

## MANUFACTURING

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### NATURAL RESOURCES AND LOCATION

#### Natural resources

Victoria's natural resources—a temperate climate, adequate rainfall and water supply, and productive soils—have been used to provide both raw materials and power for industry. For example, clay deposits for brick, tile, and pottery making are worked near Melbourne, Ballarat, Bendigo, Colac, Shepparton, Wangaratta, and in other areas of Victoria. Sand, used in foundries and concrete and glass works, is obtained in the Port Phillip and west Gippsland districts. Stone and gravel are quarried in many parts of Victoria, but, since large loads are expensive to transport, sites are concentrated within 80 kilometres of the principal market, metropolitan Melbourne. Inside a similar radius, the availability of limestone has attracted the establishment of cement works at Geelong and Traralgon, while the Lilydale deposits are extracted to produce agricultural lime.

Although Victoria's historic gold rush has long since passed, gold is still mined in the Castlemaine, Gaffneys Creek, and Harriettville areas. Victoria's other mineral resources include salt collected from solar evaporation on the western shores of Port Phillip and from the Wimmera and Mallee lakes; gypsum is also found in the north-western Mallee. More detailed information on mining activity can be found on pages 276–8.

Victorian forests provide approximately one-quarter of Australia's timber output. The fine vegetation of the Central Highlands forms the basis of important felling activities. The industry is also significant in Gippsland, where paper is manufactured at Maryvale. Other paper mills are situated in Melbourne, which is a major market for all wood and timber products.

Water, needed in large quantities for industry, is available throughout much of Victoria from dams in the catchment areas of the chief rivers (see the map on page 478 of the *Victorian Year Book* 1966). In most years, Melbourne is well supplied from the storages to its north and north-east in the Plenty, Upper Yarra, Maroondah, and O'Shannassy watersheds. However, severe restrictions were imposed during the 1967–68, 1972–73, and 1982–83 summers because of widespread drought conditions. To meet future demands, construction works are being extended. (See pages 281–4.)

Power supplies and the fuels from which they are derived are basic for industrial development. Victoria's range of carboniferous fuels is not great and, in the past, it was necessary to import significant amounts of black coal from New South Wales. Subsequently, the State Electricity Commission developed the brown coal resources of the La Trobe Valley. The open-cut mines of the Yallourn–Morwell region presently produce about 30.8 megatonnes per year for use in the steam-generation of electricity and briquette making. The Commission now delivers the bulk of Victoria's public electricity requirements; the balance is purchased interstate.

The discovery, in February 1965, and subsequent development of sizeable offshore reserves of oil and natural gas in the Gippsland basin have augmented Victoria's power and chemical resources. In March 1969, natural gas for commercial use flowed from the Barracouta field and, a month later, the first domestic customers were connected. The Marlin field began to operate in January 1970. Natural gas is now piped from Longford to Melbourne and then to Geelong, Ballarat, and Bendigo. Oil in commercial quantities has been produced from the Barracouta field since October 1969, from Halibut since

March 1970, and from Kingfish since April 1971. Petroleum refining is carried out at Altona, Geelong, and Crib Point, and petrochemical manufacturing at Altona, Geelong, Dandenong, and Footscray.

### Location

Victoria's earliest industries were located in Melbourne, the entry port for most of the people and their supplies. As Victoria developed, Melbourne became its most populous centre, the major port, the hub of the railway and road network, and major manufacturing centre. At 30 June 1981, 79.5 per cent of Victoria's 12,126 manufacturing establishments and 82.7 per cent of its work force engaged in manufacturing, were located in the Melbourne Statistical Division: of the 12,126 manufacturing establishments the full range of financial data was only collected from the 8,726 manufacturing establishments owned by all multi-establishment enterprises and single establishment manufacturing enterprises employing four or more persons (see pages 363-4 for further details). There are basic reasons for this: Melbourne's function as port and transport focus makes the collection of raw materials and the distribution of manufactured goods relatively easy; the concentration of Victoria's population in the city means a concentration of potential purchasers and potential workers; and by locating their operations in Melbourne, manufacturers can enjoy easy interchange of materials, parts, and services with other manufacturers.

Melbourne's early industrial suburbs grew on the fringes of the city centre in Port Melbourne, South Melbourne, Richmond, Collingwood, Spotswood, Fitzroy, and Footscray. In these suburbs a wide range of manufacturing industry is to be found. The more recent new industrial municipalities are Altona, Broadmeadows, Moorabbin, Oakleigh, and Dandenong, where extensive areas are available for the establishment of new industries.

Apart from smelting and large-scale steel making, most types of secondary industry are to be found in Melbourne. In terms of employment, engineering and metal processing constitute Melbourne's major industries, but a high proportion of Victoria's chemical, textile, paper, furniture, food, and building materials industries are also concentrated there.

Outside the Melbourne 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 fertilisers, glass, clothing, carpets, foodstuffs, cement, fertilisers, and sporting ammunition.

The other country areas in which more than 1,000 persons are employed in manufacturing establishments (ranked in order of the number of persons employed in factories) are the Ballarat Statistical District, Bendigo Statistical District, Shepparton-Mooroopna Statistical District, Morwell Shire, Wodonga Rural City, Wangaratta City, Warrnambool City, Portland Town, Maryborough City, Castlemaine City, and Rodney Shire. The factory population in country areas is engaged in the production of food and textiles from locally produced raw materials; clothing; engineering plants (some of which had their origin in the gold mining era of the nineteenth century); and more recently in decentralised plants with a defence significance.

## MANUFACTURING ACTIVITY

### Manufacturing developments during 1981

The manufacturing sector of Victoria in 1981 generally reported satisfactory levels of performance.

Upturn in the heavy engineering area in this period reflected strong demand emanating from resource based development projects. Of particular significance was structural steel fabrication related to stage one of the Alcoa aluminium smelter project at Portland. Although demand weakened in the final quarter, as projects were either cancelled or deferred, foundries supplying power generation and mining projects, and manufacturers of materials handling equipment reported good results for the year.

National sales of motor vehicles were slightly higher in 1981 than in 1980. Passenger vehicle sales remained almost at the 1980 level, although sales of locally manufactured vehicles increased at the expense of imports. Sales of commercial vehicles rose strongly, with imports gaining significantly. Victorian sales of both passenger and commercial vehicles declined.

Manufacturers of electrical cables and industrial and electrical accessories reported strong demand from resources related projects as well as from export sales in the ASEAN region. However, mobile radio and telecommunication manufacturers experienced losses or modest profit growth.

Markets for most types of whitegoods increased during the year; the domestic refrigerator market grew slightly. The market for dishwashers is expected to increase by 25 per cent within three years, to approach a 45 per cent household penetration. A market swing to vertical freezers from chest freezers has brought about a strong displacement of imported freezers by Australian products.

Following one firm's relocation from Canberra, Melbourne now contains three of Australia's four main computer manufacturers. It is anticipated that Australia's computer equipment market will experience strong growth into the mid-1980s. Individual computer software producers reported significant successes in South East Asia and in the United States of America.

Trading conditions for hospital and medical equipment remained generally depressed, due to State and Commonwealth funding restraints, while demand for building materials was depressed as a consequence of the slow conditions experienced by the Victorian building industry during 1981. Furniture sales declined in 1981, particularly in the latter half of the year.

Sales of paper and paperboard on local and overseas markets were satisfactory, and remained virtually unchanged from 1980. Production in the plastics industry increased by 2.7 per cent in 1981, compared with 4.9 per cent in 1980. This reduction in the rate of growth was attributed to the volume of intermediate and finished plastic products imported into Australia. Healthy growth was reported for three of the six major plastics raw materials—P.V.C. (5 per cent increase), polypropylene (5 per cent increase), and polyurethane (7 per cent increase). Polystyrene, high density polyethylene, and low density polyethylene recorded no growth. Australia's per capita consumption of plastics in 1981 was 48.5 kilograms, compared with 33.5 kilograms in 1976.

Following the Commonwealth Government's announcement during August 1980 that the assistance programme for the textiles, clothing, and footwear industries would commence on 1 January 1982 for a period of seven years, the existing programme was simultaneously extended by four months for textiles and apparel and by six months for footwear and brassieres to the end of 1981. These measures provided conditions of relative stability during the year in which further rationalisation took place, including notable takeovers of manufacturers by large retail organisations. Modest capital investment also occurred in the industry.

A rationalisation of the meat processing industry began in 1981 throughout Australia due primarily to reduced livestock herds, lower export demand for meat, and over-capacity in the industry. Victorian meatworks in both Melbourne and country areas were affected, with a loss of employment opportunities in some instances. However, a large wholesale meat company opened a new plant at Thomastown in Melbourne to produce portion packs of meat for the retail and catering trades. Several large investments took place in food products during 1981. A \$1.2m tomato concentrate plant commenced operation at Tatura.

International companies continued to show interest in Victoria's brown coal deposits for the purpose of conversion to liquid fuel. However, the relative stability of oil prices has decreased the relative viability of conversion plants.

### **Government activities**

#### *Industrial legislation*

The *Labour and Industry Act* 1958 represents the development and consolidation of industrial legislation which had its beginnings in 1873. Among other matters, the Act deals with the registration and inspection of factories, guarding of machinery, and conditions of

employment. The Act also provides for the appointment of Wages Boards and the Industrial Appeals Court. Further information on these matters may be found on pages 194-6.

### *Ministry for Economic Development*

#### *Introduction*

The Ministry for Economic Development was established by an Act of the Victorian Parliament on 1 July 1981. It is responsible for promoting and co-ordinating the balanced economic development of the State, and co-ordinates the Victorian Government's policy of creating more jobs through strong and sustained economic growth.

The balanced economic development of the State means an appropriate allocation of resources between the private and public sectors, between urban and rural areas, and between the present distribution of wealth and the need to invest for the future.

The Ministry's strategy has three elements: the production of wealth, including increased value added content, both per employee and per unit of production; the successful management of changing levels of industry protection, together with an enhanced degree of international competitiveness by Victorian industries; and the encouragement of a high level of exports.

The Ministry assists in the work of Regional Development Committees at Ballarat, Bendigo, and Portland and services Ministerial and Local Consultative Committees established for Portland and the La Trobe Valley. It also operates from regional offices located at Wodonga, Ballarat, Geelong, Shepparton, Mildura, Portland, Traralgon, Wangaratta, and Bendigo.

#### *Industry Development Division*

The Division has been charged with facilitating new private investment in Victoria. It implements and promotes, frequently in close association with the Victorian Economic Development Corporation, government policy and programmes which are designed to achieve the Ministry's objectives, and implements policies which encourage the movement of resources to desirable industries and regions as well as encouraging existing industries to increase their competitiveness.

The Division co-ordinates and develops the Victorian Government's purchasing policies, covering an estimated \$1,500m of annual government expenditure on a wide range of goods. It negotiates and manages the State's offset and preference purchase programmes; maintains links with the business community; provides professional and technical assistance to investors; and reviews legislation, regulation, and administrative procedures relating to all aspects of economic development in Victoria.

