

## SECTION XIII.

## MANUFACTURING INDUSTRIES.

## § 1. General.

1. *Industrial Progress.*—The statistics of manufactures in the Commonwealth shew that many industries have now been permanently established on a secure basis, and indicate a consistent progress both in regard to the extension of existing industries and the establishment of new ones. As will be seen from the following pages, this growth has been particularly rapid since the abolition of inter-colonial tariffs consequent upon the creation of the Commonwealth of Australia in 1901, the throwing open of the whole of the Australian markets to the industrial products of each State having facilitated the internal distribution of the products of Australian industry.

(i) *The Gold Discoveries, 1851.* Prior to the gold discoveries (1851) there was little development in the manufacturing industries of Australia. Reference to that period will be found in earlier issues of the Year Book (see No. 6, page 524.)

(ii) *Later Progress.* Soon after the discovery of gold, the construction of the first railways (1854) and the re-establishment of regular steamship communication with Europe (1856) helped to encourage the nascent industrial activity. The Colonies of New South Wales and Victoria, which had recently (1855) received the benefits of responsible government, soon turned their attention to the settlement of an agricultural population on the land. The Acts which were passed had a beneficial effect on the workers, giving them opportunities for employment not previously open to them, and fostering the manufacturing industries by increasing the measure of primary production. During the following years the various manufacturing industries prospered. The statistics of the States are not sufficiently complete or uniform to enable a statement of the progress of these industries to be given. The following table, however, shewing, so far as returns are available, the number of factories and the number of employees in each State at decennial periods from 1861 to 1911, and for each of the six years 1916 to 1920-21, will serve to indicate generally the progress which has been made. During recent years a change has been made in the period for which manufacturing returns are collected by several of the States, viz., New South Wales, Victoria, and South Australia, these States having adopted the financial year ending on the 30th June instead of the calendar year. Efforts were made to secure a uniform period of collection throughout the Commonwealth, and the financial year was favoured as being more suitable generally for statistical purposes, but the statisticians of those States which furnish information for the calendar year have so far failed to make the desired change. Owing to the late arrival of some of the returns, it was necessary, in 1917 and 1918, to combine the statistics of New South Wales, Victoria, and South Australia to 30th June with those of Queensland, Western Australia, and Tasmania to the 31st December, of the same year. This arrangement was not satisfactory on account of the late presentation of the figures for three of the more important States.

In order to bring the statistics more up to date, the returns for New South Wales, Victoria, and South Australia were carried forward a year, and from 1918-19 onwards the returns as presented will consist of Queensland, Western Australia, and Tasmania to 31st December, and New South Wales, Victoria, and South Australia to 30th June, six months later. The 1920-21 results contained in this issue therefore embrace Queensland, Western Australian, and Tasmanian statistics to 31st December, 1920, and the remaining States to 30th June, 1921.

## NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
NUMBER OF FACTORIES.							
1861 ..	601	531	..	..	..	..	..
1871 ..	1,813	1,740	..	..	..	..	..
1881 ..	2,961	2,488	571 <i>d</i>	823 <i>d</i>	..	..	..
1891 ..	3,056	3,141	1,328 <i>d</i>	996 <i>d</i>	175	..	..
1901 ..	3,367	3,249	2,110 <i>d</i>	1,335 <i>d</i>	662	420 <i>e</i>	11,143
1911 ..	5,039	5,126	1,657	1,314	710	609	14,455
1916 <i>a</i> ..	5,210	5,413	1,782	1,266	771	568	15,010
1917 <i>b</i> ..	5,356	5,445	1,793	1,286	759	540	15,179
1918 <i>b</i> ..	5,414	5,627	1,778	1,285	764	553	15,421
1918-19 <i>c</i> ..	5,460	5,720	1,778	1,313	764	553	15,588
1919-20 <i>c</i> ..	5,662	6,038	1,754	1,368	817	652	16,291
1920-21 <i>c</i> ..	5,837	6,532	1,795	1,438	895	616	17,113

## NUMBER OF EMPLOYEES.

1861 ..	..	4,395	..	..	..	..	..
1871 ..	13,583	19,569	..	5,629 <i>d</i>	..	..	..
1881 ..	31,191	43,209	..	10,995 <i>d</i>	..	..	..
1891 ..	50,879	53,525	..	14,099 <i>d</i>	..	..	..
1901 ..	66,135	66,529	26,172 <i>d</i>	19,283 <i>d</i>	12,198	7,466 <i>e</i>	197,783
1911 ..	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1916 <i>a</i> ..	116,401	113,834	39,983	25,196	12,676	8,362	316,752
1917 <i>b</i> ..	117,997	116,970	40,446	26,010	12,168	8,079	321,670
1918 <i>b</i> ..	120,554	118,241	40,990	26,634	12,917	8,713	328,049
1918-19 <i>c</i> ..	127,591	122,349	40,990	27,915	12,917	8,713	340,475
1919-20 <i>c</i> ..	144,454	136,522	40,891	29,442	15,409	10,016	376,734
1920-21 <i>c</i> ..	145,011	140,743	43,196	30,430	17,034	10,225	386,639

(a) New South Wales for year ended 30th June, 1916; Victoria and South Australia, calendar year 1915; Queensland, Western Australia, and Tasmania, calendar year 1916. (b) New South Wales, Victoria, and South Australia for year ended 30th June; the remaining States for year ended 31st December. (c) Queensland, Western Australia, and Tasmania for year ended 31st December; the remaining States for year ended 30th June, six months later. See last paragraph above. (d) Not on same basis as other States. (e) For 1902.

NOTE.—In this and all subsequent tables, except where specially mentioned, "Number of Employees," includes working proprietors.

2. Defects in Industrial Statistics.—A complete statistical account of the growth of the manufacturing industries in Australia unfortunately cannot be given for any lengthy period, owing to the fact that the necessary statistics have not been collected in past years by the several States upon a definite and identical basis. Even in respect of the definition of a "factory" or (so far as they might be included in related returns) the statistics of persons employed therein, there was formerly no common agreement. The relatively minor place that manufacturing industry held in relation to the total activity of Australia was, perhaps, responsible for the fact that the necessity for uniform method was not earlier recognised.

In 1896 it was agreed, as between Victoria and New South Wales, to adopt a common definition of the term "factory," viz., "any factory, workshop, or mill where four or more persons are employed or power is used." This agreement was adopted for the States generally at the Conference of State Statisticians in 1902, when it was decided, however, that the term "factory," should include also "all establishments, whether making for the trade, wholesale or retail, or for export." It was further agreed that industries should be arranged, as far as possible, under a uniform classification which was drawn up by the conference. As a result of the conference of 1902 a higher degree of uniformity in the collection and presentation of industrial statistics was attained in the several States, so that returns upon which anything like a proper comparative study of the development and progress of various manufacturing industries in the Commonwealth may be based date back only as far as the year 1903, when the resolution of the conference first came to be put into force. All the States did not, however, fall completely into line, and, as may be seen in the succeeding parts of this section, the comparisons afforded by the returns for the years 1903 to 1906 inclusive are in some cases subject to various

limitations. At the Conference of Statisticians held in Melbourne in 1906, special consideration was given to the methods to be adopted for the collection of statistical information regarding primary and secondary production and industry. The classification of industries prepared by the conference of 1902 was adopted, and a set of forms for the collection and compilation of industrial statistics on a definite and uniform basis in each State was agreed upon. The States have not, even yet, fallen entirely into line in collecting and classifying the returns. The particulars for the past sixteen years are, however, in more complete co-ordination than formerly, and it is now possible to give particulars for the several States in greater detail and with greater uniformity throughout.

**3. Classification of Manufacturing Industries.**—Under the classification prepared by the Conference of Statisticians held in 1902, and adopted at that held in 1906, factories were placed under nineteen different categories, according to the nature of the industry carried on therein, most of the categories being further subdivided. Where two or more industries are carried on by one proprietor in one building, each industry is, when possible, treated as a separate establishment. The statement given hereafter shews the classification which has been adopted; it must be understood, however, that this classification does not pretend to be exhaustive, but merely serves as a guide for the collection and presentation of statistics in the several States on a definite and uniform basis:—

### CLASSIFICATION OF MANUFACTURING INDUSTRIES.

**CLASS I.—TREATING RAW MATERIALS, ETC.**  
Boiling-down, Tallow Refining, etc.  
Tanneries  
Woolscouring and Feltmongering  
Chaff-cutting, etc.

**CLASS II.—OILS AND FATS, ETC.**  
Oil and Grease  
Soap and Candles

**CLASS III.—STONE, CLAY, GLASS, ETC.**  
Bricks and Tiles  
Glass (including Bottles)  
Glass (Ornamental)  
Lime, Plaster, Cement and Asphalt  
Marble, Slate, etc.  
Modelling, etc.  
Pottery and Earthenware

**CLASS IV.—WORKING IN WOOD.**  
Boxes and Cases  
Cooperage  
Joinery  
Saw Mills  
Wood-turning, etc.

**CLASS V.—METAL WORKS, MACHINERY, ETC.**

Agricultural Implements  
Brass and Copper  
Cutlery  
Engineering  
Galvanised Iron-working  
Ironworks and Foundries  
Lead Mills  
Railway Carriages  
Railway and Tramway Workshops  
Smelting  
Stoves and Ovens  
Tinsmithing  
Wireworking  
Other Metal Works

**CLASS VI.—FOOD AND DRINK, ETC.**

Bacon Curing  
Butter Factories  
Butterine and Margarine  
Cheese Factories  
Condensed Milk  
Meat and Fish Preserving  
Biscuits

Confectionery  
Corn-flour, Oatmeal, etc.  
Flour Mills  
Jam and Fruit Canning  
Pickles, Sauces, and Vinegar  
Sugar Mills  
Sugar Refining  
Acrated Waters, Cordials, etc.  
Breweries  
Condiments, Coffee, Spices, etc.  
Distilleries  
Ice and Refrigerating  
Malting  
Tobacco, Cigars, etc.

**CLASS VII.—CLOTHING AND TEXTILE FABRICS.**

Woollen and Tweed Mills  
Boots and Shoes  
Slop Clothing  
Clothing (Tailoring)  
Dressmaking and Millinery—  
Makers' material  
Customers' material  
Dye-works and Cleaning  
Furriers  
Hats and Caps  
Waterproof and Oilskin  
Shirts, Ties, and Scarfs  
Rope and Cordage  
Tents and Tarpaulins  
Sailmaking

**CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.**

Electrotyping and Stereotyping  
Paper-making, Paper Boxes, Bags, etc.  
Photo-engraving  
Printing and Binding

**CLASS IX.—MUSICAL INSTRUMENTS, ETC.**

Musical Instruments and Sewing Machines

**CLASS X.—ARMS AND EXPLOSIVES.**

Arms and Explosives

**CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.**

Coach and Wagon Building  
Cycles and Motors  
Perambulators  
Saddlery, Harness, etc.  
Spokes, etc.

**CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING.**  
Docks and Slips  
Ship and Boat Building and Repairing

**CLASS XIII.—FURNITURE, BEDDING, ETC.**

Bedding, Flock, and Upholstery  
Billiard Tables  
Furniture and Cabinet Making  
Picture Frames  
Window Blinds

**CLASS XIV.—DRUGS AND CHEMICALS, ETC.**

Chemicals, Drugs, and Medicines  
Fertilizers  
Paints, Varnishes, and By-products

**CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS.**

Surgical, Optical, and other Scientific Instruments

**CLASS XVI.—TIMEPIECES, JEWELLERY, AND PLATED WARE.**

Electro-plating  
Manufacturing Jewellery, etc.

**CLASS XVII.—HEAT, LIGHT, AND POWER.**

Coke Works  
Electric Apparatus  
Electric Light and Power  
Gas Works and Kerosene  
Lamps and Fittings, etc.  
Hydraulic Power

**CLASS XVIII.—LEATHERWARE (N.E.I.).**

Leather Belting, Fancy Leather, Portmanteaux and Bags

**CLASS XIX.—MINOR WARES.**

Basket and Wickerware, Matting, etc.  
Brooms and Brushware  
Rubber Goods  
Toys  
Umbrellas  
Other Industries

## § 2. Number of Factories.

1. *General*.—The presentation of the number of factories in each State does not furnish a clear indication of the extent or progress of the manufacturing industry throughout Australia. Experience has shewn that the smaller establishments in many branches of industry tend to disappear before the superior competitive facilities of larger enterprises. On the other hand, new factories are constantly under construction in districts advantageously located for manufacturing purposes, and small plants are as numerous as large ones.

(i) *Total Number of Factories in each State, 1916 to 1920-21*. The following table presents, for the years 1916 to 1920-21, the total number of factories in each State of the Commonwealth :—

FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1916a ..	5,210	5,413	1,782	1,266	771	568	15,010
1917b ..	5,356	5,445	1,793	1,286	759	540	15,179
1918b ..	5,414	5,627	1,778	1,285	764	553	15,421
1918-19c ..	5,460	5,720	1,778	1,313	764	553	15,588
1919-20c ..	5,662	6,038	1,754	1,368	817	652	16,291
1920-21c ..	5,837	6,532	1,795	1,438	895	616	17,113

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

(ii) *Classification of Factories in Commonwealth, 1916 to 1920-21*. The following table shows the total number of factories in the Commonwealth for each year from 1916 to 1920-21, classified on the basis indicated in § 1, 3 hereof :—

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Class of Industry.	1916.(a)	1917.(b)	1918.(b)	1918-19 (c)	1919-20 (c)	1920-21 (c)
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	817	797	798	789	799	772
II. Treating oils and fats, animal, vegetable, etc. ..	96	92	90	88	92	92
III. Processes in stone, clay, glass, etc. ..	626	606	616	643	670	707
IV. Working in wood ..	1,661	1,646	1,713	1,762	1,912	2,033
V. Metal works, machinery, etc. ..	1,832	1,802	1,836	1,872	1,974	2,133
VI. Connected with food and drink, etc. ..	2,372	2,403	2,402	2,420	2,427	2,453
VII. Clothing and textile fabrics, etc. ..	3,085	3,176	3,177	3,155	3,311	3,499
VIII. Books, paper, printing and engraving ..	1,225	1,232	1,256	1,220	1,247	1,259
IX. Musical instruments, etc. ..	21	25	27	31	37	43
X. Arms and explosives ..	21	17	18	17	17	17
XI. Vehicles and fittings, saddlery and harness, etc. ..	1,334	1,374	1,423	1,449	1,514	1,634
XII. Ship and boat building and repairing ..	72	74	75	76	80	79
XIII. Furniture, bedding, and upholstery ..	697	704	725	743	817	916
XIV. Drugs, chemicals, and by-products ..	207	238	260	273	293	305
XV. Surgical and other scientific instruments ..	51	63	67	72	71	73
XVI. Jewellery, timepieces, and platedware ..	195	190	187	194	215	233
XVII. Heat, light, and power ..	466	479	489	505	515	529
XVIII. Leatherware, n.e.i. ..	69	74	81	83	93	101
XIX. Minor wares, n.e.i. ..	164	187	184	196	207	215
Total ..	15,010	15,179	15,421	15,588	16,291	17,113

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

For the purpose of the returns in the above table the definition of a factory adopted at the Conference of Statisticians in 1902 (see § 1, 2 hereof) is used, viz., "Any factory, workshop or mill where four or more persons are employed or power is used."

The total number of factories has increased continuously since 1916, but the expansion has been more marked during the past two years, when the annual additions amounted to 703 and 822 new establishments respectively. As previously pointed out, any increase or decrease in the number of factories from year to year does not necessarily indicate a change in the position of the industry.

(iii) *Classification of Factories in each State, 1920-21*. The following table shows the number of factories in each State of the Commonwealth during 1920-21, classified according to the nature of the industry. (See classification given in § 1, 3 hereof):—

CLASSIFICATION OF FACTORIES IN EACH STATE, 1920-21.

Class of Industry.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'with.
I. Treating raw material, product of agricul. & pastoral pursuits, etc.	221	302	44	108	44a	53	772
II. Treating oils and fats, animal, vegetable, etc.	38	27	13	11	(b)	3	92
III. Processes in stone, clay, glass, etc.	299	208	42	95	41	22	707
IV. Working in wood	798	580	304	90	117	164	2,053
V. Metal works, machinery, etc.	717	883	217	193	76	47	2,133
VI. Connected with food & drink, etc.	782	700	467	233	162	109	2,443
VII. Clothing and textile fabrics, etc.	1,066	1,709	237	269	143	75	3,499
VIII. Books, paper, printing & engraving	474	454	140	87	79	25	1,259
IX. Musical instruments, etc.	24	16	..	3	..	..	43
X. Arms and explosives	4	11	..	2	..	..	17
XI. Vehicles and fittings, saddlery and harness, etc.	508	674	147	162	90	53	1,634
XII. Ship and boat building & repairing	37	12	9	10	5	6	79
XIII. Furniture, bedding and upholstery	297	386	94	72	48	19	916
XIV. Drugs, chemicals, and by-products	126	131	3	18	18	9	305
XV. Surgical and other scientific instruments	15	34	8	8	8	..	73
XVI. Jewellery, timepieces & platedware	71	107	18	19	10	8	233
XVII. Heat, light, and power	235	180	81	33	34	16	529
XVIII. Leatherware, n.e.i.	34	53	6	4	3	1	101
XIX. Minor wares, n.e.i.	91	65	15	21	17	6	215
Total .. ..	5,837	6,532	1,795	1,438	895	616	17,113

(a) Includes Class II.

(b) Included in Class I.

§ 3. Factories Classified by Number of Employees.

1. General.—A more scientific method of measuring the size of the manufacturing establishments in Australia is furnished by an analysis of the factories grouped according to the average number of employees in each.

The following table shews, for each State, the number of factories classified according to number of hands employed, and the average number of hands employed therein, during 1920-21 :—

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1920-21.

No. of Persons Employed in each Factory.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
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NUMBER OF FACTORIES.

Under 4 ..	1,066	1,240	319	194	186	117	3,062
4 ..	500	685	179	128	91	66	1,649
5 to 10 ..	1,936	2,201	543	535	299	218	5,732
11 to 20 ..	1,064	1,069	325	258	148	89	2,953
21 to 50 ..	820	849	257	207	109	85	2,327
51 to 100 ..	265	259	80	69	33	33	739
Over 100 ..	246	229	92	47	29	8	651
Total ..	5,837	6,532	1,795	1,438	895	616	17,113

AVERAGE NUMBER OF HANDS EMPLOYED.

Under 4 ..	2,256	2,819	723	481	411	268	6,958
4 ..	2,000	2,740	716	512	364	264	6,596
5 to 10 ..	13,462	15,289	3,838	3,727	2,070	1,478	39,864
11 to 20 ..	15,469	15,554	4,803	3,715	2,172	1,248	42,961
21 to 50 ..	26,036	26,917	8,023	6,405	3,608	2,625	73,584
51 to 100 ..	18,061	17,566	5,671	4,830	2,192	2,403	50,723
Over 100 ..	67,757	59,838	19,422	10,760	6,217	1,939	165,953
Total	145,011	140,743	43,196	30,430	17,034	10,225	386,639

Reference to the following table will shew a tendency for the proportionate number of hands employed in the larger establishments to still further increase and for that of the smaller factories to diminish. During the quinquennial period under discussion, the ratio of hands in factories employing under 21 hands to total number of employees in all factories shews a decline from 26.29 per cent. in 1916 to 24.93 in 1920-21. The larger establishments with 101 hands and upwards during the same period exhibit an increase from 42.74 to 42.92 per cent. of total employed. The average number of hands per establishment in 1916 was 21.10, and in 1920-21, 22.59.

### CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO NUMBER OF HANDS EMPLOYED DURING THE YEARS 1916 TO 1920-21.

Year.	Establishments Employing on the Average—							
	20 hands and under.		21 to 100 hands.		101 hands and upwards.		Total.	
	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.
1916(a)—								
Number ..	12,081	83,263	2,386	98,107	543	135,382	15,010	316,752
Average per establishment ..	..	6.89	..	41.11	..	249.32	..	21.10
Percentage on total ..	80.49	26.29	15.90	30.97	3.61	42.74	100.00	100.00
1917(b)—								
Number ..	12,158	84,685	2,491	102,695	530	134,290	15,179	321,670
Average per establishment ..	..	6.97	..	41.23	..	253.38	..	21.19
Percentage on total ..	80.10	26.33	16.41	31.92	3.49	41.75	100.00	100.00
1918(b)—								
Number ..	12,240	85,425	2,635	108,782	546	133,842	15,421	328,049
Average per establishment ..	..	6.98	..	41.28	..	245.13	..	21.27
Percentage on total ..	79.37	26.04	17.09	33.16	3.54	40.80	100.00	100.00
1918-19(c)—								
Number ..	12,324	87,604	2,695	111,342	569	141,529	15,588	340,475
Average per establishment ..	..	7.11	..	41.31	..	248.73	..	21.84
Percentage on total ..	79.06	25.73	17.29	32.70	3.65	41.57	100.00	100.00
1919-20(c)—								
Number ..	12,666	92,010	2,975	121,388	650	163,336	16,291	376,734
Average per establishment ..	..	7.26	..	40.80	..	251.29	..	23.13
Percentage on total ..	77.75	24.42	18.26	32.22	3.99	43.36	100.00	100.00
1920-21(c)—								
Number ..	13,396	96,379	3,066	124,307	651	165,953	17,113	386,639
Average per establishment ..	..	7.19	..	40.54	..	254.92	..	22.59
Percentage on total ..	78.28	24.93	17.92	32.15	3.80	42.92	100.00	100.00

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

## § 4. Factories Using Mechanical Power.

1. *Use of Mechanical Power.*—The statistics relating to the utilization of mechanical power in factories bring into relief another phase of industrial development in Australia.

The following tables reveal a gradual increase in the number of factories using mechanical power, and a more striking increase in the amount of power used, while a marked decline is noticeable in the number of factories using no power, thus affording definite statistical evidence of the growth of power-driven machinery in Australia, and of its increasing ascendancy over hand labour.

The principal motive power is steam, but the chief towns possess electric power stations owned either by the Government, or by public bodies or private companies, from which many factories find it convenient to derive their motive power.

(i) *Utilization of Mechanical Power in Factories in each State.* The following table shews the number of factories in which machinery was worked by steam, gas, oil, electricity,

or water and the horse-power of engines or motors used, in each State and in the Commonwealth during 1920-21 :—

**UTILIZATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1920-21.**

State.	Number of Establishments.			Actual Horse-power of Engines Used.					
	Using Machinery worked by Steam, Gas, Oil, Electricity, or Water.	Others.	Total.	Steam.	Gas.	Oil.	Elec-tricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
N.S.W., 1920-21	5,002	835	5,837	192,816	13,242	2,381	103,846	24	312,309
Vict., 1920-21 ..	5,184	1,398	6,582	103,048	19,331	3,162	56,602	..	182,143
Q'land, 1920 ..	1,406	389	1,795	65,081	10,861	1,949	19,876	580	98,347
S. Aust., 1920-21	1,137	301	1,438	34,784	10,019	2,368	10,263	223	57,657
W. Aust., 1920 ..	745	150	895	37,411	5,685	1,842	9,114	..	54,052
Tas., 1920 ..	519	97	616	4,711	227	182	18,215	14,638	37,973
Commonwealth	13,943	3,170	17,113	437,851	59,365	11,884	217,916	15,465	742,481

The preponderance of horse-power employed in the New South Wales factories is the result of the location in that State of the largest number of industries demanding a considerable amount of power; Victoria, on the other hand, has the largest number of establishments, such as those connected with clothing and textile fabrics, wherein much less mechanical power is utilized.

