371	24·2	29,896	6·7	122,348	5·5	4,092
11-20 ..	726	18·1	10,562	14·5	2,604	14·4	37,578	8·4	164,603	7·4	4,380
21-50 ..	467	11·7	14,361	19·6	2,011	11·1	62,625	14·1	288,171	12·9	4,602
51-100 ..	148	3·7	10,238	14·0	808	4·5	56,761	12·7	281,039	12·5	4,951
101-200	110	2·8	23,360	32·0	456	2·6	63,156	14·2	338,039	15·1	5,352
201-500					264	1·4	80,931	18·1	447,275	20·0	5,527
Over 500					97	0·6	97,177	21·9	532,335	23·9	5,478
Total ..	4,003	100·0	73,063	100·0	18,054	100·0	445,557	100·0	2,236,370	100·0	5,019

* ‡ For footnotes see page 401.

A graph showing Number of Factories and Value of Production by size groups in 1966-67 is shown on page 407.

A general indication of the geographical distribution of factories in the State is shown in the next table where secondary industry in Victoria for 1966-67 is classified according to Statistical Divisions :

VICTORIA—FACTORIES IN STATISTICAL DIVISIONS, 1966-67

Statistical Division	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
Melbourne ..	13,081	366,796	971,287	2,195,223	1,803,873	3,999,096	1,843,982
West Central ..	659	19,838	55,442	195,009	121,047	316,056	198,262
North Central ..	371	5,003	10,999	18,206	20,989	39,195	21,403
Western ..	1,047	16,080	36,465	104,212	64,322	168,534	71,338
Wimmera ..	387	2,439	4,607	10,507	8,189	18,696	7,382
Mallee ..	317	2,590	5,120	10,382	9,289	19,671	13,892
Northern ..	860	12,127	28,534	111,744	58,184	169,928	73,858
North-Eastern ..	458	5,261	12,388	33,222	26,473	59,695	82,372
Gippsland ..	665	13,090	37,776	116,621	114,270	230,891	294,211
East Central ..	209	2,333	5,253	19,018	9,734	28,752	10,277
Total ..	18,054	445,557	1,167,872	2,814,145	2,236,370	5,050,515	2,616,977

* † ‡ For footnotes see page 401.

Factories in the Melbourne Statistical Division constituted 72.5 per cent of the total number in Victoria in 1966-67, 82.2 per cent of the persons employed, and 80.6 per cent of the value of production.

For information regarding the actual location of the Statistical Divisions named in the table, reference should be made to the maps folded inside the back cover of this book.

The number of factories and persons employed therein in each Statistical Division is shown in the following table :

VICTORIA—NUMBER OF FACTORIES AND PERSONS EMPLOYED* IN EACH STATISTICAL DIVISION : CLASSIFIED ACCORDING TO SIZE OF FACTORY, 1966-67

Size of Factory (Persons)	Statistical Division										
	Melbourne	West Central	North-Central	Western	Wimmera	Mallee	Northern	North-Eastern	Gippsland	East Central	Total
NUMBER OF FACTORIES											
Under 5 ..	4,773	329	213	545	248	187	488	251	297	112	7,443
5-10 ..	3,138	158	88	292	96	77	196	98	174	54	4,371
11-21 ..	2,071	73	35	91	26	25	88	67	103	25	2,604
21-50 ..	1,716	51	18	64	13	18	43	28	53	7	2,011
51-100 ..	677	20	10	27	2	10	28	8	19	7	808
101-500 ..	631	22	5	24	2	..	14	5	13	4	720
Over 500 ..	75	6	2	4	..	..	3	1	6	..	97
Total ..	13,081	659	371	1,047	387	317	860	458	665	209	18,054
AVERAGE NUMBER OF PERSONS EMPLOYED DURING PERIOD OF OPERATION											
Under 5 ..	11,494	†	†	1,322	540	474	1,141	†	743	264	17,797
5-10 ..	22,044	1,068	606	2,013	644	519	1,325	647	1,206	359	30,431
11-20 ..	30,449	1,104	499	1,270	391	341	1,241	950	1,501	330	38,076
21-50 ..	54,225	1,545	616	1,946	374	585	1,305	782	1,572	226	63,176
51-100 ..	47,872	1,347	692	2,005	†	691	1,918	511	1,301	†	56,970
101-500 ..	124,293	6,064	1,076	5,131	†	..	†	1,049	†	†	144,578
Over 500 ..	78,474	†	†	2,497	..	..	†	†	†	..	97,177
Total ..	368,851	19,913	5,037	16,184	2,469	2,610	12,182	5,354	13,244	2,361	448,205

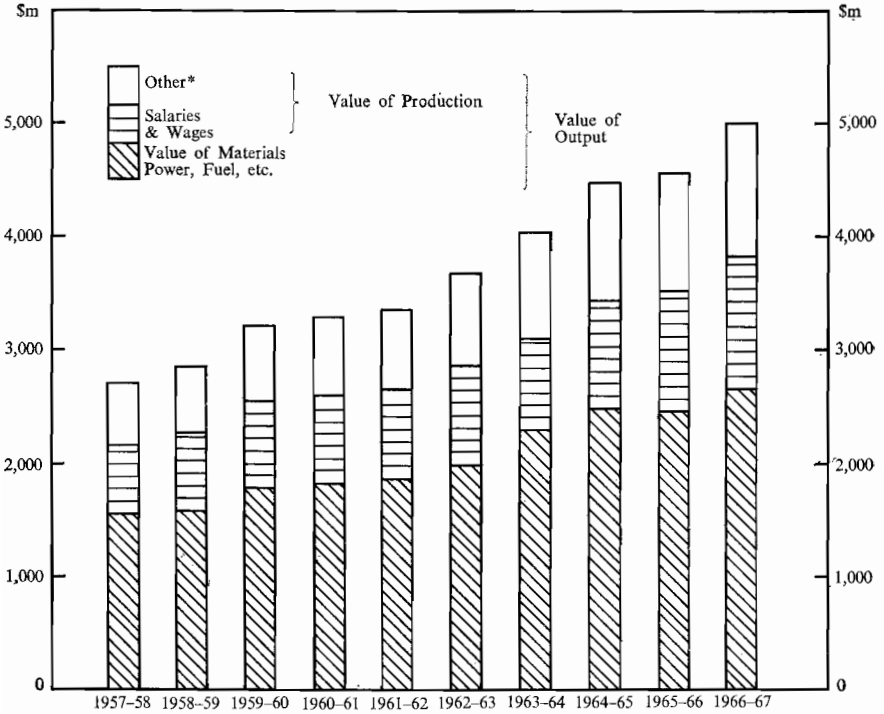
* See footnote, page 404.

† Not available for publication.

The above table shows that in 1966-67 there were 817 factories each employing more than 100 persons with a total employment of 241,755 persons in Victoria. Of the 18,054 factories (448,205 persons) in Victoria, 13,081 (368,851 persons) were located in the Melbourne Statistical Division and 659 (19,913 persons) in the West Central Statistical Division which includes Geelong. The balance, 4,315 factories (59,691 persons) were distributed over the remainder of the State principally in the Western (1,047 factories), Northern (860 factories) and Gippsland (665 factories) Statistical Divisions.

It should be noted that Geelong is located in the West Central Statistical Division, Castlemaine and Maryborough in the North-Central Statistical Division ; Ballarat and Warrnambool in the Western Statistical Division ; Bendigo and Shepparton in the Northern Statistical Division ; Wangaratta in the North-Eastern Statistical Division ; and Morwell and Yallourn in the Gippsland Statistical Division.

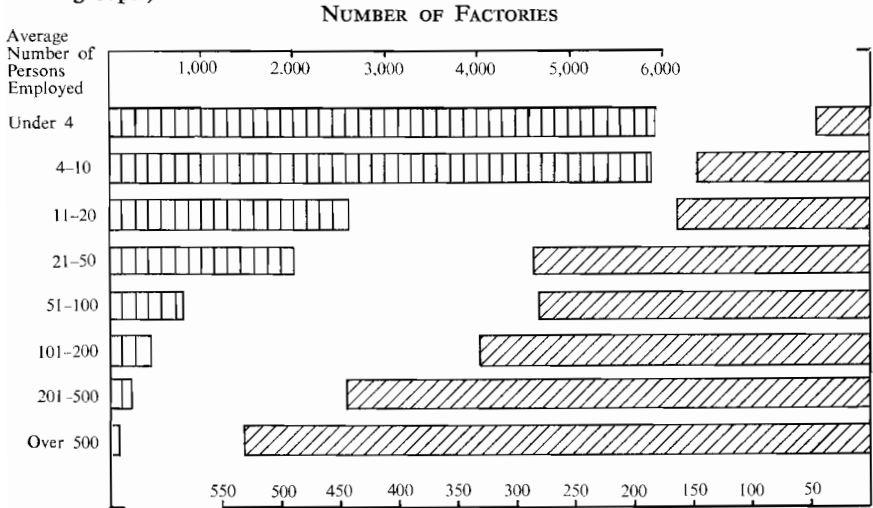
VICTORIA—FACTORIES : VALUES OF OUTPUT, 1957-58 TO 1966-67



* The fund available for the payment of taxation, rent, interest, insurance, etc., depreciation, drawings of working proprietors, and profit.

VICTORIA—NUMBER OF FACTORIES AND VALUE OF PRODUCTION CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED, 1966-67

(The left hand bars show the number of factories in each employment size group. The right hand bars show the value of production in each of these size groups.)



FIGURES 9 and 10.

Employment in Factories

All persons employed in the manufacturing activities of a factory, including proprietors working in their own businesses and persons working regularly at home are included as persons employed in factories while those engaged in selling and distributing, such as salesmen, travellers, and carters employed on outward delivery of manufactured goods, are excluded. The grouping of occupations comprises (i) working proprietors; (ii) managerial and clerical staff including salaried managers and working directors; (iii) chemists, draftsmen, and other laboratory and research staff; (iv) workers in factories (skilled and unskilled); foremen and overseers; carters (excluding delivery only), messengers, and persons working regularly at home as outworkers.

The figures showing average employment in factories represent the equivalent average number of persons employed, including working proprietors, over a full year of twelve months. This method is used for all purposes except in the tables shown on pages 403-6, where the average number of persons employed is the average during period of operation.

The following table shows the average number of persons employed in factories in each industrial class in Victoria for the years 1962-63 to 1966-67:

VICTORIA—PERSONS EMPLOYED IN FACTORIES*

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67		
					Males	Females	Persons
1. Treatment of Non-metalliferous Mine and Quarry Products	7,180	7,496	7,610	7,689	7,193	448	7,641
2. Bricks, Pottery, Glass, etc. . .	7,007	7,299	7,509	7,710	6,664	1,109	7,773
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	16,062	16,396	17,329	17,648	14,053	4,101	18,154
4. Industrial Metals, Machines, Conveyances	162,649	171,748	183,696	186,000	160,724	28,452	189,176
5. Precious Metals, Jewellery, Plate	2,022	2,113	2,270	2,180	1,745	435	2,180
6. Textiles and Textile Goods (Not Dress)	41,930	42,674	43,798	43,343	17,471	25,845	43,316
7. Skins and Leather (Not Clothing or Footwear)	3,993	3,969	3,832	3,830	2,443	1,297	3,740
8. Clothing (Except Knitted) . .	46,795	47,168	47,622	48,432	12,981	35,655	48,636
9. Food, Drink, and Tobacco . .	39,425	40,832	42,049	43,583	28,995	15,135	44,130
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	14,639	14,521	14,896	15,219	14,247	1,183	15,430
11. Furniture of Wood, Bedding, etc.	6,375	6,605	6,706	6,724	5,102	1,992	7,094
12. Paper, Stationery, Printing, Bookbinding, etc.	25,927	27,075	28,294	29,634	21,933	8,421	30,354
13. Rubber	7,806	8,506	8,591	8,230	6,271	1,821	8,092
14. Musical Instruments	192	192	194	199	172	39	211
15. Miscellaneous Products . .	11,056	11,791	12,972	13,516	8,874	5,479	14,353
Total, Classes 1 to 15	393,058	408,385	427,368	433,937	308,868	131,412	440,280
16. Heat, Light, and Power . .	4,793	4,735	5,021	5,212	5,202	75	5,277
GRAND TOTAL	397,851	413,120	432,389	439,149	314,070	131,487	445,557

* For footnote see page 401.

The dominance of four classes, namely, Class 4.—Industrial Metals, Machines, and Conveyances; Class 6.—Textiles and Textile Goods (Not Dress); Class 8.—Clothing (Except Knitted); and Class 9.—Food, Drink, and Tobacco with a total of 73.0 per cent of factory employment should be noted.

Female factory workers in 1966-67 were 29.5 per cent of the total. They exceeded males in Class 6.—Textiles and Textile Goods (Not Dress) with 59.7 per cent and in Class 8.—Clothing (Except Knitted), with 73.3 per cent of the Class total.

Of the total females employed 27.1 per cent were in Class 8 ; 21.6 per cent in Class 4 ; 19.7 per cent in Class 6 ; and 11.5 per cent in Class 9.

In the following table, the average number of persons employed in factories in Victoria is classified according to the nature of their employment for the years 1962-63 to 1966-67 :

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES

Year	Working Proprietors	Managerial and Clerical Staff	Chemists, Draftsmen, etc.	Workers in Factories (Skilled and Unskilled), Foremen and Overseers, Carters (Excluding Delivery Only) and Messengers, etc.	Total
1962-63	12,784	50,985	7,887	326,195	397,851
1963-64	12,641	53,637	8,291	338,551	413,120
1964-65	12,655	57,067	8,755	353,912	432,389
1965-66	12,586	60,273	9,515	356,775	439,149
1966-67	12,210	61,866	9,957	361,524	445,557

The following table shows the nature of employment in factories in 1966-67 according to the class of industry :

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES BY CLASSES OF INDUSTRY, 1966-67

Class of Industry	Working Proprietors	Managerial and Clerical Staff	Chemists, Draftsmen, etc.	All Other Workers	Total
1. Treatment of Non-metalliferous Mine and Quarry Products	236	1,026	183	6,196	7,641
2. Bricks, Pottery, Glass, etc.	64	963	87	6,659	7,773
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	94	3,312	1,457	13,291	18,154
4. Industrial Metals, Machines, Conveyances	5,064	30,191	5,739	148,182	189,176
5. Precious Metals, Jewellery, Plate	223	269	3	1,685	2,180
6. Textiles and Textile Goods (Not Dress)	370	4,151	394	38,401	43,316
7. Skins and Leather (Not Clothing or Footwear)	190	356	25	3,169	3,740
8. Clothing (Except Knitted)	2,098	3,610	75	42,853	48,636
9. Food, Drink, and Tobacco	1,570	6,026	810	35,724	44,130
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	863	2,067	38	12,462	15,430
11. Furniture of Wood, Bedding, etc.	503	926	8	5,657	7,094
12. Paper, Stationery, Printing, Book-binding, etc.	607	4,780	260	24,707	30,354
13. Rubber	35	1,356	262	6,439	8,092
14. Musical Instruments	7	28	1	175	211
15. Miscellaneous Products	286	2,388	463	11,216	14,353
Total, Classes 1 to 15	12,210	61,449	9,805	356,816	440,280
16. Heat, Light, and Power .. ..	..	417	152	4,708	5,277
GRAND TOTAL	12,210	61,866	9,957	361,524	445,557

Although "All Other Workers" constitute 81·1 per cent of the total numbers employed in factories, the percentage varies from 73·2 per cent in Class 3 to 88·7 per cent in Class 6. Class 3 also has the highest percentage of managerial, clerical, and research workers, 18·2 per cent, compared with the Victorian average of 13·9 per cent.

Where small factories predominate, there is usually a higher proportion of working proprietors than on the average and a smaller than average managerial and clerical staff. This is particularly evident in Class 5.—Precious Metals and Jewellery, where working proprietors comprise 10·2 per cent of the total number employed; Class 11.—Furniture of Wood, Bedding, etc., 7·1 per cent; and Class 10.—Sawmills, Joinery, etc., 5·6 per cent. The average for Victoria is 2·7 per cent.