A major part of its work is directed towards seeing that decisions are co-ordinated and approvals necessary for major projects proceed. It arranges negotiations between the investor or developer and the relevant government departments, local government, and agencies, ensuring, where possible, that approvals are sought concurrently rather than sequentially.

#### *Regional Development Division*

The Division has responsibility for the development and implementation of the locational elements of the Ministry's policies and programmes. To achieve this the Division is structured around three groups:

- (1) *Regional Policy Unit.* This group undertakes research into the nature of regions, their economic performance, their potential, and appropriate structures for regional management. This information forms the basis of regional development policies for particular areas of the State.
- (2) *Regional Operations Section.* This group operates the Ministry's nine regional offices; maintains links with decentralised industries, and deals with applications for decentralisation assistance. The Regional Operations Section also plays a major role in the promotion of regional centres as industrial locations and assists in the provision of services to small businesses and regional development committees.
- (3) *Major Projects Group.* This group is currently concerned with making possible major industrial developments in Portland and the La Trobe Valley. This involves the co-ordination of infrastructure and services provision to ensure a smooth development period

for the areas involved. The group also services the Ministerial Councils and Local Consultative Committees at Portland and in the La Trobe region, and is responsible for co-ordinating and facilitating agreed government support for the Albury-Wodonga and Geelong growth centre projects, as well as investigating support requirements.

#### *Policy and Planning Division*

The Division provides economic policy and strategy planning advice to the Minister. It operates as two units.

The Industry Policy Unit develops policies and strategies for industry sectors; negotiates incentives and other industry support; and identifies opportunities for government and private investment initiatives. This unit has specialist skills in the areas of primary industry, high technology, information sector, minerals and energy, manufacturing, and the services sector.

The Research Unit analyses economic issues and policy options, monitors economic trends, maintains an economic data bank, and prepares inter-government and other submissions. It undertakes economic evaluation and pricing studies, helps establish priorities for resource allocation, and develops guidelines for industry incentives. It also makes submissions on economic development issues to external bodies.

#### *Victorian Economic Development Corporation*

The Victorian Economic Development Corporation is a statutory authority established by the Victorian Government under the *Victorian Economic Development Corporation Act 1981*. The Corporation came into being on 1 July 1981, and took over the functions of the former Victorian Development Corporation and the Victoria Promotion Committee.

The Corporation was established to facilitate and encourage:

- (1) Balanced industrial development, investment, and technology from overseas and interstate;
- (2) improved tourist facilities and accommodation; and
- (3) the export of Victorian goods and services.

To accomplish these aims the Corporation is empowered to undertake research, participate in trade fairs, maintain overseas and interstate offices as well as arrange finance, acquire land and factories, and do whatever is necessary to stimulate the economic development of Victoria. The Corporation can also make available loans at preferential rates and Government-backed guarantees to a wide range of Victorian industry.

The major functions of the Corporation are executed primarily through two divisions, the Development Division and the Finance Division.

#### *Development Division*

This Division endeavours to attract overseas investment, facilitate joint ventures and licensing agreements, and assist Victorian industry to expand export markets of primary produce, manufactured goods, and services.

It provides advice, arranges appointments, furnishes reports, and conducts confidential investigations on behalf of overseas inquirers. It also co-ordinates incoming and outgoing trade missions.

#### *Finance Division*

The Finance Division is principally responsible for the provision of financial assistance by way of loan or guarantee to:

- (1) Country manufacturing industries;
- (2) tourist accommodation and facilities throughout Victoria;
- (3) industries utilising advanced technology; and
- (4) manufacturing industries seeking to increase their exports overseas or interstate.

Finance is provided through medium to long-term loans at a concessional interest rate, the rate at October 1981 being within a maximum of 13.5 per cent per year, although in certain circumstances a lower rate may apply.

Loan applications are assessed on the criteria of viability, creation of new jobs, level of technology being utilised, and the value to Victoria of any increase in exports. Tourism

loans also take into account the extent of the need for the new service to be provided, and the effect upon existing operators in that field.

Because its funds are limited, the Corporation is generally a secondary lender and is prepared, where necessary, to accept secondary charges over assets following first mortgages and debentures to more traditional lenders.

**VICTORIA—VICTORIAN ECONOMIC DEVELOPMENT CORPORATION:  
APPROVAL OF LOANS, 1980-81 AND 1981-82**

Sector	1980-81			1981-82		
	Number	Amount (\$)	Per cent	Number	Amount (\$)	Per cent
<b>DECENTRALISED MANUFACTURING AND PROCESSING</b>						
Food, beverages, and tobacco	15	2,275,000	16.3	16	2,297,000	20.5
Textiles	7	785,000	5.6	5	442,000	3.9
Clothing and footwear	9	1,496,000	10.7	13	1,195,000	10.6
Wood, wood products, and furniture	12	857,000	6.1	9	529,000	4.8
Paper, paper products, printing, and publishing	4	172,000	1.2	1	22,000	0.1
Chemical, petroleum, and coal products	1	350,000	2.5	—	—	—
Non-metallic mineral products	9	896,000	6.4	3	290,000	2.6
Basic metal products	4	224,000	1.6	1	130,000	1.2
Fabricated metal products	22	1,389,000	9.9	12	497,000	4.5
Transport equipment	5	287,000	2.1	4	300,000	2.8
Other machinery and equipment	6	1,094,000	7.8	1	200,000	1.8
Miscellaneous manufacturing	7	463,000	3.3	2	204,000	1.8
<b>Total decentralised manufacturing</b>	<b>101</b>	<b>10,288,000</b>	<b>73.5</b>	<b>67</b>	<b>6,106,000</b>	<b>54.6</b>
<b>PREFERRED INDUSTRIES</b>						
Basic chemicals	—	—	—	2	160,000	1.4
Chemical products	—	—	—	2	85,000	0.8
Appliances, electrical and electronic equipment	—	—	—	6	785,000	6.9
Industrial machinery and equipment	—	—	—	2	1,060,000	9.5
Business services, data processing	—	—	—	8	1,140,000	10.2
<b>Total preferred industries</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>20</b>	<b>3,230,000</b>	<b>28.8</b>
<b>TOURISM</b>						
Parks and zoological gardens	—	—	—	3	195,000	1.7
Cafes and restaurants	4	69,000	0.5	2	25,000	0.2
Accommodation (a)—						
Hotels, motels, guest houses	27	2,065,000	14.8	17	880,000	7.9
Tourist flats	8	547,000	3.9	5	210,000	1.9
Group Tour Accommodation and holiday farms	6	325,000	2.3	6	155,000	1.3
Caravan parks	5	86,000	0.6	5	120,000	1.1
Snow accommodation and facilities	8	545,000	3.9	2	232,000	2.1
Others	1	63,000	0.5	1	40,000	0.4
<b>Total tourism</b>	<b>59</b>	<b>3,700,000</b>	<b>26.5</b>	<b>41</b>	<b>1,857,000</b>	<b>16.6</b>
<b>Grand total</b>	<b>160</b>	<b>13,988,000</b>	<b>100.0</b>	<b>128</b>	<b>11,193,000</b>	<b>100.0</b>

(a) This classification had been subdivided for Victorian Economic Development Corporation statistical purposes.

Source: Victorian Economic Development Corporation.

*Commonwealth Department of Industry and Commerce*

The Department's role is to provide advice on government policy relating to the development of Australian manufacturing, housing and construction, and tertiary industries, the tourist industry, and small business. In the course of developing advice appropriate to present and likely future circumstances in these sectors and administering certain aspects of policy, the Department monitors industry trends and conditions, and undertakes reviews of specific industries. The Department also includes the Australian Customs Service, and is responsible for the administration and legislation relating to imported and excisable goods.

*Commonwealth Department of Science and Technology*

The main functions of the Department of Science and Technology relating to manufacturing include development and transfer of technology in industry and commerce; registration of patents, trade marks, and designs; inventions and innovation assistance; and encouragement of industrial research and development. It also encourages

government-industry initiatives in fields such as innovation, entrepreneurship, and venture capital.

The Regional Office (Victoria) participates in planning and operating departmental projects, provides policy advice to Central Office, and develops relations with industry and other Victorian Government organisations.

#### *Commonwealth Department of Trade and Resources*

The Department is responsible for developing and maintaining Australia's position as a major world trading nation, through international trade and commodity commitments and agreements, development of export markets, and formulation of policy proposals for the Commonwealth Government's international trade policy and trading objectives. It is also responsible for matters related to the commercial development, marketing, and export of minerals, including uranium, and hydrocarbon fuels.

#### *Petroleum Products Pricing Authority*

The Petroleum Products Pricing Authority was established on 26 June 1981 pursuant to the *Petroleum Products Pricing Act 1981*. The functions of the Authority are to conduct inquiries in relation to prices for the supply of petroleum products or related services, and to report to the Minister for Administrative Services the results of every such inquiry.

An inquiry may be either:

- (1) A prices justification inquiry, that is to say, an inquiry as to whether the price or prices of products or services of a particular description is or are justified; or
- (2) an inquiry into such specified matter or matters relating to the prices at which products or services are supplied as is required by the Minister.

Those companies that are declared by the Minister in the Commonwealth of Australia *Gazette* are required by section 19 of the Petroleum Products Pricing Act to notify the Authority of proposed increases in the prices of defined petroleum products and associated services. Where a proposed increase is to be the subject of an inquiry, an interim price increase may be allowed by the Authority pending the outcome of such an inquiry.

**Further reference:** Prices Justification Tribunal, *Victorian Year Book 1982*, p. 368

#### **Scientific research and standardisation**

##### *Commonwealth Scientific and Industrial Research Organization*

The Commonwealth Scientific and Industrial Research Organization (CSIRO) is a statutory body created to carry out, on behalf of the Commonwealth Government, a wide range of research and related activities. It was established by the *Science and Industry Research Act 1949*. Under the Act, CSIRO succeeded the Council for Industrial and Scientific Research, established in 1926. The Organization was restructured by amendments made to the Act in 1978.

The functions of CSIRO are:

- (1) To carry out scientific research relevant to Australian industry, the community, national objectives, national or international responsibilities, or for any other purpose determined by the Minister responsible for CSIRO;
- (2) to encourage and facilitate the application and utilisation of its research results;
- (3) to liaise with other countries in matters of scientific research;
- (4) to train research workers;
- (5) to make grants and award fellowships and studentships relevant to the Organization's research;
- (6) to recognise, co-operate with, and make grants to industrial research associations;
- (7) to establish, develop, maintain, and promote the use of standards of measurement of physical quantities;
- (8) to collect, interpret, and disseminate scientific and technical information; and
- (9) to publish scientific and technical reports, periodicals, and papers.