The number of establishments in the Commonwealth during 1920-21 using machinery worked by steam, gas, oil, electricity, or water was 13,943, or 81.48 per cent. of the total; 3,170 establishments, representing 18.52 per cent., used no mechanical power. The total actual horse-power in use was 742,481, distributed in the following proportions:—Steam, 58.97 per cent.; gas, 8.00 per cent.; oil, 1.60 per cent.; electricity, 29.35 per cent.; and water, 2.08 per cent.

(ii) *Utilization of Mechanical Power used in Factories in the Commonwealth, 1916 to 1920-21.* The following table shows the horse-power of engines used in connexion with factories in the Commonwealth during each of the last six years :—

**UTILIZATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH, 1916 TO 1920-21.**

Year.	Number of Establishments.			Actual Horse-power of Engines used.					
	Using Machinery worked by Steam, Gas, Oil, Electricity or Water.	Others.	Total.	Steam.	Gas.	Oil.	Elec-tricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
1916(a) ..	11,550	3,460	15,010	349,157	53,921	8,541	118,149	..	529,768
1917(b) ..	11,931	3,248	15,179	358,346	54,825	8,687	131,819	6,584	560,261
1918(b) ..	12,250	3,171	15,421	384,794	56,137	8,576	148,732	12,087	610,326
1918-19(c) ..	12,385	3,203	15,588	392,972	56,437	9,056	159,372	12,109	629,946
1919-20(c) ..	13,145	3,145	16,291	402,152	58,349	11,872	176,476	11,167	660,016
1920-21(c) ..	13,943	3,170	17,113	437,851	59,365	11,884	217,916	15,465	742,481

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See Note (c), first table this Section.

From this table it appears that the number of manufacturing establishments using power increased from 11,550 in 1916 to 13,943 in 1920-21, an increase of 2,393, or 20.72 per cent. During the same period the number of establishments using no power decreased from 3,460 to 3,170, a decrease of 290, or 8.38 per cent. The corresponding increase in the actual horse-power of engines used was 212,713, or 40.15 per cent.

(iii) *Classification of Mechanical Power Used in Factories in each State.* The following table gives a classification of the actual horse-power of engines used in factories of different descriptions in each State during 1920-21 :—

**ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES  
IN EACH STATE, 1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	9,336	8,255	1,367	2,245	(a) 766	506	22,475
II. Treating oils and fats, animal, vegetable, etc.	2,027	631	155	257	(b)	28	3,098
III. Processes in stone, clay, glass, etc.	21,654	8,431	2,552	4,030	1,315	308	38,290
IV. Working in wood	19,760	16,104	10,584	2,461	8,593	2,761	60,363
V. Metal works, machinery, etc.	70,104	18,398	13,210	6,590	3,920	10,513	122,744
VI. Connected with food and drink, etc.	34,278	34,032	37,722	8,641	7,850	2,027	124,550
VII. Clothing and textile fabrics, etc.	7,680	13,397	1,516	1,010	341	398	24,342
VIII. Books, paper, printing, and engraving	7,757	6,752	1,524	1,267	673	228	18,201
IX. Musical instruments, etc.	438	252	..	14	..	..	704
X. Arms and explosives	757	685	..	4	..	..	1,446
XI. Vehicles and fittings, saddlery and harness, etc.	2,242	2,088	530	1,066	299	176	6,410
XII. Ship and boat building and repairing	8,119	1,438	98	351	38	32	10,076
XIII. Furniture, bedding, and upholstery	2,682	2,413	1,130	1,169	596	237	8,227
XIV. Drugs, chemicals, and by-products	3,202	3,424	14	2,583	1,070	39	10,332
XV. Surgical and other scientific instruments	59	48	22	15	12	..	156
XVI. Jewellery, timepieces, and plated ware	361	364	48	80	21	11	885
XVII. Heat, light, and power	120,482	57,567	27,779	25,624	28,457	20,680	280,589
XVIII. Leatherware, n.e.l.	165	424	18	3	5	1	616
XIX. Minor wares, n.e.l.	1,206	7,340	60	247	96	28	8,977
Total	312,309	182,143	98,347	57,657	54,032	37,973	742,481

(a) Includes Class II.

(b) Included in Class I.

(iv) *Classification of Mechanical Power Used in Factories in the Commonwealth, 1916 to 1920-21.* The following table shews a similar classification of the actual horse-power of engines used in manufacturing industries in the Commonwealth during the years 1916 to 1920-21 inclusive :—

**ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES IN THE  
COMMONWEALTH, 1916 TO 1920-21.**

Class of Industry.	1916. (a)	1917. (b)	1918. (b)	1918-19. (c)	1919-20. (c)	1920-21. (c)
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	15,963	15,483	17,842	18,832	21,005	22,475
II. Treating oils and fats, animal, vegetable, etc.	2,435	2,140	2,282	2,701	3,109	3,098
III. Processes in stone, clay, glass, etc.	24,736	24,275	26,383	27,449	31,302	38,290
IV. Working in wood	45,997	45,712	47,560	48,499	53,656	60,363
V. Metal works, machinery, etc.	85,733	86,901	84,434	99,681	106,792	122,744
VI. Connected with food and drink, etc.	94,477	100,803	105,390	110,287	120,408	124,550
VII. Clothing and textile fabrics, etc.	16,353	17,023	18,362	19,428	22,014	24,342
VIII. Books, paper, printing, and engraving	14,125	14,500	16,225	16,246	17,444	18,201
IX. Musical instruments, etc.	448	613	664	501	640	704
X. Arms and explosives	910	1,739	1,547	1,725	2,192	1,446
XI. Vehicles and fittings, saddlery and harness, etc.	4,310	4,620	4,851	5,292	5,770	6,410
XII. Ship and boat building and repairing	4,333	5,445	5,310	6,239	6,880	10,076
XIII. Furniture, bedding, and upholstery	5,894	5,876	6,576	6,661	7,667	8,227
XIV. Drugs, chemicals, and by-products	6,555	7,386	8,102	8,179	9,631	10,332
XV. Surgical and other scientific instruments	72	109	120	124	145	156
XVI. Jewellery, timepieces, and plated ware	586	658	635	672	639	885
XVII. Heat, light, and power	202,232	217,080	245,767	249,199	241,893	280,589
XVIII. Leatherware, n.e.l.	377	444	512	500	571	616
XIX. Minor wares, n.e.l.	4,232	7,474	7,764	7,622	8,175	8,977
Total	529,768	560,261	610,326	629,946	660,016	742,481

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.



From the above table it will be seen that the actual horse-power of engines used increased in every branch of industry during the last five years. The industries using the greatest amount of power were Class XVII. Heat, light, and power; Class VI. Connected with food and drink; and Class V. Metal works, machinery, etc. These three classes, which together accounted for 71 per cent. of the total power used in 1920-21, increased their horse-power from 382,442 to 527,883 during the five years under review, and are mainly responsible for the development of mechanical power in factories since 1916.

## § 5. Numbers Employed in Australian Factories.

1. **Total Number Employed.**—Each person employed in and about a factory, in whatever capacity, is now included as a factory employee, consequently every proprietor who works in his business is counted as an employee, and all "outworkers" (see paragraph 5 hereinafter) are also included. The individuals embraced may be classed under the following heads, viz.:—(i) Working proprietors; (ii) managers and overseers; (iii) accountants and clerks; (iv) engine-drivers and firemen; (v) skilled and unskilled workers in the factories, mills, or workshops; (vi) carters and messengers; and (vii) others.

(i) *Average Numbers Employed, 1916 to 1920-21.* The following table shews, for each year from 1916 to 1920-21 inclusive, (a) the average numbers of persons (including both sexes and all ages) employed in manufacturing industries in each State; (b) the percentage of the numbers employed in each State on the total numbers employed in the Commonwealth; and (c) the numbers employed per ten thousand of the mean population in each State and the Commonwealth:—

### AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S Aust.	W. Aust.	Tas.	C'wealth.
AVERAGE NUMBER.							
1916(a)	116,401	113,834	39,983	25,496	12,676	8,362	316,752
1917(b)	117,997	116,970	40,446	26,010	12,168	8,079	321,670
1918(b)	120,554	118,241	40,990	26,634	12,917	8,713	328,049
1918-19(c)	127,591	122,349	40,990	27,915	12,917	8,713	340,475
1919-20(c)	144,454	136,522	40,891	29,442	15,409	10,016	376,734
1920-21(c)	145,011	140,743	43,196	30,430	17,034	10,225	386,639

### PERCENTAGE ON COMMONWEALTH TOTAL.

	%	%	%	%	%	%	%
1916(a)	36.75	35.94	12.62	8.05	4.00	2.64	100.00
1917(b)	36.68	36.37	12.57	8.09	3.78	2.51	100.00
1918(b)	36.75	36.04	12.49	8.12	3.94	2.66	100.00
1918-19(c)	37.48	35.93	12.04	8.20	3.79	2.56	100.00
1919-20(c)	38.34	36.24	10.85	7.82	4.09	2.66	100.00
1920-21(c)	37.51	36.40	11.17	7.87	4.41	2.64	100.00

### PER 10,000 OF MEAN POPULATION.

1916(a)	615	795	583	571	405	430	637
1917(b)	626	833	592	589	392	626	654
1918(b)	628	834	586	596	420	439	657
1918-19(c)	650	851	586	610	420	439	672
1919-20(c)	709	908	564	611	482	488	714
1920-21(c)	693	921	578	620	517	486	715

(a) See note (a) first table this section. (b) See note (b) first table this section.  
(c) See note (c) first table this section.

(ii) *Rates of Increase, 1916 to 1920-21.* The following table shews the percentage of increase or decrease on the average number of persons employed for the preceding year from 1917 to 1920-21. The figures for the past five years are somewhat vitiated by the change in dates of collecting the statistics in New South Wales, Victoria, and South Australia :—

**PERCENTAGE OF INCREASE ON AVERAGE NUMBER EMPLOYED, 1917 TO 1920-21.**

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	%	%	%	%	%	%	%
1916-17(b) ..	1.37	2.75	1.16	2.02	— 4.01	— 3.38	1.55
1917-18(b) ..	2.17	1.09	1.35	2.40	6.16	7.85	1.98
1918-1919(c) ..	5.84	3.47	1.35a	4.81	6.16a	7.85a	3.79
1918-19-1919-20(c)	13.22	11.58	— 0.24	5.47	19.29	14.95	10.65
1919-20-1920-21(c)	0.39	3.39	5.64	0.36	10.55	2.09	2.63

NOTE.—The minus sign (—) indicates decrease.

(a) Twelve months ended 31st December, 1918. (b) See note (b) first table this section.

(c) See note (c) first table this section.

**2. Classification of Numbers Employed in Factories in the Commonwealth, 1916 to 1920-21.**—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1916 to 1920-21 inclusive :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES  
IN THE COMMONWEALTH, 1916 TO 1920-21.**

Class of Industry.	1916.(a)	1917. (b)	1918.(b)	(c) 1918-19.	(c) 1919-20.	(c) 1920-21.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	9,009	9,411	9,984	10,775	12,040	10,494
II. Treating oils and fats, animal, vegetable, etc. ..	2,399	2,554	2,726	2,604	3,075	2,848
III. Processes in stone, clay, glass, etc. ..	11,604	10,949	12,575	13,761	16,271	18,311
IV. Working in wood ..	23,336	22,079	24,112	25,825	29,365	31,942
V. Metal works, machinery, etc. ..	65,850	62,115	60,392	62,679	70,025	80,550
VI. Connected with food and drink, etc. ..	48,272	52,781	56,297	59,891	61,757	57,599
VII. Clothing and textile fabrics, etc. ..	80,292	83,201	82,002	81,141	89,424	88,577
VIII. Books, paper, printing and engraving	21,890	24,954	25,054	25,000	26,926	27,522
IX. Musical instruments, etc. ..	542	652	677	714	902	1,065
X. Arms and explosives ..	2,571	2,951	2,225	1,986	1,662	1,504
XI. Vehicles and fittings, saddlery and harness, etc. ..	12,006	12,196	12,672	13,630	15,525	16,334
XII. Ship and boat building and repairing	4,605	4,952	4,569	6,119	8,343	6,702
XIII. Furniture, bedding, and upholstery ..	8,716	9,072	9,542	9,827	11,317	11,827
XIV. Drugs, chemicals, and by-products ..	4,738	5,036	5,564	5,861	6,436	6,805
XV. Surgical & other scientific instruments	293	361	415	453	495	548
XVI. Jewellery, timepieces, and plated ware	1,835	1,975	2,119	2,345	2,719	2,707
XVII. Heat, light, and power ..	10,018	10,329	10,714	10,912	11,991	12,770
XVIII. Leatherware, n.e.l. ..	1 376	1,488	1,647	1,709	2,233	2,191
XIX. Minor wares, n.e.l. ..	4,400	4,613	4,763	4,853	5,823	6,343
Total .. ..	316,752	321,670	323,049	340,475	376,734	386,639

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See Note (c) first Table this Section.

The number of persons employed in factories has, like the number of factories, increased annually since 1916, the increases likewise being more marked during the last two years. The average annual increases during the past five years have been 421 factories and 13,977 employees.

3. Classification of Numbers Employed in each State, according to Class of Industry.—The following table shews a similar classification of employees in manufacturing industries in each State during 1920-21 :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES  
IN EACH STATE, 1920-21.**

Class of Industry.	N.S.W. 1920-21.	Vic. 1920-21	Q'land. 1920.	S.A. 1920-21	W.A. 1920.	Tas. 1920.	C'wth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	3,840	4,045	730	1,017	451a	411	10,494
II. Treating oils and fats, animal, vegetable, etc.	1,584	835	171	231	(b)	27	2,848
III. Processes in stone, clay, glass, etc.	8,829	5,486	940	2,074	605	287	18,311
IV. Working in wood	9,157	9,529	5,377	1,493	4,339	2,047	31,942
V. Metal works, machinery, etc.	36,860	23,534	7,639	7,900	2,814	1,803	80,550
VI. Connected with food and drink, etc.	17,874	17,073	13,725	3,839	2,540	1,948	57,599
VII. Clothing and textile fabrics, etc.	28,298	44,341	6,857	5,316	2,403	1,362	88,577
VIII. Books, paper, printing, and engraving	10,327	9,933	3,100	1,958	1,215	789	27,522
IX. Musical instruments, etc.	642	384	..	30	..	..	1,065
X. Arms and explosives	850	650	..	4	..	..	1,504
XI. Vehicles and fittings, saddlery, and harness, etc.	5,267	6,087	1,364	2,257	763	596	16,334
XII. Ship and boat building & repairing	5,175	900	120	434	19	54	6,702
XIII. Furniture, bedding and upholstery	4,312	3,917	1,429	1,118	603	448	11,827
XIV. Drugs, chemicals, and by-products	2,659	2,654	118	883	468	23	6,805
XV. Surgical and other scientific instruments	206	199	66	40	37	..	548
XVI. Jewellery timepieces, & plated ware	828	1,397	167	195	78	42	2,707
XVII. Heat, light, and power	5 0.8	4,738	1,067	1,222	371	334	12,770
XVIII. Leatherware, n.e.l.	919	1,057	123	58	25	9	2,191
XIX. Minor wares, n.e.l.	2,146	3,384	203	352	213	45	6,343
Total	145,011	140,743	43,196	30,430	17,034	10,225	386,639

(a) Includes Class II.

(b) Included in Class I.

The largest number employed in any particular class in the Commonwealth during 1920-21 was in Class VII., in which there were 88,577 employees, or 23 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 548 hands, or 0.14 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 6, 5 hereof.)

4. Classification of Numbers Employed in each State according to Nature of Employment.—In the following table the average numbers of persons employed in each State during 1920-21 are classified according to the nature of their employment :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED  
ACCORDING TO NATURE OF EMPLOYMENT, 1920-21.**

State.	Average Number of Persons Employed.						Total.
	Working Proprietors.	Managers and Overseers.	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory Mill or Workshop (a)	Carters, Messengers and Others.	
N.S. Wales, 1920-21	4,553	5,274	6,654	3,062	123,571	1,897	145,011
Victoria, 1920-21 ..	6,645	4,354	6,106	2,108	117,801	3,729	140,743
Queensland, 1920 ..	1,495	1,804	2,088	1,882	33,315	2,612	43,196
S. Australia, 1920-21	1,284	1,100	1,642	559	25,248	597	30,430
W. Australia, 1920	498	897	753	423	13,862	601	17,034
Tasmania, 1920 ..	413	427	532	347	8,180	326	10,225
Commonwealth	14,888	13,856	17,775	8,381	321,977	9,762	386,639

(a) Including outworkers.

5. **Outworkers.**—The term “outworker” or “homeworker” has acquired a special meaning in connexion with manufacturing industries, and technically embraces only those to whom work is given out by factory owners to be wrought upon in the employees’ own homes. Individuals working for themselves are not included. The following table gives particulars of the average number of outworkers connected with factories in each State during each year from 1916 to 1920-21 inclusive :—

**NUMBER OF OUTWORKERS(a) CONNECTED WITH FACTORIES, 1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1916(b) .. ..	577	1,473	99	44	6	35	2,234
1917(c) .. ..	677	1,814	89	41	5	32	2,658
1918(c) .. ..	637	1,406	30	25	4	20	2,122
1918-1919(d) ..	582	1,022	30	57	4	20	1,715
1919-1920(d) ..	733	1,492	19	50	8	28	2,330
1920-1921(d) ..	471	1,151	41	68	14	45	1,790

(a) In all tables relating to number of hands employed in factories, outworkers are included.

(b) See note (a) first table this section.

(c) See note (b) first table this section.

(d) See note (c) first table this section.

The Factories Acts in each State contain provisions regulating the employment of outworkers. Generally, records of out-work must be kept by factory proprietors, specifying the names and remuneration of workers, and stating the places where the work is done. Further particulars are given in a later part of this book. (See Section relating to *Labour, Wages, Prices, etc.*)

## § 6. Sex Distribution in Factories.

1. **Employment of Females in Factories.**—In all the States the employment of female labour in factories is now regulated by Act of Parliament. In Victoria the first Act dealing with the subject was passed in the year 1873, and provided that no female should be employed for more than eight hours a day without the permission of the Chief Secretary. The number of working hours for women is now limited to forty-eight per week in all the States with the exception of Western Australia where the limitation is 44 per week. Overtime is allowed only with the permission of the Departments, and then to a limited extent. The maximum periods of continuous labour, and the intervals of cessation therefrom, are also prescribed by the several Acts. Further reference is made to the restrictions regarding the employment of females in a later part of this book. (See Section relating to *Labour, Wages, Prices, etc.*)

2. **Distribution of Employees according to Sex.**—In New South Wales the ratio of the number of females employed in factories to the number of males during 1886 was about one to seven; in 1891 one to six; in 1903 it became about one to four; and is now less than one to three. In Victoria the ratio of females to males during the year 1886 was about one to five. Five years later (1891) it was somewhat less, but in 1896 had increased to about one woman to three men, and at present is less than one to two. In South Australia the ratio at the latest date was one female employed to every four males, while Queensland and Western Australia were about one to five, and Tasmania one to six. The ratio for the whole of the Commonwealth was less than one to three. The employment of women is, however, mainly confined to a few trades.

The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Certain trades are specifically known as women's trades, such as clothing and textile trades, preparation of food, book-binding, and lighter work connected with the drug trade, as, for example, wrapping. In common also with commercial establishments, a considerable number of factories employ women as clerks and typists.

(i) *Average Number of Males and Females Employed, 1916 to 1920-21.* The following table shows the average number of male and female employees in factories in each State from 1916 to 1920-21 :—

**AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1916 TO 1920-21.**

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
<b>MALES.</b>						
New South Wales ..	87,724	88,910	90,025	96,884	109,836	112,187
Victoria ..	75,971	74,924	76,654	81,357	92,101	96,379
Queensland ..	32,235	32,763	33,597	33,597	33,851	36,011
South Australia ..	20,772	20,798	21,325	22,372	23,434	24,548
Western Australia ..	10,259	9,704	10,497	10,497	12,789	14,329
Tasmania ..	7,046	6,860	7,356	7,356	8,503	8,746
Commonwealth ..	234,007	233,959	239,454	252,063	280,514	292,200
<b>FEMALES.</b>						
New South Wales ..	28,677	29,087	30,529	30,707	34,618	32,824
Victoria ..	37,863	42,046	41,587	40,992	44,421	44,364
Queensland ..	7,748	7,683	7,393	7,393	7,040	7,185
South Australia ..	4,724	5,212	5,309	5,543	6,008	5,882
Western Australia ..	2,417	2,464	2,420	2,420	2,620	2,705
Tasmania ..	1,316	1,219	1,357	1,357	1,513	1,479
Commonwealth ..	82,745	87,711	88,595	88,412	96,220	94,439

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

It will be seen that during the years specified there has been for the whole Commonwealth a total increase in the number of male employees of 58,193, or an annual average of 11,639, whilst the number of female employees has shewn a total increase of 11,694 or an annual average of 2,339.

(ii) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1916 to 1920-21.* The following table shows the average number of male and female employees per 10,000 of the mean male and female population respectively in each State from 1916 to 1920-21 :—

**AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000 OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1916 TO 1920-21.**

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
<b>MALES.</b>						
New South Wales ..	920	940	938	984	1,054	1,051
Victoria ..	1,076	1,125	1,142	1,189	1,245	1,279
Queensland ..	892	925	931	931	895	910
South Australia ..	926	978	998	1,018	975	1,001
Western Australia ..	618	616	634	664	761	814
Tasmania ..	731	721	754	754	851	821
Commonwealth ..	924	960	971	1,004	1,048	1,063

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

**AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER  
10,000 OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY—continued.**

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
<b>FEMALES.</b>						
New South Wales ..	311	310	318	314	330	321
Victoria ..	522	569	557	544	582	573
Queensland ..	239	234	219	219	203	204
South Australia ..	213	227	228	233	249	239
Western Australia ..	165	166	161	161	173	176
Tasmania ..	134	123	135	135	148	142
Commonwealth ..	339	353	350	345	370	356

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

3. Rate of Variation for each Sex.—The percentages of annual increase or decrease during the years 1916 to 1920-21 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shown below :—

**PERCENTAGE OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE  
EMPLOYEES, 1917 TO 1920-21.**

State.	1916-17.(a)	1917-18.(a)	1918-1918-19.(b)	1918-19-1919-20. (b)	1919-20- 1920-21.(b)
<b>MALES.</b>					
	%	%	%	%	%
New South Wales ..	1.35	1.25	7.62	13.37	2.14
Victoria ..	-1.38	2.31	6.14	13.21	4.64
Queensland ..	1.64	2.55	(c) 2.55	0.76	6.38
South Australia ..	0.13	2.53	4.91	4.75	4.75
Western Australia..	-5.41	8.17	(c) 8.17	21.83	12.04
Tasmania ..	-2.64	7.23	(c) 7.23	15.59	2.86
Commonwealth	-0.02	2.35	5.27	11.29	4.17

**FEMALES.**

New South Wales ..	1.43	4.96	0.58	12.74	- 5.18
Victoria ..	11.05	-1.09	- 1.43	8.37	- 0.13
Queensland ..	- 0.84	-3.77	(c) - 3.77	- 4.77	2.06
South Australia ..	10.33	1.86	4.41	8.39	- 2.10
Western Australia..	1.94	-1.79	(c) - 1.79	8.26	3.24
Tasmania ..	- 7.37	11.32	(c) 11.32	11.50	- 2.25
Commonwealth	6.00	1.01	- 0.21	8.83	- 1.85

NOTE.—The minus sign (—) indicates decrease.