The following table shows the age distribution of male and female factory employees on the last pay day in June of each of the years 1963 to 1967 :

VICTORIA—DISTRIBUTION OF EMPLOYEES ACCORDING TO AGE
(Excluding Working Proprietors)

Last Pay Day in June—	Males				Females			
	Under 16 Years	16 and under 21 Years	21 Years and over	Total	Under 16 Years	16 and under 21 Years	21 Years and over	Total
1963 ..	2,444	25,822	248,719	276,985	2,653	16,969	90,125	109,747
1964 ..	2,072	27,740	260,246	290,058	2,207	17,931	96,898	117,036
1965 ..	1,690	28,609	268,840	299,139	1,614	18,458	104,012	124,084
1966 ..	1,525	28,886	268,965	299,376	1,488	18,122	105,882	125,492
1967 ..	1,333	29,308	274,563	305,204	1,392	17,698	110,378	129,468

The numbers of males and females employed in factories, and the proportions of the average male and female population working in factories in 1966–67 and earlier years are shown in the following table :

VICTORIA—EMPLOYMENT OF MALES AND FEMALES IN FACTORIES

Year	Males		Females		Total	
	Number	Average per 10,000 of Male Population	Number	Average per 10,000 of Female Population	Number	Average per 10,000 of Total Population
1901 ..	47,059	778	19,470	325	66,529	553
1911 ..	73,573	1,118	38,375	579	111,948	848
1920–21 ..	96,379	1,283	44,364	574	140,743	923
1932–33 ..	91,899	1,020	52,529	575	144,428	796
1940–41 ..	161,880	1,708	75,756	782	237,636	1,240
1946–47 ..	188,758	1,876	76,999	745	265,757	1,303
1953–54 ..	240,698	1,979	90,579	751	331,277	1,367
1960–61 ..	280,207	1,925	107,843	750	388,050	1,341
1962–63 ..	285,709	1,881	112,142	746	397,851	1,317
1963–64 ..	295,440	1,903	117,680	765	413,120	1,337
1964–65 ..	306,983	1,952	125,406	803	432,389	1,379
1965–66 ..	310,303	1,938	128,846	810	439,149	1,376
1966–67 ..	314,070	1,913	131,487	805	445,557	1,361

The numbers of females employed in each industrial class and in certain significant sub-classes, and the percentage that such female employment bears to total class or sub-class employment, are shown in the following table :

VICTORIA—FEMALE EMPLOYMENT IN FACTORIES

Class of Industry	Females Employed					
	Number			Percentage of Total Employment in Each Class of Industry		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	432	447	448	5·7	5·8	5·9
2. Bricks, Pottery, Glass, etc.	1,001	1,037	1,109	13·3	13·5	14·3
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	3,888	3,972	4,101	22·4	22·5	22·6
4. Industrial Metals, Machines, Conveyances—Plant, Equipment and Machinery ..	26,608	27,317	28,452	14·5	14·7	15·0
Electrical Machinery, Cables, and Apparatus	3,692	4,247	4,199	11·4	12·0	11·8
Sheet Metal Working	5,946	6,050	6,575	30·3	30·5	31·6
Wireless and Amplifying Apparatus ..	2,344	2,472	2,469	20·4	20·6	20·3
5. Precious Metals, Jewellery, Plate ..	1,446	1,350	1,401	40·1	37·7	36·7
6. Textiles and Textile Goods (Not Dress)—Cotton Spinning and Weaving	449	434	435	19·8	19·9	20·0
Wool-Carding, Spinning, Weaving ..	26,117	25,800	25,845	59·6	59·5	59·7
Hosiery and Other Knitted Goods ..	2,258	2,159	2,062	55·9	53·7	53·5
7. Skins and Leather (Not Clothing or Footwear)	5,369	4,945	4,697	54·0	53·6	53·3
8. Clothing (Except Knitted)—Tailoring and Ready-Made Clothing ..	14,376	14,496	14,580	75·9	75·9	76·3
Dressmaking and Hemstitching	1,211	1,267	1,297	31·6	33·1	34·7
Boots and Shoes (Not Rubber)	34,200	35,320	35,655	71·8	72·9	73·3
Dyeworks and Cleaning, etc.	8,348	8,319	6,733	75·5	75·4	73·5
9. Food, Drink, and Tobacco—Bakeries (Including Cakes and Pastry) ..	8,033	8,610	10,548	87·6	87·3	87·1
Confectionery (Including Chocolate and Icing Sugar)	6,958	7,016	7,045	57·8	59·5	60·2
Jam, Fruit, and Vegetable Canning ..	1,420	1,469	1,430	49·6	51·3	50·7
Tobacco, Cigars, Cigarettes	14,163	15,032	15,135	33·7	34·5	34·3
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,821	1,956	1,955	28·4	29·8	30·0
11. Furniture of Wood, Bedding, etc. ..	1,991	2,051	2,046	57·5	57·3	57·1
12. Paper, Stationery, Printing, Bookbinding, etc.	2,191	2,500	2,416	42·2	43·0	41·2
13. Rubber	1,313	1,234	1,303	61·6	54·0	54·1
14. Musical Instruments	1,078	1,116	1,183	7·2	7·3	7·7
15. Miscellaneous Products	1,571	1,716	1,992	23·4	25·5	28·1
16. Heat, Light, and Power	7,703	8,260	8,421	27·2	27·9	27·7
Total Classes Only	1,954	1,833	1,821	22·7	22·3	22·5
	29	33	39	14·9	16·6	18·5
	4,968	5,212	5,479	38·3	38·6	38·2
	34	50	75	0·7	1·0	1·4
Total Classes Only	125,406	128,846	131,487	29·0	29·3	29·5

In Class 16.—Heat, Light, and Power, the percentage of females to total persons employed is at its lowest, 1·4 per cent. In Class 8.—Clothing (Except Knitted), females predominate and comprise 73·3 per cent of the total number of persons employed. Within Class 8, in the Dressmaking sub-class, 87·1 per cent of the total employed are females. In Class 4.—Industrial Metals, Machines, and Conveyances, females constitute 15·0 per cent of the persons employed. In 1938-39 only 6 per cent of the persons employed in Class 4 were females.

Child Labour in Factories

The Labour and Industry Act of Victoria debar employment in factories of children under the age of fifteen years, and the Victorian Education Act makes daily attendance at school compulsory between the ages of six and fifteen years.

Some children under fifteen may work in a shop or office if they are exempted under the Education Act, but the general effect of the two statutes contributes to the very low incidence of child labour in this State.

Salaries, Wages, and Other Costs*Salaries and Wages*

The next table gives comprehensive information regarding salaries and wages paid in the various classes of industry in Victoria in 1966-67. Amounts paid to managers, clerical staff, chemists, and draftsmen, etc., are shown separately from those paid to foremen, overseers, workers in the factory, etc. There is also dissection within these categories of the amounts paid to male and female employees.

It should be noted that in all tables of salaries and wages paid the amounts drawn by working proprietors are excluded.

**VICTORIA—SALARIES AND WAGES PAID IN FACTORIES,
1966-67**
(Excludes Drawings of Working Proprietors)
(\$'000)

Class of Industry	Managers, Clerical Staff, Chemists, Draftsmen, etc.		All Other Employees		Total		
	Males	Females	Males	Females	Males	Females	Persons
1. Treatment of Non-metalliferous Mine and Quarry Products	3,914	553	18,643	188	22,557	742	23,299
2. Bricks, Pottery, Glass, etc. . .	2,956	578	18,089	1,233	21,046	1,812	22,858
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease . .	14,840	3,089	36,254	3,910	51,094	6,999	58,093
4. Industrial Metals, Machines, Conveyances	106,915	18,862	377,341	29,435	484,257	48,297	532,554
5. Precious Metals, Jewellery, Plate	662	203	3,832	425	4,493	629	5,122
6. Textiles and Textile Goods (Not Dress)	11,103	4,048	42,269	38,984	53,371	43,033	96,404
7. Skins and Leather (Not Clothing or Footwear) . .	1,146	275	5,614	1,806	6,760	2,081	8,841
8. Clothing (Except Knitted)	7,917	3,858	25,200	54,549	33,117	58,408	91,525
9. Food, Drink, and Tobacco . .	16,512	5,308	69,475	19,811	85,987	25,120	111,107
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	5,579	1,159	30,505	573	36,084	1,732	37,816
11. Furniture of Wood, Bedding, etc.	2,112	768	10,376	2,244	12,488	3,012	15,500
12. Paper, Stationery, Printing, Bookbinding, etc.	13,615	3,798	58,503	9,658	72,118	13,456	85,574
13. Rubber	4,286	931	15,947	2,280	20,233	3,211	23,444
14. Musical Instruments	69	19	394	57	464	75	539
15. Miscellaneous Products	7,631	2,132	20,317	7,107	27,947	9,239	37,186
Total, Classes 1 to 15	199,257	45,581	732,759	172,260	932,016	217,846	1,149,862
16. Heat, Light, and Power	2,472	98	15,414	26	17,886	124	18,010
GRAND TOTAL	201,729	45,679	748,173	172,286	949,903	217,969	1,167,872

Of the total amount of salaries and wages paid in Victoria in 1966-67—\$1,167,872,000—the Industrial Metals, etc., group was responsible for \$532,554,000 or 45.6 per cent, Food, Drink, etc., \$111,107,000 or 9.5 per cent, Textiles, etc., \$96,404,000 or 8.3 per cent, and Clothing, etc., \$91,525,000 or 7.8 per cent.

The total amount of salaries and wages paid in industry in Victoria in each of the years 1962-63 to 1966-67 is shown below under similar headings to those in the preceding table. The average per employee is also shown.

VICTORIA—SALARIES AND WAGES PAID IN FACTORIES
(Excludes Drawings of Working Proprietors)

Year	Salaries and Wages Paid to—				Total Salaries and Wages Paid to—		
	Managers, Clerical Staff, Chemists, Draftsmen, etc.		All Other Employees		Males	Females	Persons
	Males	Females	Males	Females			
TOTAL AMOUNT PAID (\$'000)							
1962-63	135,052	30,840	550,526	122,444	685,578	153,284	838,862
1963-64	148,006	33,514	599,172	131,732	747,178	165,246	912,424
1964-65	165,551	37,227	675,153	150,561	840,704	187,788	1,028,492
1965-66	183,714	41,200	693,542	158,778	877,256	199,977	1,077,234
1966-67	201,729	45,679	748,173	172,286	949,903	217,969	1,167,872
AVERAGE PER EMPLOYEE (\$)							
1962-63	3,463	1,552	2,331	1,360	2,491	1,395	2,178
1963-64	3,622	1,591	2,454	1,396	2,621	1,432	2,209
1964-65	3,804	1,669	2,667	1,495	2,834	1,526	2,450
1965-66	3,977	1,746	2,729	1,547	2,921	1,584	2,525
1966-67	4,255	1,871	2,911	1,649	3,120	1,691	2,695

Power, Fuel, and Light Used

The following table shows the cost of power, fuel, light, water, and lubricating oil used during the five years 1962-63 to 1966-67 :

VICTORIA—COST OF POWER, FUEL, LIGHT, ETC., USED IN FACTORIES
((\$'000))

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	5,734	6,100	6,762	6,662	6,802
2. Bricks, Pottery, Glass, etc.	5,002	5,902	6,101	6,079	6,220
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	14,614	15,170	16,782	16,919	18,419
4. Industrial Metals, Machines, Conveyances	21,878	25,828	30,218	30,644	32,787
5. Precious Metals, Jewellery, Plate	322	348	397	387	430
6. Textiles, and Textile Goods (Not Dress)	5,570	5,934	6,310	6,502	6,895
7. Skins and Leather (Not Clothing or Footwear)	892	878	894	892	909
8. Clothing (Except Knitted)	2,016	2,094	2,265	2,373	2,480
9. Food, Drink, and Tobacco	12,912	13,640	14,619	15,384	15,907
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,716	1,872	2,024	2,095	2,172
11. Furniture of Wood, Bedding, etc.	270	302	341	357	391
12. Paper, Stationery, Printing, Bookbinding, etc.	5,034	5,406	5,943	6,431	7,063
13. Rubber	2,798	2,984	2,999	2,932	3,163
14. Musical Instruments	20	20	21	21	28
15. Miscellaneous Products	2,262	2,464	2,860	3,092	3,433
Total, Classes, 1 to 15	81,040	88,942	98,536	100,770	107,099
16. Heat, Light, and Power	22,510	25,706	26,623	27,087	27,319
GRAND TOTAL	103,550	114,648	125,159	127,857	134,418

The next table gives in detail for each of the years 1962-63 to 1966-67 information dealing with the cost of each type of fuel used. The costs of water and lubricating oil are also shown separately.

**VICTORIA—COST OF ITEMS OF POWER, FUEL, LIGHT, ETC.,
USED IN FACTORIES**

Commodity	1962-63	1963-64	1964-65	1965-66	1966-67	
					Cost	Percentage of Total
	\$'000					
Coal—						
Black	3,132	3,338	3,623	3,066	2,724	2·1
Brown	13,136	14,736	15,497	17,073	18,215	14·7
Brown Coal Briquettes ..	12,222	12,542	12,612	11,891	11,340	9·1
Coke	1,484	1,500	1,384	1,163	1,124	0·9
Wood	898	820	741	725	675	0·5
Fuel Oil	20,814	22,662	23,784	22,903	23,709	19·1
Tar (Fuel)	160	196	187	161	156	0·1
Electricity	39,856	45,454	52,447	55,136	59,400	47·7
Gas	3,452	4,058	4,763	3,912	4,398	3·6
Other (Charcoal, etc.) ..	1,314	1,506	1,379	2,694	2,732	2·2
Total Power and Fuel ..	96,468	106,812	116,417	118,724	124,473	100·0
Water	4,964	5,426	6,034	6,528	7,198	..
Lubricating Oil ..	2,118	2,410	2,709	2,606	2,747	..
Total	103,550	114,648	125,160	127,858	134,418	..

Combustible products consumed as raw materials, e.g., brown coal used in the manufacture of briquettes, have been excluded from the above table.

Particulars of the quantities of the various fuels used in factories over the five-year period 1962-63 to 1966-67 are given below :

VICTORIA—QUANTITIES OF FUELS USED IN FACTORIES

Commodity	Unit of Quantity	1962-63	1963-64	1964-65	1965-66	1966-67
Coal—						
Black	'000 tons	250	316	329	277	256
Brown	'000 tons	12,762	13,461	14,243	16,277	17,403
Brown Coal Briquettes	'000 tons	1,089	1,095	1,062	1,027	978
Coke	'000 tons	63	60	58	49	47
Wood	'000 tons	235	232	192	189	169
Fuel Oil	mill. gals	260	292	320	313	341
Tar Fuel.. ..	'000 tons	8	9	9	8	8

Cost of Materials Used

The cost of materials used in factories is shown by classes for each of the last five years in the next table. "Materials Used" includes the value of containers, etc., the cost of tools replaced, and repairs to plant.

VICTORIA—COST OF MATERIALS USED IN FACTORIES
(\$'000)

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	43,860	50,008	56,696	59,165	62,465
2. Bricks, Pottery, Glass, etc.	16,116	17,244	21,399	21,911	23,735
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	247,324	254,174	272,007	272,855	310,835
4. Industrial Metals, Machines, Conveyances	609,002	694,788	806,468	814,925	891,831
5. Precious Metals, Jewellery, Plate	4,470	4,692	5,437	5,178	5,535
6. Textiles and Textile Goods (Not Dress)	194,268	211,476	224,520	221,628	238,690
7. Skins and Leather (Not Clothing or Footwear)	20,172	22,018	20,351	21,434	22,280
8. Clothing (Except Knitted)	115,540	120,078	126,842	126,171	134,435
9. Food, Drink, and Tobacco	432,996	473,308	513,541	537,976	569,962
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	61,304	65,474	71,628	72,681	76,968
11. Furniture of Wood, Bedding, etc.	24,120	26,988	29,579	30,012	31,582
12. Paper, Stationery, Printing, Book-binding, etc.	130,754	139,992	153,673	160,910	173,517
13. Rubber	42,584	46,544	51,117	48,086	49,003
14. Musical Instruments	366	436	486	505	579
15. Miscellaneous Products	48,446	52,666	61,679	63,221	74,674
Total, Classes 1 to 15	1,991,322	2,179,886	2,415,423	2,456,658	2,666,091
16. Heat, Light, and Power	10,186	10,512	10,538	12,714	13,637
GRAND TOTAL	2,001,508	2,190,398	2,425,961	2,469,372	2,679,727

Value of Output and Production

Value of factory output by classes of industry in each of the years 1962-63 to 1966-67 is shown in the following table :

VICTORIA—VALUE OF FACTORY OUTPUT
(\$'000)

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	89,172	100,244	112,597	114,331	121,060
2. Bricks, Pottery, Glass, etc.	49,268	56,654	65,706	69,038	73,898
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	404,880	421,160	453,964	460,136	522,377
4. Industrial Metals, Machines, Conveyances	1,218,616	1,375,608	1,583,854	1,620,395	1,783,781
5. Precious Metals, Jewellery, Plate	11,624	12,614	14,775	14,326	15,547
6. Textiles and Textile Goods (Not Dress)	334,014	362,874	388,457	386,925	417,558
7. Skins and Leather (Not Clothing or Footwear)	34,442	35,770	35,142	36,866	38,285
8. Clothing (Except Knitted)	237,328	249,190	263,965	268,577	286,311
9. Food, Drink, and Tobacco	644,936	703,268	767,695	811,891	870,056
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	113,384	121,306	132,632	134,771	144,392
11. Furniture of Wood, Bedding, etc.	45,406	49,826	54,508	56,210	60,289
12. Paper, Stationery, Printing, Book-binding, etc.	257,030	276,944	305,280	323,571	351,382
13. Rubber	82,160	87,646	91,944	87,545	91,955
14. Musical Instruments	964	1,062	1,373	1,294	1,389
15. Miscellaneous Products	95,012	105,126	120,501	123,031	149,826
Total, Classes 1 to 15	3,618,236	3,959,292	4,392,393	4,508,907	4,928,106
16. Heat, Light, and Power	88,614	95,530	108,393	116,009	122,408
GRAND TOTAL	3,706,850	4,054,822	4,500,786	4,624,916	5,050,515

In the next table the value of production in Victoria is given according to the various classes of industry for each of the years 1962-63 to 1966-67 :

VICTORIA—VALUE OF PRODUCTION OF FACTORIES
(\$'000)

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	39,578	44,138	49,139	48,503	51,792
2. Bricks, Pottery, Glass, etc.	28,150	33,508	38,206	41,049	43,943
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	142,942	151,814	165,175	170,362	193,123
4. Industrial Metals, Machines, Conveyances	587,736	654,992	747,168	774,826	859,163
5. Precious Metals, Jewellery, Plate	6,832	7,574	8,941	8,761	9,582
6. Textiles and Textile Goods (Not Dress)	134,176	144,574	157,627	158,795	171,973
7. Skins and Leather (Not Clothing or Footwear)	13,378	13,764	13,897	14,540	15,096
8. Clothing (Except Knitted)	119,772	127,018	134,857	140,033	149,396
9. Food, Drink, and Tobacco	199,028	216,320	239,535	258,530	284,187
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	50,364	53,960	58,980	59,995	65,252
11. Furniture of Wood, Bedding, etc.	21,016	22,536	24,588	25,841	28,317
12. Paper, Stationery, Printing, Book-binding, etc.	121,242	131,546	145,665	156,230	170,802
13. Rubber	36,778	38,118	37,828	36,526	39,789
14. Musical Instruments	578	606	866	768	782
15. Miscellaneous Products	44,304	49,996	55,962	56,718	71,719
Total, Classes 1 to 15	1,545,874	1,690,464	1,878,434	1,951,477	2,154,916
16. Heat, Light, and Power	55,918	59,312	71,232	76,208	81,452
GRAND TOTAL	1,601,792	1,749,776	1,949,665	2,027,685	2,236,370

Value of production—the value added to raw materials by the process of manufacture—and not the value of output, is used in measuring the relative importance of various industries or the value of the manufacturing industries as a whole. A definition of “value of production” will be found on pages 397–8.