##### *Standards Association of Australia*

This Association is the officially endorsed national organisation for the promotion of standardisation in Australia. It is an independent body incorporated by Royal Charter,

having the full recognition and support of the Commonwealth and State Governments and industry. Formed as the Australian Commonwealth Engineering Standards Association in 1922 it was reconstituted as the Standards Association of Australia in 1929. Approximately 30 per cent of its funds are provided by Commonwealth Government grants, the remainder coming from membership subscriptions and the sale of publications.

A Council composed of representatives of Commonwealth and State Government departments, associations of manufacturing and commercial interests, and professional institutions controls the Association's activities. The technical work of the Association is carried out on a voluntary basis by committees composed of experts in the particular subjects for which standards have been requested.

Australian standards are developed by co-operative effort and negotiation on the part of those most concerned, whether as producers or as users. They are based on what is best in present practice. They do not attempt to attain an ideal which might be too costly to adopt under industrial and commercial conditions. They are constantly revised to take account of new developments and to eliminate outmoded practices.

Industrial associations, firms, or government departments may request standards relating to such things as terminology, test methods, dimensions, specifications of performance and quality of products, and safety or design codes. In general, standards derive authority from voluntary adoption based on intrinsic merit. It is only in special cases where safety of life and property is involved, that they may have compulsory application. The Association owns a registered certification trade mark which manufacturers may obtain a licence to use.

The Association has international affiliations, being the Australian member body on the International Standards Organization (ISO) and the International Electrotechnical Commission (IEC); it also maintains close links with overseas standards organisations. It acts as Australian agent for the procurement of overseas publications and the standards of other countries. The headquarters office of the Association is in Sydney, and there is a major office in Melbourne. Branch offices are located in other capital cities and at Newcastle, New South Wales.

#### *National Association of Testing Authorities, Australia*

This is the Australian organisation for accreditation of testing and measuring facilities. It registers testing and measuring laboratories which can demonstrate their technical and managerial competence. Registration of laboratories is voluntary. Registered laboratories are operated by industrial, governmental, educational, and commercial testing authorities. The Association is recognised by all State Governments, the Commonwealth Government, and industry associations. Registered laboratories have the right to endorse their test documents in the name of the Association.

#### *Industrial Design Council of Australia*

The Industrial Design Council of Australia has established its Victorian and national headquarters at the Australian Design Centre in Melbourne. At the Australian Design Centre, there is a small changing display of quality Australian designed products which have received Design Council recognition. The Council provides three authoritative types of endorsements for companies and their products. They are made on the recommendation of independent panels with a wide range of technical and design expertise.

The Design Council's field advisors who are experts in engineering, design, and marketing are available to assist manufacturers with new product development including the provision of scientific and technological abstracts that apply to specific product development needs. The Council's Design Referral Service offers quick access to pre-selected lists from the Council's extensive register of specialists in all aspects of product development.

The Design Council also runs new product development workshops and lectures. These training programmes, for middle and upper management, follow a logical progression through the product development process from idea generation to sales and promotion, and include such important stages as financial planning, product design, and research.

The Council assists manufacturers with product design management helping establish corporate design policies and strategies for new product development. If required, the



Council can develop a complete product development programme that is tailored to the specific needs of particular companies. Such programmes may encompass design audit, new product idea searches, idea development and evaluation, development of a product profile, and the contracting of external talent and the supervision of their work. The Council can also assist manufacturers with the assembly of panels of creative persons who can apply techniques of creative problem solving. These panels also assist in the training of company staff.

The Design Council's education officers work with teachers and curriculum planners in schools and State colleges assisting them to develop programmes which will create an awareness and understanding of design.

## MANUFACTURING INDUSTRY STATISTICS

### Basis of collection

A series of substantially uniform statistics exists from 1901 to 1967-68 when the framework within which manufacturing statistics were collected was changed. The table on pages 364-5 contains a summary of statistics on manufacturing activities in Victoria over that period. More detailed manufacturing statistics in respect of this period have been included in previous editions of the *Victorian Year Book*.

As from the year ended June 1969, the Census of Manufacturing, Electricity, and Gas has been conducted within the framework of the integrated economic censuses, which include the Censuses of Mining, Retail Trade and Selected Services, and Wholesale Trade. As a result, manufacturing industry statistics for 1968-69 and subsequent years are not directly comparable with previous years. The electricity and gas industries, which were previously included in the annual Manufacturing Census, were the subject of separate censuses. The integration of these economic censuses was designed to increase substantially the usefulness and comparability of economic statistics collected and published by the Australian Bureau of Statistics and to form a basis for the sample surveys which supply current economic statistics from quarter to quarter, particularly those which provide data for the quarterly national income and expenditure estimates.

The economic censuses of Manufacturing, Mining, and Retail Trade previously conducted in Australia were originally designed and subsequently developed primarily to provide statistics for particular industries on a basis which would best suit the requirements of users interested in statistics of those industries. More recently there has been a growth of interest in statistics describing activity in the economy as a whole—reflected, for example, in the development of employment and earnings statistics, surveys of capital expenditure and stocks, and the whole field of national accounts statistics. For such purposes statistics derived from economic censuses in the past have had serious limitations despite the fact that they covered a broad area of the whole economy. Because of the special requirements of each of the censuses, there were no common definitions of data, there was no common system of reporting units, and, as a standard industrial classification was not used for these censuses, industry boundaries were not defined in ways which would avoid overlapping or gaps occurring between the industrial sectors covered. For these reasons, direct aggregation and comparison of statistics from different censuses were not possible.

The integration of these economic censuses meant that for the first time they were being collected on the basis of a common framework of reporting units and data concepts and in accordance with a standard industrial classification. As a result, the statistics for the industries covered by the censuses are now provided with no overlapping or gaps in coverage, and in such a way that aggregates for certain important economic data such as value added, employment, wages and salaries, fixed capital expenditure, and stocks can be obtained on a consistent basis for all sectors of the economy covered by the censuses. From the 1975-76 Census of Manufacturing Establishments onwards, only a limited range of data—employment and wages and salaries—is collected from single establishment manufacturing enterprises with less than four persons employed. This procedure has significantly reduced the statistical reporting obligations of small businesses, while at the same time only marginally affecting statistical aggregates other than the number of establishments. Data in respect of establishments from which the full range of data is

collected under the new collection criteria (i.e., all manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed) is considered to provide reliable information for the evaluation of trends in the manufacturing sector of the economy. All tables in this and subsequent *Victorian Year Books* will show details collected from all manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises employing four or more persons, while for 1974-75 some tables also show data collected from single establishment manufacturing enterprises employing less than four persons.

From the 1977-78 Manufacturing Census, the classification of census units to industry is based on the 1978 edition of the *Australian Standard Industrial Classification (ASIC)*. The 1978 edition of the classification replaces the 1969 preliminary edition which had been in use since the 1968-69 Census.

The 1977-78 data used in the following tables is classified according to the 1978 edition of ASIC. In general, the impact of the change in industrial classification is minimal at the ASIC division and sub-division levels, leaving their basic character and structure unchanged. The ASIC division and sub-division levels are the levels used in this chapter.

For a more detailed description of the integrated economic censuses, reference should be made to pages 368-89 of the *Victorian Year Book* 1971.

#### Summary of manufacturing statistics

Manufacturing statistics compiled for 1967-68 were the last of the old series, and definitions used in the 1967-68 and previous manufacturing censuses were published in the *Victorian Year Book* 1971, pages 394-7. The first publication of statistics from the 1968-69 economic censuses, *Manufacturing establishments and electricity and gas establishments: preliminary statement* (8208.0), was issued in January 1971 and contained information in respect of twelve industry sub-divisions permitting comparisons to be made between States, but did not permit comparisons to be made between 1968-69 and previous years because of the changes in the definition of the establishment, bases of classification, and forms.

In respect of 1980-81, the four metal products sub-divisions, namely, Basic metal products (sub-division 29), Fabricated metal products (sub-division 31), Transport equipment (sub-division 32), and Other machinery and equipment (sub-division 33), with 160,265 persons or 40.9 per cent of the total employment in manufacturing establishments in 1980-81, employed considerably more persons than any other part of manufacturing industry. Next in order of employment was Food, beverages, and tobacco (sub-division 21), with 55,349 or 14.1 per cent, followed by Clothing and footwear (sub-division 24), and Paper, paper products, printing, and publishing (sub-division 26) with 43,614 and 33,629, respectively, or 14.1 per cent and 8.6 per cent of the total.

#### VICTORIA—DEVELOPMENT OF MANUFACTURING ACTIVITY

Year	Manufacturing establishments	Employment (a)	Wages and salaries paid (b)	Turnover	Purchases, transfers in, and selected expenses	Value added	Fixed capital expenditure less disposals
	number	number	\$m	\$m	\$m	\$m	\$m
1901	3,249	66,529	n.a.	n.a.	n.a.	n.a.	(f) 25
1911	5,126	111,948	18	(e) 84	(d) 51	32	(f) 28
1920-21	6,532	140,743	43	(e) 212	(d) 135	77	(f) 71
1932-33	8,612	144,428	42	(e) 204	(d) 122	82	(f) 136
1946-47	10,949	265,757	156	(e) 631	(d) 368	263	(f) 244
1953-54	15,533	331,277	472	(e) 1,971	(d) 1,154	817	(f) 679
1960-61	17,173	388,050	776	(e) 3,332	(d) 1,914	1,418	(f) 1,642
1965-66	17,980	439,149	1,077	(e) 4,625	(d) 2,597	2,028	(f) 2,386
1967-68	18,030	449,945	1,244	(e) 5,351	(d) 2,957	2,395	(f) 2,685
1968-69	(c) 11,563	431,651	1,342	6,336	3,861	2,542	278
1969-70	(c) 11,393	445,663	1,497	6,998	4,307	2,799	300
1971-72	(c) 11,408	450,026	1,800	8,055	4,812	3,328	374
1972-73	(c) 11,735	455,029	2,045	9,078	5,392	3,738	438
1973-74	(c) 12,070	469,838	2,524	10,669	6,486	4,546	418
1974-75	(g) (c) 8,924	432,851	2,961	11,730	7,024	5,131	455
	(h) (c) 2,834	5,727	17	100	53	48	2
1975-76	(g) (c) 8,873	417,107	3,287	13,220	7,564	5,765	462
1976-77	(g) (c) 8,735	409,196	3,650	15,040	8,696	6,637	495

## VICTORIA—DEVELOPMENT OF MANUFACTURING ACTIVITY—continued

Year	Manufacturing establishments	Employment (a)	Wages and salaries paid (b)	Turnover	Purchases, transfers in, and selected expenses	Value added	Fixed capital expenditure less disposals
	number	number	\$m	\$m	\$m	\$m	\$m
1977-78 (g)	(c) 8,571	339,372	3,829	16,191	9,475	6,916	651
1978-79 (g)	(c) 8,546	394,964	4,102	(i) 18,228	(i) 11,109	(i) 7,377	742
1979-80 (g)	(c) (j) 8,902	397,313	4,563	(i) 21,233	(i) 13,353	(i) 8,505	735
1980-81 (g)	(c) 8,726	391,489	5,032	(i) 23,856	(i) 14,814	(i) 9,440	712

(a) Average over whole year, including working proprietors.