(a) See note (b) first table this section.

(b) See note (c) first table this section.

(c) Twelve months ended 31st December, 1918.

4. **Ratio of Female Employment in Factories.**—The extent to which females are employed in the factories of the Commonwealth may perhaps be best shewn by giving the masculinity of employees for each State for a series of years. The following table furnishes particulars for each of the years 1916 to 1920-21 inclusive :—

**EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED,  
1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1916(a) .. ..	50.7	33.5	61.2	62.9	61.9	68.5	47.8
1917(b) .. ..	50.7	28.1	62.0	59.9	59.5	69.8	45.5
1918(b) .. ..	49.4	29.7	63.9	60.1	62.5	68.9	46.0
1918-19(c) ..	51.9	33.0	63.9	60.3	62.5	68.9	48.1
1919-20(c) ..	52.1	34.9	65.6	59.2	66.0	69.8	48.9
1920-21(c) ..	54.7	37.0	66.7	61.3	68.2	71.1	51.1

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

The excess of males over females employed per 100 of both sexes combined has increased from 47.8 in 1916 to 51.1 in 1920-21, the increase being noticeable in all the States with the exception of South Australia where a slight decline of 1.6 occurred during the past five years. The tables given in the succeeding paragraph shew that the comparatively high proportions of females have been due not so much to the incursion of female labour into what may be termed men's trades, as to the activity in those trades in which women are ordinarily engaged, more especially in dressmaking, millinery, etc.

5. **Employment of Females in Particular Industries.**—The employment of women in manufacturing industries in Australia is mainly confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII., viz., in connexion with food, drink, etc., clothing and textile fabrics, and books, paper, printing, etc. The following table shews the average number of females employed in each of these classes in each State during 1920-21, and also shews the percentages of the average number so employed on the total average number of females employed in all classes of factories :—

**AVERAGE NUMBER OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES,  
AND PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1920-21.**

Class.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
<b>AVERAGE NUMBER.</b>							
VI. Food, drink, etc. ..	5,580	4,730	920	694	380	326	12,630
VII. Clothing and textile fabrics ..	19,920	31,926	4,978	3,909	1,803	900	63,436
VIII. Books, paper, printing, etc. ..	2,978	3,004	733	612	264	126	7,717
All other classes .. ..	4,346	4,704	554	667	258	127	10,656
Total .. ..	32,824	44,364	7,185	5,882	2,705	1,479	94,439
<b>PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.</b>							
VI. Food, drink, etc. ..	17.00	10.66	12.81	11.80	14.05	22.04	13.38
VII. Clothing and textile fabrics ..	60.69	71.96	69.28	66.46	66.65	60.85	67.17
VIII. Books, paper, printing, etc. ..	9.07	6.77	10.20	10.40	9.76	8.52	8.17
All other classes .. ..	13.24	10.61	7.71	11.34	9.54	8.59	11.28
Total .. ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00

It will be seen that by far the greater part of the total number of females employed in factories work in one or other of the three classes of industry indicated, Class VII. being the most important. The classification of the employment of females in the several industries in that class, and the relation of their number to that of the males so employed, are shewn in the following table :—

## FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII. DURING 1920-21.

Industry.	New South Wales. 1920-21.			Victoria. 1920-21.			Other States.(a)		
	Males.	Females	Femininity. (b)	Males.	Females	Femininity. (b)	Males.	Females	Femininity. (b)
Woollen and tweed mills	849	801	-2.91	1,536	1,806	8.08	323	468	18.33
Boots and shoes ..	3,103	1,742	-28.09	5,630	3,582	-22.23	1,654	862	-31.48
Slop clothing Clothing (tailoring) }	2,335	7,189	50.97	2,106	7,089	54.19	1,778	5,306	49.80
Dressmaking and millinery ..	168	4,543	92.87	333	8,780	92.69	27	3,005	98.22
Dyeing and cleaning	180	127	-17.26	156	144	-4.00	42	43	1.18
Furriers ..	90	132	18.92	134	240	28.34	3	3	..
Hats and caps ..	593	863	18.54	709	880	8.76	66	99	20.00
Waterproof and oilskin	33	116	55.70	57	132	39.68	6	12	33.33
Shirts, ties, and scarfs	220	2,844	85.64	338	5,300	88.01	88	1,558	89.31
Hosiery and knitted goods ..	246	1,231	66.69	535	3,167	71.10	..	..	..
Rope and cordage ..	383	31	-85.02	732	484	-20.39	217	118	-29.55
Tents and tarpaulins ..	178	301	25.68	95	74	-12.43	121	62	-32.24
Other ..	..	..	..	54	248	64.24	23	54	40.26
Total, Class VII. ..	8,378	19,920	40.79	12,415	31,926	44.00	4,348	11,590	45.44

NOTE.—The minus sign (-) denotes excess of males over females.

(a) See note (c) first table this section. (b) Excess of females over males per 100 of both sexes combined.

## § 7. Child Labour in Factories.

1. **Conditions of Child Labour.**—The employment of young persons in factories in each State of the Commonwealth is regulated by Acts of Parliament in a similar manner to the employment of female labour. Excepting under special circumstances children under a certain age may not be employed in factories. The minimum age in all the States is 14, with the exception of South Australia, where it is 13 years, and Victoria and Western Australia, where the minimum for females is 15 years. Other restrictions on the employment of young persons in factories are more particularly referred to in a later part of this book. (See Section relating to *Labour, Wages, Prices, etc.*) The general object of the restrictions imposed is to assure that a proper period shall be devoted to primary education and that the early years of toil shall not exhaust the worker before the attainment of full growth.

2. **Average Number of Children Employed in Factories, 1916 to 1920-21.**—In the statistical compilations of the various States the term "child" may be taken to denote any person under sixteen years of age. The following table shews the average number of children of each sex employed in manufacturing industries in each State during the years 1916 to 1920-21 :—

## AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1916 TO 1920-21.

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
MALES.						
New South Wales ..	2,578	2,604	2,584	2,586	3,824	3,673
Victoria ..	3,355	3,072	3,195	3,137	3,721	3,715
Queensland ..	1,197	1,170	1,171	1,171	1,214	1,266
South Australia ..	1,068	744	779	834	866	991
Western Australia ..	398	408	407	407	447	448
Tasmania ..	217	253	244	244	327	315
Commonwealth ..	8,813	8,251	8,380	8,379	10,399	10,408

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.



**AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1916 TO 1920-21—continued.**

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
<b>FEMALES.</b>						
New South Wales ..	2,605	2,449	2,492	2,561	3,764	3,610
Victoria ..	2,197	2,301	2,447	2,389	2,872	2,798
Queensland ..	745	704	711	711	645	738
South Australia ..	591	586	567	545	765	679
Western Australia ..	271	314	307	307	307	311
Tasmania ..	102	89	105	105	186	193
Commonwealth ..	6,511	6,443	6,629	6,618	8,539	8,329
<b>TOTAL.</b>						
New South Wales ..	5,183	5,053	5,076	5,147	7,588	7,283
Victoria ..	5,552	5,373	5,642	5,526	6,593	6,513
Queensland ..	1,942	1,874	1,882	1,882	1,859	2,004
South Australia ..	1,659	1,330	1,346	1,379	1,631	1,670
Western Australia ..	669	722	714	714	754	759
Tasmania ..	319	342	349	349	513	508
Commonwealth ..	15,324	14,694	15,009	14,997	18,938	18,737

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

3. **Percentage of Children on Total Persons Employed.**—The foregoing table shews a general increase in the number of children employed in factories during the past quinquennial period. This increase is more marked among the females than the males, the respective gains being 1,818 and 1,595. Examined in conjunction with the total number of persons employed it will be seen from the following table that the percentage of children employed in factories has remained stationary since 1916, subject to slight fluctuations during the period:—

**PERCENTAGE OF CHILDREN IN FACTORIES ON TOTAL NUMBER OF EMPLOYEES, 1916 TO 1920-21.**

State.	1916. (a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
	%	%	%	%	%	%
New South Wales ..	4.45	4.28	4.21	4.03	5.25	5.02
Victoria ..	4.88	4.59	4.77	4.52	4.83	4.63
Queensland ..	4.86	4.63	4.59	4.59	4.55	4.64
South Australia ..	6.51	5.11	5.05	4.94	5.54	5.49
Western Australia ..	5.28	5.93	5.53	5.53	4.89	4.46
Tasmania ..	3.81	4.23	4.01	4.01	5.12	4.97
Commonwealth ..	4.84	4.57	4.58	4.40	5.03	4.85

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

4. **Industries Employing Child Labour.**—The employment of children is largely confined to a limited number of industries, the most important of which are specified in the table below, which shews the average number of children of each sex employed in the several industries indicated in each State during 1920-21.

## NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1920-21.

Class.	Industry.	N.S.W. 1920-21.		Victoria. 1920-21.		Q'land. 1920.		S. Aust. 1920-21.		W. Aust. 1920.		Tas. 1920.		C'wealth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
III.	Bricks, tiles, pottery, and earthenware ..	146	..	65	10	31	..	15	..	5	..	8	..	270	10
IV.	Joinery, boxes, cases, etc.	80	3	154	5	38	1	28	..	14	..	14	1	328	10
	Saw mills ..	93	3	29	..	76	5	7	..	15	1	28	..	248	9
V.	Engineering, ironworks, and foundries ..	406	21	485	3	72	..	101	..	73	..	32	..	1,169	24
"	Galvanised ironworking and tinsmithing ..	139	17	138	21	61	..	60	..	..	..	7	..	405	38
"	Railway carriage, railway and tramway workshops ..	74	1	137	..	..	..	48	..	10	..	1	..	270	1
VI.	Meat & fish preserving ..	3	..	8	..	78	1	..	..	..	..	1	..	89	2
"	Biscuits ..	318	147	60	29	10	10	9	12	19	13	14	8	430	219
"	Confectionery ..	81	267	48	53	30	39	6	35	3	3	1	1	169	398
"	Jams, pickles, sauces, etc.	18	21	66	42	14	4	24	22	3	2	55	6	180	97
"	Tobacco, cigars, etc.	50	103	54	8	1	2	2	2	3	4	..	..	110	119
VII.	Woollen, cotton, and tweed mills ..	64	101	188	176	7	39	13	15	..	..	6	26	278	357
"	Boots and shoes ..	162	220	272	407	40	36	31	35	19	18	6	19	530	745
"	Clothing (tailoring and slop) ..	92	687	62	259	46	252	10	143	17	81	5	35	232	1,457
"	Dressmaking and millinery ..	3	550	7	585	..	113	..	177	1	79	1	54	12	1,558
"	Hats and caps ..	32	117	41	35	..	8	5	5	..	..	..	..	78	165
"	Shirts ties, scarfs, etc.	11	330	7	335	5	114	..	76	2	37	..	4	25	896
VIII.	Electrotyping, printing and binding ..	394	230	411	146	102	65	63	42	65	24	46	22	1,171	529
"	Paper making, paper boxes, etc. ..	72	130	29	48	4	14	16	52	..	8	..	..	121	252
XI.	Coach and wagon building ..	58	1	90	2	34	1	32	1	16	..	24	..	254	5
"	Cycles and motors ..	116	8	134	3	50	1	85	5	20	..	14	..	419	17
XIII.	Billiard tables, cabinet making and furniture ..	136	5	177	1	92	6	69	..	19	..	18	1	511	13
XIV.	Chemicals, drugs, and medicines ..	37	78	7	21	..	6	7	17	8	3	..	..	59	125

5. **Apprenticeship.**—In all the States Acts are in force for the regulation of the age at which children may be employed in gainful occupations. Legislative provision is also made for the regulation of apprenticeship under the various State Factories Acts or Arbitration Acts. These Acts, while laying down general principles, leave to the wages tribunals the actual determination of the conditions under which apprentices may be employed.

(i) *New South Wales.* In New South Wales the *Industrial Arbitration Act* gives power to the Industrial Boards and Arbitration Court to fix the number or proportional number of apprentices in any industry and the lowest prices or rates payable to them. Further, the Board of Trade is empowered to determine such matters as the occupation and industry in which apprenticeship shall be a condition of employment; the hours, wages, and conditions of employment of apprentices; and the limitation in number of apprentices. In addition, the Board may determine to what extent technical education shall be obligatory upon apprentices and masters; co-operate with the Department of Education in encouraging young persons to attend technical, trade, or continuation schools; and generally protect, control, and direct conditions of apprenticeship including the control of attendance at technical or trade schools. The Board of Trade has issued two comprehensive reports on the subject of apprenticeship, the first in 1920 and the second in 1922. The latter report contains the determinations and directions made by the Board with respect to apprenticeship in industries, but they can only be brought into effect when incorporated in regulations made by the Governor in Council. Such regulations had not been issued at the date when this Section was compiled.

(ii) *Victoria.* In Victoria the *Factories and Shops Act 1915* confers powers on the Wages Boards to prescribe the form of apprenticeship indenture and determine the number or proportionate number of apprentices who may be employed within any factory or shop or place in any trade. The Boards when determining these matters may take into consideration the age, sex, and experience of the apprentices, and fix a scale of prices

or rates payable to such apprentices according to their respective age, sex, and experience. The Boards are limited by the Act to the extent that they are prohibited from fixing a less number or proportionate number than one apprentice for every three or fraction of three workers in the particular trade receiving or earning the minimum wage. The Act also provides that the Minister may grant permission in writing to any person to be bound for a less period than three years; to enable persons 21 years of age and over either to be bound by indentures of apprenticeship, or if attaining the age of 21 during the term of apprenticeship to complete the term of such apprenticeship.

(iii) *Queensland.* In Queensland the question of apprenticeship is dealt with under the provisions of the *Industrial Arbitration Act 1916*. The Court of Industrial Arbitration is directed to fix the term of apprenticeship; the earliest and latest age at which apprenticeship shall begin; the treatment to be extended by masters to apprentices—including insurance against accident,—the matters to be taught; methods, times, and conditions of instruction, whether in factory, trade, or technical school, and also to decide whether such instruction shall be in the time and at the expense of the master and apprentice, master only, or apprentice only. The Court has power also to modify rules or conditions of apprenticeship and to decide disputes which may arise *re* payment, forfeiture, hours, registration, penalties, etc.

(iv) *South Australia.* The *Industrial Code Act of 1920* includes certain provisions as to apprenticeship. These are that no person may be indentured after attaining the age of 20 years, and that indentures are not to be binding upon an apprentice who attains the age of 21 years even if the term of apprenticeship is not completed. It is further provided under this Act that every indenture shall contain a covenant that the employer will instruct the person apprenticed in the particular craft, occupation, or calling specified.

(v) *Western Australia.* In Western Australia it is provided that the Industrial Court, under the provisions of the *Industrial Arbitration Act 1912*, shall determine the persons who may take or become apprentices; the number of apprentices any employer may have; the mode of binding apprentices; the term and conditions of apprenticeship; the registration and examination of apprentices; the rights, duties, and liabilities of the parties to any agreement of apprenticeship; the assigning or turning over of apprentices; and the dissolution of apprenticeship. In awards of the Court an Examination Board is constituted for each industry, and apprentices are bound to submit once a year to an examination by that Board. The Board consists of persons skilled in the trade, and nominated by the unions and the employers, or if they fail to nominate such persons the Court or the President may do so.

(vi) In Tasmania the *Wages Board Act of 1920* contains provisions with regard to the regulation of apprenticeship. The Wages Boards may prescribe the form of indenture; fix the number or proportionate number of apprentices—but not less than one apprentice for every one journeyman of the same sex. The Act also gives power to the Chief Inspector to transfer apprentices from an employer becoming insolvent or relinquishing business to another employer. Apprentices may be dismissed, and their indentures cancelled if the Chief Inspector makes a recommendation to that effect.

Other provisions of the Act give authority to the Minister administering the Act to grant permission to any student at the University who is under 21 years of age to work as an apprentice for a period not exceeding six months for the purpose of obtaining practical experience in some subject comprised in his course at the University. Other provisions of the Act have reference to action to be taken in cases where employers, through depression in trade or other causes, are forced to reduce the number of journeymen, and thus disturb the relation between the proportionate number of journeymen and apprentices, and it is laid down that when apprentices, owing to the employer, work less than the maximum number of hours per week, they shall be paid the rates determined for the maximum number of hours.

### § 8. Amount of Wages Paid and Value of Production.

1. **Introduction.**—The importance of the manufacturing industries of the Commonwealth is indicated by the fact that the total value of the output for 1920–21 was £324,586,519, of which amount the sum of £205,866,282 represents the value of the raw materials used. The difference between these two amounts, viz., £118,720,237, represents the amount by which the value of the raw materials was enhanced in the process of manufacture. The total amount of salaries and wages paid in factories during 1920–21 was £62,931,718.

2. **Amount of Salaries and Wages Paid.**—The total amount of salaries and wages paid during the year 1920–21 in various classes of factories in the Commonwealth (excluding all sums drawn by working proprietors) is shewn in the following table:—

AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN  
COMMONWEALTH, 1920–21.(a)

Class of Industry.	N.S.W. 1920–21.	Victoria. 1920–21.	Q'land. 1920.	S. Aust. 1920–21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	735,738	732,432	125,724	156,281	(b)61,022	39,036	1,850,233
II. Treating oils and fats, animal, vegetable, etc.	265,740	142,673	29,792	44,428	(c)	4,659	487,292
III. Processes in stone, clay, glass, etc.	1,689,213	977,691	164,847	380,841	116,256	42,039	3,350,887
IV. Working in wood	1,589,929	1,673,041	878,656	235,933	823,188	308,770	5,559,517
V. Metal works, machinery, etc.	7,780,446	4,376,177	1,470,295	1,500,606	542,624	351,558	16,021,706
VI. Connected with food and drink, etc.	2,933,469	2,953,232	2,122,655	593,181	448,692	260,803	9,312,032
VII. Clothing and textile fabrics, etc.	3,257,942	4,718,656	663,993	505,162	245,610	131,367	9,522,730
VIII. Books, paper, printing, and engraving	1,869,610	1,644,405	511,818	311,870	212,890	123,291	4,673,884
IX. Musical instruments, etc.	137,791	64,857	..	5,138	..	..	207,786
X. Arms and explosives	209,954	102,558	..	377	..	..	312,889
XI. Vehicles and fittings, saddlery and harness, etc.	828,208	886,508	188,771	342,319	114,504	66,229	2,426,539
XII. Ship and boat building and repairing	1,288,293	199,892	17,528	90,295	2,951	9,365	1,608,324
XIII. Furniture, bedding, and upholstery	750,079	564,458	225,198	175,149	102,692	54,813	1,872,389
XIV. Drugs, chemicals, and by-products	483,744	436,825	12,621	158,005	74,134	1,990	1,167,319
XV. Surgical and other scientific instruments	33,875	25,931	8,908	5,888	4,790	..	79,392
XVI. Jewellery, timepieces, and plated ware	155,164	199,749	23,253	32,735	11,447	4,474	426,822
XVII. Heat, light, & power	1,180,836	1,032,679	237,345	246,697	84,146	76,581	2,858,234
XVIII. Leatherware, n.e.i.	126,722	133,347	14,303	6,515	2,050	901	283,838
XIX. Minor wares, n.e.i.	301,838	512,105	23,198	44,791	23,571	4,352	909,855
Total	25,618,591	21,377,216	6,718,905	4,866,211	2,870,567	1,480,228	62,931,718

(a) Excluding all amounts drawn by working proprietors.

(b) Includes Class II.

(c) Included with Class I.

The maximum amount of salaries and wages paid in any particular class during 1920–21 was in Class V., the amount being £16,021,706, or 25.46 per cent. on the total amount; the minimum amount was in Class XV., £79,392, or 0.13 per cent.

on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shews the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1916 to 1920-21. The figures are exclusive of working proprietors and of the amounts drawn from the business by them.

**AMOUNT OF SALARIES AND WAGES PAID AND AVERAGE AMOUNT PER ANNUM PAID PER EMPLOYEE, 1916 TO 1920-21.**

Year.	Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
		£	£	£	£	£	£	£
1916a ..	Total amount paid ..	13,413,845	11,036,345	4,181,254	2,705,130	1,656,799	835,467	33,828,840
	Average per employee ..	119.29	101.75	108.13	111.54	136.29	104.88	111.35
1917b ..	Total amount paid ..	14,381,309	11,833,517	4,879,940	3,094,094	1,590,696	838,662	36,618,218
	Average per employee ..	126.16	105.87	125.28	124.57	136.22	108.97	118.54
1918b ..	Total amount paid ..	14,701,255	12,502,601	5,121,188	3,359,354	1,730,896	963,974	38,379,268
	Average per employee ..	126.18	110.77	129.45	131.94	138.55	115.57	121.75
1918-19c	Total amount paid ..	16,957,919	14,080,403	5,121,188	3,651,715	1,730,896	963,974	42,506,095
	Average per employee ..	137.33	120.47	129.45	136.64	138.55	115.57	129.80
1919-20c	Total amount paid ..	21,681,196	17,702,173	5,364,818	3,988,062	2,173,350	1,205,959	52,115,558
	Average per employee ..	154.87	135.52	135.86	141.63	145.24	126.03	143.65
1920-21c	Total amount paid ..	25,618,591	21,377,216	6,718,905	4,866,211	2,870,567	1,480,228	62,931,718
	Average per employee ..	182.39	159.41	161.12	166.96	173.60	150.86	169.28

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

In comparing the figures in the preceding table, regard should be paid to the nature of certain industries which are carried on to a greater extent in some States than in others. In Victoria, for instance, there is a large number of hands employed in Class VII., comprising a heavy percentage of women and children. New South Wales pays the largest amount in salaries, and the average per employee in that State is considerably higher than in any other part of the Commonwealth.

It will be noted that there has been a continual increase in the average wage paid per employee in each of the States during the period under review. Taking the Commonwealth as a whole, during the period 1916 to 1920-21 there has been an increase of 86 per cent. on the total amount of wages paid, and 52 per cent. on the average paid per employee.

The following table shews the approximate amount paid in salaries and wages to males and females in each class of industry in each State during 1920-21, and the total amounts paid to employees of each sex during the last six years :—

**AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING 1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
<b>MALES.</b>							
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	719,990	729,705	124,371	155,363	60,577b	38,971	1,828,977
II. Treating oils and fats, animal, vegetable, etc. ..	237,015	130,382	28,613	42,001	(c)	4,224	442,235
III. Processes in stone, clay, glass, etc. ..	1,678,969	965,398	163,639	359,811	115,118	41,669	3,324,604
IV. Working in wood ..	1,573,891	1,657,099	872,452	282,789	822,175	307,578	5,515,984
V. Metal works, machinery, etc. ..	7,717,848	4,332,134	1,461,823	1,491,331	539,623	349,656	15,892,415

(a) Exclusive of amount drawn by working proprietors. (b) Includes Class II. (c) Included in Class I.

**AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS  
EMPLOYED IN EACH CLASS OF INDUSTRY, ETC.—continued.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
<b>MALES—continued.</b>							
	£	£	£	£	£	£	£
VI. Connected with food and drink, etc. . .	2,473,053	2,555,798	2,049,711	552,373	422,764	243,573	8,297,272
VII. Clothing and textile fabrics, etc. . .	1,512,436	2,078,352	209,196	203,498	91,815	64,320	4,249,617
VIII. Books, paper, printing and engraving . .	1,609,438	1,384,579	450,777	268,036	190,016	114,218	4,017,064
IX. Musical instruments, etc. . .	132,504	63,177	..	4,998	..	..	200,679
X. Arms and explosives . .	209,419	77,553	..	377	..	..	287,349
XI. Vehicles and fittings, saddlery and harness, etc. . .	810,226	867,633	181,074	334,387	111,495	63,327	2,368,142
XII. Ship and boat building and repairing . .	1,283,680	199,313	17,528	90,295	2,951	9,365	1,603,132
XIII. Furniture, bedding, and upholstery . .	698,722	532,914	216,030	171,210	99,483	53,356	1,771,715
XIV. Drugs, chemicals, and by-products . .	403,307	381,313	8,556	151,547	70,207	1,840	1,016,770
XV. Surgical and other scientific instruments . .	30,477	24,269	8,738	5,707	4,314	..	73,505
XVI. Jewellery, timepieces, and plated ware . .	146,009	185,828	22,152	31,337	11,049	4,474	400,849
XVII. Heat, light, and power . .	1,175,060	967,646	233,194	239,722	84,047	75,571	2,775,240
XVIII. Leatherware, n.e.i. . .	102,211	100,221	11,277	4,198	1,813	691	210,411
XIX. Minor wares, n.e.i. . .	251,961	435,603	19,613	41,289	20,510	3,989	772,965
Total . .	22,766,216	17,668,917	6,168,744	4,430,269	2,647,957	1,376,822	55,058,925

**FEMALES.**

I. Treating raw material product of agricultural and pastoral pursuits, etc. . .	15,748	2,727	1,353	918	445b	65	21,256
II. Treating oils and fats, animal, vegetable, etc. . .	28,725	12,291	1,179	2,427	(c)	435	45,057
III. Processes in stone, clay, glass, etc. . .	10,244	12,293	1,208	1,030	1,138	370	26,283
IV. Working in wood . .	16,038	15,942	6,204	3,144	1,013	1,192	43,533
V. Metal works, machinery, etc. . .	62,598	44,043	8,472	9,275	3,001	1,902	129,291
VI. Connected with food and drink, etc. . .	460,416	397,434	72,944	40,808	25,928	17,230	1,014,760
VII. Clothing and textile fabrics, etc. . .	1,745,506	2,640,304	364,797	301,664	153,795	67,047	5,273,113
VIII. Books, paper, printing and engraving . .	260,172	259,826	61,041	43,834	22,874	9,073	656,820
IX. Musical instruments, etc. . .	5,237	1,680	..	140	..	..	7,107
X. Arms and explosives . .	535	25,005	..	..	..	..	25,540
XI. Vehicles and fittings, saddlery and harness, etc. . .	17,982	18,875	7,697	7,932	3,009	2,902	58,397
XII. Ship and boat building and repairing . .	4,613	579	..	..	..	..	5,192
XIII. Furniture, bedding, and upholstery . .	51,357	31,544	9,168	3,939	3,209	1,457	100,674
XIV. Drugs, chemicals, and by-products . .	80,437	55,512	4,065	6,458	3,927	150	150,549
XV. Surgical and other scientific instruments . .	3,398	1,662	170	181	476	..	5,887
XVI. Jewellery, timepieces, and plated ware . .	9,155	13,921	1,101	1,398	398	..	25,973
XVII. Heat, light, and power . .	5,776	65,033	4,151	6,975	99	1,010	83,044
XVIII. Leatherware, n.e.i. . .	24,511	33,126	3,026	2,317	237	210	63,427
XIX. Minor wares, n.e.i. . .	49,877	76,502	3,585	3,502	3,061	363	136,890
Total . .	2,852,375	3,708,299	550,161	435,942	222,610	103,406	7,872,793

(a) Exclusive of amount drawn by working proprietors. (b) Includes Class II. (c) Included in Class I.

**AMOUNT(a) OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN  
FACTORIES IN THE SEVERAL STATES OF THE COMMONWEALTH,  
1916 TO 1920-21.**

Particulars.		N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
<b>MALES.</b>								
1916.b	Amount paid ..£	11,888,028	9,161,852	3,823,488	2,506,579	1,520,760	772,789	29,673,496
	Per cent. on total ..	88.63	83.02	91.44	92.66	91.79	92.50	87.72
	Average per employee£	141.46	128.76	123.57	122.92	155.80	116.10	133.66
1917.c	Amount paid ..£	12,727,172	9,590,851	4,496,449	2,852,334	1,449,780	778,352	31,894,939
	Per cent. on total ..	88.50	81.05	92.14	92.19	91.14	92.81	87.10
	Average per employee£	149.35	136.48	143.51	144.99	156.99	120.13	143.53
1918.c	Amount paid ..£	12,848,017	10,141,750	4,710,717	3,087,063	1,578,600	892,743	33,258,890
	Per cent. on total ..	87.39	81.12	91.98	91.89	91.20	92.61	86.66
	Average per employee£	148.93	141.12	146.19	152.89	156.41	127.75	146.11
1918-19.d	Amount paid ..£	14,966,669	11,531,666	4,710,717	3,344,623	1,578,600	892,743	37,025,018
	Per cent. on total ..	88.26	81.90	91.98	91.59	91.20	92.61	87.11
	Average per employee£	160.82	150.89	146.19	157.55	156.41	127.75	154.25
1919-20.d	Amount paid ..£	19,128,348	14,483,166	4,909,725	3,605,180	2,000,474	1,116,679	45,243,572
	Per cent. on total ..	88.23	81.82	91.52	90.40	92.05	92.60	86.81
	Average per employee£	181.06	166.98	151.09	162.43	161.84	138.51	169.14
1920-21.d	Amount paid ..£	22,766,216	17,668,917	6,168,744	4,430,269	2,647,957	1,376,822	55,058,925
	Per cent. on total ..	88.87	82.65	91.81	91.04	92.25	93.01	87.49
	Average per employee£	210.99	195.68	178.49	190.05	191.16	165.07	197.85
<b>FEMALES.</b>								
1916.b	Amount paid ..£	1,525,817	1,874,493	357,766	198,551	136,039	62,678	4,155,344
	Per cent. on total ..	11.37	16.98	8.56	7.34	8.21	7.50	12.28
	Average per employee£	53.72	50.24	46.29	42.47	56.80	47.85	50.81
1917.c	Amount paid ..£	1,654,137	2,242,666	383,491	241,760	140,916	60,309	4,723,279
	Per cent. on total ..	11.50	18.95	7.86	7.81	8.86	7.19	12.90
	Average per employee£	57.49	54.05	50.31	46.81	57.71	49.56	54.47
1918.c	Amount paid ..£	1,853,238	2,360,851	410,471	272,291	152,296	71,231	5,120,378
	Per cent. on total ..	12.61	18.88	8.02	8.11	8.80	7.39	13.34
	Average per employee£	61.27	57.57	55.95	51.67	63.46	52.65	58.45
1919-20.d	Amount paid ..£	1,991,250	2,548,737	410,471	307,092	152,296	71,231	5,481,077
	Per cent. on total ..	11.74	18.10	8.02	8.41	8.80	7.39	12.89
	Average per employee£	65.46	63.00	55.95	55.88	63.46	52.65	62.67
1919-20.d	Amount paid ..£	2,552,848	3,219,007	455,093	382,882	172,876	89,280	6,871,986
	Per cent. on total ..	11.77	18.18	8.48	9.60	7.95	7.40	13.19
	Average per employee£	74.33	73.35	65.07	64.20	66.41	59.24	72.11
1920-21.d	Amount paid ..£	2,852,375	3,708,299	550,161	435,942	222,610	103,466	7,872,793
	Per cent. on total ..	11.13	17.35	8.19	8.96	7.75	6.99	12.51
	Average per employee£	87.61	84.71	77.04	74.71	82.94	70.00	84.23

(a) Exclusive of amounts drawn by working proprietors. (b) See note (a) first table this section.  
(c) See note (b) first table this section. (d) See note (c) first table this section.

A further analysis of salaries and wages paid is given in the following tables, the amounts paid to managers, overseers, etc., being differentiated from those paid to other employees. As previously mentioned, amounts drawn by working proprietors are excluded in all cases.

**DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC.,  
AND OTHER EMPLOYEES IN FACTORIES DURING 1920-21.(a)**

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	£	£	£	£	£	£	£
II. Treating oils and fats, animal, vegetable, etc. . .	238,050	8,261	1,500,927	12,905	1,828,977	21,256	1,850,233
III. Processes in stone, clay, glass, etc. . .	82,870	9,166	359,365	35,891	442,235	45,037	487,292
IV. Working in wood . .	320,966	13,806	3,003,638	12,477	3,324,604	26,283	3,350,887
V. Metal works, machinery, etc. . .	604,386	32,234	4,911,598	11,299	5,515,984	43,533	5,559,517
VI. Connected with food and drink, etc. . .	1,559,959	72,846	14,332,456	56,445	15,892,415	129,291	16,021,706
VII. Clothing and textile fabrics, etc. . .	1,535,405	129,821	6,761,867	884,939	8,297,272	1,014,760	9,312,032
VIII. Books, paper, printing, and engraving . .	686,718	276,035	3,562,899	4,997,078	4,249,617	5,273,113	9,522,730
IX. Musical instruments, etc.	781,097	112,521	3,235,967	544,299	4,017,064	656,820	4,673,884
X. Arms and explosives	23,725	3,751	176,954	3,356	200,679	7,107	207,786
	33,155	3,752	252,194	21,788	287,349	25,540	312,889

(a) See note (c) first table this section.

DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC.,  
AND OTHER EMPLOYEES IN FACTORIES DURING 1920-21(a)—*continued.*

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants' and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
XI. Vehicles and fittings, saddlery and harness, etc.	£ 256,872	£ 40,372	£ 2,111,270	£ 18,025	£ 2,368,142	£ 58,397	£ 2,426,539
XII. Ship and boat building and repairing..	131,101	4,417	1,472,031	775	1,603,132	5,192	1,608,324
XIII. Furniture, bedding, and upholstery ..	138,760	17,742	1,632,955	82,932	1,771,715	100,674	1,872,389
XIV. Drugs, chemicals, and by-products ..	220,965	29,403	795,805	121,146	1,016,770	150,549	1,167,319
XV. Surgical & other scientific instruments ..	12,742	1,880	60,763	4,007	73,505	5,887	79,392
XVI. Jewellery, timepieces, and plated ware ..	33,815	8,765	367,034	17,203	400,849	25,973	426,822
XVII. Heat, light, and power	567,146	33,591	2,203,094	49,433	2,773,240	83,044	2,856,284
XVIII. Leatherware, n.e.l. ..	41,121	6,970	179,290	56,457	220,411	63,427	283,838
XIX. Minor wares, n.e.l. ..	100,026	12,262	672,933	124,628	772,965	136,390	909,855
Total .. ..	7,370,879	817,595	47,688,046	7,055,198	55,058,923	7,872,793	62,931,718
Average paid per employee..	297.39	119.43	188.12	81.45	197.85	84.23	169.28

(a) See note (c) first table this section.

3. **Value of Fuel and Light used in Factories.**—The amount expended in factories on fuel and light is of considerable importance; in 1920-21 it amounted to £7,692,488. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £2,368,992; Class VI., Connected with Food, Drink, etc., £1,460,566; Class XVII., Heat, Light, Power, etc., £1,454,350, of which amount £1,270,223 was expended on generating electric light and power; and Class III., £1,039,187. The following tables shew the value of fuel and light used in the different classes of industry in the several States of the Commonwealth during 1920-21, and of the total used for each of the last six years :—

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH,  
1920-21.

Class of Industry.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
I. Treating raw material product of agricultural and pastoral pursuits, etc. ..	£ 93,132	£ 89,507	£ 17,530	£ 21,490	£ 9,771a	£ 2,240	£ 233,670
II. Treating oils and fats, animal, vegetable, etc. ..	66,836	45,561	5,651	5,081	(b)	594	124,323
III. Processes in stone, clay, glass, etc. ..	511,890	319,754	27,622	129,656	37,137	13,128	1,039,187
IV. Working in wood ..	48,069	37,446	13,852	8,487	4,500	3,366	115,720
V. Metal works, machinery, etc. ..	1,455,921	337,194	287,756	169,860	29,359	88,902	2,368,992
VI. Connected with food and drink, etc. ..	436,582	519,098	279,823	128,689	69,937	26,437	1,460,566
VII. Clothing and textile fabrics, etc. ..	79,328	174,185	14,275	15,146	4,744	3,177	290,855
VIII. Books, paper, printing, engraving ..	75,840	86,118	29,337	10,789	6,829	2,616	211,529
IX. Musical instruments, etc. ..	2,221	1,336	..	123	..	..	3,680
X. Arms and explosives ..	2,720	9,127	..	13	..	..	11,860
XI. Vehicles and fittings, saddlery and harness, etc. ..	22,864	26,643	4,209	12,304	4,950	1,724	72,694
XII. Ship and boat building and repairing ..	28,855	8,667	267	7,685	25	168	45,667
XIII. Furniture, bedding, and upholstery ..	14,992	15,929	6,146	4,432	2,669	935	45,103
XIV. Drugs, chemicals, and by-products ..	31,398	50,340	712	26,644	5,797	137	115,028
XV. Surgical and other scientific instruments	693	760	286	257	145	..	2,141
XVI. Jewellery, timepieces, and plated ware ..	3,570	5,883	710	1,606	259	49	12,077
XVII. Heat, light, and power	717,719	390,227	77,764	160,685	96,250	11,705	1,454,350
XVIII. Leatherware, n.e.l. ..	1,281	3,302	201	147	72	3	5,006
XIX. Minor wares, n.e.l. ..	14,833	63,019	449	1,081	617	41	80,040
Total .. ..	3,608,744	2,184,096	766,590	704,775	273,061	155,222	7,692,488

(a) Includes Class II.

(b) Included in Class I.



**VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH  
DURING THE YEARS 1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1916a .. ..	1,528,220	834,066	310,454	399,731	193,523	116,704	3,383,598
1917b .. ..	1,766,664	1,024,156	415,052	558,524	198,000	92,544	4,054,040
1918b .. ..	2,060,076	1,248,186	424,099	683,187	211,950	105,392	4,732,890
1918-19c ..	2,298,041	1,457,124	424,099	644,687	211,950	105,392	5,141,293
1919-20c ..	2,710,666	1,723,220	531,612	558,802	222,334	112,555	5,859,189
1920-21c ..	3,608,744	2,184,096	766,590	704,775	273,001	155,222	7,692,488

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

4. Value of Raw Materials used in Factories.—The total value of raw materials worked up (i.e., exclusive of fuel, lubricants, etc.) in factories in the Commonwealth during 1920-21 was £205,866,282, which represents 63.42 per cent. of the total value of the finished products. (See next paragraph.) The following table shews the value of the raw materials worked up in various classes of industry in each State :—

**VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH,  
1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	5,741,605	4,117,710	2,529,710	938,761	2836,758	446,571	14,611,115
II. Treating oils and fats, animal, vegetable, etc. ..	2,545,635	1,017,962	203,297	263,716	(b)	23,085	4,053,695
III. Processes in stone, clay, glass, etc. ..	1,309,305	495,527	123,142	293,287	43,122	18,945	2,283,328
IV. Working in wood ..	4,148,158	2,394,495	1,629,947	1,362,329	200,759	140,506	9,876,494
V. Metal works, machinery, etc. ..	20,562,008	6,648,749	1,873,921	1,609,786	523,375	1,262,847	32,480,686
VI. Connected with food and drink, etc. ..	36,552,051	27,064,634	14,669,509	6,187,592	3,306,337	1,797,947	89,578,070
VII. Clothing and textile fabrics, etc. ..	8,142,022	12,664,750	1,647,421	1,110,499	648,095	240,785	24,453,572
VIII. Books, paper, printing, and engraving ..	3,332,925	3,016,373	530,837	628,825	287,143	180,746	7,904,849
IX. Musical instruments, etc. ..	150,425	58,928	..	5,655	..	..	215,008
X. Arms and explosives ..	33,103	293,788	..	980	..	..	327,876
XI. Vehicles and fittings, saddlery and harness, etc. ..	978,818	1,043,080	249,241	533,233	153,235	66,519	3,024,126
XII. Ship and boat building and repairing ..	740,118	153,438	20,464	177,018	3,737	7,200	1,101,975
XIII. Furniture, bedding, and upholstery ..	1,312,759	1,048,103	328,072	229,466	148,258	53,049	3,119,707
XIV. Drugs, chemicals, and by-products ..	2,386,232	1,923,582	28,761	733,715	398,222	18,330	5,488,842
XV. Surgical and other scientific instruments ..	36,392	23,527	6,566	7,406	8,184	..	82,075
XVI. Jewellery, timepieces, and platedware ..	145,715	309,087	23,883	33,695	19,196	1,493	533,069
XVII. Heat, light, and power ..	1,823,662	1,070,120	136,575	170,069	54,962	42,415	3,297,806
XVIII. Leatherware, n.e.i. ..	415,981	482,265	38,012	20,871	4,867	2,462	964,458
XIX. Minor wares, n.e.i. ..	747,586	1,575,297	33,842	68,524	41,164	3,108	2,469,531
Total ..	91,104,505	65,401,425	24,073,200	14,375,430	6,677,414	4,234,208	205,866,282

(a) Includes Class II.

(b) Included in Class I.

The class in which the maximum value of raw materials was used was Class VI, "Connected with Food and Drink, etc.," the value being £89,578,070. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £32,480,686 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £82,075. The following table gives particulars for the six years ended 1920-21 :—

**VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	44,227,079	30,728,743	16,127,926	8,720,436	3,033,638	2,342,623	105,180,445
1917b ..	57,044,667	37,103,750	20,928,266	11,331,814	3,322,424	2,541,175	132,283,096
1918c ..	64,718,726	42,133,636	19,693,043	12,442,803	3,963,470	3,230,188	146,181,866
1918-19c ..	69,737,452	52,098,737	19,693,043	13,759,882	3,963,470	3,230,188	162,482,772
1919-20c ..	81,188,497	65,563,104	19,360,068	12,970,957	5,051,114	3,563,137	187,722,877
1920-21c ..	91,104,505	65,401,425	24,073,200	14,375,430	6,677,414	4,234,308	205,866,282

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

5. **Total Value of Output of Manufacturing Industries.**—The value of the output of new goods manufactured and of repairs effected in factories of various classes in each State during 1920-21 is shewn in the following table. The figures given represent not only the increase in value due to the process of manufacture, but also include the value of the raw materials used. The difference between the value of the materials used and the total output (see paragraph 6 hereof) is the real value of production from manufactories :—

**TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH, 1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	7,254,180	5,586,657	2,950,057	1,236,130	1,016,071	528,275	18,571,370
II. Treating oils and fats, animal, vegetable, etc. ..	3,384,496	1,432,360	306,791	335,581	(b)	29,160	5,488,388
III. Processes in stone, clay, glass, etc. ..	4,677,903	2,454,069	463,017	990,731	239,473	96,761	8,921,954
IV. Working in wood ..	6,604,229	5,128,861	3,178,242	1,795,239	1,275,724	641,911	18,624,256
V. Metal works, machinery, etc. ..	32,643,806	13,421,904	4,587,944	3,411,889	1,203,367	1,950,042	57,227,952
VI. Connected with food and drink, etc. ..	43,902,378	34,604,156	21,414,951	7,476,361	4,347,247	2,470,055	114,215,148
VII. Clothing and textile fabrics, etc. ..	13,887,355	21,512,682	2,861,825	1,887,986	1,020,520	504,130	41,674,498
VIII. Books, paper, printing, and engraving ..	6,442,634	6,238,254	1,549,198	1,179,224	716,536	311,294	16,437,140
IX. Musical instruments, etc. ..	387,101	155,070	..	12,897	..	..	555,068
X. Arms and explosives ..	301,450	450,729	..	1,589	..	..	753,768
XI. Vehicles and fittings, saddlery and harness, etc. ..	2,191,179	2,387,577	598,137	1,062,995	315,238	160,501	6,715,627
XII. Ship and boat building and repairing ..	2,228,863	435,530	42,291	294,674	9,797	18,912	3,030,067
XIII. Furniture, bedding, and upholstery ..	2,371,138	1,929,098	674,516	499,789	287,906	144,363	5,906,810
XIV. Drugs, chemicals, and by-products ..	3,688,829	2,849,369	67,359	1,046,131	531,708	23,500	8,206,896
XV. Surgical and other scientific instruments ..	85,455	67,556	19,675	25,821	15,771	..	214,278
XVI. Jewellery, timepieces, and plated ware ..	369,074	662,021	62,241	84,300	34,595	8,429	1,220,660
XVII. Heat, light, and power ..	5,533,194	3,511,261	878,061	856,328	343,553	242,635	11,365,032
XVIII. Leatherware, n.e.i. ..	618,794	743,572	64,211	31,049	8,575	3,662	1,469,863
XIX. Minor wares, n.e.i. ..	1,269,328	2,437,568	65,162	129,345	76,999	9,342	3,987,744
Total ..	137,841,386	106,008,294	39,783,678	22,358,109	11,443,080	7,151,972	324,586,519

(a) Includes Class II.

(b) Included in Class I.

It will be seen that the State of New South Wales far outstrips the other States in the total value of the output of her factories, the value being £137,841,386, or 42.47 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 32.66 per cent.; the value of the output of Queensland was 12.26 per cent.; of South Australia 6.89 per cent.; of Western Australia 3.52 per cent.; and of Tasmania 2.20 per cent. The two most important classes in order of value of output (Classes VI. and V.) are the same as in order of value of raw materials used. The following statement shews the value of output of factories, value per employee, and value per head of mean population in each State during the six years ended 1920-21 :—

**TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH  
DURING THE YEARS 1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	70,989,864	51,466,093	25,541,024	13,994,223	6,007,111	4,576,530	172,574,845
1917b ..	85,944,320	60,047,284	31,969,302	17,392,352	£255,388	4,768,000	206,376,646
1918b ..	96,178,191	67,066,715	30,559,839	19,261,142	7,003,505	5,684,219	225,753,611
1918-19c ..	104,803,018	80,195,677	30,559,839	20,810,630	7,003,505	5,684,219	249,056,888
1919-20c ..	123,213,480	101,475,363	32,452,744	20,454,539	8,723,928	6,216,554	292,536,608
1920-21c ..	137,841,386	103,003,294	39,783,678	22,358,109	11,443,080	7,151,972	324,586,519

**PER EMPLOYEE.(d)**

	£	£	£	£	£	£	£
1916a ..	610	452	639	549	474	547	545
1917b ..	728	513	790	689	514	590	642
1918b ..	798	567	746	723	542	652	658
1918-19c ..	821	655	746	745	542	652	731
1919-20c ..	853	743	794	695	568	621	777
1920-21c ..	951	753	921	735	672	699	840

**PER HEAD OF MEAN POPULATION.**

	37.50	35.95	37.26	31.34	19.20	23.55	34.71
1916a ..	45.60	42.74	46.80	39.35	20.44	24.55	41.93
1917b ..	50.10	47.32	43.72	43.11	22.75	28.67	45.19
1918b ..	53.43	55.79	43.72	45.47	22.75	28.67	49.13
1918-19c ..	60.45	67.50	44.78	42.47	27.30	30.32	55.41
1919-20c ..	65.92	69.37	53.22	45.52	34.72	33.99	60.06
1920-21c ..							