Relation of Costs to Output and Production

Certain costs of production, the value of output, and the balance available for profit, interest, rent, taxation, and depreciation, etc., in each class of manufacturing industry during the year 1966–67 are given in the following tables :

VICTORIA—FACTORY COSTS AND OUTPUT, 1966–67
(\$'000)

Class of Industry	Costs of—			Balance between Value of Output and Specified Costs‡	Value of Output
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages Paid		
1. Treatment of Non-metalliferous Mine and Quarry Products	62,465	6,802	23,299	28,494	121,060
2. Bricks, Pottery, Glass, etc. ..	23,735	6,220	22,858	21,085	73,898
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	310,835	18,419	58,093	135,030	522,377
4. Industrial Metals, Machines, Conveyances	891,831	32,787	532,554	326,609	1,783,781
5. Precious Metals, Jewellery, Plate ..	5,535	430	5,122	4,460	15,547
6. Textiles and Textile Goods (Not Dress)	238,690	6,895	96,404	75,569	417,558
7. Skins and Leather (Not Clothing or Footwear)	22,280	909	8,841	6,255	38,285
8. Clothing (Except Knitted)	134,435	2,480	91,525	57,871	286,311
9. Food, Drink, and Tobacco	569,962	15,907	111,107	173,080	870,056
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	76,968	2,172	37,815	27,437	144,392
11. Furniture of Wood, Bedding, etc. ..	31,582	391	15,500	12,816	60,289
12. Paper, Stationery, Printing, Book-binding, etc.	173,517	7,063	85,574	85,228	351,382
13. Rubber	49,003	3,163	23,444	16,345	91,955
14. Musical Instruments	579	28	539	243	1,389
15. Miscellaneous Products	74,674	3,433	37,187	34,532	149,826
Total, Classes 1 to 15	2,666,090	107,100	1,149,862	1,005,055	4,928,107
16. Heat, Light, and Power	13,637	27,319	18,011	63,441	122,408
GRAND TOTAL	2,679,726	134,418	1,167,872	1,068,499	5,050,515

* Includes containers, tools replaced, and repairs to plant.
 † Includes cost of lubricants and water.
 ‡ Balance available to provide for all other costs and overhead expenses such as rent, interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

VICTORIA—PERCENTAGE OF SPECIFIED COSTS OF
PRODUCTION, ETC., TO VALUE OF OUTPUT OF FACTORIES,
1966-67
(Per Cent)

Class of Industry	Specified Costs of Production			Balance between Value of Output and Specified Costs ‡
	Materials Used*	Fuel, Light, and Power Used †	Salaries and Wages Paid	
1. Treatment of Non-metalliferous Mine and Quarry Products	51·6	5·7	19·2	23·5
2. Bricks, Pottery, Glass, etc.	32·1	8·4	30·9	28·6
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	59·5	3·5	11·1	25·9
4. Industrial Metals, Machines, Conveyances ..	50·0	1·8	29·9	18·3
5. Precious Metals, Jewellery, Plate	35·6	2·8	32·9	28·7
6. Textiles, and Textile Goods (Not Dress) ..	57·2	1·7	23·1	18·0
7. Skins and Leather (Not Clothing or Footwear) ..	58·2	2·4	23·1	16·3
8. Clothing (Except Knitted)	47·0	0·9	32·0	20·1
9. Food, Drink, and Tobacco	65·5	1·8	12·8	19·9
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	53·3	1·5	26·2	19·0
11. Furniture of Wood, Bedding, etc.	52·4	0·6	25·7	21·3
12. Paper, Stationery, Printing, Book-binding, etc. ..	49·4	2·0	24·4	24·2
13. Rubber	53·3	3·4	25·5	17·8
14. Musical Instruments	41·7	2·0	38·8	17·5
15. Miscellaneous Products	49·8	2·3	24·8	23·1
Total, Classes 1 to 15	54·1	2·2	23·3	20·4
16. Heat, Light, and Power	11·1	22·3	14·7	51·9
GRAND TOTAL	53·1	2·7	23·1	21·1

For footnotes see page 417.

There are considerable variations in the proportions which the cost of materials and the expenditure on wages bear to the value of the output in the different classes of industries. These are, of course, due to the difference in the treatment required to convert the materials to their final form. Thus, in Class 2, the sum paid in wages represents 30·9 per cent and the cost of raw materials 32·1 per cent of the values of the finished articles, whilst, in Class 9, the expenditure on wages amount to 12·8 per cent and that on raw materials to 65·5 per cent of the value of the output.

In the next table specified costs of production, the value of the output of factories and the balance available for profit and miscellaneous expenses are compared for each of the years 1962-63 to 1966-67 :

VICTORIA—SPECIFIED COSTS OF PRODUCTION, ETC., AND VALUE OF OUTPUT OF FACTORIES

(\$'000)

Year	Specified Costs of Production			Balance between Value of Output and Specified Costs‡	Total Value of Output
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages		
1962-63	2,001,508	103,550	838,862	762,930	3,706,850
1963-64	2,190,398	114,648	912,424	837,352	4,054,822
1964-65	2,425,961	125,161	1,028,492	921,172	4,500,786
1965-66	2,469,372	127,858	1,077,234	950,451	4,624,915
1966-67	2,679,726	134,418	1,167,872	1,068,499	5,050,515

For footnotes see page 417.

In the following table these figures are converted to their respective percentages of the value of output :

VICTORIA—PERCENTAGE OF SPECIFIED COSTS OF PRODUCTION, ETC., TO VALUE OF OUTPUT OF FACTORIES (Per Cent)

Year	Specified Costs of Production			Balance between Value of Output and Specified Costs‡	Total
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages		
1962-63	54.0	2.8	22.6	20.6	100.0
1963-64	54.0	2.8	22.5	20.7	100.0
1964-65	53.9	2.8	22.8	20.5	100.0
1965-66	53.4	2.8	23.3	20.5	100.0
1966-67	53.1	2.7	23.1	21.1	100.0

For footnotes see page 417.

Land, Building, Plant, and Machinery

The following statement shows the value of land and buildings used in the various classes of manufacturing industries for the years 1962-63 to 1966-67 :

VICTORIA—FACTORIES : VALUE OF LAND AND BUILDINGS (\$'000)

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	24,990	28,122	28,176	29,968	29,804
2. Bricks, Pottery, Glass, etc. ..	20,230	21,952	22,310	23,192	24,490
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	74,962	75,812	78,235	81,160	87,612
4. Industrial Metals, Machines, Conveyances	365,988	393,476	442,743	470,730	495,854
5. Precious Metals, Jewellery, Plate ..	3,996	4,350	5,067	4,810	4,877
6. Textiles and Textile Goods (Not Dress)	71,836	77,674	78,596	80,751	87,303
7. Skins and Leather (Not Clothing or Footwear)	8,694	9,382	9,310	9,780	9,642
8. Clothing (Except Knitted)	54,024	58,300	62,152	66,737	69,599
9. Food, Drink, and Tobacco ..	130,692	138,268	149,037	159,823	173,363
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	26,890	29,102	32,047	34,467	36,541
11. Furniture of Wood, Bedding, etc. ..	12,654	14,104	16,154	17,375	19,582
12. Paper, Stationery, Printing, Book-binding, etc.	59,884	64,062	70,608	82,825	89,569
13. Rubber	15,186	20,150	20,475	22,443	27,173
14. Musical Instruments	410	332	433	452	513
15. Miscellaneous Products	29,518	32,078	32,869	36,184	41,297
Total, Classes, 1 to 15 ..	899,954	967,164	1,048,212	1,120,697	1,197,219
16. Heat, Light, and Power	54,112	53,630	57,500	56,244	57,536
GRAND TOTAL	954,066	1,020,794	1,105,712	1,176,941	1,254,755

The values recorded in the above table and in the table which follows are, generally, the values shown in the books of the individual firms after allowance has been made for depreciation, but they include estimates of the capital value of premises and plant rented. Consequently, the totals shown in the tables do not represent the actual amount of capital invested in industry.

Where land and buildings, etc., and plant and machinery, etc., are rented by the occupiers of factories, the capital value of these items has been computed by capitalising the rent paid at fifteen years' and ten years' purchase, respectively.

In the following table the depreciated book values of machinery and plant used in the various classes of manufacturing industries are shown for each of the years 1962-63 to 1966-67 :

VICTORIA—FACTORIES : VALUE OF PLANT AND MACHINERY (\$'000)

Class of Industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of Non-metalliferous Mine and Quarry Products	49,906	50,682	54,293	57,540	58,136
2. Bricks, Pottery, Glass, etc. . .	20,854	23,766	22,450	23,173	27,111
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	148,882	146,856	143,637	149,872	192,686
4. Industrial Metals, Machines, Conveyances	258,374	282,304	322,331	344,775	363,346
5. Precious Metals, Jewellery, Plate ..	1,158	1,350	1,551	1,448	1,491
6. Textiles and Textile Goods (Not Dress)	57,628	59,224	61,847	65,544	70,456
7. Skins and Leather (Not Clothing or Footwear)	3,024	3,172	3,346	3,584	3,495
8. Clothing (Except Knitted)	18,484	20,134	22,197	23,186	25,298
9. Food, Drink, and Tobacco	115,480	123,086	126,623	135,500	152,184
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	15,778	17,064	17,826	19,230	19,219
11. Furniture of Wood, Bedding, etc. . .	2,728	3,096	3,186	3,335	3,531
12. Paper, Stationery, Printing, Book-binding, etc.	60,296	62,370	69,009	74,818	86,258
13. Rubber	15,856	15,850	16,196	18,498	26,759
14. Musical Instruments	130	118	124	144	183
15. Miscellaneous Products	22,678	25,032	30,011	32,566	34,664
Total, Classes 1 to 15	791,256	834,104	894,627	953,213	1,064,817
16. Heat, Light, and Power	212,134	206,620	233,321	255,800	297,404
GRAND TOTAL	1,003,390	1,040,724	1,127,948	1,209,013	1,362,221

Motive power classified in the tables which follow relates to the rated horse-power of engines used. Engines in reserve or idle are the subject of a separate table, but obsolete engines are completely excluded from any information shown.

VICTORIA—TOTAL RATED HORSE-POWER OF ENGINES AND ELECTRIC MOTORS ORDINARILY IN USE IN FACTORIES,* 1966-67

Class of Industry	Steam		Internal Combustion	Water	Motor Driven by Electricity		Total without Duplication
	Reciprocating	Turbine			Purchased	Own Generation	
1. Treatment of Non-metalliferous Mine and Quarry Products	1,221	16,750	1,256	..	105,350	18,726	124,577
2. Bricks, Pottery, Glass, etc. . .	1,045	..	2,836	..	54,816	12	58,697
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	2,175	60,356	5,641	50	184,264	31,979	252,486
4. Industrial Metals, Machines, Conveyances	1,351	..	11,008	..	711,353	2,563	723,712
5. Precious Metals, Jewellery, Plate ..	150	..	75	..	3,857	25	4,082
6. Textiles and Textile Goods (Not Dress)	205	..	585	..	121,149	35	121,939
7. Skins and Leather (Not Clothing or Footwear)	690	95	155	..	19,070	465	20,010
8. Clothing (Except Knitted)	555	..	123	..	33,076	..	33,754
9. Food, Drink, and Tobacco	1,421	2,651	6,694	830	259,254	2,035	270,850
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	3,468	150	23,218	..	109,323	5,292	136,159
11. Furniture of Wood, Bedding, etc. . .	..	..	..	..	17,060	..	17,060
12. Paper, Stationery, Printing, Bookbinding, etc.	600	23,500	349	..	119,033	27,250	143,482
13. Rubber	120	..	229	..	97,510	..	97,859
14. Musical Instruments .. ..	..	..	..	..	288	..	288
15. Miscellaneous Products .. ..	..	2,000	90	..	53,029	120	55,119
Total, Classes 1 to 15	13,001	105,502	52,259	880	1,888,432	88,502	2,060,074
16. Gas Works	2,711	1,213	3,594	..	19,503	..	27,021
GRAND TOTAL	15,712	106,715	55,853	880	1,907,935	88,502	2,087,095

* Includes gas works, but excludes central electric stations.

The total rated horse-power in reserve or idle during 1966-67 and not included above was 246,043.

Motors driven by purchased electricity comprised approximately 91.4 per cent of the total horse-power used in factories other than central electric stations in 1966-67, while steam turbines were next in demand with 5.1 per cent.

A comparison over the five-year period 1962-63 to 1966-67 of the total rated horse-power used to drive engines and electric motors ordinarily in use in factories is given in the table which follows :

VICTORIA—TOTAL RATED HORSE-POWER OF ENGINES AND ELECTRIC MOTORS ORDINARILY IN USE IN FACTORIES*

Year	Steam		Internal Combustion	Water	Motors Driven by Electricity		Total without Duplication
	Reciprocating	Turbine			Purchased	Own Generation	
1962-63.. ..	19,054	91,877	46,896	890	1,520,837	58,334	1,679,554
1963-64.. ..	17,081	98,724	53,296	890	1,616,591	60,992	1,786,582
1964-65.. ..	16,149	89,148	54,815	890	1,727,537	60,978	1,888,539
1965-66.. ..	16,294	95,919	55,283	890	1,824,907	68,823	1,993,293
1966-67.. ..	15,712	106,715	55,853	880	1,907,935	88,502	2,087,095

* Includes gas works, but excludes central electric stations.

The following table shows the total rated horse-power for each year from 1962-63 to 1966-67 for engines and electric motors in reserve or idle. It includes engines which are only used occasionally, or, for example, during periods of breakdown to power supply.

VICTORIA—TOTAL RATED HORSE-POWER OF ENGINES AND ELECTRIC MOTORS IN RESERVE OR IDLE IN FACTORIES*

Year	Rated Horse-power of Engines, etc., in Reserve or Idle		
	Purchased Electricity	All Other Types	Total
1962-63	150,303	58,353	208,656
1963-64	161,471	60,501	221,972
1964-65	173,182	55,420	228,602
1965-66	181,057	54,520	235,577
1966-67	188,763	57,280	246,043

* Without duplication ; includes gas works, but excludes central electric stations.

Particulars of the type and capacity of engines and generators installed in central electric stations in Victoria during 1966-67 are shown in the following table :

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS, 1966-67

Particulars	Capacity of Engines and Generators			
	Steam Turbine	Internal Combustion	Water	Total
Engines Installed Rated H.P. ..	2,874,787	30,658	448,700	3,354,145
Generators Installed—				
Kilowatt Capacity—				
Total Installed kW	2,097,725	21,557	334,500	2,453,782
Effective Capacity kW	2,000,600	17,769	319,000	2,337,369
Horse-power—				
Total Installed H.P.	2,810,952	28,886	448,230	3,288,068
Effective Capacity H.P.	2,680,804	23,810	427,460	3,132,074

Similar information to that shown in the preceding table, but giving a comparison over the years 1962-63 to 1966-67 is shown below :

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Central Electric Stations No.	35	29	29	22	18
Engines Installed Rated H.P.	2,221,290	2,213,474	2,520,744	2,903,307	3,354,145
Generators Installed—					
Kilowatt Capacity—					
Total Installed kW	1,657,498	1,660,828	1,885,831	2,081,834	2,453,782
Effective Capacity kW	1,672,694	1,640,697	1,831,925	1,973,961	2,337,369
Horse-power Equivalent—					
Total Installed H.P.	2,221,847	2,226,311	2,527,924	2,789,658	3,288,068
Effective Capacity H.P.	2,242,217	2,199,326	2,455,664	2,645,108	3,132,074

Principal Factory Products

Annual Quantity and Value

The next table shows the quantities and values of the principal articles manufactured in Victoria, and corresponding figures for Australia during 1966-67. Due to the limited number of producers, it is not permissible under statute to publish particulars regarding some articles of manufacture which would otherwise appear below.