(b) Excludes drawings of working proprietors.

(c) Number of establishments operating at 30 June.

(d) Prior to 1968-69, details relate to materials and fuels used.

(e) Output.

(f) Prior to 1968-69, details relate to land, buildings, plant, and machinery.

(g) All manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed.

(h) Single establishment manufacturing enterprises with less than four persons employed.

(i) Commencing with 1978-79 census, the method of calculating value added, purchases etc. and turnover has been changed to accord more closely with the concepts and definitions used in the Australian National Accounts.

(j) The coverage of the 1979-80 manufacturing census was improved as a result of conducting the 1979-80 Census of Retail and Selected Services Industries. While this improved coverage contributes to the increase in the number of establishments in some States or industries, its effects on any other statistical aggregates are only marginal.

NOTE. A line drawn across a column between the figures indicates a break in continuity in the series. No census of manufacturing establishments was conducted for the year ending 30 June 1971.

A comparison between manufacturing activity in Victoria and the other States is shown in the following table:

## AUSTRALIA—MANUFACTURING ESTABLISHMENTS (g), 1980-81

State or Territory	Establishments operating at 30 June	Employment (a)	Wages and salaries paid (b)	Turnover	Purchases, transfers in, and selected expenses	Value added	Fixed capital expenditure less disposal
	number	number	\$m	\$m	\$m	\$m	\$m
New South Wales	10,334	436,114	5,884	26,898	16,653	10,865	991
Victoria	8,726	391,489	5,032	23,856	14,814	9,440	712
Queensland	3,291	116,115	1,410	9,667	6,722	3,075	414
South Australia	2,131	104,755	1,283	6,067	3,693	2,387	258
Western Australia	2,426	68,870	869	4,902	3,149	1,877	424
Tasmania	558	26,528	347	1,867	1,176	713	60
Northern Territory	98	2,651	42	292	231	96	20
Australian Capital Territory	117	3,316	45	163	89	77	3
Total	27,681	1,149,838	14,911	73,712	46,526	28,531	2,883

For footnotes see table above.

The total value added in 1980-81 was \$9,440m. Of this amount, the Metal products sub-divisions contributed \$3,639m which represented 38.5 per cent of the total. The Food sub-division followed with \$1,553m or 16.5 per cent, and the next in order were the Paper, paper products, printing, and publishing sub-division with \$870m, 9.2 per cent, and the Chemical, petroleum, and coal products sub-division with \$830m, 8.8 per cent.

The following table contains a summary of manufacturing establishments by subdivision of industry in Victoria during the year 1980-81:

## VICTORIA—MANUFACTURING ESTABLISHMENTS (g) BY SUB-DIVISION OF INDUSTRY, 1980-81

ASIC code	Industry sub-division	Establishments operating at 30 June	Employment (a)	Wages and salaries (b)	Turnover	Purchases, transfers in, and selected expenses	Value added	Fixed capital expenditure less disposals
		number	number	\$m	\$m	\$m	\$m	\$m
21	Food, beverages, and tobacco	975	55,349	735	5,029	3,549	1,553	138
23	Textiles	309	19,711	242	1,020	623	401	11
24	Clothing and footwear	1,004	43,614	435	1,524	805	740	20

**MANUFACTURING ESTABLISHMENTS (g) BY SUB-DIVISION  
OF INDUSTRY, 1980-81—continued**

ASIC code	Industry sub-division	Establish- ments oper- ating at 30 June	Employ- ment (a)	Wages and salaries (b)	Turnover	Pur- chases, transfers in, and selected expenses	Value added	Fixed capital expendi- ture less dispos- als
		number	number	\$m	\$m	\$m	\$m	\$m
25	Wood, wood products, and furniture	1,129	19,628	207	871	492	388	16
26	Paper, paper products, printing, and publishing	903	33,629	471	1,788	962	870	59
27	Chemical, petroleum, and coal products	283	19,972	309	2,121	1,338	830	105
28	Non-metallic mineral products	393	12,448	184	787	414	377	59
29	Basic metal products	174	14,045	224	1,519	1,109	487	115
31	Fabricated metal products	1,153	36,027	455	1,797	1,005	819	34
32	Transport equipment	437	56,790	742	3,077	1,989	1,078	47
33	Other machinery and equipment	1,230	53,403	695	2,751	1,574	1,255	65
34	Miscellaneous manufacturing	736	26,873	333	1,573	955	641	43
	<b>Total</b>	<b>8,726</b>	<b>391,489</b>	<b>5,032</b>	<b>23,856</b>	<b>14,814</b>	<b>9,440</b>	<b>712</b>

For footnotes see page 365.

The next table summarises, by sub-division of industry, the percentage contribution of Victorian manufacturing establishments to the total Australian figures for the year 1980-81:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g)  
BY SUB-DIVISION OF INDUSTRY, 1980-81:  
PERCENTAGE OF AUSTRALIAN TOTALS  
(per cent)**

ASIC code	Industry sub-division	Establish- ments oper- ating at 30 June	Employ- ment (a)	Wages and salaries (b)	Turnover	Pur- chases, transfers in, and selected expenses	Value added	Fixed capital expendi- ture less dispos- als
21	Food, beverages, and tobacco	29	30	31	31	31	31	28
23	Textiles	49	53	54	51	50	52	29
24	Clothing and footwear	50	56	57	56	54	58	67
25	Wood, wood products, and furniture	28	25	24	24	23	24	17
26	Paper, paper products, printing, and publishing	32	33	34	34	35	34	29
27	Chemical, petroleum, and coal products	31	33	33	30	28	33	35
28	Non-metallic mineral products	23	27	27	24	22	26	30
29	Basic metal products	33	15	14	16	16	15	12
31	Fabricated metal products	27	32	33	31	29	33	25
32	Transport equipment	31	44	44	48	51	42	30
33	Other machinery and equipment	33	33	34	35	34	35	37
34	Miscellaneous manufacturing	34	42	42	44	44	43	41
	<b>Total</b>	<b>32</b>	<b>34</b>	<b>34</b>	<b>32</b>	<b>32</b>	<b>33</b>	<b>25</b>

For footnotes see page 365.

The following table shows the number of manufacturing establishments operating in Victoria at 30 June 1977 to 1981, classified according to sub-division of industry:

**VICTORIA—NUMBER OF MANUFACTURING ESTABLISHMENTS (g)  
BY SUB-DIVISION OF INDUSTRY AT 30 JUNE**

ASIC code	Industry sub-division	1977	1978	1979	1980(j)	1981
21	Food, beverages, and tobacco	963	984	957	982	975
23	Textiles	319	301	291	312	309
24	Clothing and footwear	1,141	1,079	1,041	1,038	1,004
25	Wood, wood products, and furniture	1,088	1,078	1,068	1,156	1,129

VICTORIA—NUMBER OF MANUFACTURING ESTABLISHMENTS (g)  
BY SUB-DIVISION OF INDUSTRY AT 30 JUNE—continued

ASIC code	Industry sub-division	1977	1978	1979	1980(j)	1981
26	Paper, paper products, printing and publishing	866	848	853	949	903
27	Chemical, petroleum, and coal products	283	276	286	295	283
28	Non-metallic mineral products	373	380	380	397	393
29	Basic metal products	173	166	169	175	174
31	Fabricated metal products	1,118	1,097	1,114	1,133	1,153
32	Transport equipment	425	409	434	456	437
33	Other machinery and equipment	1,281	1,228	1,216	1,245	1,230
34	Miscellaneous manufacturing	705	725	737	764	736
	Total	8,735	8,571	8,546	8,902	8,726

For footnotes see page 365.

The size classification of manufacturing establishments is based on the number of persons employed at 30 June 1981 (including working proprietors). The following table shows the number of manufacturing establishments classified according to the number of persons employed:

VICTORIA—MANUFACTURING  
ESTABLISHMENTS (a) CLASSIFIED  
ACCORDING TO NUMBER OF  
PERSONS EMPLOYED (INCLUDING  
WORKING PROPRIETORS)  
AT 30 JUNE 1981

Manufacturing establishments employing persons numbering	Number of establish- ments	Number of persons employed (b)
Less than 10	3,785	22,481
10 to 19	1,906	26,148
20 to 49	1,538	47,407
50 to 99	674	46,777
100 to 199	448	62,164
200 to 499	287	85,441
500 to 999	57	37,644
1,000 and over	31	51,804
Total	8,726	379,866

(a) All manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed. In addition, there were 3,400 single establishment enterprises employing 6,937 persons in the one to three persons employed group.

(b) Excludes persons employed in separately located administrative offices and ancillary units serving more than one establishment.

The relative importance of large and small manufacturing establishments is illustrated in the preceding table. At 30 June 1981, 3,785 establishments employing less than ten employees had a total employment of 22,481 persons. That is 43.4 per cent of manufacturing establishments—those employing less than ten persons—employed 5.9 per cent of the persons engaged. The most numerous of the establishments with less than ten persons were printing, stationery, and bookbinding; furniture (excluding sheetmetal); joinery and wooden structural fittings; and industrial machinery and equipment not elsewhere classified.

A general indication of the geographical distribution of manufacturing establishments in Victoria at 30 June 1981 is shown in the following table where they are classified according to statistical divisions:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g)  
IN STATISTICAL DIVISIONS, 1980-81**

Statistical division	Establishments operating at 30 June	Employment (a)	Wages and salaries (b)	Turnover	Purchases, transfers in, and selected expenses	Value added	Fixed capital expenditure less disposals
	number	number	\$m	\$m	\$m	\$m	\$m
Melbourne	7,024	324,235	4,180	19,362	11,971	7,672	475
Barwon	298	19,177	276	1,419	879	590	158
South Western	120	4,734	55	384	247	133	10
Central Highlands	199	8,317	97	404	216	191	16
Wimmera	67	1,309	12	55	36	20	2
Northern Mallee	93	1,395	14	87	55	37	2
Loddon-Campaspe	225	9,527	106	514	340	196	8
Goulburn	208	7,178	92	562	393	181	15
North Eastern	137	5,781	71	376	210	173	8
East Gippsland	102	2,130	24	134	80	58	4
Central Gippsland	199	6,300	88	461	319	158	14
East Central	54	1,406	17	96	66	31	2
Total	8,726	391,489	5,032	23,856	14,814	9,440	712

For footnotes see page 365.

Manufacturing establishments in the Melbourne Statistical Division constituted 80.5 per cent of the total number in Victoria at 30 June 1981, 82.8 per cent of the persons employed, and 81.3 per cent of the value added.