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

(d) Including working proprietors.

**6. Value of Production of Manufacturing Industries.**—The difference between the figures given in paragraph 5 and the corresponding figures in paragraph 4 represents the amount added to the value of the raw materials by the process of manufacture. This is the real measure of the value of production of manufacturing industries. The following table shews the value added in this manner during 1920-21 in each State for the various classes of factories :—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH,  
1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . .	1,512,575	1,468,947	420,347	297,369	179,313	81,704	3,960,255
II. Treating oils and fats, animal, vegetable, etc. . .	838,861	414,398	103,494	71,865	(b)	6,075	1,434,693
III. Processes in stone, clay, glass, etc. . . .	3,368,598	1,958,542	339,875	697,444	196,351	77,816	6,638,626
IV. Working in wood . . .	2,456,071	2,734,366	1,548,295	432,960	1,074,965	501,105	8,747,762
V. Metal works, machinery, etc. . . .	12,081,798	6,773,155	2,714,023	1,802,103	679,992	696,195	24,747,266
VI. Connected with food and drink, etc. . . .	7,350,327	7,539,522	6,745,442	1,288,769	1,040,910	672,108	24,637,078
VII. Clothing and textile fabrics, etc. . . .	5,745,333	8,847,932	1,214,404	777,487	372,425	263,345	17,220,926
VIII. Books, paper, printing, and engraving . . .	3,109,709	3,221,881	1,018,361	550,399	429,393	202,548	8,532,291
IX. Musical instruments, etc. . .	236,676	96,142	..	7,242	..	..	340,060
X. Arms and explosives . . .	268,342	156,941	..	609	..	..	425,892
XI. Vehicles and fittings, saddlery and harness, etc. . . .	1,212,361	1,344,497	348,896	529,762	162,003	93,982	3,691,501
XII. Ship and boat building and repairing . . .	1,488,745	282,092	21,827	117,656	6,060	11,712	1,928,092
XIII. Furniture, bedding, and upholstery . . .	1,058,379	830,995	346,444	270,323	139,648	91,314	2,787,103
XIV. Drugs, chemicals, and by-products . . .	1,302,597	925,787	38,598	312,416	133,486	5,170	2,718,054
XV. Surgical & other scientific instruments . . .	49,063	44,029	13,109	18,415	7,587	..	132,203
XVI. Jewellery, timepieces, and plated ware . . .	223,359	352,934	38,358	50,605	15,399	6,936	687,591
XVII. Heat, light, and power . .	3,709,332	2,441,131	741,486	686,266	283,591	200,220	8,067,226
XVIII. Leatherware, n.e.i. . .	20,813	261,307	26,199	10,173	3,708	1,200	505,405
XIX. Minor wares, n.e.i. . .	521,742	862,271	31,320	60,311	35,835	6,234	1,518,213
Total . . .	46,736,881	40,606,869	15,710,478	7,982,679	4,765,666	2,917,664	118,720,237

(a) Includes Class II.

(b) Included in Class I.

The amount of the value added in each State is in the same order as in the case of value of output, the six most important classes being V., VI., VII., IV., VIII., and XVII., in the order named. The value added to raw material by process of manufacture and amount per employee and per head of mean population are shewn in the following statement for the years 1916 to 1920-21 :—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH,  
1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a . . .	26,762,785	20,737,350	9,413,098	5,273,787	2,973,473	2,233,907	67,394,400
1917b . . .	28,899,653	22,943,534	11,031,036	6,060,538	2,931,964	2,226,825	74,093,550
1918c . . .	31,559,930	21,933,079	10,866,796	6,812,339	3,044,035	2,454,031	79,672,210
1918-19c . . .	35,065,566	28,096,910	10,866,796	7,050,748	3,040,035	2,454,031	86,574,116
1919-20c . . .	42,024,983	35,912,259	13,066,676	7,483,582	3,672,814	2,653,417	104,813,731
1920-21c . . .	46,736,881	40,606,869	15,710,478	7,982,679	4,765,666	2,917,664	118,720,237

(a) See note (a) first table this section. (b) See note (b) first table this section.

(c) See note (c) first table this section.

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN  
COMMONWEALTH, 1916 TO 1920-21—continued.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
<b>PER EMPLOYEE.</b>							
	£	£	£	£	£	£	£
1916a ..	230	182	235	207	235	267	213
1917b ..	245	196	273	233	241	276	230
1918b ..	262	211	265	256	235	282	243
1918-19c ..	275	230	265	253	235	282	254
1919-20c ..	291	263	320	254	238	265	278
1920-21c ..	322	289	364	262	280	285	307

<b>PER HEAD OF MEAN POPULATION.</b>							
	£	£	£	£	£	£	£
1916a ..	14.14	14.48	13.73	11.81	9.51	11.50	13.56
1917b ..	15.33	16.33	16.15	13.71	9.58	11.46	15.05
191-b ..	16.44	17.59	15.55	15.26	9.88	12.38	15.95
1918-19c ..	17.88	19.55	15.55	15.41	9.88	12.33	17.08
1919-20c ..	20.62	23.89	18.03	15.54	11.49	12.94	19.85
1920-21c ..	22.35	26.57	21.02	16.25	14.46	13.86	21.97

(a) See note (a) first table this section. (b) See note (b) first table this section.  
(c) See note (c) first table this section.

As the total value of the output for the Commonwealth for 1920-21 was estimated at £324,586,519, there remained, after payment of £205,866,282, the value of the raw materials used, of £62,931,718 for salaries and wages, and of £7,692,488 for fuel, the sum of £48,096,031 to provide for all other expenditure and profits. The following table gives corresponding particulars for each State, expressed absolutely, and as percentages on the total value of the output for the year 1920-21 :—

**VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH  
FACTORIES, 1920-21.**

State.	Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure, Interest, and Profits.	Total Value of Output.
<b>VALUE AND COST, ETC.</b>					
	£	£	£	£	£
New South Wales, 1920-21 ..	91,104,505	3 608,744	25,618,591	17,509,546	137,841,386
Victoria, 1920-21 ..	65,401,425	2,184,096	21,377,216	17,045,557	106,008,294
Queensland, 1920 ..	24,073,200	766,590	6,718,905	8,224,983	39,783,678
South Australia, 1920-21 ..	14,375,430	704,775	4,866,211	2,411,693	22,358,109
Western Australia, 1920 ..	6,677,414	273,061	2,870,567	1,622,038	11,443,080
Tasmania, 1920 ..	4,234,308	155,222	1,480,228	1,282,214	7,151,972
<b>Commonwealth ..</b>	<b>205,866,282</b>	<b>7,692,488</b>	<b>62,931,718</b>	<b>48,096,031</b>	<b>324,586,519</b>

**PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.**

	%	%	%	%	%
New South Wales, 1920-21 ..	66.09	2.62	18.59	12.70	100.00
Victoria, 1920 21 ..	61.69	2.06	20.17	16.08	100.00
Queensland, 1920 ..	60.51	1.93	16.89	20.67	100.00
South Australia, 1920-21 ..	64.30	3.15	21.76	10.79	100.00
Western Australia, 1920 ..	58.35	2.39	25.09	14.17	100.00
Tasmania, 1920 ..	59.20	2.17	20.70	17.93	100.00
<b>Commonwealth ..</b>	<b>63.42</b>	<b>2.37</b>	<b>19.39</b>	<b>14.82</b>	<b>100.00</b>

### § 9. Land, Buildings, Plant and Machinery.

1. **General.**—As an indication of the permanent character and stability of the industries which have been established in the Commonwealth, it may be noted that the values of land and buildings and of plant and machinery used in the factories are rapidly increasing. Thus, for the whole Commonwealth the total value of land and buildings and plant and machinery has increased from 1916 to 1920–21 by £44,567,237, i.e., from £84,919,501 to £129,486,738, or at the rate of £8,913,447 per annum.

The following statement shows the values of land and buildings and of plant and machinery used in connexion with manufacturing industries in each State during the year 1920–21 :—

#### VALUE OF LAND, BUILDINGS, PLANT AND MACHINERY IN CONNEXION WITH MANUFACTURING INDUSTRIES, 1920–21.

Value of—	N.S.W. 1920–21.	Victoria. 1920–21.	Q'land. 1920.	S. Aust. 1920–21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
	£	£	£	£	£	£	£
Land and buildings	28,428,017	17,313,350	6,261,266	4,495,667	3,350,608	981,660	60,831,468
Plant and machinery	31,115,444	18,179,385	9,615,509	4,473,247	3,340,158	1,931,527	68,655,270
Total	59,544,361	35,492,735	15,876,775	8,968,914	6,690,766	2,913,187	129,486,738

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1920–21 was approximately £129,486,738 (or £23 19s. 2d. per head of population); of that sum £60,831,468 was invested in land and buildings occupied as manufactories, the remaining £68,655,270 being the value of the plant and machinery used in connexion therewith.

2. **Value of Land and Buildings.**—The value of the land and buildings occupied in connexion with manufacturing industries may be conveniently classified according to the nature of the industry concerned.

(i) *Total Value in Commonwealth, 1916 to 1920–21.* The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connexion with manufacturing industries of various classes during each year from 1916 to 1920–21 inclusive :—

#### VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1916 TO 1920–21.

Class of Industry.	1916. <i>a</i>	1917. <i>b</i>	1918. <i>b</i>	1918–19. <i>c</i>	1919–20. <i>c</i>	1920–21. <i>c</i>
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	1,002,686	1,126,504	1,237,117	1,415,725	1,588,513	1,811,005
II. Treating oils and fats, animal, vegetable, etc.	518,932	524,349	573,005	610,573	614,877	680,763
III. Processes in stone, clay, glass, etc. . . . .	1,620,520	1,657,760	1,739,247	1,943,848	2,216,901	2,814,447
IV. Working in wood . . . . .	2,036,786	2,083,755	2,283,985	2,349,500	2,622,071	3,061,888
V. Metal works, machinery, etc. . . . .	6,800,296	7,137,251	7,961,012	8,163,051	8,997,496	10,409,753
VI. Connected with food and drink, etc. . . . .	10,508,926	11,209,366	11,640,843	12,403,204	13,411,552	14,218,716
VII. Clothing and textile fabrics, etc. . . . .	5,239,362	5,580,472	5,695,268	6,059,980	6,876,671	8,265,497
VIII. Books, paper, printing, and engraving . . . . .	3,824,069	3,891,991	4,028,048	4,029,014	4,270,008	4,738,597
IX. Musical instruments, etc.	82,695	96,335	96,680	121,885	134,462	195,072
X. Arms and explosives . . . . .	212,267	252,498	260,550	257,520	264,020	275,482
XI. Vehicles and fittings, saddlery & harness, etc.	1,822,565	1,866,859	1,955,096	2,156,572	2,467,633	3,093,034
XII. Ship and boat building and repairing . . . . .	1,126,754	953,879	1,009,201	1,059,520	1,122,468	1,391,113
XIII. Furniture, bedding, and upholstery . . . . .	1,075,547	1,071,635	1,108,679	1,189,103	1,325,762	1,663,270
XIV. Drugs, chemicals, and by-products . . . . .	1,013,577	1,109,703	1,318,731	1,393,237	1,446,721	1,687,297
XV. Surgical and other scientific instruments . . . . .	70,536	83,304	94,524	106,225	104,628	132,161
XVI. Jewellery, timepieces, and plated ware . . . . .	325,126	334,147	336,289	369,050	425,214	487,763
XVII. Heat, light, and power . . . . .	3,150,513	3,655,063	3,873,224	3,999,806	4,342,913	4,867,348
XVIII. Leatherware, n.e.l. . . . .	137,391	150,660	165,835	178,444	231,073	304,506
XIX. Minor wares, n.e.l. . . . .	344,651	428,906	421,370	472,639	554,588	733,756
Total . . . . .	40,913,199	43,212,437	45,795,704	48,278,905	53,017,571	60,831,468

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

As shewn in the above table, the total net increase during the five years was £19,918,269, or an annual average of £3,983,654. The largest increases were in Classes VI., V., VII., and XVII., and amounted to £3,709,790, £3,609,457, £3,026,135, and £1,716,835 respectively.

(ii) *Value in each State, 1920-21.* The following tables give similar information for each State for the past year:—

**VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	816,390	687,540	107,211	118,663	665,627	15,574	1,811,005
II. Treating oils and fats, animal, vegetable, etc. . .	436,965	162,165	34,926	41,712	(b)	5,465	680,763
III. Processes in stone, clay, glass, etc. . .	1,710,512	637,005	105,249	235,312	93,680	32,689	2,814,447
IV. Working in wood . .	1,486,220	606,460	303,871	199,867	387,416	78,054	3,061,888
V. Metal works, machinery, etc. . .	5,341,708	2,376,135	939,890	970,996	618,921	162,103	10,409,753
VI. Connected with food and drink, etc. . .	5,142,751	3,799,630	2,058,367	996,254	998,871	322,843	14,218,716
VII. Clothing and textile fabrics, etc. . .	3,504,124	3,438,815	489,615	455,720	241,066	136,157	8,265,497
VIII. Books, paper, printing, and engraving . . .	2,292,796	1,222,485	563,826	353,976	248,313	57,201	4,738,597
IX. Musical instruments, etc. . .	101,292	88,195	..	5,585	..	..	195,072
X. Arms and explosives . .	81,287	190,095	..	4,100	..	..	275,482
XI. Vehicles and fittings, saddlery and harness, etc. . .	1,291,448	905,415	234,038	410,938	168,604	81,691	3,093,034
XII. Ship and boat building and repairing . . .	1,072,991	253,270	9,885	44,412	7,655	2,900	1,391,113
XIII. Furniture, bedding, and upholstery . . .	709,271	532,895	161,783	132,988	101,231	25,102	1,663,270
XIV. Drugs, chemicals, and by-products . . .	816,909	543,205	12,814	194,549	112,870	6,950	1,687,297
XV. Surgical and other scientific instruments . .	57,247	32,850	20,191	8,475	13,398	..	132,161
XVI. Jewellery, timepieces, and plated ware . . .	290,115	187,720	31,160	35,133	22,320	11,315	487,763
XVII. Heat, light, and power . .	2,921,204	1,181,805	252,228	245,222	228,305	38,584	4,867,348
XVIII. Leatherware, n.e.i. . .	155,764	125,965	12,120	5,355	5,070	232	304,506
XIX. Minor wares, n.e.i. . .	289,923	341,700	23,662	36,410	37,261	4,800	733,756
Total . .	28,428,917	17,313,350	6,261,266	4,495,667	3,350,608	981,660	60,831,468

(a) Includes Class II. (b) Included in Class I.

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £14,218,716, or 23.37 per cent. on the total value. The next in order of importance were Classes V., VII., XVII., and VIII., in which the values were £10,409,753, £8,265,497, £4,867,348, and £4,738,597 respectively. The sum of the values for the five classes mentioned amounted to £42,499,911, or 69.87 per cent. on the total value for all classes.

(iii) *Value in each State, 1916 to 1920-21.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1916 to 1920-21 inclusive:—

**VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a . . .	17,770,517	11,460,123	5,014,824	3,289,628	2,247,505	1,130,602	40,913,199
1917b . . .	18,920,057	12,052,227	5,251,877	3,462,296	2,398,264	1,127,716	43,212,437
1918b . . .	20,533,171	12,847,485	5,519,316	3,564,366	2,487,967	843,399	45,795,704
1918-19c . .	22,081,877	13,673,515	5,519,316	3,672,831	2,487,967	843,399	48,278,905
1919-20c . .	24,108,890	14,957,585	5,886,215	3,977,099	3,132,014	955,768	53,017,571
1920-21c . .	28,428,917	17,313,350	6,261,266	4,495,667	3,350,608	981,660	60,831,468

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

It will be seen that since 1916 there has been a general increase throughout the Commonwealth. The States shewing the largest growth were New South Wales, Victoria, and Queensland, with annual average increases of £2,131,680, £1,170,645, and £249,288 respectively.

3. **Value of Plant and Machinery.**—(i) *Total Value in Commonwealth, 1916 to 1920-21.* The following table shews for the whole Commonwealth the approximate value of plant and machinery used in factories during each year from 1916 to 1920-21 inclusive :—

**VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH, 1916 TO 1920-21.**

Class of Industry.	1916. <sup>a</sup>	1917. <sup>b</sup>	1918. <sup>b</sup>	1918-19. <sup>c</sup>	1919-20. <sup>c</sup>	1920-21. <sup>c</sup>
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	965,932	1,048,729	1,216,281	1,382,538	1,668,023	1,823,119
II. Treating oils and fats, animal, vegetable, etc.	576,877	597,327	634,936	688,737	712,583	829,390
III. Processes in stone, clay, glass, etc.	1,866,993	1,972,885	2,172,225	2,414,539	2,853,294	3,565,083
IV. Working in wood	2,806,653	2,784,338	2,915,781	3,063,111	3,398,146	4,083,711
V. Metal works, machinery, etc.	8,604,804	9,549,635	10,259,558	10,702,907	11,959,693	14,688,625
VI. Connected with food and drink, etc.	11,854,182	12,318,334	13,026,771	13,648,102	14,532,708	16,472,128
VII. Clothing and textile fabrics, etc.	1,846,758	1,926,718	2,006,983	2,255,623	3,059,732	3,781,164
VIII. Books, paper, printing, and engraving	3,054,941	3,070,739	3,124,559	3,225,151	3,684,858	4,246,439
IX. Musical instruments, etc.	21,191	22,841	26,827	26,532	31,302	58,078
X. Arms and explosives	228,210	308,536	323,073	345,880	327,700	304,800
XI. Vehicles and fittings, saddlery and harness, etc.	421,416	433,716	477,472	532,361	627,087	853,259
XII. Ship and boat building and repairing	511,237	1,312,832	1,477,247	1,627,143	1,711,746	1,520,756
XIII. Furniture, bedding, and upholstery	251,822	267,180	231,229	306,853	369,738	466,952
XIV. Drugs, chemicals, and by-products	868,126	906,091	1,055,262	1,091,229	1,264,703	1,497,619
XV. Surgical and other scientific instruments	13,873	19,021	19,813	23,333	28,257	32,299
XVI. Jewellery, timepieces, and plated ware	74,617	72,757	75,437	84,453	103,690	114,892
XVII. Heat, light, and power	9,970,117	10,365,297	11,274,492	12,025,382	13,127,358	13,515,725
XVIII. Leatherware, n.e.l.	34,240	33,029	37,103	40,477	48,136	66,544
XIX. Minor wares, n.e.l.	234,313	305,358	387,256	413,457	490,840	734,687
Total	44,006,302	47,315,863	50,792,305	53,897,808	59,999,594	68,655,270

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

It will be seen that during the period in question there has been a steady and substantial net increase amounting in all to £24,648,968, or an annual average of £4,929,794. Development has occurred in all classes of industry, the largest increase being in Class V., "Metal Works, Machinery, etc.," where it amounted to £6,083,821, while the two next were in Class VI., "Connected with Food and Drink, etc.," with an increase of £4,817,946, and Class XVII., "Heat, Light, and Power," £3,545,608.

(ii) *Value in each State, 1916 to 1920-21.* The figures which were given in the above table referred to the Commonwealth as a whole. In the following table they are shewn for each State, and it will be seen that the increase referred to above is general throughout the States. New South Wales shews by far the largest increase, viz., £12,904,340; while Victoria comes next with £7,110,436. The establishment of the Electrolytic Zinc Works at Risdon, and a further extension of the State Hydro-electric Works to cope with the demand for increased power, were mainly responsible for the substantial increase noted in Tasmania during 1918.



## VALUE OF PLANT AND MACHINERY IN FACTORIES, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	18,211,104	11,068,949	7,543,873	3,101,413	2,817,863	1,263,100	44,006,302
1917b ..	20,364,122	11,732,062	7,846,834	3,313,113	2,835,085	1,224,647	47,315,863
1918b ..	21,739,739	12,612,797	8,391,480	3,389,719	2,742,386	1,916,184	50,792,305
1918-19c ..	23,651,152	13,645,220	8,391,480	3,551,386	2,742,386	1,916,184	53,897,808
1919-20c ..	26,366,083	15,846,935	8,887,803	3,931,562	2,938,889	2,048,322	59,999,594
1920-21c ..	31,115,444	18,179,385	9,615,509	4,473,247	3,340,158	1,931,527	68,655,270

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

(iii) *Classified Value in each State.* The following table shews the value of plant and machinery used in factories in each State during 1920-21, classified according to the nature of the industry in which used:—

## VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1920-21.

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	857,651	588,490	165,036	98,424	665,559	47,959	1,823,119
II. Treating oils and fats, animal, vegetable, etc. ..	540,083	194,045	55,644	37,922	(b)	1,696	829,390
III. Processes in stone, clay, glass, etc. ..	2,172,118	690,145	198,055	369,287	104,638	30,840	3,565,083
IV. Working in wood ..	1,249,687	886,610	613,172	110,573	1,006,342	217,327	4,083,711
V. Metal works, machinery, etc. ..	8,776,438	2,509,680	1,276,966	862,233	414,917	848,391	14,688,625
VI. Connected with food and drink, etc. ..	5,621,432	3,819,015	5,236,821	841,805	763,250	189,805	16,472,128
VII. Clothing and textile fabrics, etc. ..	1,231,236	2,107,270	160,472	156,968	45,288	79,930	3,781,164
VIII. Books, paper, printing, and engraving ..	1,975,979	1,417,890	354,032	257,290	185,036	56,212	4,246,439
IX. Musical instruments, etc. ..	36,196	20,315	..	1,567	..	..	58,078
X. Arms and explosives ..	96,900	207,450	..	450	..	..	304,800
XI. Vehicles and fittings, saddlery and harness, etc. ..	364,659	268,965	57,870	114,450	31,310	16,005	853,259
XII. Ship and boat building and repairing ..	1,327,956	106,380	9,750	73,920	1,600	1,170	1,520,766
XIII. Furniture, bedding, and upholstery ..	188,087	134,990	60,111	43,946	28,781	11,037	466,952
XIV. Drugs, chemicals, and by-products ..	645,537	419,745	7,572	304,588	119,042	1,135	1,497,619
XV. Surgical and other scientific instruments ..	13,977	9,170	3,315	4,434	1,403	..	32,299
XVI. Jewellery, timepieces, and plated ware ..	42,530	51,975	5,838	10,321	2,376	1,852	114,892
XVII. Heat, light, and power ..	5,739,368	4,243,670	1,405,218	1,140,780	559,381	427,308	13,515,725
XVIII. Leatherware, n.e.l. ..	27,724	34,095	2,148	952	1,360	265	66,544
XIX. Minor wares, n.e.l. ..	207,886	469,505	3,489	43,337	9,875	595	734,687
Total ..	31,115,444	18,179,385	9,615,509	4,473,247	3,340,158	1,931,527	68,655,270

(a) Includes Class II.