VICTORIA AND AUSTRALIA—PRINCIPAL ARTICLES
MANUFACTURED, 1966-67

Commodity Code No.	Article	Unit of Quantity	Victoria		Australia	
			Quantity	Value	Quantity	Value
				\$'000		\$'000
023.10, 14, 17	Bacon and Ham†	mill lb	19.3	13,808	67.0	44,233
027.02-75	Meat—Canned	mill lb	23.6	6,136	45.7	13,942
051.21-27	Milk—Condensed	mill lb	67.3	14,787	106.9	18,018
051.31	Butter	mill lb	258.1	90,389	477.2	165,225
051.35	Cheese	mill lb	67.9	20,292	153.8	40,981
051.61	Ice Cream	mill gals	10.1	10,136	35.0	33,495
051.72-73	Milk—Powdered : Full Cream	mill lb	24.2	7,067	48.0	13,556
062.01	Flour, Plain—Wheaten (Including Sharps)	'000 short ton	392	27,843	1,348	105,076
063.11	Malt—Barley	mill bush	10.8	23,109	14.0	30,108
064.03-13	Bread—2 lb Loaves Equivalent	mill	307.6	34,365	1,074.0	143,935
064.21	Biscuits	mill lb	83.8	17,996	230.1	59,319
064.43-45	Cakes, Pastry, Pies, etc. (Including Canned Puddings)	..	†	28,519	†	94,435
076.15	Fruit : Preserved—Peaches	mill lb	121.6	14,675	238.5	27,919
076.22	Pears	mill lb	121.8	15,348	135.9	17,128
076.60	Jams, Fruit Spreads, Fruit Butters, etc.	mill lb	39.3	6,803	90.7	15,367
094.02-49	Vegetables Canned or Bottled (Including Pickled)	mill lb	41.3	6,279	162.8	24,916
104.02-18	Confectionery—Chocolate Base	mill lb	52.9	23,380	134.5	51,013
104.21-29	Other without Chocolate	mill lb	44.4	13,625	111.5	34,754
122.02	Soup—Tomato	mill imp pint	21.8	3,810	26.7	4,544
123.18	Sauce—Tomato	mill imp pint	18.9	4,408	30.9	7,519
139.14	Sausage Casings—Sheep and Lamb	'000 bundles	2,848	6,166	4,649	9,123
152.06	Pollard	'000 short ton	78.4	3,070	284.6	11,412
171.03-05	Aerated and Carbonated Waters	mill imp gals	30.2	17,354	114.1	70,815
183.02, 11, 21-28	Tobacco, Cigars, and Cigarettes§	mill lb	33.6	88,898	57.7	146,570
242.07-11	Wool—Scoured or Carbonised	mill lb	57.7	6,584	154.1	21,601
242.32	Wool Tops	mill lb	15.5	18,309	44.5	41,811
261.41	Briquettes—Brown Coal	'000 ton	1,820	12,574	1,820	12,574
281.04	Ice	'000 ton	50.9	667	192.1	2,504
301.31-37	Leather (Dressed)—Vegetable Tanned : Sole	'000 lb	4,945	2,347	11,914	5,526
301.43-65	Chrome Tanned	mill sq ft	24.2	9,468	71.8	28,875
331.01-19	Timber Produced from Logs—Australian	mill sup ft	318	*	1,443	*
369.11	Ropes and Cables (Excluding Wire)	'000 cwt	74.1	2,542	130.8	4,704
372.02-20	Cloth Piece Goods Woven—Worsted or Predominantly Worsted	'000 sq yd	3,334	7,649	7,629	17,550
372.22-36, 48, 50	Woolen or Predominantly Woolen	'000 sq yd	6,400	8,236	13,232	17,104
372.52-62, 374.51-55	Blankets, Bed¶	'000 pair	743	4,660	1,653	11,539
401.57	Acid—Sulphuric	'000 ton	601	1,808	1,955	13,749
403.02, 18, 20, 52-92, 96; 404.02-98	Plastics and Synthetic Resins ..	'000 ton	1,317	27,024	2,853	61,901
412.02, 04, 08, 10	Paints (Not Water) and Enamels Ready Mixed (Excluding Bituminous and Marine)	'000 imp gals	4,609	17,428	14,808	57,145
412.42-46	Paints, Water (Excluding Powder Form)	'000 imp gals	1,260	4,681	4,193	16,583
434.09	Gas, Towns	'000 mill cu ft	22.9	*	56.7	*
447.81	Pipe Fittings, Ferrous .. ..	..	†	4,995	†	14,250
461.20	Steel, Constructional—Fabricated	'000 ton	131.9	33,408	571.1	158,265
461.30	Window Frames—Metal .. ..	..	†	13,802	†	50,729
465.04	Bolts and Nuts—For Sale as Such	..	†	12,129	†	22,457
472.01, 08	Bricks—Clay	mill	385	17,402	1,346	59,318
472.12	Tiles, Roofing—Terra Cotta	mill	14.8	1,805	47.3	5,235
475.30	Concrete	mill	30.6	2,173	92.9	9,322
475.46	Pipes—Concrete (Excluding Agricultural)	'000 long ton	236.1	7,419	681.6	21,134
479.32, 33	Plaster Sheets	mill sq yd	12.4	8,265	30.6	19,330
499.42	Electricity Generated	'000 mill kWh	10.3	*	40.4	*
503.21-32	Electric Motors	'000	576	*	2,668	*

VICTORIA AND AUSTRALIA—PRINCIPAL ARTICLES MANUFACTURED,
1966-67—continued

Commodity Code No.	Article	Unit of Quantity	Victoria		Australia	
			Quantity	Value	Quantity	Value
				\$'000		\$'000
507.51	Machinery: Industrial—		†	20,789	†	37,891
511.01	Pumping (Including Pumps)	..	†	9,812	†	20,165
512.01, 11 ;	Conveyors (and Appliances)	..	†	11,027	†	23,909
589.31	Hoists, Cranes, Lifting	..				
521.01	Mining and Drilling	..	†	8,943	†	17,955
523.01, 02,	Metal Working	..	†	12,247	†	25,167
05						
528.17	Food Processing and Canning	..	†	9,064	†	10,902
	Finished Motor Vehicles— ||					
581.02-08	Cars	No.	109,057	175,791	238,720	379,257
581.10-16 ;	Other	No.	41,455	72,562	106,679	181,688
582.04-28						
584.11-49	Trailers and Semi-Trailers ..	No.	4,497	5,658	18,406	13,529
626.01	Tyres Retreaded and Recapped	'000	1,108.7	*	4,014.4	*
643.01-37	Radios and Radiograms	'000	115.9	3,430	445.7	18,884
	(Domestic)					
649.51, 55 ;	Transformers, Chokes, etc. ..	'000	2,918	*	9,199	*
683.03-61						
651.11-17	Radiators and Electric Fires	'000	579	4,359	601	4,812
	(Domestic)					
661.21-23	Toasters (Domestic)	'000	209	1,280	367	2,874
671.14	Sinks—Stainless Steel	'000	79.2	1,722	226.1	4,412
672.01	Steam, Gas, and Water Fittings,	..	†	19,264	†	42,980
	Valves, etc. (Non-ferrous)					
693.02, 06,	Clothes Washing Machines	'000	16.8	3,154	167.4	26,772
12	(Domestic)					
	Furniture and Office Equipment—					
741.01	Wooden .. .. .	..	†	32,083	†	118,000
744.01	Metal .. .. .	..	†	18,332	†	51,835
773.01-31	Shirts (Men's and Boys') ..	'000 doz	1,014	*	2,215	*
	Underwear—					
774.01-18	Men's and Boys'	'000 doz	1,028	*	2,258	*
774.41-47,	Women's and Girls'	'000 doz	2,261	*	3,705	*
60-67						
775.01-19	Stockings—Women's	'000 doz pair	4,350	17,943	4,691	21,907
775.51-776,	Socks and Stockings—Men's	'000 doz pair	2,575	*	2,783	*
22	and Children's					
	Footwear—					
791.01, 03,	Boots, Shoes, and Sandals**	'000 pair	3,959	21,802	9,056	46,271
09, 15, 17,	—Men's and Youths' ..					
20, 25, 27						
791.31, 33,	Women's and Maids'	'000 pair	9,173	37,052	14,837	60,013
39, 45, 47,						
50, 55, 57						
791.61, 62,	Children's (Including	'000 pair	2,468	4,478	5,346	11,288
66, 70, 71,	Infants')					
72, 76, 79,						
81, 82, 87,						
88, 92, 93,						
97, 99						
791.05, 07,	Slippers	'000 pair	10,248	11,647	12,227	15,493
10, 23, 35,						
37, 40, 53,						
63, 64, 69,						
75, 83, 85,						
86, 91, 96						
	Soaps and Detergents—					
805.01-13 ;	Personal Toilet Use	'000 cwt	108	2,917	538	23,091
806.02-06						
805.22-60 ;	Other Purposes	'000 cwt	866	18,788	3,078	60,101
806.10-44						
871.01	Pharmaceutical Products for	..	†	29,496	†	104,333
	Human Use					
844.01-61	Mattresses—All Types	'000	461	7,087	1,670	22,984
941.11	Cans, Canisters, Containers—	..	†	42,166	†	100,954
	Metal					
943.02-08	Containers—Paperboard†† ..	..	†	51,838	†	137,155
944.11, 21,	Boxes and Cases—Wooden ..	..	†	4,802	†	23,644
31, 41,						
945.21	Cans, Canisters, Containers—	..	†	5,995	†	12,786
	Plastic					

* Quantity only available.

† Value only available.

‡ Cured bone-in weight of smoked, cooked, and canned bacon and ham.

§ Source : Dept. of Customs and Excise.

¶ Double, three-quarter, single ; wool, wool mixture and other fibre.

|| Excludes vehicles finished by specialist body building works outside the motor vehicle manufacturers' organisation.

** Excluding wholly of rubber.

†† Includes composite wood and paperboard butter boxes.

Monthly Production Statistics

The Bureau provides a service to persons who complete monthly production returns and to others interested in monthly production. Printed tables showing Australian production of commodities which they manufacture are made available to them within a few weeks of the month to which they relate. A list of the subjects included in these Production Summaries follows :

AUSTRALIA—PRODUCTION SUMMARIES

Ref. No.	Subject	Ref. No.	Subject
1	Automotive Spark Plugs and Shock Absorbers	29	Biscuits, Ice Cream, Cocoa, Confectionery
2	Chemicals, etc.	30	Storage Batteries—Wet Cell
3	Plastics and Synthetic Resins and Plasticisers	32	Perambulators, Pushers and Strollers
4	Paints and Other Surface Coatings	33	Motor Vehicles
5	Electricity and Gas	34	Radio, etc., Television Sets and Cabinets
6	Soaps, Detergents, Glycerine and Fatty Acids	35	Bed Bases and Mattresses
7	Internal Combustion Engines	36	Preserved Milk Products
8	Lawn Mowers	38	Canned Fish
9	Electrical Appliances	39	Jams and Preserved Fruit and Vegetables
10	Motor Bodies, Trailed Vehicles, Lift-on Freight Containers, etc.	40	Cereal Products
11	Pedal Cycles	41	Margarine and Other Edible Processed Fats
12	Meters	42	Malt and Beer
13	Building Fittings	43	Stock and Poultry Meals (Other than Cereal)
14	Cotton Goods	45	Phonograph Records
15	Woolscouring, Carbonising, and Fellmongering	47	Aerated and Carbonated Waters, Cordials and Syrups, and Concentrated Cordial Extract
16	Woollen and Worsted Carding, Combing, and Spinning	48	Sports Goods
17	Wool Weaving	49	Building Materials
18	Hosiery	50	Electrodes for Manual Welding
19	Shirts, Cardigans, Nightwear, Underclothing, etc.	51	Hides and Skins Used for Tanning
20	Cellulosic and Synthetic Fibre Tops, Yarns and Woven Fabrics	52	Electric Power Frequencies Transformers, Chokes and Ballasts
21	Paper, Wood Pulp and Adhesive Tapes	53	Plastics Film, Sheeting and Coated Materials
22	Floor Coverings	55	Butter and Cheese
23	Electric Motors	56	Canned Meat
24	Men's, Youths' and Boys' Outer Clothing	58	Steel Wire and Wire Products
25	Foundation Garments	59	Non-ferrous Rolled, Extruded and Drawn Products
27	Gloves and Slide/Zip Fasteners		
28	Footwear		

In addition, Statistical Bulletins for the Meat, Gold Mining, and Dairying Industries and Minerals and Mineral Products are issued each month. Australian totals for a greater range of commodities are contained in the Bulletins and Production Summaries that are published in the monthly *Bulletin of Production Statistics*. Victorian figures are published in the *Victorian Monthly Production Bulletin*.

*Individual Industries***Introductory**

Particulars on pages 401-7 give a general view of the size of industries in the sixteen groups adopted by the Conference of Statisticians in 1930. While it is not possible, within the limits of this book, to give a detailed account of each industry, particular industries dealt with are of special importance because of the employment they provide for labour and capital or for other features of special interest. Where there are only one or two establishments in a particular industry in the State, details of activities are not published, but are combined with some other factory group so that operations of individual concerns will not be disclosed.

History of Manufacturing, 1961; Motor Vehicle Industry, 1962; Chemical Industry, 1963; Petrochemical Industry, 1964; Glass Industry, 1965; Agricultural Machinery Industry, 1966; Aluminium Industry, 1967; Textile Industry, 1968

Details of Industries

The industrial and heavy chemical industry expanded considerably during the five-year period 1962-63 to 1966-67 as the particulars below indicate :

VICTORIA—INDUSTRIAL AND HEAVY CHEMICALS AND ACIDS (301)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	87	92	91	88	87
Number of Persons Employed ..	4,034	4,377	4,763	4,920	5,178
Salaries and Wages Paid \$'000	11,556	13,484	15,536	16,743	19,105
Value of Power, Fuel, etc., Used \$'000	4,980	6,273	6,891	7,151	7,801
Value of Materials Used \$'000	39,908	49,501	58,650	60,792	73,255
Value of Production \$'000	37,150	45,248	51,166	52,988	61,160
Value of Output \$'000	82,038	101,021	116,707	120,930	142,216
Value of Land and Buildings \$'000	18,882	18,946	20,492	21,524	23,598
Value of Plant and Machinery \$'000	62,076	59,404	59,430	60,814	70,583
Horse-power of Engines Ordinarily in Use H.P.	62,861	71,726	77,722	85,373	98,127

Particulars of another major industry included in Class 3.—Chemicals, etc., namely, those of the pharmaceutical and toilet preparation industry, are given below :

VICTORIA—PHARMACEUTICAL AND TOILET PREPARATIONS (302)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	70	69	70	70	68
Number of Persons Employed ..	3,225	3,157	3,437	3,474	3,529
Salaries and Wages Paid \$'000	7,354	6,801	7,975	8,496	9,141
Value of Power, Fuel, etc., Used \$'000	1,340	568	670	699	787
Value of Materials Used \$'000	19,646	18,000	20,720	20,561	22,683
Value of Production .. \$'000	19,516	21,175	22,097	23,437	23,953
Value of Output .. \$'000	40,502	39,742	43,488	44,697	47,424
Value of Land and Buildings \$'000	15,452	15,635	16,200	17,324	17,156
Value of Plant and Machinery \$'000	7,414	7,550	7,668	7,710	7,721
Horse-power of Engines Ordinarily in Use .. H.P.	13,293	11,111	11,928	12,423	12,709

Production in this sub-class of industry includes proprietary medicines, cosmetics, creams and lotions, hair preparations, etc.

Refining of petroleum, the major activity carried on in the mineral oil industry, has become most important in Victoria. Details of the industry for years 1962-63 to 1966-67 are shown below :

VICTORIA—MINERAL OILS (306)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	20	20	20	20	22
Number of Persons Employed ..	1,274	1,222	1,375	1,301	1,406
Salaries and Wages Paid \$'000	3,986	4,158	4,847	4,711	5,704
Value of Power, Fuel, etc., Used \$'000	5,466	5,435	6,263	5,883	6,527
Value of Materials Used \$'000	111,780	106,093	103,493	96,168	112,028
Value of Production .. \$'000	39,876	34,576	38,538	39,485	46,330
Value of Output .. \$'000	157,122	146,104	148,294	141,535	164,884
Value of Land and Buildings \$'000	9,694	8,978	8,350	7,940	9,760
Value of Plant and Machinery \$'000	55,172	54,786	48,922	46,061	76,882
Horse-power of Engines Ordinarily in Use .. H.P.	44,176	46,065	46,165	46,373	65,331

The growth of this industry can be gauged from the fact that in 1938-39 it gave employment to only 164 persons and the total horse-power of engines used was 817, while 1,406 persons were employed in 1966-67 and the horse-power of engines used totalled 65,331.

Outstanding expansion has taken place in Industrial Metals, Machines, and Conveyances, etc., which is by far the largest of the sixteen classes into which secondary industry is divided. This development was accelerated by the necessity of meeting First and Second World War requirements. Victoria now produces a wide range of goods including motor vehicles, construction and earth-moving equipment, precision instruments, aircraft, etc., and many other types of metal manufactures.