It should be noted that Geelong is located in the Barwon Statistical Division, Bendigo, Castlemaine, and Maryborough in the Loddon-Campaspe Statistical Division, Ballarat in the Central Highlands Statistical Division, Warrnambool in the South Western Statistical Division, Shepparton in the Goulburn Statistical Division, Wangaratta in the North Eastern Statistical Division, and Morwell and Yallourn in the Central Gippsland Statistical Division.

**Employment, wages, and salaries**

*Employment*

From 1968-69, all persons employed in a manufacturing establishment and separately located administrative offices and ancillary units serving the establishment (including proprietors working in their own businesses) are included as persons employed. The grouping of persons employed comprises (1) working proprietors; (2) administrative, office, sales, and distribution employees; and (3) production and all other employees.

The figures showing employment in manufacturing establishments represent either the average number of persons employed, including working proprietors, over a full year, or the number of persons employed at June each year as specified in the following tables:

**VICTORIA—PERSONS EMPLOYED (a) IN MANUFACTURING  
ESTABLISHMENTS (g), 1976-77 TO 1980-81**

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
21	Food, beverages, and tobacco	58,380	58,234	55,283	54,477	55,349
23	Textiles	21,075	19,460	19,046	20,210	19,711
24	Clothing and footwear	46,822	45,012	44,983	44,219	43,614
25	Wood, wood products, and furniture	19,640	19,089	18,401	19,136	19,628
26	Paper, paper products, printing, and publishing	32,656	31,654	31,656	33,268	33,629
27	Chemical, petroleum, and coal products	20,462	21,174	21,610	19,792	19,972
28	Non-metallic mineral products	13,580	12,950	12,737	12,974	12,448
29	Basic metal products	13,197	12,475	12,817	13,836	14,045
31	Fabricated metal products	35,830	35,267	35,061	36,269	36,027
32	Transport equipment	62,171	58,752	61,319	60,994	56,790
33	Other machinery and equipment	58,116	r 55,052	54,793	54,356	53,403
34	Miscellaneous manufacturing	27,267	27,253	27,258	27,782	26,873
Total		409,196	r 396,372	394,964	397,313	391,489

For footnotes see page 365.

It should be noted that the metal fabricating sub-divisions (31-33) (including transport equipment, machinery, and other equipment), Food, beverages, and tobacco sub-division (21), and Clothing and footwear sub-division (24) are large contributors.

VICTORIA—NUMBER OF MANUFACTURING ESTABLISHMENTS (g) AND PERSONS EMPLOYED (a) IN EACH  
STATISTICAL DIVISION, CLASSIFIED ACCORDING TO INDUSTRY SUB-DIVISION,  
1980-81

ASIC code	Industry sub-division	Statistical division												Total
		Mel- bourne	Barwon	South Western	Central High- lands	Wimmera	North- ern Mallee	Loddon- Campaspe	Goul- burn	North Eastern	East Gipps- land	Central Gipps- land	East Central	
NUMBER OF MANUFACTURING ESTABLISHMENTS (g)														
21	Food, beverages, and tobacco	549	49	32	37	22	36	58	61	45	18	54	14	975
23	Textiles	253	21	3	5	3	—	6	8	3	—	5	2	309
24	Clothing and footwear	924	14	3	9	1	1	18	11	5	2	14	2	1,004
25	Wood, wood products, and furniture	805	46	23	34	7	10	30	41	27	49	38	19	1,129
26	Paper, paper products, printing, and publishing	766	14	12	15	9	12	19	17	8	10	17	4	903
27	Chemical, petroleum, and coal products	257	12	3	3	—	1	2	1	1	—	3	—	283
28	Non-metallic mineral products	216	25	14	23	8	13	30	24	13	8	16	3	393
29	Basic metal products	144	11	1	6	1	—	4	2	1	1	2	1	174
31	Fabricated metal products	984	42	9	24	8	6	21	13	11	4	27	4	1,153
32	Transport equipment	363	12	6	11	—	4	15	14	4	1	7	—	437
33	Other machinery and equipment	1,079	34	13	25	5	10	19	13	14	4	10	4	1,230
34	Miscellaneous manufacturing	684	18	1	7	3	—	3	3	5	5	6	1	736
Total		7,024	298	120	199	67	93	225	208	137	102	199	54	8,726
NUMBER OF PERSONS EMPLOYED (a)														
21	Food, beverages, and tobacco	37,649	1,341	2,335	1,586	346	776	2,525	4,293	1,934	557	1,499	508	55,349
23	Textiles	14,473	1,776	n.p.	291	n.p.	—	648	430	n.p.	—	293	n.p.	19,711
24	Clothing and footwear	36,847	1,819	n.p.	568	n.p.	n.p.	1,438	471	n.p.	n.p.	849	n.p.	43,614
25	Wood, wood products, and furniture	14,022	643	588	776	81	91	328	575	752	1,047	505	220	19,628
26	Paper, paper products, printing, and publishing	29,479	364	183	506	96	168	420	365	n.p.	126	n.p.	145	33,629
27	Chemical, petroleum, and coal products	17,900	1,671	n.p.	n.p.	—	n.p.	n.p.	n.p.	n.p.	—	n.p.	—	19,972
28	Non-metallic mineral products	9,441	1,130	78	675	68	91	306	196	150	n.p.	245	n.p.	12,448
29	Basic metal products	9,765	2,920	n.p.	812	n.p.	—	182	n.p.	n.p.	n.p.	n.p.	n.p.	14,045
31	Fabricated metal products	31,940	1,000	64	513	94	48	925	304	162	n.p.	748	n.p.	36,027
32	Transport equipment	49,647	n.p.	69	1,501	—	54	979	278	20	n.p.	53	n.p.	56,790
33	Other machinery and equipment	47,355	2,118	226	933	153	155	1,401	177	429	65	360	31	53,403
34	Miscellaneous manufacturing	25,717	n.p.	n.p.	n.p.	n.p.	—	n.p.	39	19	n.p.	102	n.p.	26,873
Total		324,235	19,177	4,734	8,317	1,309	1,395	9,527	7,178	5,781	2,130	6,300	1,406	391,489

For footnotes see page 365.

In the following table the number of persons employed in manufacturing establishments in Victoria is classified according to the nature of their employment at 30 June 1977 to 1981:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
TYPE OF EMPLOYMENT**

At 30 June—	Working proprietors	Administrative, office, sales, and distribution employees	Production and all other employees	Total
1977	4,318	102,699	297,946	404,963
1978	4,007	198,705	288,099	490,811
1979	4,019	98,859	294,468	397,346
1980	4,160	98,425	288,442	391,027
1981	3,744	97,885	290,172	391,801

For footnote see page 365.

The following table shows the nature of employment in manufacturing establishments at 30 June 1981 classified according to industry sub-division:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g): TYPE OF  
EMPLOYMENT BY INDUSTRY SUB-DIVISION AT 30 JUNE 1981**

ASIC code	Industry sub-division	Working proprietors	Administrative, office, sales, and distribution employees	Production and all other employees	Total
21	Food, beverages, and tobacco	593	14,337	37,997	52,927
23	Textiles	72	4,979	14,692	19,743
24	Clothing and footwear	549	5,576	37,852	43,977
25	Wood, wood products, and furniture	706	3,801	15,186	19,693
26	Paper, paper products, printing, and publishing	342	10,703	22,504	33,549
27	Chemical, petroleum, and coal products	26	7,644	12,336	20,006
28	Non-metallic mineral products	148	3,088	9,211	12,447
29	Basic metal products	38	5,092	9,320	14,450
31	Fabricated metal products	455	8,901	27,256	36,612
32	Transport equipment	169	12,989	44,667	57,825
33	Other machinery and equipment	380	14,498	38,789	53,667
34	Miscellaneous manufacturing	266	6,277	20,362	26,905
Total		3,744	97,885	290,172	391,801

For footnote see page 365.

Although "production and all other employees" constitute 74.1 per cent of the total number employed in manufacturing establishments, the percentage varies from 86.1 per cent in sub-division 24 to 61.7 per cent in sub-division 27. Sub-division 27 also has the highest percentage of "administrative, office, sales, and distribution employees", 38.2 per cent, compared with the Victorian average of 25.0 per cent.

Where small establishments 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 sub-division 25 where working proprietors comprise 3.6 per cent of total number employed.

The numbers of males and females employed in manufacturing establishments, and the proportions of the average male and female population per 10,000 working in these establishments in 1980-81 and earlier years are shown in the following table:

**VICTORIA—MANUFACTURING ESTABLISHMENTS:  
EMPLOYMENT (a) OF MALES AND FEMALES, 1901 TO 1980-81**

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



VICTORIA—MANUFACTURING ESTABLISHMENTS:  
EMPLOYMENT (a) OF MALES AND FEMALES, 1901 TO 1980-81—continued

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
1932-33	91,899	1,020	52,529	575	144,428	796
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
1965-66	310,303	1,937	128,846	809	439,149	1,375
1967-68	316,108	1,912	133,837	812	449,945	1,362
1968-69	297,411	1,771	134,240	800	431,651	1,286
1969-70	306,917	1,794	138,746	812	445,663	1,303
1971-72	310,750	1,751	139,276	785	450,026	1,268
1972-73	314,259	1,744	140,770	782	455,029	1,263
1973-74	320,921	1,758	148,917	816	469,838	1,287
1974-75	302,234	1,634	130,617	706	432,851	1,170
1974-75 (h)	4,275	23	1,452	8	5,727	15
1975-76 (g)	291,736	1,560	125,371	668	417,107	1,113
1976-77 (g)	288,743	1,530	120,453	636	409,196	1,082
1977-78 (g)	r280,498	r1,460	r115,874	r600	r396,372	r1,029
1978-79 (g)	279,315	1,454	115,649	598	394,964	1,025
1979-80	281,959	1,455	115,354	592	397,313	1,022
1980-81	277,744	1,424	113,745	575	391,489	996

For footnotes see page 365.

Female workers in manufacturing establishments at 30 June 1981 were 29.0 per cent of the total number employed. Females exceeded males in the Clothing and footwear sub-division (24) where they accounted for 75.5 per cent of the sub-division total.