(b) Included in Class I.

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £16,472,128, or 23.99 per cent. on the total for all classes. The next in order of importance is Class V., "Metal Works, Machinery, etc.," which amounts to £14,688,625, or 21.39 per cent. on the total; followed by Class XVII., "Heat, Light, and Power," amounting to £13,515,725, or 19.69 per cent. on the total value. The total for these three classes amounts to £68,655,270, or 65.07 per cent. on the total value for all classes.

## § 10. Individual Industries.

1. **General.**—The preceding remarks and tables furnish a general view of the recent development of particular classes of industries in Australia treated under the nineteen categories referred to in § 1, 3 hereof. In order to make the information complete, it is necessary to furnish details of the development of individual industries. While it is not possible, within the limits of this section, to give a full and detailed account of all the manufacturing industries of the Commonwealth, it is proposed to deal herein with such particular industries as are of special importance by reason of the number of persons employed, the number of factories, the amount of capital invested therein, the value of the production, or other features of special interest. In cases where there are only one or two establishments of a particular class in any State, returns relative to output are not published, in order to avoid disclosing information as to the operations of individual factories.

2. **Tanning Industry.**—(i) *Details for each State.* In Class I. (see § 1, 3 hereof) the most important industry is tanning. Until recent years, the production of tanneries in Australia was confined to the coarser class of leathers, but lately the tanning of the finer skins has been undertaken with satisfactory results. The position of the industry in the several States is as follows :—

## TANNERIES, 1920-21.

Item.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21.	W.A. 1920.	Tas. 1920.	C'wth.
Number of factories .. ..	80	48	17	10	6	3	164
Number of employees .. ..	1,242	2,137	265	209	100	73	4,026
Actual horse-power of engines employed ..	2,688	3,179	316	347	220	118	6,868
Approx. value of land and buildings £	265,166	338,985	21,740	29,204	21,530	8,267	684,892
Approx. value of plant and machinery £	172,132	277,160	27,336	18,327	17,340	8,105	520,400
Total amount of wages paid during year £	262,724	446,231	44,985	41,160	16,485	14,166	825,751
Value of fuel used £	17,855	35,610	3,065	3,920	1,339	458	62,247
Value of raw material worked up £	1,684,791	2,096,554	404,742	186,853	123,351	94,900	4,596,271
Total value of output .. ..	2,103,525	2,943,173	588,714	265,578	165,877	112,550	6,179,417
Value added in process of manufacture £	418,734	846,619	183,972	78,695	37,526	17,600	1,583,146

(ii) *Raw Materials used in Tanneries.* The quantities of raw materials used in tanneries in each State are shewn in the following table :—

## RAW MATERIALS USED IN TANNERIES, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Hides and calf skins .. No.	791,032	1,002,864	102,058	73,769	31,841	21,174	2,022,788
Sheep pelts .. ..	3,813,618	1,137,643	95,043	79,792		43,587	5,169,683
Other skins .. ..	262,794	268,829	299,024	8,207	42,939	1,123	883,816
Bark .. .. Tons	11,519	10,709	2,352	1,437	794	462	27,273

(iii) *Progress of Tanning Industries, 1916 to 1920-21.* The development of the tanning industry during the period 1916 to 1920-21 is shewn in the following table :—

## DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917. <sup>a</sup>	1918.	1918-19. <sup>b</sup>	1919-20.	1920-21.
Number of factories .. ..	163	156	153	153	160	164
Number of employees .. ..	3,303	3,437	3,896	3,688	4,147	4,026
Actual horse-power of engines used ..	4,145	4,449	4,884	5,247	6,367	6,868
Approx. value of land and buildings £	387,706	412,311	441,737	459,163	552,521	684,892
Approx. value of plant and machinery £	285,956	307,483	328,927	360,682	422,976	520,400
Total amount of wages paid .. ..	422,014	466,071	493,880	577,043	777,368	825,751
Value of fuel used .. ..	27,292	34,102	40,558	45,957	60,981	62,247
Value of raw materials worked up ..	3,283,787	3,951,266	3,831,180	4,423,092	6,837,835	4,596,271
Value of final output .. ..	4,233,427	4,979,988	4,990,412	5,762,741	8,772,336	6,179,417
Value added in process of manufacture £	949,640	1,028,722	1,159,232	1,339,649	1,934,501	1,583,146

(a) Including one wool-scouring and fellmongering establishment in Western Australia.

(b) Including fellmongering in Tasmania.

The above table discloses increases in all the items of the tanning industry since 1916. The monetary increases, however, are merely a reflection of the enhanced value of commodities during recent years, for, while the value of the finished product in tanneries increased by 46 per cent. since 1916, the volume of leather turned out represented an increase of only 4.68 per cent. on the earlier output.

**3. Fellmongering and Wool-scouring.—(i) Details for each State.** The next industry in importance in Class I. is that of fellmongering and wool-scouring, one of the earliest industries established in Australia. The following table gives particulars of the industry in each State during the past year :—

#### FELLMONGERING AND WOOL-SCOURING, 1920-21.

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	42	32	18	3	2	..	97
Number of employees .. ..	1,461	714	337	76	69	..	2,707
Actual horse-power of engines used .. ..	3,623	1,528	822	160	145	..	6,278
Approx. value of land and buildings £	276,320	172,195	75,615	a	a	..	548,084b
Approx. value of plant and machinery £	372,442	159,235	121,242	a	a	..	681,366b
Total amount of wages paid	280,731	128,901	70,800	a	a	..	510,286b
Value of fuel used .. ..	39,542	25,520	12,192	a	a	..	84,833b
Value of raw material worked up	2,991,868	997,727	2,104,240	a	a	..	6,682,138b
Value of final output .. ..	3,677,014	1,256,904	2,320,341	a	a	..	7,013,477b
Value added in process of manufacture £	685,146	259,177	216,101	a	a	..	1,231,339b

(a) Information not available for publication.

(b) Including South Australia and Western Australia.

**(ii) Development of Fellmongering and Wool-scouring, 1916 to 1920-21.** The following return furnishes particulars of fellmongering and wool-scouring establishments in the Commonwealth for the last six years :—

#### DEVELOPMENT OF FELLMONGERING AND WOOL-SCOURING IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.a	1918.	1918-19.	1919-20.	1920-21.
Number of factories .. ..	100	98	102	107	110	97
Number of employees .. ..	2,379	2,599	3,191	3,392	3,610	2,707
Actual horse-power of engines used .. ..	4,463	4,157	4,991	5,707	6,025	6,278
Approx. value of land and buildings £	263,530	276,162	348,170	466,658	514,499	548,084
Approx. value of plant and machinery £	334,131	369,728	488,301	584,343	683,227	681,366
Total amount of wages paid	279,128	332,583	404,079	517,161	652,842	510,286
Value of fuel used .. ..	44,914	53,667	66,113	84,478	99,981	84,833
Value of raw materials worked up	5,903,149	7,341,638	10,290,131	11,213,481	12,279,135	6,682,138
Value of final output .. ..	6,989,122	8,572,579	12,105,929	13,126,314	14,745,652	7,913,477
Value added in process of manufacture £	1,085,973	1,230,941	1,815,798	1,912,833	2,466,517	1,231,339

(a) Excluding one establishment in Western Australia, particulars of which are included in tanneries.

The wool-scouring industry developed considerably under the regime of the Central Wool Committee, and during 1919-20 the record output of 107,726,653 lbs. of scoured wool was produced, which represented an increase of nearly 100 per cent. on any pre-war production. The depressed condition of the wool market during 1920-21 adversely affected the output of scoured wool during the latter year.

**4. Soap and Candle Factories.—(i) Details for each State.** In Class II. (see § 1, 3 hereof) soap and candle factories are the most important establishments. The manufacture of these two products is frequently carried on in the same factory, so that separate returns cannot be obtained ; it may, however, be said generally that the manufacture of soap is the more important of the two. The following table gives particulars of soap and candle factories in each State during the year 1920-21.

## SOAP AND CANDLE FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.a	Tas. 1920.	C'wealth.
Number of factories .. ..	26	16	13	6	..	1	62
Number of employees .. ..	946	696	171	175	..	20	2,008
Actual horse-power of engines employed	964	472	155	181	..	10	1,782
Approx. value of land and buildings £	223,423	135,995	b	28,300	..	b	426,339c
Approx. value of plant and machinery £	287,714	164,110	b	29,653	..	b	537,554c
Total amount of wages paid during year £	141,135	115,749	b	36,207	..	b	326,449c
Value of fuel used .. ..	40,160	37,545	b	4,863	..	b	88,728c
Value of raw material worked up .. ..	859,555	799,098	b	240,474	..	b	2,119,957c
Total value of output .. ..	1,177,511	1,134,820	b	300,550	..	b	2,941,835c
Value added in process of manufacture £	317,956	335,722	b	60,076	..	b	821,876c

(a) Western Australia has three soap and candle establishments, but separate details are not available for publication. (b) Particulars not available for publication. (c) Including Queensland and Tasmania.

(ii) *Development of Soap and Candle Factories, 1916 to 1920-21.* The following table gives similar particulars for the last six years as regards the Commonwealth as a whole :—

## DEVELOPMENT OF SOAP AND CANDLE FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.a	1918.a	1918-19.a	1919-20.b	1920-21.b
Number of factories .. ..	72	65	62	60	61	62
Number of employees .. ..	2,009	2,049	2,128	1,902	2,163	2,008
Actual horse-power of engines used .. ..	1,477	1,165	1,083	1,568	1,749	1,782
Approx. value of land and buildings .. £	391,619	373,377	400,517	426,909	428,824	426,339
Approx. value of plant and machinery £	447,005	424,942	444,219	488,402	486,187	537,534
Total amount of wages paid .. ..	219,398	228,284	242,960	251,762	296,352	326,449
Value of fuel used .. ..	38,548	52,085	67,639	65,469	81,938	88,728
Value of raw material worked up .. ..	1,318,105	1,407,431	1,762,408	1,830,417	2,389,706	2,119,957
Value of final output .. ..	1,965,881	2,036,978	2,550,562	2,618,806	3,377,783	2,941,833
Value added in process of manufacture £	647,776	629,547	788,154	788,389	988,077	821,876

(a) Excluding three soap and candle establishments in Western Australia, and one in Tasmania.

(b) Excluding three soap and candle establishments in Western Australia.

(iii) *Production of Soap and Candles, 1916 to 1920-21.* The subjoined statement furnishes particulars of the output of soap and candles during the past six years :—

## PRODUCTION OF SOAP AND CANDLES IN THE COMMONWEALTH, 1916 TO 1920-21.

Particulars.	1916.a	1917.a	1918.a	1918-19.a	1919-20.a	1920-21.a
Soap .. .. cwt.	727,349	671,326	746,166	694,456	788,478	692,192
Candles .. .. "	102,775	100,497	101,098	97,692	104,676	87,304

(a) Exclusive of Western Australia.

(iv) *Raw Materials Used, 1916 to 1920-21.* The following statement shows the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1916 to 1920-21 :—

## RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1916 TO 1920-21.

Particulars.	1916.a	1917.a	1918.a	1918-19.a	1919-20.a	1920-21.a
Tallow .. .. cwt.	416,649	382,188	423,021	431,638	390,267	353,001
Alkali .. .. "	154,348	143,683	144,112	126,981	123,101	120,882
Cocoanut oil .. .. gal.	630,298	524,918	533,685	624,802	469,549	450,013

(a) Exclusive of Western Australia.

5. *Saw Mills, etc.*—The most important industry in Class IV. is that of saw-milling. As separate particulars of forest saw mills are not available for some of the States, both forest and other saw mills, as well as joinery, moulding, and box factories have been combined in the following table :—

SAW MILLS, FOREST AND OTHER, JOINERY, ETC., 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	714	539	286	83	117	158	1,897
Number of employees .. ..	8,404	8,818	5,074	1,443	4,330	1,996	30,074
Actual horse-power of engines employed .. ..	18,849	15,309	10,054	2,422	8,593	2,720	57,947
Approximate value of land and buildings .. ..	£ 1,312,912	£ 529,480	£ 275,878	£ 195,112	£ 387,416	£ 73,154	£ 2,773,952
Approximate value of plant and machinery .. ..	£ 1,148,752	£ 816,555	£ 574,564	£ 108,763	£ 1,006,342	£ 213,414	£ 3,863,390
Total amount of wages paid during year .. ..	£ 1,464,564	£ 1,541,635	£ 840,554	£ 275,655	£ 823,188	£ 302,685	£ 5,248,331
Value of fuel used .. ..	£ 42,845	£ 31,605	£ 11,734	£ 8,414	£ 4,500	£ 3,097	£ 102,195
Value of raw material worked up .. ..	£ 3,924,936	£ 2,215,103	£ 1,533,933	£ 1,332,548	£ 200,759	£ 137,395	£ 9,344,674
Total value of output .. ..	£ 6,066,819	£ 4,751,356	£ 2,971,070	£ 1,750,478	£ 1,275,724	£ 630,579	£ 17,446,035
Value added in process of manufacture .. ..	£ 2,141,883	£ 2,536,253	£ 1,437,146	£ 417,930	£ 1,074,965	£ 493,184	£ 8,101,361

The development of forest and other saw mills, etc., since 1916 is shewn in the following table :—

DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, JOINERY, ETC., IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of establishments .. ..	1,526	1,517	1,575	1,621	1,766	1,897
Number of employees .. ..	22,173	20,902	22,756	24,427	28,171	30,074
Actual horse-power of engines used .. ..	44,456	43,833	45,756	46,641	51,691	57,947
Approx. value of land and buildings .. ..	£ 1,845,812	£ 1,901,505	£ 2,086,166	£ 2,132,509	£ 2,376,011	£ 2,773,952
Approx. value of plant and machinery .. ..	£ 2,693,132	£ 2,662,625	£ 2,784,355	£ 2,937,691	£ 3,253,706	£ 3,868,390
Total amount of wages paid .. ..	£ 2,552,197	£ 2,558,412	£ 2,870,214	£ 3,189,087	£ 4,052,707	£ 5,248,331
Value of fuel used .. ..	£ 52,273	£ 60,567	£ 69,606	£ 78,294	£ 91,341	£ 102,195
Value of raw material worked up .. ..	£ 4,487,201	£ 4,463,996	£ 5,159,691	£ 5,773,999	£ 7,624,110	£ 9,344,674
Value of final output .. ..	£ 8,297,110	£ 8,443,255	£ 9,829,872	£ 10,890,530	£ 14,276,983	£ 17,446,035
Value added in process of manufacture .. ..	£ 3,809,909	£ 3,979,259	£ 4,670,181	£ 5,116,531	£ 6,652,873	£ 8,101,361

The pre-war development in the building and other trades in Australia using timber received a temporary set-back during the war years, but the all-round increases since 1918 in wages, value of materials used, and final output, as well as in capital invested in land and buildings and plant and machinery, shew that the trade has practically regained its normal rate of progression.

6. *Agricultural Implement Factories.*—The manufacture of agricultural implements is an important industry in Australia, and is of particular interest owing to the fact that it was one of the first industries to which it was sought to apply the so-called "New Protection" system. The articles manufactured include stripper harvesters, strippers, stump-jump and other ploughs, harrows, disc and other cultivators, winnowers, corn-shellers and baggers, drills, and other implements usually employed in agriculture. The stripper-harvester, which combines the stripper with a mechanism for winnowing and bagging grain, is an Australian invention, and is exported to many countries.

The following table gives particulars of the agricultural implement works of Australia for the year 1920-21:—

### AGRICULTURAL IMPLEMENT WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21.	W.A. 1920.a	Tas. 1920.	C'wealth. c
Number of factories .. ..	28	60	6	46	..	1	141
Number of employees .. ..	544	2,711	70	971	..	3	4,299
Actual horse-power of engines employed .. ..	312	1,197	107	957	..	3	2,576
Approx. value of land and buildings £ .. ..	121,894	182,830	b	73,026	..	b	392,870
Approx. value of plant and machinery £ .. ..	43,637	288,630	b	82,196	..	b	431,152
Total amount of wages paid during year £ ..	115,592	512,363	b	158,632	..	b	794,554
Value of fuel used .. .. £ .. ..	3,875	42,193	b	9,248	..	b	55,709
Value of raw material worked up .. .. £ ..	92,047	756,204	b	205,994	..	b	1,064,611
Total value of output .. .. £ .. ..	272,875	1,550,704	b	436,177	..	b	2,238,713
Value added in process of manufacture £ ..	181,828	794,500	b	230,183	..	b	1,224,102

(a) Western Australia has three agricultural implement establishments, but separate details are not available for publication. (b) Information not available for publication. (c) Excluding Western Australia.

A glance at the following table shews that the Agricultural Implement industry failed to progress during the war years. The 1920-21 statistics, however, reveal an encouraging expansion in all the essential items of production, the value of the finished product increasing by more than 78 per cent. during the year.

### DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.a	1918.b	1918-19.b	1919-20.b	1920-21.b
Number of factories .. ..	151	142	142	138	141	141
Number of employees .. ..	3,538	3,313	3,336	2,914	3,116	4,299
Actual horse-power of engines used .. ..	2,811	2,613	2,566	2,338	2,505	2,576
Approx. value of land and buildings £ .. ..	355,108	340,521	355,830	367,951	368,897	392,870
Approx. value of plant and machinery £ .. ..	336,397	339,244	360,621	350,754	372,949	431,152
Total amount of wages paid .. .. £ .. ..	425,866	427,102	428,522	420,750	465,558	794,554
Value of fuel used .. .. £ .. ..	29,067	27,659	30,011	26,755	30,096	55,709
Value of raw material worked up .. .. £ ..	757,231	798,110	762,969	531,766	586,048	1,064,611
Value of final output .. .. £ .. ..	1,457,645	1,465,955	1,415,375	1,149,121	1,282,931	2,238,713
Value added in process of manufacture £ ..	700,414	667,845	652,406	617,355	696,883	1,224,102

(a) Excluding three establishments in Western Australia and one in Tasmania.

(b) Excluding three establishments in Western Australia.

7. Engineering Works, Ironworks, and Foundries.—The classification in these industries is not very satisfactory. Generally, engineering shops, ironworks, and foundries are included, as also are factories for making nails, safes, patterns, meters, and springs. Railway workshops, agricultural implement factories, cyanide, smelting, pyrites, and metallurgical works, galvanised iron, stoves and ovens, and wire working establishments are not included. The combination of industries is rendered necessary owing to the limited classification still adopted by some of the States.

### ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.a	Tas. 1920.	C'wealth.
Number of factories .. ..	429	566	96	71	67	19	1,248
Number of employees .. ..	16,236	11,637	2,417	1,907	1,218	499	33,914
Actual horse-power of engines employed .. ..	31,300	12,247	1,799	1,507	1,645	354	48,852
Approximate value of land and buildings .. .. £ .. ..	2,434,071	1,060,720	242,838	163,364	166,357	41,290	4,108,640
Approximate value of plant and machinery .. .. £ .. ..	3,726,526	1,303,150	263,727	205,212	158,866	44,907	5,702,388
Total amount of wages paid during year .. .. £ .. ..	3,376,811	2,104,090	418,634	326,924	219,904	77,288	6,523,651
Value of fuel used .. .. £ .. ..	341,800	215,848	23,536	27,867	17,254	4,727	631,032
Value of raw materials worked up .. .. £ ..	9,796,093	3,140,686	410,553	526,201	308,018	65,639	14,247,190
Total value of output .. .. £ .. ..	14,749,926	6,689,681	1,077,697	1,004,729	655,769	183,278	24,361,080
Value added in process of manufacture .. .. £ ..	4,953,833	3,548,995	667,144	478,528	347,751	117,639	10,113,890

(a) Including three agricultural implement establishments.

In addition to engineering works which supply ordinary requirements, there is now a number of large and important establishments which engage in the manufacture of special classes of machinery and implements. The manufacture of mining and smelting machinery and apparatus forms an important section of this industry.

The development of engineering works, ironworks, and foundries in the Commonwealth since 1916 is shewn in the following table :—

**DEVELOPMENT OF ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES,  
1916 TO 1920-21.**

Items.	1916.	1917.a	1918.a	1918-19a.	1919-20a.	1920-21a.
Number of factories .. ..	956	962	1,012	1,058	1,141	1,248
Number of employees .. ..	25,718	23,543	23,783	25,834	31,050	33,914
Actual horse-power of engines used .. ..	39,658	42,502	44,317	47,078	53,410	48,852
Approx. value of land and buildings .. ..	2,424,759	2,581,605	2,910,881	3,139,984	3,527,933	4,108,640
Approx. value of plant and machinery .. ..	3,655,662	4,274,067	4,744,750	5,120,625	6,339,285	5,702,358
Total amount of wages paid .. ..	3,468,260	3,265,738	3,365,045	3,821,623	5,161,441	6,523,651
Value of fuel used .. ..	420,139	431,448	493,116	649,119	1,037,012	631,032
Value of raw material worked up .. ..	4,718,516	5,932,214	7,520,930	9,942,386	11,928,660	14,247,190
Value of final output .. ..	10,205,424	11,096,741	13,322,795	16,291,175	20,209,329	24,361,080
Value added in process of manufacture .. ..	5,486,908	5,164,527	5,801,865	6,348,789	8,280,669	10,113,890

(a) Including three agricultural implement establishments in Western Australia.

The growth of industry during recent years has entailed the provision of machinery for our new and expanding manufactures. The difficulty of obtaining supplies from overseas during the European War and its aftermath created an opportunity of which the Australian engineering trade has availed itself largely. Since 1916 the number of establishments has increased by more than 30 per cent., the number of employees by 32 per cent., the amount of wages paid 88 per cent., the amount of capital invested in land, buildings, plant and machinery 61 per cent., and the output nearly 139 per cent. These industries are all large consumers of Australian materials, and for this reason their progress is doubly important.

**8. Railway and Tramway Workshops.**—(i) *Details for each State.* The railway workshops of Australia form an important item in the metal and machinery class, and are chiefly State institutions. The following table gives the details concerning them but includes also private and municipal establishments for manufacturing and repairing rolling stock :—

**RAILWAY AND TRAMWAY WORKSHOPS, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	40	19	12	19	6	7	103
Number of employees .. ..	10,676	5,387	2,878	2,801	1,538	390	23,670
Actual horse-power of engines employed .. ..	6,990	2,751	2,945	1,105	2,221	130	16,142
Approximate value of land and buildings .. ..	1,251,306	704,420	351,520	364,357	445,140	7,075	3,123,818
Approximate value of plant and machinery .. ..	1,380,234	591,430	253,810	240,746	253,814	90,248	2,810,282
Total amount of wages paid during year .. ..	2,502,377	1,163,669	631,034	585,285	313,991	77,586	5,273,942
Value of fuel used .. ..	50,987	37,974	9,307	20,375	11,866	2,447	132,956
Value of raw material worked up .. ..	1,800,799	1,131,604	387,875	261,618	191,666	35,288	3,808,850
Total value of output .. ..	4,404,004	2,566,571	925,483	961,135	508,547	122,909	9,438,649
Value added in process of manufacture .. ..	2,603,205	1,434,967	537,608	699,517	316,881	87,621	5,679,796

(ii) *Northern Territory Railway Workshop.* In addition to the above, a railway workshop is in operation in the Northern Territory. The work is confined almost exclusively to repairs to rolling stock, etc., no new goods being manufactured. For the sake of convenience this establishment is not included in any of the tables in this section.