As production in some factories in this class is variable, the classification may change from year to year, since each factory is classified according to the predominant item of production. Under these circumstances comparability may be disturbed. This applies to all classes of industry.

The relative importance of the principal sub-classes within this industry is shown in the following table :

VICTORIA—CLASS 4 : INDUSTRIAL METALS, MACHINES, AND CONVEYANCES : INDIVIDUAL INDUSTRIES, 1966-67

Sub-class	Factories	Persons Employed	Salaries and Wages Paid	Value of—					Horse-power of Engines Ordinarily in Use	
				Power, Fuel, and Light	Materials Used	Production	Output	Land and Buildings		Plant and Machinery
	No.									
2. Foundries (Ferrous) . .	72	2,300	7,218	923	5,865	12,319	19,107	4,044	2,770	9,816
3. Plant, Equipment and Machinery, etc. . .	1,174	35,536	107,277	4,144	170,286	176,861	351,291	87,919	54,780	137,108
4. Other Engineering . .	910	12,710	35,847	1,522	43,612	59,574	104,708	34,764	28,712	66,637
6. Electrical Machinery, Cables, and Apparatus	466	20,788	55,081	2,813	118,748	93,773	215,334	49,424	27,795	52,995
7. Trams and Railway Rolling Stock	22	6,566	16,676	400	12,226	22,227	34,853	6,841	2,810	24,086
9. Motor Vehicle Construction and Assembly	20	15,349	47,452	4,331	74,772	77,294	156,397	61,594	56,538	75,652
10. Motor Repairs	2,707	19,946	43,195	1,447	46,312	66,877	114,636	68,042	9,745	22,471
11. Motor Bodies	659	9,960	27,543	1,256	40,491	38,647	80,393	31,928	24,066	24,018
13. Motor Accessories	118	9,501	24,990	1,547	43,922	38,377	83,846	18,807	18,769	36,752
14. Aircraft . .	27	9,391	33,329	845	28,526	38,446	67,817	15,444	11,219	22,673
20. Agricultural Machines and Implements	205	6,841	20,229	1,051	33,356	32,336	66,743	12,743	10,191	25,072
22. Non-ferrous Metals—Founding, Casting, etc.	166	4,186	11,139	864	22,980	21,936	45,781	10,372	6,521	15,911
24. Sheet Metal Working—Pressing and Stamping . .	449	12,141	32,808	1,726	77,135	59,576	138,438	29,898	19,620	38,235
26. Wire and Wire Working (Including Nails)	84	3,246	8,945	708	35,122	17,975	53,805	9,856	8,444	15,663
32. Wireless and Amplifying Apparatus	104	3,816	9,524	229	16,817	13,116	30,162	7,285	3,542	2,310
Other Sub-classes	399	16,899	51,301	8,981	121,661	89,829	220,470	46,893	77,824	154,313
Total, Class 4 . .	7,582	189,176	532,554	32,787	891,831	859,163	1,783,781	495,854	363,346	723,712

Further particulars of certain of the industries listed in the table above are given on pages 430-2.

The table which follows combines particulars for two sub-classes of manufacture : Electrical Machinery, Cables, etc., and Wireless and Amplifying Apparatus :

**VICTORIA—ELECTRICAL MACHINERY, CABLES, AND
APPARATUS (406,432)**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	484	507	525	534	570
Number of Persons Employed ..	19,699	20,816	23,242	23,453	24,604
Salaries and Wages Paid \$'000	41,588	46,748	56,064	58,729	64,605
Value of Power, Fuel, etc., Used \$'000	2,256	2,408	2,721	2,774	3,042
Value of Materials Used \$'000	88,824	96,508	120,927	123,599	135,565
Value of Production .. \$'000	68,216	76,724	92,074	97,846	106,889
Value of Output .. \$'000	159,296	175,640	215,721	224,218	245,496
Value of Land and Buildings \$'000	37,992	40,636	47,203	49,763	56,709
Value of Plant and Machinery \$'000	23,456	23,944	26,731	28,936	31,337
Horse-power of Engines Or- dinarily in Use .. H.P.	45,150	44,485	49,518	48,597	55,305

The principal items of production in these industries were : electric and telephone cables, electric apparatus and equipment, and domestic appliances such as refrigerators, washing machines, wireless and television sets, and parts for these.

The next table shows the activities of government controlled railways and tramways workshops :

**VICTORIA—TRAMCARS AND RAILWAY ROLLING STOCK
(407)**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	22	22	22	22	22
Number of Persons Employed ..	7,035	6,846	6,664	6,690	6,566
Salaries and Wages Paid \$'000	14,232	14,568	16,181	16,843	16,676
Value of Power, Fuel, etc., Used \$'000	428	428	431	448	400
Value of Materials Used \$'000	12,020	12,426	12,518	12,739	12,226
Value of Production .. \$'000	18,428	18,820	21,582	21,821	22,227
Value of Output .. \$'000	30,876	31,674	34,531	35,009	34,853
Value of Land and Buildings \$'000	7,006	6,776	6,827	6,929	6,841
Value of Plant and Machinery \$'000	3,188	3,154	3,074	2,986	2,810
Horse-power of Engines Or- dinarily in Use .. H.P.	24,006	24,365	24,040	24,115	24,086

The work performed in this sub-class of industry was, for the most part, maintenance and replacement of rolling stock.

In the following table the particulars of the motor industry as a whole have been presented by aggregating the following sub-classes : Motor Vehicle Construction and Assembly, Motor Repairs, Motor Bodies, and Motor Accessories. It should be noted, however, that the manufacture of particular parts may be included in other sub-classes of industry.

VICTORIA—MOTOR VEHICLES (409, 410, 411, 413)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	3,282	3,314	3,445	3,488	3,504
Number of Persons Employed ..	48,771	51,668	54,811	53,852	54,756
Salaries and Wages Paid \$'000	107,552	118,768	133,054	132,130	143,180
Value of Power, Fuel, etc., Used \$'000	6,480	7,196	7,912	7,924	8,581
Value of Materials Used \$'000	155,980	179,376	198,182	187,477	205,497
Value of Production .. \$'000	168,790	188,404	199,973	202,528	221,195
Value of Output .. \$'000	331,250	374,976	406,067	397,931	435,272
Value of Land and Buildings \$'000	133,916	145,780	167,211	175,213	180,371
Value of Plant and Machinery \$'000	85,296	87,318	99,489	103,259	109,118
Horse-power of Engines Ordinarily in Use .. H.P.	131,392	136,439	153,836	168,533	158,893

The relative importance of each sub-class of the motor vehicle industry is shown on page 429.

Agricultural Machinery and Implements are the subject of the next table :

VICTORIA—AGRICULTURAL MACHINERY AND IMPLEMENTS (420)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	130	141	162	183	205
Number of Persons Employed ..	5,668	6,961	7,901	7,078	6,841
Salaries and Wages Paid \$'000	13,484	18,740	21,800	18,795	20,229
Value of Power, Fuel, etc., Used \$'000	1,004	1,198	1,345	1,014	1,051
Value of Materials Used \$'000	21,618	28,514	29,516	20,448	33,356
Value of Production .. \$'000	19,092	25,046	28,909	25,217	32,336
Value of Output .. \$'000	41,714	54,758	59,770	46,679	66,743
Value of Land and Buildings \$'000	9,342	10,780	12,196	12,490	12,743
Value of Plant and Machinery \$'000	6,604	7,622	8,760	10,078	10,191
Horse-power of Engines Ordinarily in Use .. H.P.	20,803	22,705	22,540	24,180	25,072

Particulars relating to founding and casting of non-ferrous metals are shown in the next table :

VICTORIA—NON-FERROUS METALS : FOUNDED, CASTING, ETC. (422)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	163	160	170	167	166
Number of Persons Employed ..	3,823	4,154	4,495	4,071	4,186
Salaries and Wages Paid \$'000	8,294	9,574	11,119	10,303	11,139
Value of Power, Fuel, etc., Used \$'000	674	748	874	781	864
Value of Materials Used \$'000	16,968	19,438	24,200	21,485	22,980
Value of Production .. \$'000	15,078	17,584	21,388	19,072	21,936
Value of Output .. \$'000	32,720	37,770	46,462	41,338	45,781
Value of Land and Buildings \$'000	8,146	8,478	9,830	9,405	10,372
Value of Plant and Machinery \$'000	5,100	5,584	5,781	6,261	6,521
Horse-power of Engines Ordinarily in Use .. H.P.	12,592	14,401	14,897	14,958	15,911

Articles produced in this industry include steam, gas and water fittings, aluminium window frames, slide fasteners, and furniture fittings, etc.

Canning of Foodstuffs in Victoria

History

Sisar Elliott, a small farmer on the outskirts of Sydney, in 1840 experimented with the packing of "iron rations". The containers at that time were made of tin coated iron. This was the beginning of an industry whose value (including cans and contents) was to be \$100m a year in Victoria alone. By 1843 Elliott was producing marketable canned foods including fish, beef, and carrots; in 1847 he won an agricultural show prize for "preserved fowl", and testimonials certifying to the excellence of his products, which by now ranged over a wide field of foodstuffs. However, owing to lack of support from local traders the business did not prosper and Elliott moved his business to Melbourne in 1850.

The next man to can foodstuffs in Victoria was a Mr Joseph of Camperdown who established a food preserving plant in 1846 and used cans made by local tinsmiths. At about the same time, a large undertaking was established near Newcastle, New South Wales, by the Dangar Brothers, who imported their containers from England. This factory processed 12,000 cattle and 10,000 sheep annually, and exported canned meat to the London market.

From 1850 to 1855 the industry in Australia enjoyed buoyant conditions as a number of small canneries operated in New South Wales and Victoria. However, with the rush to the gold fields and the failure of the Dangar enterprise in 1855, there was a set back for food canners whose main efforts were now directed towards the re-packaging of bulk imported foods (mainly tobacco, patent foods, golden syrup, and treacle) for local markets.

When economic conditions became more stable, the cannery industry made steady progress. In 1867, the Melbourne Meat Preserving Company sent 0.5 mill. lb of canned meat to the London market, and the claim was made that this new trade would have an influence on the Australian economy second only to wool. This, however, was not to be, as the introduction of refrigeration in shipping placed canned meats in a subordinate position in the meat export industry.

The Boer War and the two World Wars had a profound effect on the canned foods industry in Victoria. Each of these was to emphasise the necessity for the packing of food in sealed containers. Meat, butter, fruit, and jam were required in quantities beyond the capacity of the can making industry at that time. The depression years only lightly retarded the canning industry and in the long run did not impede its position among the important primary and secondary industries. Tinsplate was not manufactured in Australia, but imported in large quantities from Wales.

Making of Cans

Parallel to the growth of canneries was the growth of can makers, from the scattered workings of the tinsmiths to the large manufacturers of the present day. The two largest manufacturers greatly increased their operations as a result of the Second World War.

In 1846, the can making industry grew from the first cans hand-made and soldered by tinsmiths. Then, in 1908, Mr George Gardner of Gardner and Co. invented and built an automatic can body forming machine for the Berry Can Co. (later Union Can Co.) of Melbourne, capable of producing 60–70 cans per minute.

More sophisticated high speed body forming machines were first made in Australia in 1943. This type of machine produced can bodies at the rate of 300 cans per minute, and was followed by a later machine in 1955 with a production speed of 400 cans per minute. Present machinery is being produced for production rates of 600 cans per minute for both can making and can closing, and it is anticipated that units with outputs of 700–1,000 cans per minute will shortly be manufactured by Victorian engineering firms under licence from overseas companies.

Advances in techniques and improvements in the design of can decoration are aiding the increase of overseas orders for well presented quality foods. Since the Australian manufacture of tinsplate began in 1957 the industry has become completely self-supporting in the production of cans. The tinsplate used in Victoria is made in New South Wales; it is electrolytically coated with tinsplate which varies to suit the type of contents.

Canning of Foodstuffs

The formation of the three fruit growers' co-operative canning groups at Shepparton, Ardmona, and Kyabram in the Goulburn Valley, and a later one at Monbulk, helped to establish these productive areas

on sound foundations after difficulties in the early 1930s when Government assistance was required for finance and management. In the early stages cans for these groups were made by the major can makers, but later the plants became self-supporting and fabricated their own cans. Most of the apricot, pear, and peach crops from the irrigated areas of the Goulburn Valley, and from the Dandenong Ranges, pass through these respective factories and are either packed as fresh fruit or canned.

Cans for marketing beer were introduced into Victoria in 1958 and have also been used for soft drinks (1961) and later, mixed beverages, wines, and flavoured milk. Whilst the trend for new packaging of food has been mainly directed towards beverages, the increase in consumption of tinsplate containers has arisen recently from the canning of beverages, fish, soups, and sea foods. Pet food canners are also developing large packing organisations and a substantial overseas market.

Many other foodstuffs are canned in Melbourne. Large consignments of Victorian canned meat were packed during the First World War. Currently a variety of foods and soups is being made by large organisations with overseas affiliations. These and other canners are increasing their output and range of products each year.

The canning of condensed and powdered milk has been carried on mainly in country centres such as Dennington, Tongala, Maffra, Bacchus Marsh, Merrigum, and Terang. Between them, some 300 to 400 million cans are consumed yearly, but canned Australian condensed milk is being replaced in some of the Far Eastern markets by a locally produced canned condensed milk, obtained by re-constituting bulk milk powder exported from Australia.

The following table shows the increase in canning of certain standard foods in Victoria between 1937 and 1967 :

VICTORIA—CANNED FOODS, 1936-37 AND 1966-67

Product	Commodity Code No.	1936-37	1966-67
Jam	076·60	36,338,683 lb	39,300,853 lb
Peaches	076·15	41,122,255 "	121,582,994 "
Pears	076·22	29,207,495 "	121,833,893 "
Apricots	076·08	3,095,620 "	25,435,932 "
Peas	094·26	684,549 "	†
Tomatoes	094·34	1,013,788 "	5,012,334 "
Tomato Soup	122·02	3,257,874 pints	21,846,060 pints
Other Soups	122·09	1,559,319 "	39,114,942 "
Meat and Fish	023·17	5,277,256 lb	63,850,410 lb
	027·02--76		
	045·01		
Total Value .. ..	..	\$4,621,660	\$67,171,819
Persons Employed*	..	2,775	7,361

* Total persons employed in establishments classified to sub-class 0910, "Jam, Fruit and Vegetable Canning", and sub-class 0917, "Meat and Fish Preserving".

† Not available.

A growing demand for the packaging of food in pressure containers which has been previously confined to whipped cream and other toppings, is now extending to salad dressings and cheese spreads. Various other foods are being tested for this type of presentation.

Canned food today is taken for granted ; the Victorian housewife now has a wide range of local products available including such products as stewed fruits, fruit juices, vegetables, vegetable juices, baby foods, meat, poultry, rabbits, fish and sea foods, dairy products, edible oils, beverages, pet foods, coffee and many other products. Food canners enable menus with a variety of foods to be available throughout the year.

Sheet metal working and allied manufacturing activities such as the making of packers' cans, canisters and containers, baths, sinks, hot water services, and refrigeration and air-conditioning equipment, are the subject of the table which follows :

**VICTORIA—SHEET METAL WORKING, PRESSING, AND
STAMPING (424)**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	430	435	449	452	449
Number of Persons Employed ..	10,754	11,122	11,468	11,984	12,141
Salaries and Wages Paid \$'000	23,940	25,344	28,083	31,092	32,808
Value of Power, Fuel, etc., Used \$'000	1,306	1,378	1,535	1,640	1,726
Value of Materials Used \$'000	58,360	60,710	70,647	72,840	77,135
Value of Production .. \$'000	47,174	47,848	51,595	53,436	59,576
Value of Output .. \$'000	106,840	109,936	123,777	127,916	138,438
Value of Land and Buildings \$'000	23,754	24,796	27,115	28,322	29,898
Value of Plant and Machinery \$'000	15,620	17,402	17,071	18,423	19,620
Horse-power of Engines Or- dinarily in Use .. H.P.	32,647	33,761	34,488	36,946	38,235

Wool carding, spinning, and weaving is the subject of the next table :

VICTORIA—WOOL CARDING, SPINNING, AND WEAVING
(603)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	78	78	78	73	70
Number of Persons Employed ..	10,816	10,183	9,934	9,221	8,820
Salaries and Wages Paid \$'000	19,290	18,253	19,473	18,721	18,865
Value of Power, Fuel, etc., Used \$'000	1,590	1,500	1,561	1,567	1,531
Value of Materials Used \$'000	56,660	59,175	56,729	52,757	50,532
Value of Production .. \$'000	29,050	28,212	26,657	26,594	27,757
Value of Output .. \$'000	87,300	88,887	84,948	80,919	79,821
Value of Land and Buildings \$'000	14,030	13,799	14,186	15,139	15,842
Value of Plant and Machinery \$'000	14,624	13,943	14,608	13,465	14,773
Horse-power of Engines Ordinarily in Use .. H.P.	40,724	40,271	37,781	33,829	36,037

Victorian woollen mills are responsible for more than half the total Australian woollen mill production. The full range of activities in these factories is covered from the scouring of greasy wool to the weaving of cloth.