In sub-division 29, Basic metal products, the proportion of females to total persons employed is at its lowest, 10.4 per cent.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
EMPLOYMENT AT 30 JUNE

ASIC code	Industry sub-division	Number at 30 June—				
		1977	1978	1979	1980	1981
MALES						
21	Food, beverages, and tobacco	42,149	39,929	37,907	37,727	37,737
23	Textiles	11,625	11,083	11,139	11,852	11,919
24	Clothing and footwear	11,389	11,221	11,053	10,741	10,777
25	Wood, wood products, and furniture	16,645	16,023	15,682	16,431	16,655
26	Paper, paper products, printing, and publishing	24,172	23,418	23,417	24,526	24,408
27	Chemical, petroleum, and coal products	15,487	15,959	16,369	15,004	15,289
28	Non-metallic mineral products	11,854	10,959	11,073	10,852	10,582
29	Basic metal products	11,774	11,027	11,824	12,423	12,942
31	Fabricated metal products	28,509	27,981	28,303	29,242	29,578
32	Transport equipment	50,728	49,565	53,835	48,689	48,604
33	Other machinery and equipment	43,571	r40,889	41,658	41,415	40,945
34	Miscellaneous manufacturing	18,595	18,544	18,910	19,068	18,581
Total		286,498	r276,598	281,170	277,970	278,017
FEMALES						
21	Food, beverages, and tobacco	15,451	14,983	14,733	14,403	15,190
23	Textiles	8,425	8,223	7,948	7,949	7,824
24	Clothing and footwear	34,522	33,758	34,084	33,609	33,200
25	Wood, wood products, and furniture	3,213	2,908	2,882	2,905	3,038
26	Paper, paper products, printing, and publishing	8,781	8,379	8,328	9,061	9,141
27	Chemical, petroleum, and coal products	5,151	5,322	5,445	4,782	4,717
28	Non-metallic mineral products	1,760	1,788	1,920	1,858	1,865
29	Basic metal products	1,363	1,253	1,342	1,450	1,508
31	Fabricated metal products	7,316	6,960	6,916	6,939	7,034
32	Transport equipment	9,344	8,983	10,173	8,594	9,221
33	Other machinery and equipment	14,540	r13,342	13,749	13,120	12,722
34	Miscellaneous manufacturing	8,599	8,314	8,656	8,387	8,324
Total		118,465	r114,213	116,176	113,057	113,784

For footnote see page 365.

*Wages and salaries*

The next table gives details of wages paid in the various classes of industry in Victoria in 1980-81. Amounts paid to "administrative, office, sales, and distribution employees" are shown separately from those paid to "production and all other workers". It should be noted that in all tables of salaries and wages paid the amounts drawn by working proprietors are excluded.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
WAGES AND SALARIES PAID, 1980-81  
(\$m)

ASIC code	Industry sub-division	Paid to—		
		Administrative, office, sales, and distribution employees	Production and all other workers	All employees
21	Food, beverages, and tobacco	215	520	735
23	Textiles	79	163	242
24	Clothing and footwear	74	361	435
25	Wood, wood products, and furniture	48	159	207
26	Paper, paper products, printing, and publishing	162	309	471
27	Chemical, petroleum, and coal products	129	180	309
28	Non-metallic mineral products	54	130	184
29	Basic metal products	94	130	224
31	Fabricated metal products	123	331	455
32	Transport equipment	222	520	742
33	Other machinery and equipment	213	482	695
34	Miscellaneous manufacturing	93	241	333
Total		1,506	3,526	5,032

For footnote see page 365.

Of the total amount of wages and salaries paid in Victoria in 1980-81—\$5,032m—the metal fabricating sub-divisions (29-33) (including transport equipment, machinery, and other equipment), were responsible for \$2,116m or 42.1 per cent; Food, beverages, and tobacco, \$735m or 14.6 per cent; Clothing and footwear, \$435m or 8.6 per cent; and Paper, paper products, printing, and publishing, \$471m or 9.4 per cent.

**Turnover**

The following table shows the value of turnover of manufacturing establishments. The figures include sales of goods whether produced by an establishment or not, transfers out of goods to other establishments of the same enterprise, bounties and subsidies on production, plus all other operating revenue from outside the enterprise, such as commission, repair and service revenue, the value of capital work done on own account, and from 1978-79, rents and leasing revenue. Interest, royalties, and receipts from the sale of fixed tangible assets are excluded.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
TURNOVER BY INDUSTRY SUB-DIVISION (i)  
(\$m)

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
21	Food, beverages, and tobacco	3,104	3,477	3,901	4,435	5,029
23	Textiles	699	710	827	930	1,020
24	Clothing and footwear	1,002	1,073	1,208	1,355	1,524
25	Wood, wood products, and furniture	606	618	661	750	871
26	Paper, paper products, printing, and publishing	1,047	1,165	1,314	1,539	1,788
27	Chemical, petroleum, and coal products	1,076	1,216	1,458	1,750	2,121
28	Non-metallic mineral products	579	586	635	703	787
29	Basic metal products	744	773	953	1,318	1,519
31	Fabricated metal products	1,104	1,196	1,360	1,599	1,797
32	Transport equipment	2,311	2,444	2,656	3,034	3,077
33	Other machinery and equipment	1,811	1,901	2,078	2,419	2,751
34	Miscellaneous manufacturing	957	1,032	1,177	1,402	1,573
Total		15,040	16,191	18,228	21,233	23,856

For footnotes see page 365.

**Purchases, transfers in, and selected items of expense**

In the following table the figures include purchases of materials, fuel, power, containers, etc., and goods for resale, plus transfers in of goods from other establishments of the enterprise, plus charges for commission and sub-contract work, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses, sales commission payments, and from 1978-79, rent, leasing, and hiring expenses:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g): PURCHASES,  
TRANSFERS IN, AND SELECTED ITEMS OF EXPENSE  
BY INDUSTRY SUB-DIVISION  
(\$m)**

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
21	Food, beverages, and tobacco	1,998	2,339	2,707	3,173	3,549
23	Textiles	407	420	511	582	623
24	Clothing and footwear	512	551	653	730	805
25	Wood, wood products, and furniture	330	335	371	432	492
26	Paper, paper products, printing, and publishing	535	604	703	826	962
27	Chemical, petroleum, and coal products	670	723	881	1,128	1,338
28	Non-metallic mineral products	285	299	322	362	414
29	Basic metal products	499	486	677	943	1,109
31	Fabricated metal products	576	640	739	912	1,005
32	Transport equipment	1,355	1,510	1,689	2,037	1,989
33	Other machinery and equipment	1,001	1,008	1,160	1,363	1,574
34	Miscellaneous manufacturing	528	561	697	864	955
Total		8,696	9,475	11,109	13,353	14,814

For footnote see page 365.

**Stocks**

The figures in the following table includes all stocks of materials, fuels, etc., finished goods and work-in-progress whether located at the establishment or elsewhere. It should be noted that due to reporting differences on individual returns and variations in the number of establishments from year to year, the closing stocks in one year may differ from the opening stocks in the following year.

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
STOCKS BY INDUSTRY SUB-DIVISION  
(\$m)**

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
<b>OPENING STOCKS</b>						
21	Food, beverages, and tobacco	383	407	482	515	579
23	Textiles	140	141	150	162	183
24	Clothing and footwear	159	169	186	217	245
25	Wood, wood products, and furniture	73	82	84	94	112
26	Paper, paper products, printing, and publishing	133	145	166	187	225
27	Chemical, petroleum, and coal products	175	202	239	254	320
28	Non-metallic mineral products	57	73	89	83	101
29	Basic metal products	131	152	139	163	183
31	Fabricated metal products	194	215	222	254	306
32	Transport equipment	382	462	514	537	659
33	Other machinery and equipment	473	472	509	550	653
34	Miscellaneous manufacturing	151	176	178	200	241
Total		2,451	2,695	2,959	3,216	3,809
<b>CLOSING STOCKS</b>						
21	Food, beverages, and tobacco	409	464	497	596	652
23	Textiles	143	144	158	181	187
24	Clothing and footwear	167	187	219	241	266
25	Wood, wood products, and furniture	83	85	89	107	121
26	Paper, paper products, printing, and publishing	152	160	185	222	269
27	Chemical, petroleum, and coal products	200	232	257	325	368
28	Non-metallic mineral products	75	91	81	93	106
29	Basic metal products	161	139	160	207	261
31	Fabricated metal products	213	226	236	307	333

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
STOCKS BY INDUSTRY SUB-DIVISION—continued  
(\$m)

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
CLOSING STOCKS—continued						
32	Transport equipment	471	478	555	664	649
33	Other machinery and equipment	504	r512	578	654	731
34	Miscellaneous manufacturing	168	178	200	243	265
Total		2,746	r2,896	3,217	3,840	4,207

For footnote see page 365.

**Value added**

Statistics on value added in the following table have been calculated by adding to turnover the increase (or deducting the decrease) in value of stocks and deducting the value of purchases and selected items of expense:

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
VALUE ADDED BY INDUSTRY SUB-DIVISION  
(\$m)

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
21	Food, beverages, and tobacco	1,132	1,195	1,208	1,342	1,553
23	Textiles	295	293	324	367	401
24	Clothing and footwear	498	540	588	650	740
25	Wood, wood products, and furniture	285	285	296	331	388
26	Paper, paper products, printing, and publishing	530	576	630	748	870
27	Chemical, petroleum, and coal products	432	523	595	693	830
28	Non-metallic mineral products	312	305	306	351	377
29	Basic metal products	276	275	297	419	487
31	Fabricated metal products	547	567	635	740	819
32	Transport equipment	1,044	950	1,008	1,124	1,078
33	Other machinery and equipment	841	r933	987	1,160	1,255
34	Miscellaneous manufacturing	445	474	502	580	641
Total		6,637	r6,916	7,377	8,505	9,440

For footnote see page 365.

**Relation of costs to turnover**

Certain costs of production, the value of turnover, movement in stocks, and the balance available for profit, interest, taxation, depreciation, etc., in each sub-division of manufacturing industry during 1980-81 are given in the following tables:

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
COSTS AND TURNOVER, 1980-81  
(\$m)

ASIC code	Industry sub-division	Turnover	Movement in stocks	Cost of—		Balance between turnover, stocks, and costs (a)
				Purchases and selected items of expense	Wages and salaries	
21	Food, beverages, and tobacco	5,029	+ 73	3,549	735	818
23	Textiles	1,020	+ 4	623	242	159
24	Clothing and footwear	1,524	+ 21	805	435	305
25	Wood, wood products, and furniture	871	+ 9	492	207	181
26	Paper, paper products, printing, and publishing	1,788	+ 44	962	471	399
27	Chemical, petroleum, and coal products	2,121	+ 47	1,338	309	521
28	Non-metallic mineral products	787	+ 4	414	184	193
29	Basic metal products	1,519	+ 78	1,109	224	264
31	Fabricated metal products	1,797	+ 27	1,005	455	364
32	Transport equipment	3,077	- 10	1,989	742	336
33	Other machinery and equipment	2,751	+ 77	1,574	695	559
34	Miscellaneous manufacturing	1,573	+ 24	955	333	309
Total		23,856	+ 399	14,814	5,032	4,409

(a) Balance available to provide for all other costs and overhead expenses such as interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

For other footnote see page 365.