(iii) *Development of Railway and Tramway Workshops, 1916 to 1920-21.* The following table shows the development of railway and tramway workshops in the Commonwealth since 1916 :—

**DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, ETC.,  
1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories .. ..	92	94	95	94	94	103
Number of employees .. ..	22,995	20,566	18,071	19,036	21,488	23,670
Actual horse-power of engines used ..	14,350	13,363	12,874	13,434	15,626	16,142
Approximate value of land and buildings .. ..	£ 2,548,223	2,609,432	2,904,419	2,944,626	2,976,838	3,123,818
Approximate value of plant and machinery .. ..	£ 2,389,065	2,480,239	2,614,127	2,636,591	2,616,001	2,810,282
Total amount of wages paid .. ..	£ 3,409,265	3,270,817	2,839,827	3,106,829	3,977,702	5,273,942
Value of fuel used .. ..	£ 92,200	87,701	81,487	90,818	104,496	132,956
Value of raw material worked up .. ..	£ 2,234,063	2,010,288	1,934,645	2,082,557	2,829,907	3,808,850
Value of final output .. ..	£ 6,298,338	5,566,940	5,037,255	5,418,996	7,116,984	9,488,649
Value added in process of manufacture ..	£ 8,974,275	3,556,652	3,102,610	3,336,439	4,287,077	5,679,799

The growth of the railway and tramway systems, conjointly with heavy increases in passenger and goods traffic throughout the Commonwealth, has resulted in corresponding activity in workshops engaged in the manufacture or repair of rolling stock, etc. Since the war, however, the operations of these establishments have been restricted, on the score of economy, to necessary works, and consequently the value of output, despite enhanced prices, only increased from £6,298,338 in 1916 to £9,488,649 in 1920-21.

9. *Smelting Works, etc.*—The subjoined table gives particulars of metal smelting, cyanide, pyrites, and metallurgical works. The classification of these works does not appear to be carried out on an uniform basis in the several States, and the combination of industries is, therefore, somewhat unsatisfactory. The returns do not include particulars of plants used on mines.

**SMELTING, CYANIDE, PYRITES, ETC., WORKS, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.	Tasmania. 1920.	C'wealth.
Number of factories .. ..	23	12	12	2	..	6	55
Number of employees .. ..	4,279	117	1,229	1,004	..	768	7,397
Actual horse-power of engines employed .. ..	24,533	174	8,012	2,546	..	9,978	45,243
Approximate value of land and buildings .. ..	£ 613,291	10,300	211,434	b	..	b	c 1,197,175
Approximate value of plant and machinery .. ..	£ 2,762,743	18,695	652,616	b	..	b	c 4,380,592
Total amount of wages paid during year .. ..	£ 901,081	21,421	270,484	b	..	b	c 1,630,435
Value of fuel used .. ..	£ 998,164	4,306	251,760	b	..	b	c 1,438,068
Value of raw material worked up .. ..	£ 5,628,580	106,225	707,531	b	..	b	c 7,895,007
Total value of output .. ..	£ 8,469,449	160,792	1,914,974	b	..	b	c12,565,982
Value added in process of manufacture .. ..	£ 2,842,869	54,567	1,207,443	b	..	b	c 4,670,975

(a) See third paragraph below. (b) Information not available for publication.  
(c) Including South Australia and Tasmania.



In New South Wales the above figures represent twenty-three smelting works ; those for Victoria include four cyanide works, four metallurgical, one pyrites, and three smelting works ; Queensland smelting and cyaniding ; and South Australia and Tasmania smelting works.

The above table furnishes evidence of a revival in the base metal industry. During 1920-21, 3,203 additional hands were employed, 16,720 extra horse-power was used, and the value of the final output increased from £7,908,611 to £12,565,982.

In Western Australia all the plants are worked on the mines, and are therefore not included.

10. Bacon-curing Factories.—(i) *Details for each State.* The following table gives particulars of factories engaged in bacon-curing in each State during the past year :—

## BACON-CURING FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	18	22	6	10	6	4	66
Number of employees .. ..	221	442	402	120	51	19	1,255
Actual horse-power of engines employed .. ..	569	1,343	606	217	273	75	3,033
Approx. value of land and buildings £ .. ..	80,699	171,755	101,431	20,801	26,904	4,473	406,063
Approx. value of plant and machinery .. .. £ .. ..	42,098	104,540	60,627	11,508	10,887	1,693	231,353
Total amount of salaries and wages paid .. .. £ .. ..	50,654	90,394	76,336	21,710	9,787	3,004	251,882
Value of fuel used .. .. £ .. ..	10,945	12,911	9,657	2,096	1,710	473	37,795
Value of raw material worked up .. .. £ .. ..	890,972	1,098,832	729,866	284,949	120,132	62,461	3,187,212
Total value of output .. .. £ .. ..	1,041,017	1,333,186	1,257,556	328,437	142,235	71,124	4,175,555
Value added in process of manufacture .. .. £ .. ..	150,045	236,354	527,690	43,488	22,103	8,663	988,343

(ii) *Quantity and Value of Production.* The following table shews the number of pigs killed and the quantity and value of the production of bacon-curing factories in each State for the year 1920-21 :—

## PRODUCTION OF BACON-CURING FACTORIES, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.a	Tasmania. 1920.	C'wealth.
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## QUANTITY (,000 OMITTED).

Bacon and ham ..	lbs.	14,605	13,383	11,032	3,389	1,874	838	45,121
Lard ..	lbs.	481	701	474	193	89	61	1,990

## VALUE.

Bacon and ham ..	£	970,786	1,215,818	902,807	253,625	132,427	62,111	3,537,574
Lard ..	£	22,399	48,804	33,601	9,407	4,320	3,557	117,088
Other products ..	£	73,705	75,564	321,184	65,405	(b)	5,456	541,314

## PIGS KILLED.

Number .. ..	143,806	140,031	124,720	38,408	(a)18,199	9,552	474,716
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(a) In Western Australia, a portion of the bacon and ham treated in factories is imported and subsequently smoked in that State. (b) Not available.

Bacon and ham and other pig products are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

11. Butter, Cheese, and Condensed Milk Factories.—(i) *Details for each State.* The subjoined table gives particulars of butter, cheese, and condensed milk factories in each State during the year 1920-21 :—

**BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
Number of factories ..	163	184	141	44	8	34	579
Number of employees ..	1,320	2,127	1,118	223	60	128	4,981
Actual horse-power of engines employed ..	4,007	4,311	2,534	476	249	253	11,920
Approximate value of land and buildings .. £	379,044	544,150	201,935	53,614	22,213	29,008	1,229,964
Approximate value of plant and machinery .. £	451,759	694,595	259,331	38,891	21,793	25,605	1,491,974
Total amount of wages paid £	280,095	414,420	195,318	31,464	9,375	14,111	944,783
Value of fuel used .. £	73,457	113,685	28,738	5,935	1,401	2,140	225,356
Value of raw material worked up .. £	8,646,281	8,065,841	4,104,212	960,085	120,249	200,175	22,096,843
Total value of output .. £	9,759,021	9,194,654	5,006,038	1,048,987	148,498	243,137	25,400,335
Value added in process of manufacture .. £	1,112,740	1,128,813	601,826	88,902	28,249	42,962	3,303,492

(ii) *Development of Factories, 1916 to 1920-21.* The following table shews the progress of the factories in this industry during the past five years :—

**DEVELOPMENT OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.**

Items.	1916.	1917. <sup>a</sup>	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	559	560	557	558	563	579
Number of employees ..	3,287	3,801	4,075	4,369	4,544	4,981
Actual horse-power of engines used ..	8,329	8,961	9,279	9,491	10,102	11,920
Approx. value of land and buildings £	734,686	756,454	823,176	907,148	1,060,544	1,229,964
Approx. value of plant and machinery £	881,267	933,086	998,841	1,107,127	1,262,706	1,491,974
Total amount of wages paid .. £	403,136	510,832	576,548	633,076	742,341	944,783
Value of fuel used .. £	70,053	101,496	116,228	140,125	167,142	225,356
Value of raw material worked up .. £	7,763,596	12,128,520	12,642,071	13,177,643	13,737,678	22,096,843
Value of final output .. £	8,974,067	14,151,299	14,322,025	15,120,395	15,989,419	25,400,335
Value added in process of manufacture £	1,210,471	2,022,779	1,679,954	1,942,752	2,251,741	3,303,492

(a) Including one margarine establishment in South Australia.

(iii) *Quantity and Value of Production.* The following table shews the quantity and value of butter, cheese, and condensed milk produced, and the quantity of milk used in butter, cheese, and condensed milk factories in each State during the past year :—

**PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1920-21.**

Particulars.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
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**QUANTITY (,000 OMITTED).**

Butter .. .. lbs.	79,865	59,852	38,465	8,223	1,218	2,459	190,082
Cheese .. .. "	5,646	3,144	11,510	1,805	..	563	22,668
Condensed and concentrated milk .. ..	14,938	34,038	13,363	..	..	..	62,339

**VALUE (,000 OMITTED).**

Butter .. .. £	8,820	7,044	3,965	951	136	219	21,135
Cheese .. .. £	330	189	532	98	..	28	1,177
Condensed and concentrated milk .. .. £	495	1,421	484	..	..	..	2,400

**MILK USED (,000 OMITTED).**

Butter factories .. gals.	178,376	139,661	76,961	16,446	2,763	5,757	419,964
Cheese .. .. "	5,861	3,123	9,352	1,729	..	582	20,647
Condensed milk factories ..	4,144	9,742	3,361	..	..	..	17,247

The butter, cheese, and condensed milk industries are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

12. **Meat and Fish Preserving, Ice and Refrigerating Works.**—These industries are now of considerable importance in Australia. Large freezing works have been installed at many ports in the Commonwealth for the purpose of freezing produce chiefly for export, while insulated space for the carriage of frozen produce is provided by a number of steamship companies trading between Australia and other parts of the world.

Particulars regarding the export of frozen beef and mutton may be found on pages 216 and 220 hereof respectively.

The particulars given in the subjoined table includes ice-making and freezing works, also meat-canning factories, separate particulars for each item for all the States not being available.

#### MEAT AND FISH PRESERVING, ICE AND REFRIGERATING WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. .	123	47	61	15	23	11	280
Number of employees .. .	1,428	1,070	3,677	216	446	66	6,903
Actual horse-power of engines employed .. .	7,652	7,425	11,196	1,343	2,511	241	30,368
Approximate value of land and buildings .. .	910,956	670,230	1,588,874	a	491,707	a	63,859,454
Approximate value of plant and machinery .. .	£ 882,993	533,300	972,636	a	345,900	a	62,856,966
Total amount of wages paid during year .. .	£ 246,511	232,951	672,769	a	112,686	a	61,315,018
Value of fuel used .. .	£ 75,524	61,621	106,668	21,959	22,432	2,359	290,563
Value of raw material worked up ..	£ 6,120,104	895,816	3,023,161	30,749	223,587	3,847	10,297,264
Total value of output .. .	£ 6,602,610	1,337,431	4,092,141	101,225	366,284	27,244	12,526,935
Value added in process of manu- facture .. .	£ 482,506	441,615	1,068,980	70,476	142,697	23,397	2,229,671

(a) Information not available for publication.

(b) Including South Australia and Tasmania.

The following table gives particulars, so far as available, of meat tinned during the year 1920-21 :—

#### MEAT PRESERVING WORKS—OUTPUT, 1920-21.

Output.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-20.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Tinned meat .. cwt.	15,634	4,849	54,537a	154b	..	..	75,174

(a) Also 21,724 cwt. salted meat. (b) Large numbers of rabbits are tinned in South Australia, but particulars are not available for publication.

Exclusive of Victoria, for which State particulars are not available, the returns shew that 140,927 tons of ice, valued at £322,581, were manufactured in the Commonwealth in 1920-21.

Full particulars of quantities and values of beef, mutton, and lamb preserved by cold process, exported from the Commonwealth during a series of years, will be found in Section VII., *Pastoral Production*.

13. **Biscuit Factories.**—The following table gives particulars regarding establishments at which the manufacture of biscuits, cakes, etc., was carried on in each State during the year 1920-21 :—

## BISCUIT, ETC., FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	10	7	20	3	10	3	53
Number of employees .. ..	1,800	1,440	590	178	228	144	4,380
Actual horse-power of engines employed .. ..	1,115	396	304	109	145	81	2,150
Approximate value of land and buildings .. ..	£ 164,031	93,165	67,571	<i>a</i>	24,600	<i>a</i>	5396,122
Approximate value of plant and machinery .. ..	£ 135,285	88,885	37,210	<i>a</i>	15,377	<i>a</i>	5298,181
Total amount of wages paid during year .. ..	£ 221,791	193,211	93,875	<i>a</i>	23,261	<i>a</i>	5567,007
Value of fuel used .. ..	£ 23,614	21,429	4,221	2,724	3,711	1,172	56,871
Value of raw material worked up .. ..	£ 936,747	748,647	258,056	79,044	110,870	47,124	2,180,481
Total value of output .. ..	£ 1,358,266	1,098,338	400,835	114,440	163,530	74,874	3,270,283
Value added in process of manufacture .. ..	£ 421,519	349,691	202,779	35,396	52,660	27,750	1,089,795

(a) Information not available for publication.

(b) Including South Australia and Tasmania.

14. **Jam and Fruit Preserving, Pickles, Sauces, and Vinegar.**—(i) *Details for each State.* The jam and fruit preserving industry has increased in importance of late years, consequent on the extension of fruit-growing. As an exporting industry it is comparatively recent, but is of increasing value, and during the last five years an average of 50,114,320 lbs. of jams and jellies, valued at £1,195,406, was exported annually from the Commonwealth. The subjoined table gives particulars of factories at which these industries were carried on in each State during the year 1920-21. Separate returns for the different branches of the industry are not available for most of the States.

## JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	44	42	17	20	9	22	154
Number of employees .. ..	1,932	2,098	425	502	111	1,175	6,243
Actual horse-power of engines employed .. ..	754	1,122	212	143	36	729	2,996
Approximate value of land and buildings .. ..	£ 303,549	187,200	63,121	97,034	7,438	97,513	760,855
Approximate value of plant and machinery .. ..	£ 193,260	147,985	51,300	67,169	5,774	50,860	516,348
Total amount of wages paid during year .. ..	£ 217,524	270,555	43,097	51,704	8,361	153,739	749,980
Value of fuel used .. ..	£ 13,841	23,760	2,369	6,025	1,293	11,449	58,737
Value of raw material worked up .. ..	£ 1,084,025	1,110,600	148,470	246,844	47,915	827,708	3,465,562
Total value of output .. ..	£ 1,444,750	2,031,226	277,687	332,032	67,875	1,109,038	5,262,608
Value added in process of manufacture .. ..	£ 360,725	920,626	129,217	85,188	10,960	281,330	1,797,046

(ii) *Production of Factories.* The following table shows the quantity and value of jams, pickles, and sauces manufactured in each State during 1920-21:—

## QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCES MANUFACTURED, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
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## QUANTITY (,000 OMITTED).

Jams .. lbs.	24,042	25,905	3,202	7,105	<i>a</i>	40,191	5100,445
Fruit, preserved .. lbs.	5,287	6,893	4,467	3,403	<i>a</i>	5,289	525,339
Pickles .. pints	2,447	1,239	495	174	134	11	4,500
Sauces .. pints	5,030	6,601	480	1,531	302	72	14,016

## VALUE.

Jams .. £	801,334	863,438	81,825	187,796	<i>a</i>	938,243	52,872,636
Fruit, preserved .. £	195,939	255,444	137,475	47,294	<i>a</i>	145,212	5781,364
Pickles .. £	75,833	38,404	15,349	7,744	3,696	483	141,514
Sauces .. £	233,405	306,320	12,522	62,958	11,098	1,777	627,990

(a) Information not available for publication.

(b) Incomplete.

(iii) *Development of Factories, 1916 to 1920-21.* The following table furnishes particulars of jam and fruit preserving establishments in the Commonwealth for the last six years :—

**DEVELOPMENT OF JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	139	150	146	143	152	154
Number of employees ..	4,069	5,323	6,024	6,174	6,974	6,243
Actual horse-power of engines employed ..	1,714	2,059	1,991	1,945	2,526	2,996
Approx. value of land and buildings £	367,277	426,919	516,113	528,572	576,302	760,855
Approx. value of plant and machinery £	185,529	209,548	274,555	284,085	348,549	516,348
Total amount of wages paid ..	£ 365,928	£ 443,793	£ 538,344	£ 570,291	£ 731,473	£ 749,930
Value of fuel used ..	£ 24,941	£ 32,726	£ 36,995	£ 44,477	£ 57,848	£ 58,737
Value of raw material worked up ..	£ 1,919,102	£ 2,271,966	£ 2,930,403	£ 3,326,546	£ 3,757,611	£ 3,465,562
Total value of output ..	£ 2,775,635	£ 3,284,844	£ 4,047,912	£ 4,663,026	£ 5,487,960	£ 5,262,608
Value added in process of manufacture £	£ 856,533	£ 1,012,878	£ 1,117,509	£ 1,336,480	£ 1,730,349	£ 1,797,046

The progression of the jam and fruit preserving industry was very marked during the war years, the output of jams and jellies in 1918-19 nearly doubling any pre-war production. Though augmented values would make it appear that further progress was attained in 1919-20 and 1920-21, the volume of trade declined in both years, and the output for the latter year was practically identical with that for 1916.

15. *Confectionery.*—(i) *Details for each State.* The following table reveals the position of the confectionery industry. Its growth will be apparent when it is stated that at the close of 1900 there were in New South Wales only 16 establishments, with 706 employees, and in Victoria 16 establishments, employing 731 persons, the plant and machinery in the former State being valued at £2,815, and in the latter at £19,070.

**CONFECTIONERY FACTORIES, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	82	87	8	13	5	5	200
Number of employees ..	2,625	3,108	637	455	276	36	7,137
Actual horse-power of engines employed ..	1,247	2,759	178	398	263	17	4,862
Approximate value of land and buildings ..	£ 554,005	£ 342,730	£ 45,271	£ 51,290	£ 42,159	£ 5,925	£ 1,041,380
Approximate value of plant and machinery ..	£ 599,436	£ 561,380	£ 25,679	£ 52,779	£ 36,558	£ 3,050	£ 1,278,882
Total amount of wages paid during year ..	£ 388,774	£ 402,583	£ 68,319	£ 44,537	£ 30,152	£ 3,171	£ 937,536
Value of fuel used ..	£ 30,317	£ 52,922	£ 2,414	£ 5,667	£ 2,336	£ 319	£ 93,975
Value of raw material worked up ..	£ 1,565,801	£ 1,437,394	£ 123,365	£ 198,024	£ 81,155	£ 14,835	£ 3,421,474
Total value of output ..	£ 2,569,333	£ 2,183,809	£ 230,700	£ 286,320	£ 127,408	£ 22,415	£ 5,419,985
Value added in process of manufacture ..	£ 1,003,532	£ 746,415	£ 107,335	£ 87,396	£ 46,253	£ 7,580	£ 1,998,511

(ii) *Development of Confectionery Factories, 1916 to 1920-21.* The progress of the confectionery industry during the past five years may be seen from the following table :—

**DEVELOPMENT OF CONFECTIONERY FACTORIES, 1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	117	131	147	156	181	200
Number of employees ..	4,570	5,266	5,856	6,710	7,323	7,137
Actual horse-power of engines employed ..	2,181	2,802	3,277	3,503	4,087	4,862
Approx. value of land and buildings £	462,555	495,488	554,099	775,670	878,305	1,041,380
Approx. value of plant and machinery £	294,351	354,539	419,988	562,475	664,452	1,278,882
Total amount of wages paid during year ..	£ 377,310	£ 463,067	£ 515,774	£ 654,818	£ 755,238	£ 937,536
Value of fuel used ..	£ 27,662	£ 45,304	£ 63,674	£ 74,995	£ 75,084	£ 93,975
Value of raw material worked up ..	£ 1,406,451	£ 1,586,353	£ 1,894,187	£ 2,354,962	£ 2,897,859	£ 3,421,474
Total value of output ..	£ 2,173,675	£ 2,504,732	£ 2,969,573	£ 3,697,148	£ 4,559,437	£ 5,419,985
Value added in process of manufacture £	£ 767,224	£ 918,379	£ 1,075,386	£ 1,242,186	£ 1,661,578	£ 1,998,511

The embargo placed on the importation of luxuries during the war period was responsible for a considerable expansion of the confectionery industry in Australia.

During the past five years the number of factories increased by 71 per cent., the number of employees by 56 per cent., and the actual horse-power of engines used by 123 per cent., while the values of the salaries and wages paid, and of the final output shewed increases amounting to 148 and 149 per cent. respectively.

16. Flour Mills.—The following table shews the position of the flour-milling industry :—

FLOUR MILLS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920-21.	S. Aust. 1920-21. a	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	60	51	11	40	16	6	184
Number of employees .. ..	1,023	947	259	581	418	112	3,340
Actual horse-power of engines employed .. ..	6,384	5,233	1,025	2,012	2,706	450	18,730
Approx. value of land and buildings £ .. ..	561,688	260,760	82,650	155,247	142,655	34,860	1,237,800
Approx. value of plant and machinery .. ..	572,456	373,060	94,263	185,744	128,403	14,475	1,368,401
Total amount of wages paid during year .. ..	219,964	191,683	54,221	102,623	82,383	18,352	669,231
Value of fuel used .. ..	37,746	45,121	8,026	27,492	16,610	2,848	137,852
Value of raw material worked up .. ..	4,951,650	5,120,260	1,164,839	2,048,159	2,176,055	526,033	15,987,016
Total value of output .. ..	5,590,405	5,745,507	1,379,191	2,351,291	2,423,267	602,695	18,092,356
Value added in process of manufacture .. ..	638,755	625,247	214,352	303,132	247,212	76,642	2,105,340

(a) The manufacture of cornflour, oatmeal, etc., was also carried on in some of these establishments.

The production of flour by the mills in each State of the Commonwealth in the years 1916 to 1920-21 was as follows :—

FLOUR MILLS—PRODUCTION, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Tons.a	Tons.a	Tons.a	Tons.a	Tons.a	Tons.a	Tons.a
1916b ..	254,393	134,401	42,559	49,404	70,912	25,369	577,038
1917c ..	331,233	263,095	46,244	105,925	102,300	21,178	869,975
1918c ..	355,843	311,450	45,589	135,882	119,876	17,121	985,761
1918-19d ..	377,107	347,841	45,589	138,734	119,876	17,121	1,046,268
1919-20d ..	348,691	353,683	49,300	134,727	141,516	22,311	1,050,228
1920-21d ..	244,818	260,032	54,333	98,557	120,125	23,596	801,511

(e) Tons of 2,000 lbs. (b) See note (a) first table this section. (c) See note (b) first table this section. (d) See note (c) first table this section.

The total production of flour for the Commonwealth for the last year, viz., 801,511 tons, was valued at £14,845,904; in addition 336,375 tons of bran and pollard, valued at £2,966,483, were made. The total quantity of wheat ground was 38,386,962 bushels.