Particulars of the hosiery, etc., industry for the five years to 1966-67 are given below :

VICTORIA—HOSIERY AND OTHER KNITTED GOODS
(604)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	450	441	444	438	421
Number of Persons Employed ..	17,803	18,412	18,947	19,088	19,111
Salaries and Wages Paid \$'000	29,666	31,262	34,576	36,429	39,163
Value of Power, Fuel, etc., Used \$'000	1,194	1,268	1,359	1,442	1,570
Value of Materials Used \$'000	66,102	71,702	78,790	79,821	86,953
Value of Production .. \$'000	54,426	58,745	63,789	65,845	71,247
Value of Output .. \$'000	121,722	131,715	143,938	147,109	159,769
Value of Land and Buildings \$'000	23,686	24,575	26,664	28,508	29,186
Value of Plant and Machinery \$'000	17,134	18,739	20,073	23,075	22,909
Horse-power of Engines Ordinarily in Use .. H.P.	17,201	17,670	18,868	20,557	20,886

Factories in Victoria contribute more than two-thirds of the total production of knitted goods in Australia. Amongst the more important articles produced are socks and stockings, knitted underwear, cardigans, and pullovers.

Information in the next table deals with industries associated with the manufacture of clothing, except waterproof clothing, knitted goods, and boots and shoes. The figures shown represent, for each of the past five years,—tailoring and ready-made clothing, dressmaking, millinery, shirts, underclothing, foundation garments, handkerchiefs, ties, scarves, hats and caps, and gloves.

VICTORIA—CLOTHING (DRESS), EXCLUDING WATERPROOF CLOTHING, KNITTED GOODS, AND BOOTS AND SHOES
(801, 803, 804, 805, 806, 807, 808, 809)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	1,317	1,308	1,283	1,285	1,267
Number of Persons Employed ..	28,674	28,796	29,343	30,542	30,969
Salaries and Wages Paid \$'000	42,750	44,527	48,517	52,477	57,331
Value of Power, Fuel, etc., Used \$'000	828	868	910	1,000	1,048
Value of Materials Used \$'000	67,200	70,963	76,281	78,485	82,667
Value of Production .. \$'000	69,310	73,746	79,022	84,044	90,210
Value of Output .. \$'000	137,338	145,577	156,214	163,529	173,925
Value of Land and Buildings \$'000	32,082	34,185	36,413	39,771	41,560
Value of Plant and Machinery \$'000	6,090	6,677	7,227	7,842	8,689
Horse-power of Engines Ordinarily in Use .. H.P.	11,171	11,583	12,295	13,108	13,330

In the following table the industries combined in the preceding table are shown in detail for 1966-67 :

**VICTORIA—CLOTHING (DRESS), EXCLUDING WATERPROOF CLOTHING, KNITTED GOODS, AND BOOTS AND SHOES :
INDIVIDUAL INDUSTRIES, 1966-67**

Particulars	Tailoring and Ready-made Clothing 801	Dress-making 803	Millinery, Hats and Caps 804, 808	Shirts, Underclothing 805	Foundation Garments 806	Handkerchiefs, Ties, and Gloves 807, 809	Total
Number of Factories ..	352	676	54	129	30	26	1,267
Number of Persons Employed ..	9,164	12,106	790	6,305	2,081	523	30,969
Salaries and Wages Paid \$'000	18,075	21,973	1,364	11,424	3,553	942	57,331
Value of Power, Fuel, etc., Used \$'000	334	414	44	178	56	22	1,048
Value of Materials Used \$'000	27,316	28,695	1,337	18,020	5,353	1,946	82,667
Value of Production .. \$'000	28,941	35,345	2,331	17,078	5,047	1,468	90,210
Value of Output .. \$'000	56,590	64,454	3,712	35,277	10,456	3,436	173,925
Value of Land and Buildings \$'000	11,079	18,145	1,787	6,637	3,002	910	41,560
Value of Plant and Machinery \$'000	2,939	2,971	160	1,690	739	190	8,689
Horse-power of Engines Ordinarily in Use H.P.	3,948	4,887	249	2,907	1,160	179	13,330

In the above table, tailoring and ready-made clothing, and dressmaking together represented 81·1 per cent of the factories, 68·7 per cent of employment, and 66·3 per cent of the horse-power in use ; shirts and underclothing contributed 10·2 per cent, 20·4 per cent, and 21·8 per cent, respectively.

Manufacture of boots and shoes (not rubber) is the subject of the next table :

VICTORIA—BOOTS AND SHOES (NOT RUBBER) (810)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	198	193	199	203	200
Number of Persons Employed ..	11,907	12,145	12,038	11,799	11,696
Salaries and Wages Paid \$'000	20,630	21,250	22,782	22,197	23,614
Value of Power, Fuel, etc., Used \$'000	384	410	444	466	499
Value of Materials Used \$'000	37,312	37,974	38,732	36,187	38,879
Value of Production .. \$'000	32,830	34,322	35,466	37,207	38,854
Value of Output .. \$'000	70,526	72,706	74,641	73,860	78,233
Value of Land and Buildings \$'000	8,188	9,869	9,858	10,643	11,472
Value of Plant and Machinery \$'000	7,446	8,335	9,595	9,766	10,702
Horse-power of Engines Ordinarily in Use .. H.P.	7,811	7,852	7,950	8,426	8,090

A feature of this industry is the large proportion of females employed. Numbering 7,045, they represented 60·2 per cent of the total number of persons employed in the manufacture of boots and shoes (not rubber) in 1966-67.

The details shown above relate generally to footwear made of leather. They are exclusive of the operation of boot repairers. Footwear is also produced in the rubber and plastic moulding industries.

The second most important industrial class in Victoria is Class 9—Food, Drink, and Tobacco. The relative importance of its principal sub-classes is shown in the following table. Victoria leads other States in the production of butter, condensery products, cheese, canned meat, confectionery, jams and preserved fruit. It also produces a third of Australia's flour and biscuits and a quarter of its bacon and ham.

VICTORIA—CLASS 9 : FOOD, DRINK, AND TOBACCO :
INDIVIDUAL INDUSTRIES, 1966-67

Particulars	Factories	Persons Employed	Salaries and Wages Paid	Value of—					Horse-power of Engines Ordinarily in Use	
				Power, Fuel, and Light	Materials Used	Production	Output	Land and Buildings		Plant and Machinery
	No.									
						\$'000				
1. Flour Milling ..	22	1,189	3,370	592	41,038	9,391	51,021	5,745	4,176	17,593
2. Cereal Foods and Starch ..	28	1,214	3,108	570	12,712	7,562	20,844	4,037	3,809	11,332
5. Bakeries ..	950	6,512	12,972	1,725	33,563	26,244	61,531	23,279	10,297	11,986
6. Biscuits ..	24	2,336	4,855	517	11,496	7,048	19,062	6,143	3,603	5,437
9. Confectionery ..	64	3,585	7,976	694	22,678	15,507	38,880	8,268	8,211	20,726
10. Jam, Fruit and Vegetable Canning ..	32	5,865	16,316	1,594	68,853	41,194	111,641	23,700	23,100	27,455
13. Butter Factories ..	75	3,123	9,097	2,321	98,203	20,088	120,612	11,603	16,657	34,120
14. Cheese Factories ..	21	1,066	3,176	420	29,971	7,366	37,757	7,369	5,331	6,642
15. Condensed and Dried Milk Factories ..	21	1,648	4,786	1,130	36,375	9,243	46,748	6,079	8,891	14,500
18. Condiments, Coffee, Spices ..	57	1,236	3,150	284	11,925	8,107	20,316	6,921	3,246	5,495
19. Ice and Refrigeration ..	97	1,105	3,128	991	955	6,427	8,372	10,999	5,268	29,570
21. Aerated Waters, Cordials, etc. ..	88	1,319	2,859	253	10,205	8,330	18,787	5,488	3,858	3,761
28. Tobacco, Cigars, Cigarettes, Snuff ..	5	2,410	5,865	333	47,028	42,118	89,479	7,238	9,408	7,345
Other Sub-classes	380	11,522	30,449	4,483	144,960	75,562	225,006	46,494	46,330	74,888
Total, Class 9	1,864	44,130	111,107	15,907	569,962	284,187	870,056	173,363	152,184	270,850

Bakeries which make bread, pastry, and cakes, etc., are the subject of the table which follows :

VICTORIA—BAKERIES (INCLUDING CAKES AND PASTRY)
(905)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	1,096	1,056	1,035	1,002	950
Number of Persons Employed ..	6,271	6,336	6,420	6,557	6,512
Salaries and Wages Paid \$'000	9,946	10,684	11,681	12,193	12,972
Value of Power, Fuel, etc., Used \$'000	1,580	1,622	1,688	1,713	1,725
Value of Materials Used \$'000	28,612	29,842	32,236	33,656	33,563
Value of Production .. \$'000	21,494	22,004	23,700	24,633	26,244
Value of Output .. \$'000	51,686	53,468	57,624	60,002	61,531
Value of Land and Buildings \$'000	19,252	20,872	21,845	22,846	23,279
Value of Plant and Machinery \$'000	11,212	10,776	10,838	10,608	10,297
Horse-power of Engines Ordinarily in Use .. H.P.	10,727	10,936	11,707	11,978	11,986

In the following table two sub-classes of industry are combined, namely, Jam, Fruit, and Vegetable Canning ; and Pickles, Sauces, and Vinegar :

VICTORIA—JAM, FRUIT, AND VEGETABLE CANNING ;
PICKLES, SAUCES, AND VINEGAR (910, 911)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	54	54	52	53	49
Number of Persons Employed ..	5,142	5,642	5,707	6,205	6,192
Salaries and Wages Paid \$'000	11,452	12,654	13,939	15,841	17,090
Value of Power, Fuel, etc., Used \$'000	1,142	1,298	1,447	1,639	1,657
Value of Materials Used \$'000	47,200	52,023	57,321	71,442	72,048
Value of Production .. \$'000	28,668	32,459	34,153	40,328	43,653
Value of Output .. \$'000	77,010	85,780	92,921	113,409	117,357
Value of Land and Buildings \$'000	19,080	20,121	20,860	23,489	25,134
Value of Plant and Machinery \$'000	15,256	18,442	19,501	22,667	23,806
Horse-power of Engines Ordinarily in Use H.P.	23,454	25,120	25,470	27,950	28,758

Female employment is strongly represented in the canning industry which, to a great extent, operates in country areas near the orchards and gardens from which fruit and vegetables used for processing are gathered. Seasonal conditions greatly influence the number of persons employed and the quantity of goods produced.

Three sub-classes of industry, namely, butter, cheese, condensed and processed milk have been combined in the figures shown below. Details of these factories, classified according to predominant activity, are shown on page 438. There is a great deal of overlap in articles produced between factories in all these sub-classes, which use liquid whole milk as a raw material.

**VICTORIA—BUTTER, CHEESE, CONDENSED AND
PROCESSED MILK FACTORIES (913, 914, 915)**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	126	123	120	119	117
Number of Persons Employed ..	5,692	5,788	5,824	5,719	5,837
Salaries and Wages Paid \$'000	13,306	14,292	15,096	15,558	17,059
Value of Power, Fuel, etc., Used					
\$'000	3,252	3,318	3,569	3,638	3,871
Value of Materials Used \$'000	118,754	132,448	150,909	151,109	164,549
Value of Production .. \$'000	30,368	33,412	38,953	38,771	36,697
Value of Output .. \$'000	152,374	169,178	193,431	193,518	205,117
Value of Land and Buildings \$'000	16,792	17,026	19,202	21,936	25,051
Value of Plant and Machinery \$'000	20,246	21,822	22,564	26,109	30,879
Horse-power of Engines Or- dinarily in Use .. H.P.	46,438	48,570	48,295	51,002	55,262

Almost all of this industry is to be found in country areas. The particulars in the above table relate only to factory production. There is also a small amount of butter and cheese made on farms. Further reference to the Dairying Industry will be found on pages 356-8.

Details of the operation of the following sub-classes of industry are given below, namely, Sawmills, Joinery, Boxes and Cases, Wood Turning and Carving, and Cabinet and Furniture Making :

**VICTORIA—SAWMILLS, WOODWORKING, FURNITURE, ETC.
(1001, 1004, 1006, 1007, 1101)**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	1,760	1,761	1,759	1,758	1,780
Number of Persons Employed ..	18,311	18,177	18,270	18,500	18,693
Salaries and Wages Paid \$'000	37,098	37,755	40,524	42,211	44,864
Value of Power, Fuel, etc., Used					
\$'000	1,638	1,722	1,764	1,807	1,877
Value of Materials Used \$'000	71,892	77,043	82,864	83,637	87,983
Value of Production .. \$'000	61,360	65,160	70,710	71,692	76,243
Value of Output .. \$'000	134,890	143,925	155,339	157,136	166,103
Value of Land and Buildings \$'000	32,338	34,592	38,429	41,477	45,377
Value of Plant and Machinery \$'000	13,196	12,974	13,441	15,363	15,901
Horse-power of Engines Or- dinarily in Use .. H.P.	133,963	136,824	130,483	135,938	139,248

The following table shows the particulars of the individual industries combined in the preceding table for 1966-67 :

VICTORIA—SAWMILLS, WOODWORKING, FURNITURE,
ETC. : INDIVIDUAL INDUSTRIES, 1966-67

Particulars	Sawmills 1001	Joinery 1004	Boxes and Cases 1006	Wood Turning and Wood Carving 1007	Furniture Making, etc. 1101	Total
Number of Factories	445	734	63	88	450	1,780
Number of Persons Employed	5,952	6,584	731	763	4,663	18,693
Salaries and Wages Paid .. \$'000	14,385	16,269	1,658	1,732	10,820	44,864
Value of Power, Fuel, etc., Used \$'000	1,064	408	62	66	277	1,877
Value of Materials Used .. \$'000	35,246	28,752	2,628	1,886	19,471	87,983
Value of Production \$'000	25,252	26,524	2,647	2,893	18,927	76,243
Value of Output \$'000	61,562	55,684	5,337	4,845	38,675	166,103
Value of Land and Buildings .. \$'000	12,080	16,588	1,690	1,603	13,416	45,377
Value of Plant and Machinery .. \$'000	8,582	4,064	458	555	2,242	15,901
Horse-power of Engines Ordinarily in Use H.P.	84,491	32,160	4,759	3,719	14,119	139,248

The activities combined in the above table embrace general milling, re-sawing, moulding and planing, turning, the manufacture of floorboards, weatherboards, boxes and cases, tool handles, toys, etc.

The newspaper and periodicals industry is the subject of the following table :

VICTORIA—NEWSPAPERS AND PERIODICALS (1201)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	123	122	123	123	124
Number of Persons Employed ..	3,717	3,796	4,175	4,295	4,303
Salaries and Wages Paid \$'000	9,532	9,991	10,965	11,520	13,205
Value of Power, Fuel, etc., Used \$'000	342	371	392	430	443
Value of Materials Used \$'000	18,540	19,425	20,607	21,333	21,834
Value of Production .. \$'000	16,058	16,343	18,163	18,269	21,666
Value of Output .. \$'000	34,940	36,139	39,161	40,032	43,944
Value of Land and Buildings \$'000	6,834	6,916	6,769	8,032	8,189
Value of Plant and Machinery \$'000	8,248	9,134	9,273	9,320	10,448
Horse-power of Engines Or- dinarily in Use .. H.P.	12,331	12,550	13,151	13,798	14,311

Some "job" printing is included in this industry, but where newspapers, periodicals, etc., are printed for the proprietor by an outside firm, such particulars are included under "Printing, General" below.

General printing (including bookbinding) is the subject of the following table :

**VICTORIA—PRINTING, GENERAL (INCLUDING
BOOKBINDING) (1203)**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	618	659	683	683	707
Number of Persons Employed ..	9,719	10,857	10,733	11,122	11,335
Salaries and Wages Paid \$'000	21,302	23,024	25,582	27,633	29,895
Value of Power, Fuel, etc., Used \$'000	714	780	891	992	1,029
Value of Materials Used \$'000	27,402	29,904	32,967	33,919	36,341
Value of Production .. \$'000	38,862	41,936	47,021	50,791	55,584
Value of Output .. \$'000	66,978	72,620	80,879	85,702	92,953
Value of Land and Buildings \$'000	20,640	23,009	25,148	27,097	30,315
Value of Plant and Machinery \$'000	16,574	17,577	19,405	20,660	21,999
Horse-power of Engines Ordinarily in Use .. H.P.	16,551	17,556	18,388	18,852	19,794

The above table does not include particulars of the operations of Government printing establishments.