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g) : PERCENTAGE OF  
SPECIFIED COSTS TO TURNOVER, 1980-81  
(per cent)**

ASIC code	Industry sub-division	Turnover	Movement in stocks	Cost of—		Balance between turnover, stocks, and costs (a)
				Purchases and selected items of expense	Wages and salaries	
21	Food, beverages, and tobacco	100.0	1.5	70.6	14.6	16.3
23	Textiles	100.0	0.4	61.1	23.7	15.6
24	Clothing and footwear	100.0	1.4	52.8	28.5	20.0
25	Wood, wood products, and furniture	100.0	1.0	56.5	23.8	20.8
26	Paper, paper products, printing, and publishing	100.0	2.5	53.8	26.3	22.3
27	Chemical, petroleum, and coal products	100.0	2.2	63.1	14.6	24.6
28	Non-metallic mineral products	100.0	0.5	52.6	23.4	24.5
29	Basic metal products	100.0	5.1	73.0	14.7	17.4
31	Fabricated metal products	100.0	1.5	55.9	25.3	20.3
32	Transport equipment	100.0	-0.3	64.6	24.1	10.9
33	Other machinery and equipment	100.0	2.8	57.2	25.3	20.3
34	Miscellaneous manufacturing	100.0	1.5	60.7	21.2	19.6
Total		100.0	1.7	62.1	21.1	18.5

(a) Balance available to provide for all other costs and overhead expenses such as interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

For other footnote see page 365.

There are considerable variations in the proportions which purchases and selected items of expenditure, and wages and salaries, bear to the turnover in the different sub-divisions. These are due to the difference in the treatment required to convert materials to their final form. Thus in sub-division 24 the sum paid in wages represents 28.5 per cent and the purchases and selected items of expense 52.8 per cent of the values of the finished articles, while in sub-division 21 the expenditure on wages amounts to 14.6 per cent and that on purchases, etc., to 70.6 per cent of the value of turnover.

In the following table specified costs of production, the value of turnover of manufacturing establishments, and the balance available for profit and miscellaneous expenses are compared for each of the years 1976-77 to 1980-81:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g): SPECIFIED COSTS  
OF PRODUCTION, ETC., AND TURNOVER  
(\$m)**

Year	Turnover	Movement in stocks	Cost of—		Balance between turnover, stocks and costs (a)
			Purchases and selected items of expense	Wages and salaries	
1976-77	15,040	+ 293	8,696	3,656	2,981
1977-78	r16,191	r + 201	r9,475	r3,829	r3,088
1978-79	18,228	+ 258	11,109	4,102	3,275
1979-80	21,233	+ 624	13,353	4,563	3,941
1980-81	23,856	+ 399	14,814	5,032	4,409

(a) Balance available to provide for all other costs, such as rent (prior to 1978-79), interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

For other footnote see page 365.

In the following table the components of cost are converted to their respective percentages of the value of turnover:

**VICTORIA—MANUFACTURING ESTABLISHMENTS (g): PERCENTAGE OF  
SPECIFIED COSTS OF PRODUCTION, ETC., TO TURNOVER  
(per cent)**

Year	Turnover	Movement in stocks	Cost of—		Balance between turnover, stocks and costs (a)
			Purchases and selected items of expense	Wages and salaries	
1976-77	100.0	1.9	57.8	24.3	19.8
1977-78	100.0	r1.2	r58.5	r23.6	r19.1

VICTORIA—MANUFACTURING ESTABLISHMENTS (g): PERCENTAGE OF  
SPECIFIED COSTS OF PRODUCTION, ETC., TO TURNOVER—continued  
(per cent)

Year	Turnover	Movement in stocks	Cost of—		Balance between turnover, stocks and costs (a)
			Purchases and selected items of expense	Wages and salaries	
1978-79	100.0	1.4	60.9	22.5	18.0
1979-80	100.0	2.9	62.9	21.5	18.6
1980-81	100.0	1.7	62.1	21.1	18.5

(a) Balance available to provide for all other costs, such as rent (prior to 1978-79), interest, insurance, pay-roll tax, income tax, depreciation, etc., as well as drawings by working proprietors and profit.

For other footnote see page 365.

**Fixed capital expenditure, and rent, leasing, and hiring expenses**

Fixed capital expenditure is the outlay on new and second-hand fixed tangible assets less disposals. Rent, leasing, and hiring expenses are the amounts paid for renting, leasing, and hiring of premises, vehicles, and equipment.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g): FIXED CAPITAL  
EXPENDITURE LESS DISPOSALS AND RENT, LEASING,  
AND HIRING EXPENSES, 1980-81  
(\$'000)

ASIC code	Industry sub-division	Fixed capital expenditure less disposals			Rent, leasing, and hiring expenses
		Land, buildings, and other structures	Vehicles, plant, machinery, and equipment	Total	
21	Food, beverages, and tobacco	32,307	105,600	137,907	44,903
23	Textiles	1,672	9,294	10,966	15,728
24	Clothing and footwear	2,019	17,633	19,653	21,066
25	Wood, wood products, and furniture	3,144	13,196	16,340	19,713
26	Paper, paper products, printing, and publishing	8,585	50,693	59,278	29,515
27	Chemical, petroleum, and coal products	12,270	92,993	105,263	13,507
28	Non-metallic mineral products	8,728	50,636	59,364	5,324
29	Basic metal products	29,219	85,366	114,585	9,464
31	Fabricated metal products	8,413	25,349	33,762	25,608
32	Transport equipment	28,368	18,594	46,962	22,990
33	Other machinery and equipment	9,129	56,153	65,282	38,808
34	Miscellaneous manufacturing	4,768	37,944	42,712	26,287
Total		148,622	563,452	712,074	272,915

For footnote see page 365.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
FIXED CAPITAL EXPENDITURE LESS DISPOSALS  
(\$'000)

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
21	Food, beverages, and tobacco	63,982	91,453	120,962	130,116	137,907
23	Textiles	14,674	11,576	15,667	19,338	10,966
24	Clothing and footwear	7,154	11,148	13,393	14,900	19,653
25	Wood, wood products, and furniture	21,656	9,169	16,970	13,164	16,340
26	Paper, paper products, printing, and publishing	57,021	60,106	62,933	56,259	59,278
27	Chemical, petroleum, and coal products	57,444	161,264	159,475	117,646	105,263
28	Non-metallic mineral products	18,370	26,724	25,657	46,833	59,364
29	Basic metal products	72,762	55,970	46,125	61,106	114,585
31	Fabricated metal products	33,277	27,685	32,505	35,231	33,762
32	Transport equipment	77,323	120,689	154,718	143,567	46,962
33	Other machinery and equipment	36,414	143,392	59,760	62,820	65,282
34	Miscellaneous manufacturing	35,050	31,974	34,327	33,760	42,712
Total		495,127	1,651,151	742,492	734,738	712,074

For footnote see page 365.

## Electricity and fuels used

VICTORIA—MANUFACTURING ESTABLISHMENTS (g): VALUE OF  
ELECTRICITY AND FUELS USED BY INDUSTRY SUB-DIVISION  
(\$'000)

ASIC code	Industry sub-division	1976-77	1977-78	1978-79	1979-80	1980-81
21	Food, beverages, and tobacco	38,219	44,530	r 49,925	57,767	67,754
23	Textiles	10,930	11,521	13,563	15,347	16,395
24	Clothing and footwear	5,530	5,925	r 7,161	8,530	9,523
25	Wood, wood products, and furniture	5,600	6,318	r 7,376	9,126	10,592
26	Paper, paper products, printing, and publishing	13,191	13,754	16,947	20,020	23,524
27	Chemical, petroleum, and coal products	25,740	29,822	r 35,060	41,538	46,366
28	Non-metallic mineral products	21,524	23,555	24,577	27,154	31,868
29	Basic metal products	24,028	25,816	35,086	40,067	49,891
31	Fabricated metal products	11,673	12,667	r 14,965	18,877	19,606
32	Transport equipment	17,342	18,258	22,384	26,815	28,317
33	Other machinery and equipment	13,763	15,196	r 17,595	20,224	23,638
34	Miscellaneous manufacturing	13,606	14,594	17,682	20,560	23,492
Total		201,146	221,955	r 262,321	306,027	350,967

For footnote see page 365.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
VALUE OF ELECTRICITY AND FUELS USED BY COMMODITY  
(\$'000)

Commodity	1976-77	1977-78	1978-79	1979-80	1980-81
Electricity	117,847	131,909	r 158,654	183,317	215,366
Coal and coke—					
Black coal	65	31	r 30	58	26
Brown coal	1,468	1,382	r 1,884	1,893	2,312
Brown coal briquettes	4,111	3,931	r 4,716	5,067	5,736
Coke (including coke breeze)	3,346	3,137	3,882	4,298	4,555
Petroleum fuels (non-gaseous)—					
Light oils, etc.	4,590	5,921	r 5,741	7,063	7,497
Industrial diesel fuel	6,141	6,486	r 6,570	8,412	9,892
Furnace oil and other fuel oil	19,688	17,169	r 18,812	24,393	21,923
Reticulated gas	35,669	42,240	50,634	57,422	69,734
Other fuels	8,220	9,748	11,397	14,105	13,925
Total	201,146	221,955	r 262,321	306,027	350,967

For footnote see page 365.

VICTORIA—MANUFACTURING ESTABLISHMENTS (g):  
QUANTITIES OF FUELS USED BY COMMODITY

Fuel	Unit	1976-77	1977-78	1978-79	1979-80	1980-81
Coal and coke—						
Black coal	tonne	1,470	693	658	859	458
Brown coal	"	331,417	310,475	426,639	399,197	336,058
Brown coal briquettes	"	337,738	279,249	285,135	274,199	291,236
Coke (including coke breeze)	"	39,719	35,264	37,816	36,546	35,811
Petroleum fuels (non-gaseous)—						
Light oils, etc.	'000 litres	35,103	40,902	33,795	33,012	26,988
Industrial diesel fuel	tonne	74,009	71,795	54,626	40,956	38,308
Furnace oil and other fuel oil	"	310,055	232,865	221,094	181,673	112,320

For footnote see page 365.

## Some selected factory products of Victoria and Australia

## Annual quantity and value

From February 1976, production statistics have no longer been collected from single establishment manufacturing enterprises employing less than four persons or from establishments predominantly engaged in non-manufacturing activities but which may carry on, in a minor way, some manufacturing activity. However, except for a few

commodities, the effect of this modification on production levels and movements is marginal.

The following table shows quantities of some selected articles manufactured in Victoria, and corresponding figures for Australia during 1980-81 and 1981-82. Owing to the limited number of producers, it is not permissible under statute to publish particulars regarding some articles of manufacture which would otherwise appear.

VICTORIA AND AUSTRALIA—SELECTED ARTICLES MANUFACTURED (a)

Commodity code no.	Article	Unit	Victoria		Australia	
			1980-81	1981-82	1980-81	1981-82
027.02-29, 72-77, 023.17	Meat—canned (excluding baby food)	'000 tonnes	17	18	36	33
051.56-59	Ice cream	mill litres	88	85	216	214
051.72-73	Milk—powdered: full cream	'000 tonnes	55	52	65	58
062.01	Flour, white (including sharps)	"	235	236	1,091	1,097
063.11, 21, 31	Malt	"	242	236	557	545
064.21	Biscuits	"	52	53	129	131
074.61, 65	Natural fruit juices	mill litres	52	41	150	123
076.08, 15, 22	Canned or bottled apricots, peaches and pears	'000 tonnes	99	n.p.	130	67
076.60	Jam, etc.	"	18	21	24	29
094.02-47	Vegetables canned or bottled (including pickled)	"	29	33	117	133
104.06-18	Confectionery—					
	Chocolate or containing chocolate	"	32	33	61	64
104.21-29	Other	"	32	38	57	59
123.18	Sauce—tomato	mill litres	18	17	25	25
159.01	Canned cat and dog food	'000 tonnes	186	166	201	176
171.03, 07, 08	Aerated and carbonated waters, canned or bottled (b)	mill litres	264	268	1,007	972
242.07-11	Wool-scoured or carbonised	'000 tonnes	34	31	90	80
261.41	Briquettes—brown coal	"	1,081	993	1,081	993
372.22-36, 48, 50	Finished woven fabric—woollen (c)	'000 sq m	3,244	3,009	6,628	5,898
372.52-72, 374.51-59	Blankets, and rugs (d)	'000	626	588	1,064	1,113
403.02, 18, 20, 52-96	Plastics and synthetic resins	'000 tonnes	536	537	727	763
404.01-98	Bricks—clay	mill	451	445	2,251	2,221
472.01, 03	Tiles, roofing	"	57	55	236	215
472.12; 475.30	Ready mixed concrete	'000 cu m	2,570	2,696	12,076	13,283
475.90	Electric motors	'000	1,449	1,307	4,007	3,854
503.13-32	Finished motor vehicles (e)—					
581.02-08, 10-16	Cars and station wagons	'000	193	228	329	384
773.02-35	Shirts (men's and boys')	'000 doz	1,815	1,853	3,313	3,310
775.01-39	Women's hosiery	'000 doz pairs	5,943	5,646	7,642	6,863
775.51-82	Men's hosiery	"	1,936	1,817	2,255	2,152
775.91-98	Children's hosiery	"	1,268	1,252	1,270	1,263
776.11-22	Infants' hosiery	"	113	99	114	99
776.31-42	Footwear—boots, shoes, and sandals (f)—					
793.05, 08, 21, 22, 31, 32, 41, 46, 51, 61, 65, 66, 71, 81	Men's and youths'	'000 pairs	7,763	7,266	11,833	11,073
793.06, 09, 23, 24, 33, 34, 42, 47, 52, 62, 67, 68, 72, 82	Women's and maids'	"	12,003	11,964	15,367	14,960
793.04, 07, 10, 25, 35, 43, 48, 53, 63, 69, 73, 83	Children's and infants'	"	5,767	5,044	6,792	6,001

(a) By all manufacturing establishments owned by multi-establishment enterprises and single establishment manufacturing enterprises with four or more persons employed.

(b) Excludes bulk aerated and carbonated waters.

(c) Excludes blanketing and rug material.

(d) Double, three-quarter, single cot, bassinet, pram etc; wool mixture and other fibre. From 1 July 1975, includes tufted blankets.

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

(f) Excludes thongs and adults' boots with uppers of rubber or synthetic material.

### Monthly production statistics

The Australian Bureau of Statistics collects monthly production returns and makes available printed tables of Australian production statistics within a few weeks of the month to which they relate. A list of the subjects included in these production bulletins is given in the following table:



## AUSTRALIA—PRODUCTION BULLETINS

No.	Subject	No.	Subject
1	Electricity, Gas, and Electrical Appliances (8357.0)	5	Building Materials and Fittings (8361.0)
2	Clothing and Footwear (8358.0)	6	Chemicals and By-Products (8362.0)
3	Food, Drink, and Tobacco (8359.0)	7	Motor Vehicles, Parts, and Accessories (8363.0)
4	Textiles, Bedding, and Floor Coverings (8360.0)	8	Miscellaneous Products (8364.0)

A preliminary production bulletin showing Australian totals for selected major production indicators is also published. In addition, statistical publications for the meat and dairying industries are issued each month. Selected Victorian production figures are published in the *Monthly Summary of Statistics, Victoria* (1303.2).

## ECONOMIC ACTIVITY IN THE LA TROBE REGION\*

## Introduction

The major industrial growth and development of the La Trobe Region has been based on the utilisation of its natural resources. Brown coal, naturally, is a dominant feature of the Region. It continues to be the source of energy for Victoria's electricity generation and has the potential to support industries which can convert it to other forms of energy or chemical feedstocks. As well as coal, the Region has reserves of oil and gas for which exploration is continuing. Natural gas was first discovered in 1964 and oil in 1967.

The Region contains 93 per cent of Victoria's known brown coal reserves; it produces 80–85 per cent of the State's electricity, 99 per cent of its gas, and meets 70 per cent of Australia's oil requirements. It is also a major source of domestic water supply for Gippsland and the Melbourne metropolitan area.

It provides significant amounts of timber and timber products and is important for conservation and recreation facilities, as well as agricultural production. As one of the most fertile areas of Australia, the Region supports considerable agricultural and forest product processing industries.

## Industrial activity in 1982

The State Electricity Commission of Victoria dominates industrial activity in the La Trobe Region and employs some 7,600 persons. The Commission currently has installed about 4,000 MW of generating capacity and this will approximately double with the completion of the Loy Yang power station in the mid-1980s. The Commission's activities are significant not only for their guarantee of a continuing supply of electricity to the State, but also for the immediate local stimulus given to industries which fabricate components and supply services to the power station projects.

Australian Paper Manufacturers Ltd (APM) has a \$500m investment in the region. Its Maryvale Mill employs 1,100 persons, and a current expansion programme involves the installation of additional pulping capacity and extensive pollution control equipment. To supply Maryvale, the company maintains 80,000 hectares of forests in Gippsland. A number of large steel fabrication and engineering works have been established in the Region. Contracts for the Commission, Bass Strait oil exploration and development, the Thomson River Dam, and other major projects have provided a steady flow of work for these firms.

The availability of employment for female labour has been a long standing problem in the Region. As much of the future employment growth in the Region is likely to be in traditionally male oriented occupations, more women are being encouraged to seek employment in areas previously confined to males. A number of manufacturing enterprises in the Region have become significant employers of females. One example is the Swedish firm, L. M. Ericsson, which manufactures telecommunications equipment. Textile mills and clothing factories also offer female employment opportunities.

\* The La Trobe Region includes the Shires of Narracan, Morwell, Rosedale, Traralgon, Mirboo, Albion, and the Cities of Moe, Traralgon, and Sale.

Other successful industries in the Region include manufacturers of engineering products, cement, concrete pipes, furniture, food products, photographic equipment, printing, car components, castings, insulation products, and confectionery. The major projects in the Region have provided many employment and business opportunities in the construction industry. The future growth of this industry will depend on the level of activity, which, in turn, largely depends on the timing of new power station projects and other ventures such as coal liquefaction.

#### **Coal conversion**

Research continues and pilot plants are being constructed in Victoria and overseas, to evaluate the feasibility of conversion of brown coal to other fuels and to chemical feedstocks. The Victorian Brown Coal Council is co-operating with the companies managing the plants to evaluate their viability and to assess the effects of world and national trends upon that viability.

Primary interest is being expressed by Nippon Brown Coal Liquefaction Co. Ltd which is evaluating a Solvent Refined Coal (SRC) process; by Mitsui-CSR who are examining the production of solid SRC and high grade carbon products; by Rheinbraun who are studying the production of petrol, diesel fuels, and chemical feedstocks; and by International Oil Proprietary/Atlantic Richfield Co. whose concern is the production of liquid fuels.

#### **Oil and gas**

Oil production from the Bass Strait fields is well established and expected to continue into the late 1980s and early 1990s, while natural gas production is expected to continue into the early years of next century (2005-2070). Exploration for new fields and reserves continues.

#### **Timber based industries**

This sector of the Region's economy occupies an historic and continuing role. The magnitude of investment in the processing of timber is indicated by APM's plans to invest some \$200m in the expansion of its Maryvale Mill in the 1980s. Supporting this investment is an area of more than 90,000 hectares of land devoted to commercial forests.

#### **Development planning for the region**

Government in the Region is achieved at the local level by nine municipalities. In the past, the strongest influence at State Government level has been the Commission. More recently, however, the existence of a Council of Victorian Government Ministers, the Latrobe Valley Ministerial Council, has created a broad co-ordinating body which crosses departmental and regional boundaries. As well as creating a co-ordinating structure, the Ministerial Council and its local consultative bodies have promoted community involvement in regional development. The Council has responded to this community participation by creating a Regional Commission as the co-ordinating body for affairs within the Region.

The management structure for the Region seeks to ensure that the orderly development of resources and industry should be linked to a co-ordinated and complementary infrastructure programme; that the maintenance of a stable and secure community environment in the Region will provide suitable conditions for large scale development; that self-determination of the Region's social and economic resources must be promoted; and that any development in the Region should be guided by a broad strategy which has regard for all relevant social and economic factors.

The activities of government departments in the Region are co-ordinated in turn by a Standing Committee of departmental heads responsible to the Ministerial Council. The primary effort of this support group to the Ministerial Council has been the preparation of a formal strategic plan for these developments in the Region. By mid-1982, a full set of data has been collected describing existing conditions and capabilities; this information has been released as Progress Reports and subsequently debated and reviewed. Since then, the Strategic Planning programme has involved the postulation of appropriate policies for the various social, economic, conservation and management objectives, and the evaluation of possible action programmes in the various policy areas. The Victorian Brown Coal

Council is simultaneously preparing a similar evaluation of brown coal development options.

Further references: History of manufacturing, *Victorian Year Book* 1961, pp. 531-5; Motor vehicle industry, 1962, pp. 591-4; Chemical industry, 1963, pp. 615-20; Petrochemical industry, 1964, pp. 650-4; Glass industry, 1965, pp. 606-8; Agricultural machinery industry, 1966, pp. 587-9; Aluminium industry, 1967, pp. 415-18; Automation and technical development in industry, 1967, pp. 376-82; Textile industry, 1968, pp. 416-20; Canning of foodstuffs, 1967, pp. 432-5; Butter, cheese and processed milk products, 1970, pp. 431-6; Heavy engineering, 1971, pp. 419-22; Light engineering, 1972, pp. 392-5; Secondary industry and the environment, 1974, pp. 418-21; Concrete pipe industry, 1975, pp. 500-1; Paper industry, 1976, pp. 466-8; Wine industry in Victoria, 1977, pp. 510-11; Timber industry in Victoria, 1978, pp. 434-7; Manufacturing industry in the Geelong area, 1980, pp. 406-8; Development of Point Wilson, 1981, pp. 382-3; History of the brewing industry in Victoria, 1981, pp. 405-7; Manufacturing industry in the Bendigo area, 1981, pp. 407-9; Manufacturing industry in the Ballarat area, 1982, pp. 386-7

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