Particulars relating to the manufacture of cardboard boxes, cartons, and containers are detailed in the next table :

**VICTORIA—CARDBOARD BOXES, CARTONS, AND
CONTAINERS (1207)**

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	60	66	65	66	66
Number of Persons Employed ..	3,363	3,562	3,527	3,683	3,718
Salaries and Wages Paid \$'000	6,906	7,737	8,473	8,730	9,535
Value of Power, Fuel, etc., Used \$'000	294	338	350	365	394
Value of Materials Used \$'000	24,324	26,633	27,867	28,920	33,174
Value of Production .. \$'000	14,840	16,944	18,003	18,931	20,698
Value of Output .. \$'000	39,458	43,915	46,220	48,216	54,265
Value of Land and Buildings \$'000	8,614	9,461	11,422	13,581	14,425
Value of Plant and Machinery \$'000	7,134	7,924	8,500	8,510	8,914
Horse-power of Engines Ordinarily in Use .. H.P.	6,980	7,535	7,760	9,280	10,034

The following table gives particulars of rubber goods manufacture :

VICTORIA—RUBBER GOODS (INCLUDING TYRES MADE)
(1301)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	51	52	50	51	49
Number of Persons Employed ..	6,958	7,614	7,697	7,415	7,296
Salaries and Wages Paid \$'000	16,474	18,397	21,001	20,274	21,538
Value of Power, Fuel, etc., Used \$'000	2,554	2,726	2,734	2,679	2,883
Value of Materials Used \$'000	38,744	42,507	46,674	43,882	44,303
Value of Production .. \$'000	32,316	33,383	32,818	32,074	34,377
Value of Output .. \$'000	73,614	78,616	82,225	78,635	81,563
Value of Land and Buildings \$'000	10,904	15,246	15,360	17,249	21,864
Value of Plant and Machinery \$'000	14,510	14,445	14,542	16,863	25,003
Horse-power of Engines Ordinarily in Use .. H.P.	67,468	73,487	78,083	81,162	93,669

Tyres and tubes, shoes, soles and heels, hose, toys, belting, sponge and foam rubber are amongst the wide range of articles produced in the above mentioned industry.

Plastic moulding and products are the subject of the next table :

VICTORIA—PLASTIC MOULDING AND PRODUCTS (1503)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	168	175	178	186	191
Number of Persons Employed ..	6,018	6,384	7,059	7,278	7,704
Salaries and Wages Paid \$'000	13,042	14,658	17,763	18,510	20,938
Value of Power, Fuel, etc., Used \$'000	1,144	1,298	1,568	1,730	2,002
Value of Materials Used \$'000	32,560	35,648	42,127	41,935	48,793
Value of Production .. \$'000	26,548	31,434	35,921	35,348	42,732
Value of Output .. \$'000	60,252	68,380	79,615	79,013	93,527
Value of Land and Buildings \$'000	11,940	13,171	14,859	17,986	21,106
Value of Plant and Machinery \$'000	13,782	15,587	16,961	19,512	20,698
Horse-power of Engines Ordinarily in Use .. H.P.	31,918	32,581	36,778	41,417	45,199

Introduced as a new sub-class to the Classification of Factories in 1945-46, plastic moulding now contributes substantially to the secondary production of the State. A wide variety of articles is produced, including plastic film and sheet, household accessories, containers, piping and tubing, toys, floor coverings, etc.

The following table shows particulars of the operations of electricity generating stations :

VICTORIA—ELECTRIC LIGHT AND POWER (1601, 1602, 1603)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	35	29	29	22	18
Number of Persons Employed ..	3,379	3,356	3,674	3,883	3,965
Salaries and Wages Paid \$'000	9,482	10,180	11,808	12,841	13,498
Value of Power, Fuel, etc., Used \$'000	21,328	24,410	25,345	25,904	26,135
Value of Materials Used \$'000	1,484	1,779	2,032	3,192	3,976
Value of Production .. \$'000	42,514	44,905	54,902	60,701	63,978
Value of Output .. \$'000	65,326	71,094	82,280	89,797	94,089
Value of Land and Buildings \$'000	45,682	44,848	48,079	46,665	48,068
Value of Plant and Machinery \$'000	184,798	178,450	203,249	223,477	266,696
Total Installed Horse-power of Engines Used to Drive Generators* .. '000 H.P.	2,221	2,213	2,521	2,903	3,354

* Excludes engines using electricity generated in own works.

Because of the extension of services by the State Electricity Commission to areas previously served by other authorities or individual suppliers, the number of electric light and power factories has decreased considerably in recent years.

The above particulars refer only to electric light and power generation by central electric stations in Victoria and do not include details of distribution, etc. They are compiled from factory returns submitted in accordance with the Commonwealth Census and Statistics Act.

Included in the above figures are those of the State Electricity Commission of Victoria which generates and supplies practically all of the electricity consumed in Victoria.

Ministry of Fuel and Power

Introduction

The Ministry of Fuel and Power was established by the *Fuel and Power Act 1965* to "determine the means by which the present and future sources and supplies of fuel and power in Victoria can be developed and utilised to the best advantage to the people of Victoria and to promote the co-ordinated development and utilisation of such sources and supplies by those means". It consists of a Minister for Fuel and Power, a Secretary for Fuel and Power, and such other officers and employees as are necessary. The Secretary for Fuel and Power is appointed by the Governor in Council and the other officers and employees are appointed by the Public Service Board under the *Public Service Act 1958*.

Establishment of Ministry

Following the discovery of natural gas off the east Gippsland coast early in 1965 and the possible discoveries of oil, the Government realised that new sources of indigenous primary energy would be introduced into Victorian industry and homes in the future and that a Government agency would be required to co-ordinate and promote the development of all fuel resources.

The Government, therefore, decided that a Ministry of Fuel and Power should be established to co-ordinate the activities of the State Electricity Commission and the Gas and Fuel Corporation and any other body needed to utilise sources of primary and secondary energy in Victoria. The Government also realised that private oil and gas companies should be able to refer legislative and other problems concerned with the production and marketing of energy to a particular agency which would have the authority to examine proposals and give decisions. All these requirements were to be fulfilled by a Ministry for Fuel and Power.

Organisation

The then Minister of Electrical Undertakings was appointed in December 1965 as the first Minister for Fuel and Power and responsible to Parliament for the operation of the State Electricity Commission of Victoria and the Gas and Fuel Corporation of Victoria. The Secretary for Fuel and Power was appointed early in 1966 and the Ministry began to operate in June 1966.

Legislation

Victorian Pipelines Commission

In October 1966, the Minister for Fuel and Power introduced in the Victorian Legislative Assembly a Bill to establish the Victorian Pipelines Commission. This was subsequently passed by both Houses of Parliament and proclaimed early in 1967 as the *Victorian Pipelines Commission Act 1966*. The Victorian Pipelines Commission commenced operation on 1 March 1967. The functions of the Commission are to construct, maintain, and operate pipelines for the carriage of hydrocarbons in a gaseous state. It consists of a chairman and four commissioners and is responsible to the Minister for Fuel and Power for its operation. (See also page 455.)

Pipelines Act

During the autumn session of Parliament in 1967, the Minister for Fuel and Power sponsored a Pipelines Bill. This was subsequently passed and came into operation on 1 September 1967 as the *Pipelines Act 1967*. It is operated jointly by the Minister for Fuel and Power and the Minister of Mines and its primary functions are to grant permits to own and use pipelines for the carriage of hydrocarbons and licences for the construction and operation of such pipelines. The permits are granted by the Ministry of Fuel and Power and the licences by the Mines Department.

Pipelines Regulations

To facilitate the operation of the Pipelines Act the Pipelines (Permits) Regulations 1967 were drawn up. These became effective on 1 September 1967.

Other Legislation

The Minister for Fuel and Power introduced into the Victorian Parliament in 1967 and 1968 legislation amending *The Geelong Gas Company's Act 1858*, the *State Electricity Commission Act 1958*, and the *Electric Light and Power Act 1958*.

Activities

Since its inception the Ministry of Fuel and Power has, in addition to initiating the above legislation, undertaken the following projects : preliminary plans for the construction of the 30 in natural gas pipeline from Dutson to Dandenong ; arrangements for an energy study to determine the impact of natural gas on the industrial and social life of Victoria, and for plotting a conceptual plan for a network of natural gas pipelines throughout the State ; preliminary study for a char industry in the Latrobe Valley ; and early plans for the introduction of nuclear energy into Victoria. It has also arranged considerable co-ordination between gas companies, oil companies, and Government instrumentalities and departments to ensure the successful introduction and development of natural gas.

State Electricity Commission of Victoria

Introduction

The State Electricity Commission which was constituted by the *Electricity Commissioners Act 1918*, is a semi-governmental authority administered since 1921 by a full-time chairman and three part-time commissioners. The principal duty of the Commission is to co-ordinate and extend on an economic basis the supply of electricity throughout Victoria.

For this purpose, it is vested with power to erect, own, and operate power stations and other electrical plant and installations, supply electricity retail to individual consumers or in bulk to any corporation or public institution, acquire and operate electricity undertakings, develop, own, and operate brown coal open cuts and briquetting works, and develop the State's hydro-electric resources.

From its own revenues, which it controls, the Commission must meet all expenditure in the operation of its power, fuel, and subsidiary undertakings, and all interest and other charges incurred in the service of its loans and other capital commitments.

The Commission is the controlling authority for all electrical undertakings in Victoria. It is responsible for the registration of electrical contractors, the licensing of electrical mechanics, the control of installation methods and material, and the testing and approval of electrical equipment and appliances. Incidental to its main operations, the Commission owns and operates the tramway systems in Ballarat and Bendigo.

Electricity Generation

Since it began operating in 1919, the State Electricity Commission has expanded and co-ordinated the production and supply of electricity on a State-wide basis to the point where its system now generates almost all the electricity produced in Victoria and serves more than 99 per cent of the population.

Development of Victoria's electricity system is based on the utilisation for both power and fuel of Victoria's extensive brown coal resources in the Latrobe Valley in eastern Gippsland, with supplementary development of the hydro-electric potential of north-eastern Victoria. Victoria is entitled to one-third of the electricity from the Snowy Mountains Hydro-electric Scheme, after the Commonwealth has taken the power it needs for its purposes. Victoria also shares with New South Wales in the electricity generated at Hume Hydro Station on the River Murray.

By far the greater part of the State's electricity is generated from brown coal, either used in its raw state or manufactured into higher quality fuel in the form of brown coal briquettes. All the brown coal and briquette fuel is supplied by undertakings which the Commission itself owns and operates. Output of brown coal in 1966-67 from the three open cuts at Yallourn, Yallourn North and Morwell totalled 21,982,975 tons, of which 16,469,136 tons were used in the Commission's own power stations, and 5,082,326 tons were manufactured into 1,820,120 tons of brown coal briquettes, 30 per cent of the briquette output then being used for electricity production in metropolitan and provincial steam power stations. The two functions, generation of electricity and production of fuel are closely integrated. Apart from the large proportion of brown coal and briquette fuel consumed in the power stations, the process of briquette manufacture results also in the generation of electricity, since the steam needed for processing the raw coal for briquetting is first used to operate turbo-generators.

Electricity Supply

At 30 June 1967, the number of ultimate consumers in Victoria was 1,135,613. Of these, 1,129,704 were served by the State system and 5,909 by local country undertakings. The State system supplies all the Melbourne Metropolitan Area and almost 2,300 other centres of population.

By 30 June 1967, about 955,000 of the 967,000 homes in the State and 68,312 of Victoria's 69,700 farms were supplied with electricity.

State-wide electrification is now nearing completion. It is expected that fewer than 3,000 homes and 1,250 farms in remote and isolated areas will be out of reach of public supply mains. Efforts will continue to be made to supply as many of these as possible.

The Commission sells electricity retail in all areas except part of the Metropolitan Area, where it sells in bulk to eleven municipal undertakings which operate as local retail supply authorities under franchises granted before the Commission was established. Bulk supply is also being provided at present to several New South Wales

municipalities and irrigation settlements bordering the River Murray. The number of consumers served by the State system outside the Melbourne Metropolitan Area is 531,025. Of the new consumers connected to supply each year, more than two-thirds are outside the Metropolitan Area. New farm connections number approximately 3,600 a year.

The Commission's retail consumers numbered 911,038 at 30 June 1967. Retail supply is administered through the metropolitan branch and ten extra-metropolitan branches (Barwon, Eastern Metropolitan, Gippsland, Mallee, Midland, Mid-Western, North-Eastern, Northern, South-Western, and Wimmera). At 30 June 1967, there were branch and district supply offices in Melbourne and ninety-five other cities and towns in Victoria.

Electricity Production, Transmission, and Distribution

Electricity generated in the State system or purchased by it totalled 11,209 mill. kWh in 1966-67, or more than 99 per cent of all Victoria's electricity for public supply. The system comprises a series of thermal and hydro-electric power stations. Inclusive of generator capacity both within the State and available to the Victorian system from outside the State, the total installed generator capacity at 30 June 1967 was 2,896,000 kW. Power stations are interconnected and feed electricity into a common pool for general supply.

The major power station in this interconnected system is the brown coal burning power station at Yallourn, which alone generates 38 per cent of Victoria's electricity. Other power stations in the interconnected system comprise two further base-load power stations burning brown coal; Morwell and Hazelwood (which now has four of its planned eight 200 MW generating sets in service); steam stations in Melbourne (Newport, Richmond, and Spencer Street), Geelong and Ballarat, and also at Red Cliffs, which has, in addition, some internal combustion plant; and hydro-electric stations at Kiewa, at Eildon, on the Rubicon and Royston Rivers near Eildon, and at Cairn Curran. All major power stations within Victoria are Commission owned, except Spencer Street Power Station, which remains the property of the Melbourne City Council, although operated as a unit in the interconnected system.

A 330 kV transmission line links the Victorian system with the Snowy Mountains undertaking, and also provides facilities for interconnection between the Victorian and New South Wales State generating systems. Also linked with the Victorian interconnected system is the hydro station at Hume Dam on the River Murray. This power station is operated by the Electricity Commission of New South Wales. Output and operating costs are shared by Victoria and New South Wales.

In meeting the total demand on the system, which fluctuates throughout the day and from month to month, each group of stations in the interconnected system is assigned a pre-determined function dependent upon the availability of power from each group and the economics of generation. The various stations are utilised in the combination that will meet the system load most economically at a given time.

The electrical transmission and distribution system in the State supply network at 30 June 1967 comprised 53,210 miles of power lines, twenty-four terminal receiving stations, ninety-one main transmission sub-stations, and over 51,000 distribution sub-stations. Main transmission is by 330 kV, 220 kV, and 66 kV power lines which supply the principal distribution centres and also provide interconnection between the power stations. The 330 kV and 220 kV systems total 1,425 route miles.

Transmission lines to operate at 500 kV—the first in Australia—are being constructed by the Commission between the Latrobe Valley and Melbourne. The first line, Hazelwood–South Morang, commenced operations during 1968.

Future Development

Major new construction is concentrated on increasing the capacity of a large brown coal burning power station (Hazelwood), designed to operate on raw brown coal fuel supplied by belt conveyor direct from the Morwell brown coal open cut. Hazelwood Power Station is the largest project undertaken by the Commission and is designed to have a capacity of 1,600 MW in 1971. By that year the State's power resources, including Victoria's share of the output of the Snowy scheme, will have increased by 35 per cent to 3,907,000 kW.

The first of Hazelwood's eight 200 MW turbo-generators was commissioned in October 1964; the second generating set went into service in 1965, the third generating set in 1966, the fourth generating set in 1967, and four other 200 MW sets will follow at yearly intervals. Power generated at Hazelwood Power Station is transmitted at high voltage to Melbourne metropolitan terminal stations for distribution through the State supply network. To follow the Hazelwood project a new power station—to be known as Yallourn "W"—will be built about half a mile west of the present Yallourn Power Station. It will also operate on brown coal which will be supplied by conveyors from the Yallourn open cut. Yallourn "W" will have two 350 MW turbo-generators, the first to be in service in 1972 and the second in 1973.

Local Country Electricity Undertakings

At 30 June 1967, there were four independent electricity undertakings in country centres in Victoria generating and distributing their own local supply. Three of these undertakings were in the west and north-west of the State. Under the State Electricity Commission's rural electrification programme almost all the independent local country undertakings will ultimately be acquired and absorbed into the State system.

For the year 1966–67, the total production of the independent undertakings was 23 mill. kWh. The number of consumers at 30 June 1967 was 5,909. The operation of the independent undertakings is governed by the *Electric Light and Power Act 1958*, which is administered by the State Electricity Commission.

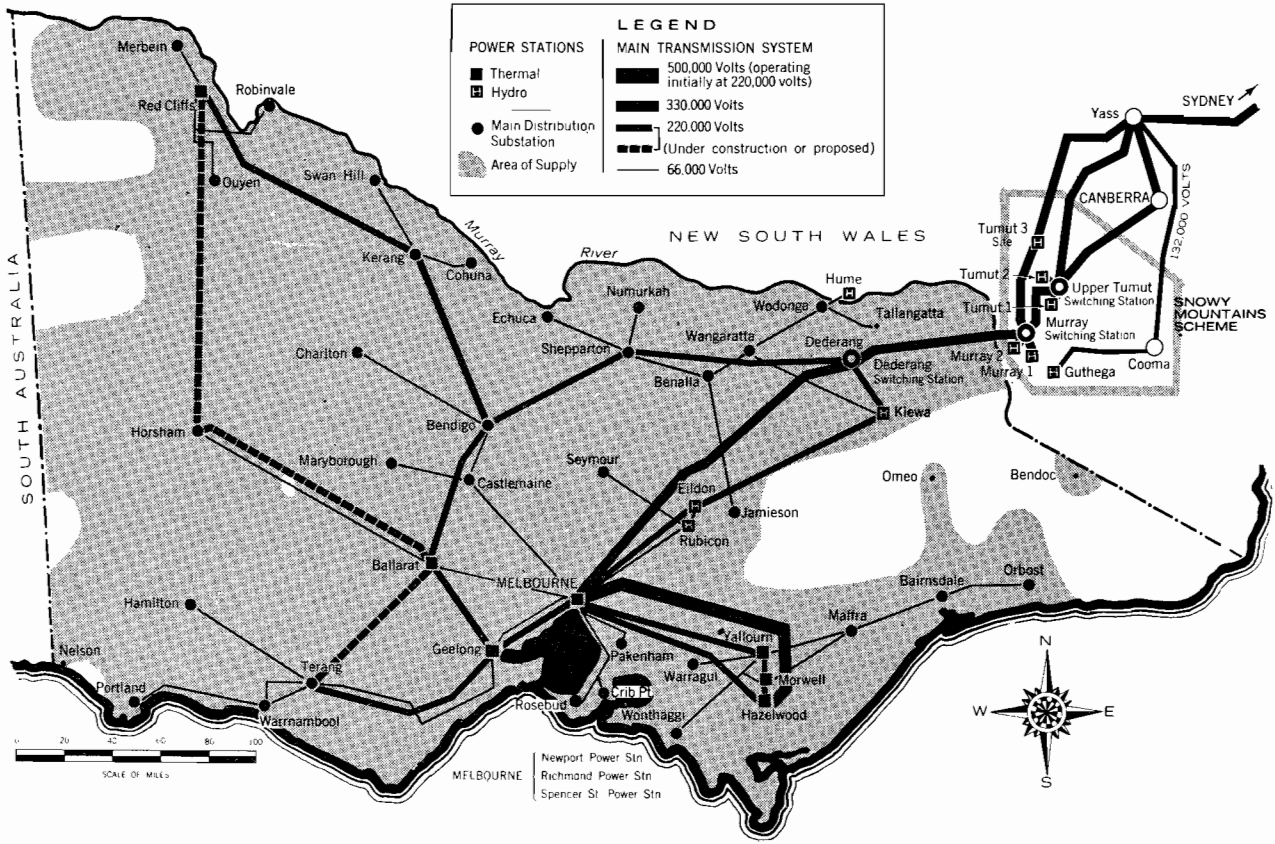


Figure 11.—Map of Victoria's main power transmission system.

The following table shows the predominant part taken by the State Electricity Commission in the generation of electric power in Victoria, the amount of power generated by water power and other sources, and the relative importance of the main power stations :

VICTORIA—ELECTRICITY GENERATED, POWER STATIONS, AND SOURCES OF POWER, 1966-67

Station or Origin of Power	Source T=Thermal* H=Hydro	Quantity Mill. kWh	Percent- age of Pro- duction
State Electricity Commission—			
Own Generation—			
Yallourn Power Station and Briquette Factory	T	4,242·0	37·5
Morwell Power Station	T	1,102·5	9·7
Hazelwood Power Station	T	3,438·4	30·4
Newport Power Station	T	703·1	6·2
Spencer Street Power Station (M.C.C.†)	T	152·7	1·4
Richmond Power Station	T	53·7	0·5
Provincial Thermal Power Stations ..	T	33·4	0·3
Total S.E.C. Thermal Generation ..	T	9,725·8	86·0
Eildon	H	243·4	2·2
Kiewa	H	327·1	2·9
Total S.E.C. Hydro Generation ..	H	570·5	5·1
Other Public Supply Generation	T	30·1	0·3
Total Generation by Public Supply Undertakings	T and H	10,326·4	91·4
Electricity Generated in Factories for Internal Consumption ‡	T	386·1	3·4
Total Electricity Generated in Victoria ..	T and H	10,712·5	94·8
Net Interstate Purchases	T and H	591·0	5·2
Total	T and H	11,303·5	100·0

* Includes Internal Combustion. † Melbourne City Council. ‡ Excluding S.E.C. Briquette Factory.

In the next table particulars relating to gas works are shown :

VICTORIA—GAS WORKS

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	27	27	30	30	29
Number of Persons Employed ..	1,414	1,379	1,347	1,329	1,312
Salaries and Wages Paid \$'000	3,894	3,834	3,868	4,339	4,512
Value of Power, Fuel, etc., Used \$'000	1,182	1,296	1,279	1,183	1,184
Value of Materials Used \$'000	8,702	8,733	8,506	9,522	9,661
Value of Production .. \$'000	13,402	14,407	16,328	15,507	17,475
Value of Output .. \$'000	23,286	24,436	26,114	26,212	28,319
Value of Land and Buildings \$'000	8,428	8,782	9,422	9,579	9,468
Value of Plant and Machinery \$'000	27,336	28,170	30,053	32,323	30,708
Horse-power of Engines Ordinarily in Use .. H.P.	26,955	26,291	25,916	26,998	27,021

The particulars appearing in the above table are compiled from factory returns received under the authority of the Commonwealth Census and Statistics Act. They relate to production and exclude distribution costs, revenues, etc.

Gas Industry*General*

The gas industry in Victoria provides a reticulated gas supply to the Melbourne Metropolitan Area and to some twenty-five country centres throughout the State. Approximately 90 per cent of all gas used is currently consumed in the Melbourne Metropolitan Area. Gas is supplied by the Gas and Fuel Corporation of Victoria, a public authority of the State, and three privately owned public companies, the Colonial Gas Association Ltd, The Gas Supply Company Ltd, and the Geelong Gas Co. The Gas and Fuel Corporation supplies approximately 80 per cent of all gas consumed in the State.

Gas and Fuel Corporation of Victoria

The Gas and Fuel Corporation of Victoria came into being by Act of Parliament in 1950. It was formed by the merger of the Metropolitan and Brighton Gas Companies which supplied gas to adjoining areas. The privately held shares in the two companies were exchanged for fully paid up preference shares in the Gas and Fuel Corporation and the State Government of Victoria invested \$8m which was held as ordinary shares in the Corporation. Three directors are appointed by the preference shareholders and the Chairman and three other directors are appointed by the Government.

The Corporation was originally formed to make possible the use of the vast resources of brown coal in the Latrobe Valley for towns gas production. Among other things, the Corporation's duties include that of the encouragement and promotion of the use of gas and the task of advising the Government on the steps necessary to secure a safe, economical, and effective supply of gas in Victoria.

Erection of the Lurgi high pressure gasification plant on the brown coal field at Morwell commenced in 1951 and was completed by 1956. It now produces some 30 mill. therms of towns gas per annum from brown coal briquettes.

Changes in raw material availability and parallel development of new gasmaking processes have led to considerable diversification in the methods of gas production over the years. The Corporation has progressively introduced new gasification processes making use of new feedstocks to achieve minimum production costs.

The Corporation's metropolitan distribution system which includes supply to the Mornington Peninsula, now covers an area of over 210 sq miles. Gas is also supplied to the country centres of Bendigo, Castlemaine, Kyneton, Morwell, Trafalgar, and Traralgon. At 30 June 1967, the Corporation was supplying some 416,000 consumers through a system involving some 4,250 miles of main.

Trends in gas production, diversification of feedstocks, and the growth which has taken place in the Corporation's business are reflected in the gas issue statistics set out in the following table :

VICTORIA—GAS AND FUEL CORPORATION OF VICTORIA :
GAS MADE AND BLENDED

Gas	1954-55		1959-60		1966-67	
	Mill. Therms	Per cent	Mill. Therms	Per cent	Mill. Therms	Per cent
Black Coal Gas ..	36·1	66·0	24·8	33·5	9·8	10·0
Water Gas	17·6	32·1	8·0	10·8	2·6	2·7
Oil Gas	0·2	0·4	..	..	28·3	28·8
Lurgi Gas .. ..	..	..	20·4	27·5	29·0	29·5
Refinery Gases ..	0·8	1·5	20·9	28·2	28·5	29·0
Total ..	54·7	100·0	74·1	100·0	98·2	100·0

Colonial Gas Association Ltd

The Colonial Gas Association Ltd was incorporated in 1888 and operates gas undertakings in a number of States of the Commonwealth. In Victoria, it supplies gas in the Footscray and Box Hill areas of Melbourne and in the country centres of Benalla, Horsham, Seymour, Shepparton, and Wangaratta.

Until 1959, the Association's gas works used conventional carbonisation methods to produce gas from black coal imported from New South Wales. Between 1959 and 1963 its country undertakings were modified to operate on tempered liquefied petroleum gas and, at the same time, liquefied petroleum gas became a significant feedstock in its metropolitan gas undertakings.

At 30 June 1967, the Association was supplying gas to some 80,360 consumers in Victoria through approximately 1,280 miles of main. About 16·2 mill. therms of gas were issued during 1966-67. Most of this was produced for the Box Hill and Footscray areas.

Gas Supply Company Ltd

The Gas Supply Co. Ltd was incorporated in Victoria in 1926 and operates gas undertakings in Victoria, New South Wales, and Queensland. By 1967 the Company had provided a reticulated gas service in Ararat, Bacchus Marsh, Ballarat, Colac, Hamilton, Portland, Queenscliff, Sale, Stawell, Warrnambool, and Wodonga.

Originally, all the gas supplied in these areas was manufactured from coal, but with the advent of liquefied petroleum gas from local refineries there has been a continual change and all plants have now been rebuilt to supply either reformed or tempered liquefied petroleum gas. A total of 6.4 mill. therms of gas were issued by the Company's Victorian undertakings in 1966-67.

In 1962, the Company constructed the first tempered liquefied petroleum gas satellite plant in Australia to supply industry. Six such satellite plants have now been built in Victoria—three in Ballarat, one in Sale, and two in the Melbourne area.

Geelong Gas Company

The Geelong Gas Company was incorporated by Act of the Victorian Parliament in 1858. At 30 June 1967, it was supplying gas to some 21,900 consumers in the Geelong area through a mains system approximately 304 miles in length covering an area of supply of approximately 27 square miles. In the 1966-67 financial year, the Company issued some 4.0 mill. therms of towns gas. Approximately 82 per cent of this was produced from refinery products in a catalytic reforming plant and 18 per cent was derived from black coal.

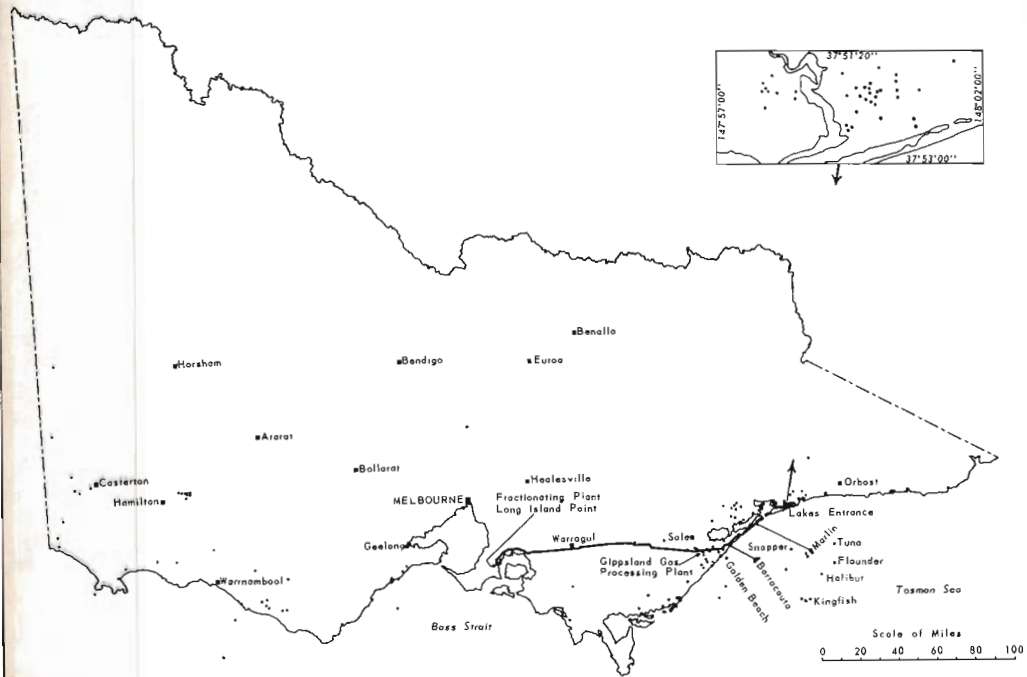
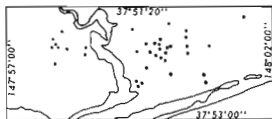
Natural Gas

The Gas and Fuel Corporation, Colonial Gas Association Ltd, The Gas Supply Company Ltd, and the Geelong Gas Company have contracted to purchase gas from Hematite-Esso, the discoverers of the field off the Gippsland coast. The gas will be delivered to the Corporation's distribution system by the Victorian Pipelines Commission. It has been envisaged that natural gas supplies will reach Melbourne in March 1969 and the Corporation will then commence the task of converting consumers' appliances to burn this fuel. Conversion is planned to be complete over a period of eighteen to twenty-four months.

Tariffs

The Corporation has introduced a system of uniform tariffs which apply in all its areas of supply throughout the State. A new optional domestic two part space heating tariff has also been introduced to promote growth in this market.

VICTORIA—GAS AND OIL WELLS
WITH ASSOCIATED PIPELINES
AS AT 30 SEPTEMBER 1968



Victorian Pipelines Commission

Introduction

The *Victorian Pipelines Commission Act 1966*, providing for the establishment of a Commission responsible for the construction, operation and maintenance of natural gas transmission pipelines in Victoria, was proclaimed to come into operation on 1 March 1967. The passing of this Act followed the announcement in February 1965 by Esso Exploration Australia Inc. and Haematite Explorations Pty Ltd (a wholly-owned subsidiary of Broken Hill Proprietary Company Limited), acting as partners, that commercial quantities of suitable natural gas had been located in the offshore portion of the Gippsland Basin in eastern Victoria. A Ministry of Fuel and Power was accordingly established to co-ordinate the fuel resources of the State, and to ensure their use in the best interests of the people.

After this announcement and the subsequent discovery by the Hematite-Esso group of another natural gas field in the same offshore basin, various gas utilities entered into an agreement with the group to buy natural gas. Hematite-Esso then proceeded with the development of these offshore fields—known as Barracouta and Marlin. This development includes drilling production wells, piping the petroleum products to land, separating the natural gas from the other petroleum products, and treating the natural gas as necessary to comply with agreed standards of quality. This treatment is carried out at Dutson (about eight miles south-east of Sale) from where the transmission of natural gas to load centres in Victoria is a responsibility of the Victorian Pipelines Commission.

Formation

The Commission, consisting of a full-time chairman and four part-time commissioners, commenced operations on 1 March 1967. The Commission acts as a common carrier of natural gas, and may also buy and sell natural gas, although it must not retail gas in any area served by the Gas and Fuel Corporation of Victoria, or any other corporation, without the prior consent of the relevant corporation. The Commission appoints its own officers and staff.

Operations

The Commission's initial activity has been related to the construction of the pipeline from Dutson to Dandenong, where it connects with the metropolitan gas distribution system. Natural gas is thus brought to the Metropolitan Area market through 110 miles of pipeline which is 30 in in diameter and designed for an operating pressure of 1,000 lb per sq inch. Construction of the pipeline commenced in February 1968. This and all other phases of the initial development of natural gas in Victoria were geared to a programme, adopted by the State Government, of natural gas being available in Melbourne by March 1969.

Particular attention was given by the Commission to the pipeline route, especially with regard to economic considerations, future maintenance, and a minimum encroachment on urban development. An 80 ft wide easement was acquired, and the pipeline was laid 22 ft 6 in from the easement boundary. Space has thus been provided for

future duplication. The pipeline was laid underground throughout its entire length, with a minimum cover of 4 ft. This permits farming operations to be carried out on the easement, with the least possible inconvenience to property owners.

The Commission was engaged, during the construction period, in determining the basis and extent of charges for the transmission of natural gas through the Commission's pipeline and in setting up for the operation and maintenance of its pipeline system. This includes metering and testing of the natural gas delivered into the pipeline at Dutson, and metering and pressure regulation at the points where natural gas will be delivered to distributors.

A study has been made of the energy requirements in provincial centres, as a result of which the first major extension of the Commission's pipeline to Melbourne is likely to be a pipeline to Geelong.

Government Factories

In 1938-39, Government factories numbered 127 and employed 12,958 persons. These factories expanded considerably as a result of war activities and reached their peak of employment in 1942-43 when 50,831 persons were working in 158 factories. Comparative particulars for the last five years are shown in the following table :

VICTORIA—GOVERNMENT FACTORIES AND WORKSHOPS

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of Factories	306	312	321	315	320
Number of Persons Employed ..	32,178	32,074	32,672	32,941	33,937
Salaries and Wages Paid \$'000	74,442	79,758	87,213	93,526	100,845
Value of Power, Fuel, etc., Used \$'000	26,088	29,382	30,249	30,760	31,148
Value of Materials Used \$'000	67,004	71,204	66,459	73,290	83,095
Value of Production .. \$'000	130,832	136,458	157,827	170,886	182,778
Value of Output .. \$'000	223,924	237,044	254,535	274,936	297,021
Value of Land and Buildings \$'000	122,326	123,822	128,012	127,764	130,348
Value of Plant and Machinery \$'000	282,504	276,864	304,791	329,368	372,499

The above table embraces establishments under the control of the Commonwealth Government in Victoria, State Government, and local government authorities. Such activities as railway and tramway workshops, electric power and gas works, dockyards, printing works, and clothing, aircraft, and munitions factories, etc., are included.

In relation to the whole of Victorian factories during 1966-67, Government factories absorbed 7.6 per cent of employment; expended 8.6 per cent of salaries and wages; and accumulated 8.2 per cent of the value of production.