17. Sugar Mills.—The following table shews the position of the cane-crushing branch of the sugar-making industry. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which sugar-cane is grown.

## SUGAR MILLS, 1920-21.

Items.	N.S.W. 1920-21.	Queensland. 1920.	Total.
Number of factories .. .. .	3	34	37
Number of employees .. .. .	437	4,851	5,288
Actual horse-power of engines employed ..	1,279	18,790	20,069
Approximate value of land and buildings ..	£ 106,070	438,079	544,149
Approximate value of plant and machinery ..	£ 425,283	3,173,030	3,598,313
Total amount of wages paid during year ..	£ 63,003	639,848	702,851
Value of fuel used .. .. .	£ 8,636	65,571	74,207
Value of raw material worked up .. .. .	£ 303,651	3,430,095	3,733,746
Total value of output .. .. .	£ 476,405	5,035,562	5,511,967
Value added in course of manufacture ..	£ 172,754	1,605,467	1,778,221

The product of the sugar mill is raw sugar and molasses, the former being sent to the refineries in different parts of Australia for further treatment. Part of the molasses produced is used for distillation, part is prepared for human consumption, part is turned into food cake for cattle, and part is used for manuring land, but a considerable quantity is allowed to run to waste. The following tables shew the progress of this industry in each State from the dates at which information is first obtainable:—

## SUGAR MILLS, NEW SOUTH WALES, 1870 TO 1920-21.

Items.	1870.	1877.	1886.	1896.	1901.	1916-17.	1917-18	1918-19	1919-20.	1920-21.
No. of factories ..	27	50	64	23	12	3	3	3	3	3
No. of employees ..	1,065	2,259	1,475	695	427	367	432	419	437	437
Cane crushed ..	a	a	a	a	a	143,558	174,881	105,234	91,321	131,313
Sugar produced ..	677	7,537	13,750	28,557	19,519	16,064	19,875	12,278	10,837	15,124
Molasses produced ..	345,543	507,000	2,520,580	1,300,909	781,870	975,770	586,925	494,600	649,800	649,800

(a) Not available.

The reduction in the number of New South Wales mills is due chiefly to the tendency towards concentration of cane-crushing in mills fitted with modern machinery, and the consequent closing of the small home mill. On the north coast of New South Wales some land formerly devoted to sugar-growing has been turned into pasture in connexion with the dairying industry.

## SUGAR MILLS, QUEENSLAND, 1868 TO 1920.

Items.	1868.	1876.	1886.	1896.	1901.	1911.	1918.	1919.	1920.
No. of factories ..	10	70	118	63	52	49	42	32	34
No. of employees ..	b	b	3,796	b	4,295	5,214	4,098	4,851	4,851
Cane crushed ..	7,245c	40,756c	66,640c	78,160c	1,534,451	1,674,829	1,258,760	1,339,455	1,339,455
Sugar produced, tons	619	8,214	59,225	100,774	120,858	173,296	189,978	162,136	167,401
Molasses—									
Sold to distillers and others, gals.						2,393,669	1,662,454	916,291	985,951
Used as fodder, gals.						789,564	1,602,962	1,517,167	1,381,041
Used as manure, gals.						223,000	109,000	141,175	24,000
Run to waste or burnt, gals.						1,847,333	3,501,668	3,347,655	3,050,901
In stock ..						1,197,626	923,307	933,542	733,974
Total molasses a gals.	68,622	416,415	1,784,266	2,195,470	3,679,952	6,451,192	7,799,391	6,855,830	6,175,867

(a) Quantity recorded; large quantities run to waste of which no record is kept. (b) No record. (c) Acres crushed.

Information regarding the cultivation of sugar-cane may be found in the section of this book dealing with *Agricultural Production*. (See pages 273 to 278.)

18. **Sugar Refineries.**—The establishment of the sugar-refining industry considerably antedates the establishment of the sugar-milling industry, the raw material operated upon being originally brought chiefly from Mauritius and the East. In 1920–21 there were two sugar refineries in each of the States of Victoria and Queensland, and one in each of the States of New South Wales and South Australia. The returns for the individual States cannot be disclosed.

In the six refineries in the Commonwealth, an average number of 1,763 hands was employed during the year. The approximate value of land and buildings was £550,612, of plant and machinery, £1,190,717; and the total amount of wages paid during the year was £338,341. The value of all materials used in sugar refineries was £10,806,529, while the total output reached £11,255,457. The amount of crude sugar used was 256,917 tons, and of refined sugar produced 246,704 tons, valued at £11,145,807.

19. **Breweries.**—(i) *Details for each State.* The following table gives particulars of breweries in each State for the past year :—

#### BREWERIES, 1920–21.

Items.	N.S.W. 1920–21.	Victoria. 1920–21.	Q'land. 1920.	S. Aust. 1920–21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of breweries ..	17	16	10	8	12	4	67
Number of employees ..	1,122	1,054	543	376	523	134	3,752
Actual horse-power of engines employed ..	3,289	3,938	1,234	960	1,317	95	10,833
Approximate value of land and buildings ..	£ 714,155	391,385	169,354	100,111	182,572	61,450	1,619,027
Approximate value of plant and machinery ..	£ 924,181	441,470	195,428	112,855	158,437	50,585	1,882,956
Total amount of wages paid during year ..	£ 286,685	270,595	133,824	96,659	122,170	27,630	937,563
Value of fuel used ..	£ 66,848	68,165	19,487	18,282	18,108	4,245	195,135
Value of raw material worked up ..	£ 1,316,561	1,079,493	302,423	279,548	300,573	63,109	3,341,707
Total value of output ..	£ 2,515,224	2,098,720	1,545,430	492,481	689,527	231,438	7,572,820
Value added by processes of manufacture ..	£ 1,198,663	1,019,227	1,243,007	212,933	388,954	168,329	4,231,113

(a) Includes malting.

(ii) *Production and Materials Used.* The following table shews the quantity and value of ale and stout brewed and the quantity of raw materials used in each State during the year 1920–21 :—

#### PRODUCTION AND MATERIALS USED IN BREWERIES, 1920–21.

Particulars.	N.S.W. 1920–21.	Victoria, 1920–21.	Q'land. 1920.	S. Aust. 1920–21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
ALE AND STOUT BREWED.							
Quantity .. gallons	25,299,231	22,257,394	8,902,429	6,102,696	5,735,671	1,938,319	70,235,740
Value .. £	2,472,165	2,093,720	964,380	486,282	675,491	230,744	6,927,782
RAW MATERIALS USED.							
Malt .. bush.	811,385	753,260	263,278	172,208	176,063	76,234	2,252,428
Hops .. lbs.	817,493	736,580	349,180	193,707	202,356	110,303	2,409,619
Sugar .. cwt.	108,720	104,140	46,624	30,491	28,844	7,803	326,622
RAW MATERIALS USED PER 1,000 GALLONS OF ALE AND STOUT PRODUCED.							
Malt .. bush.	32.07	33.84	29.57	28.22	30.70	39.33	32.07
Hops .. lbs.	32.31	33.09	39.22	31.74	35.28	56.91	34.31
Sugar .. cwt.	4.30	4.68	5.24	5.00	5.03	4.03	4.65

(a) Exclusive of excise duty.



(iii) *Development of Breweries, 1916 to 1920-21.* The following table shows the progress of this industry during the past five years :—

**DEVELOPMENT OF BREWERIES, 1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of breweries .. ..	86	77	72	68	68	67
Number of employees .. ..	3,179	3,191	3,268	3,355	3,710	3,752
Actual horse-power of engines used .. ..	8,882	8,955	9,602	9,922	13,091	10,833
Approx. value of land and buildings £	1,864,712	1,901,488	1,676,567	1,692,220	1,109,813	1,619,027
Approx. value of plant and machinery £	1,518,846	1,565,914	1,600,734	1,654,600	1,243,272	1,882,956
Total amount of wages paid £	560,004	594,687	632,076	668,579	831,779	937,563
Value of fuel used .. ..	87,375	104,629	120,381	123,650	160,609	195,135
Value of raw material worked up £	1,548,615	1,637,568	1,959,232	2,215,487	2,760,601	3,341,707
Value of final output .. ..	3,872,044	3,952,647	4,741,744	5,184,649	6,631,409	7,572,820
Value added in process of manufacture £	2,323,429	2,315,079	2,782,512	2,969,162	3,870,808	4,231,113

The main feature in the history of the brewing industry, which was established at an early date in Australia, has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. This, however, has not been so much in evidence during the period embraced in the above table, the reduction of the number of establishments during recent years being mainly due to several large amalgamations. The total value of output of breweries in the Commonwealth increased from £3,872,044 in 1916 to £7,572,820 in 1920-21, while the quantity of ale and stout brewed during the same period increased from 60,882,091 to 70,235,740 gallons. The average production per head of mean population likewise increased from 12.25 gallons per head for 1916 to 13.00 gallons for 1920-21.

20. *Distilleries.*—The subjoined table gives particulars of distilleries in four States. There are no distilleries in Western Australia or Tasmania.

**DISTILLERIES, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of distilleries .. ..	4	10	3	20	..	..	37
Number of employees .. ..	41	145	44	140	..	..	370
Actual horse-power of engines employed .. ..	170	264	91	426	..	..	951
Approx. value of land and buildings £	20,215	107,710	13,098	61,764	..	..	202,787
Approx. value of plant and machinery £	68,295	67,760	26,200	63,171	..	..	225,426
Total amount of wages paid during year £	9,632	32,288	7,083	21,459	..	..	70,492
Value of fuel used .. ..	4,403	9,700	3,720	7,812	..	..	25,144
Value of raw materials worked up £	55,602	160,501	20,488	199,866	..	..	436,457
Total value of output .. ..	87,797	245,944	66,257	269,307	..	..	669,305
Value added in process of manufacture £	32,195	85,443	45,769	69,441	..	..	232,843

The total quantity of rum distilled during the year was 61,152, of whisky 202,090, of brandy 237,746, of gin 52,804, of methylated spirits 985,493, and of other spirits, including rum distilled in Queensland separate particulars for which are not available, 1,946,178 proof gallons. The materials used comprised 483,397 cwt. of molasses, and 4,882,715 gallons of wine.

21. *Tobacco, Cigars, and Cigarettes.*—(i) *Details for each State.* During the year 1920-21 there were forty establishments in which the manufacture of tobacco, cigars, and cigarettes was carried on. There were no factories engaged in this industry in Tasmania.

**TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1920-21.**

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21.	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	16	16	3	2	3	..	40
Number of employees .. ..	2,394	1,936	61	39	45	..	4,525
Actual horse-power of engines employed .. ..	657	491	36	..	2	..	1,186
Approx. value of land and buildings £	291,604	185,610	a	a	2,923	..	6490,494
Approx. value of plant and machinery £	228,043	133,120	a	a	845	..	6369,267
Total amount of wages paid during year £	356,781	334,748	a	a	3,992	..	6706,208
Value of fuel used .. ..	11,697	6,162	a	a	23	..	618,251
Value of raw material worked up £	3,403,517	1,650,326	a	a	8,142	..	55,091,272
Total value of output .. ..	4,240,746	2,401,618	a	a	14,746	..	66,709,295
Value added in process of manufacture £	837,229	751,292	a	a	6,604	..	61,618,026

(a) Not available for publication.

(b) Including Queensland and South Australia.

(ii) *Quantities of Goods Produced, and Tobacco Leaf Used.* The following table shews the quantity of goods produced in tobacco factories in each State, and the quantities of imported and Australian-grown leaf used :—

**PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1920-21.**

Particulars.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth. b
QUANTITY (,000 OMITTED).							
Manufactured tobacco .. lbs.	6,724	6,443	}	a	a	..	{ 13,268
Cigars .. .. lbs.	147	378					
.. .. No.	12,345	35,550					
Cigarettes .. .. lbs.	5,073	251	..	..	..	..	5,324
.. .. No.	2,268,924	109,687	..	..	..	..	2,378,611

**TOBACCO LEAF USED (,000 OMITTED).**

Australian leaf .. .. lbs.	883	751	}	a	a	..	{ 1,739
Imported leaf .. .. lbs.	9,555	5,291					

(a) Not available for publication.

(b) Including particulars of Queensland, South Australia and Western Australia.

(iii) *Development of Industry.* This industry was among the first to be established in Australia. In 1861 New South Wales had eleven factories, producing 177,744 lbs. of manufactured tobacco; in the same year there was one factory in Victoria, but the quantity of tobacco manufactured is not available. The Australian market has for many years been largely supplied with local manufactures. The quantities imported into Australia during 1920-21 were—manufactured tobacco 857,842 lbs., cigars 126,690 lbs., and cigarettes 169,317 lbs., while the quantities manufactured in Australian factories were respectively 13,267,627 lbs., 543,739 lbs., and 5,324,307 lbs. The following tables shew the development of the tobacco manufacturing industry in the Commonwealth during recent years :—

**DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.**

Items.	1916.a	1917.b	1918.	1918-19.	1919-20.	1920-21.
Number of factories .. ..	35	38	37	37	37	40
Number of employees .. ..	3,739	3,814	3,920	3,908	4,489	4,525
Actual horse-power of engines used ..	914	934	934	948	1,144	1,186
Approx. value of land and buildings £	412,068	424,252	413,167	420,124	432,247	490,494
Approx. value of plant and machinery £	253,953	260,372	265,150	270,958	313,619	369,267
Total amount of wages paid .. .. £	c394,435	438,142	466,520	490,172	633,694	706,218
Value of fuel used .. .. £	c9,720	13,523	12,347	13,147	16,200	18,201
Value of raw material worked up .. £	c2,124,204	2,344,063	2,578,758	3,110,373	4,559,110	5,091,272
Value of final output .. .. £	c3,223,433	3,543,704	3,694,246	4,306,140	6,466,649	6,709,298
Value added in process of manufacture £	c1,099,229	1,199,641	1,115,488	1,195,767	1,907,539	1,618,026

**PRODUCTION.**

Tobacco made .. .. 1,000 lbs.	10,306	d11,107	d11,011	d10,991	13,158	13,268
Cigars .. .. "	d362	d398	d427	d441	552	544
Cigarettes .. .. "	d3,351	d3,075	d3,301	d3,726	4,837	5,324
Leaf used .. .. "	12,541	d13,166	d12,957	d13,351	16,137	16,636

(a) Including four condiment establishments in Western Australia. (b) Including one condiment and two malting establishments in Queensland, and excluding two cigar factories in South Australia. (c) Exclusive of two factories in South Australia. (d) Incomplete.

22. Woollen, Cotton, and Tweed Mills.—(i) *Details for each State.* The manufacture of woollens and tweeds was established in Australia at an early period in its history, and was under Government control, the first record in New South Wales dating back to 1801, when a few blankets were made by the convicts; the first record in Victoria was in 1867. The following table, which gives particulars of the mills in each State, shews that the industry is now well established :—

## WOOLLEN, COTTON, AND TWEED MILLS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	9	17	2	2	..	4	34
Number of employees .. ..	1,650	3,342	321	244	..	226	5,783
Actual horse-power of engines employed .. ..	2,795	5,679	582	280	..	281	9,617
Approx. value of land and buildings £ .. ..	222,474	462,845	a	a	..	27,300	b751,858
Approx. value of plant and machinery .. ..	384,662	850,785	a	a	..	63,500	b1,378,903
Total amount of wages paid during year .. ..	£ 235,668	£ 444,631	a	a	..	£ 20,675	£ b762,131
Value of fuel used .. ..	£ 23,517	£ 61,989	a	a	..	£ 1,752	£ b93,691
Value of raw material worked up .. ..	£ 745,848	£ 1,166,201	a	a	..	£ 49,167	£ b2,010,892
Total value of output .. ..	£ 1,437,647	£ 2,397,610	a	a	..	£ 134,229	£ b4,241,964
Value added in process of manufacture .. ..	£ 691,799	£ 1,231,409	a	a	..	£ 85,062	£ b2,151,072

(a) Information not available for publication.  
(b) Including Queensland and South Australia.

(ii) *Progress of Industry, 1916 to 1920-21.* The progress of woollen and tweed manufactures in the Commonwealth during the last five years is shewn in the following table :—

## DEVELOPMENT OF WOOLLEN, COTTON, AND TWEED MILLS IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories .. ..	23	24	25	25	29	34
Number of employees .. ..	3,927	3,746	3,817	4,087	5,029	5,783
Actual horse-power of engines used .. ..	5,538	6,840	7,114	7,212	8,705	9,617
Approx. value of land and buildings £ .. ..	319,273	339,511	355,931	434,735	626,822	751,858
Approx. value of plant and machinery £ .. ..	553,671	570,871	578,902	721,418	1,192,913	1,378,903
Total amount of wages paid .. ..	£ 357,137	£ 351,043	£ 360,466	£ 398,641	£ 560,149	£ 762,131
Value of fuel used .. ..	£ 40,283	£ 43,732	£ 49,339	£ 50,818	£ 75,722	£ 93,691
Value of raw material worked up .. ..	£ 971,144	£ 1,073,314	£ 1,141,962	£ 1,249,094	£ 1,865,477	£ 2,090,892
Value of final output .. ..	£ 1,888,115	£ 1,940,304	£ 2,024,343	£ 2,330,253	£ 3,290,511	£ 4,241,964
Value added in process of manufacture £ .. ..	£ 916,971	£ 866,990	£ 882,381	£ 1,081,159	£ 1,425,034	£ 2,151,072

(iii) *Quantity and Value of Production.* The production of the woollen mills of Australia consists chiefly of tweed cloths, flannels, and blankets, all of which have acquired a reputation for purity and durability. Detailed particulars for the several States are not available for publication. The total length of tweed and cloth manufactured in the Commonwealth during 1920-21 was 6,350,499 yards. In New South Wales 2,494,417 yards of tweed and cloth, and in Victoria 2,509,198 yards were manufactured. The production of flannel in the Commonwealth amounted to 5,686,294 yards, while blankets, shawls, and rugs to the number of 772,336 were manufactured.

No cotton spinning or weaving, or linen weaving is carried on in Australia. Cotton ginning has been carried on intermittently in the northern States, and the recent development in cotton growing has led to the establishment of modern ginning plants at Rockhampton and Brisbane.

23. **Boots and Shoes.**—(i) *Details for each State.* Among the manufactories of Australia the boot and shoe industry holds an important place both in respect to the employment afforded and the extent of its output. The following table shews the particulars of this industry for each State during 1920-21 :—

**BOOT AND SHOE FACTORIES, 1920-21.**

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	189	304	31	37	19	12	592
Number of employees .. ..	4,845	9,212	1,136	842	296	242	16,573
Actual horse-power of engines employed	1,520	2,498	282	269	100	77	4,746
Approx. value of land and buildings £	499,911	595,270	37,992	69,552	36,763	18,873	1,258,361
Approx. value of plant and machinery £	202,881	332,040	30,174	34,275	10,183	8,168	617,721
Total amount of wages paid during year £	637,080	1,208,760	147,566	92,567	34,673	27,940	2,193,586
Value of fuel used .. ..	11,696	24,563	1,596	1,946	881	390	41,077
Value of raw material worked up ..	1,557,225	2,911,852	350,933	203,386	111,808	68,379	5,208,627
Total value of output .. ..	2,701,972	4,964,482	605,627	332,290	173,254	117,806	8,895,411
Value added in process of manufacture £	1,144,747	2,052,610	254,644	123,910	61,446	49,427	3,686,784

(ii) *Progress of Industry, 1916 to 1920-21.* The progress of the industry in the last five years is shewn in the following table :—

**DEVELOPMENT OF BOOT AND SHOE FACTORIES IN THE COMMONWEALTH,  
1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories .. ..	352	399	432	438	532	592
Number of employees .. ..	13,322	15,286	15,499	15,960	17,987	16,573
Actual horse-power of engines used ..	3,249	3,590	3,742	3,998	4,462	4,746
Approx. value of land and buildings £	692,673	750,551	790,573	849,759	1,017,437	1,258,361
Approx. value of plant and machinery £	423,837	447,389	465,020	475,983	530,327	617,721
Total amount of wages paid .. ..	1,244,700	1,574,623	1,613,728	1,792,001	2,232,746	2,193,586
Value of fuel used .. ..	22,248	31,181	29,055	31,852	41,206	41,077
Value of raw material worked up ..	2,793,391	3,784,338	3,913,893	4,451,458	6,661,483	5,208,627
Value of final output .. ..	4,617,322	6,143,048	6,410,464	7,120,164	10,206,965	8,895,411
Value added in process of manufacture £	1,823,931	2,358,710	2,496,571	2,668,706	3,545,482	3,686,784

The above table furnishes evidence of substantial and consistent development in the manufacture of boots and shoes in the Commonwealth from 1916 to 1919-20. During this period the number of employees increased by 4,665, and the value of the final output was more than doubled, while the increase in the number of boots and shoes made amounted to 1,717,560 pairs. The figures for 1920-21, however, reveal a considerable drop in all the items of manufacture, and, though enhanced values tend to disguise the decrease, the output of boots and shoes was less than in 1916.

(iii) *Quantity and Value of Production.* The number and value of boots, shoes, and slippers made at factories in each State are shewn in the following table :—

**PRODUCTION OF BOOT AND SHOE FACTORIES, 1920-21.**

Particulars.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
<b>QUANTITY (,000 OMITTED).</b>							
Boots and shoes .. .. pairs	3,232	5,536	703	464	202	168	10,305
Slippers .. .. pairs	609	471	28	33	b	..	1,141
Uppers a .. .. pairs	42	13	3	13	4	5	80
<b>VALUE.</b>							
Boots and shoes .. .. £	2,297,939	3,935,145	562,209	281,331	143,875	111,015	7,336,514
Slippers .. .. £	108,830	84,165	6,570	6,878	b	..	206,493
Uppers a .. .. £	16,188	5,092	2,038	5,718	1,375	1,755	32,666

(a) Made for other than factory use.

(b) Included with boots and uppers.

24. Clothing (Tailoring and Slop) Factories.—The importance of this industry in the several States and in the Commonwealth as a whole is shewn in the following table :—

**CLOTHING (TAILORING AND SLOP) FACTORIES, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	419	485	132	139	63	34	1,272
Number of employees ..	9,524	9,195	3,226	2,221	1,104	533	25,803
Actual horse-power of engines employed ..	509	472	233	118	61	15	1,408
Approximate value of land and buildings ..	£ 1,326,032	718,575	298,647	215,923	123,935	70,059	2,753,171
Approximate value of plant and machinery ..	£ 97,195	82,485	39,748	23,978	14,019	5,642	263,067
Total amount of wages paid during year ..	£ 1,158,433	982,105	311,373	227,554	122,981	57,525	2,859,971
Value of fuel used ..	£ 13,043	17,537	5,387	5,202	2,235	638	44,042
Value of raw material worked up ..	£ 2,304,051	2,282,111	686,690	388,465	274,590	84,984	6,020,891
Total value of output ..	£ 4,077,569	3,960,514	1,272,091	726,333	467,742	175,670	10,679,919
Value added in process of manufacture ..	£ 1,773,518	1,678,403	585,401	337,868	193,152	90,686	4,659,028

The relatively high increases which have taken place in the prices of raw materials were mainly responsible for a slight decline in the tailoring and slop branch of the clothing industry during the past five years.

As will be seen from the following table, this industry dispensed with 2,429 hands, and 239 units of power since 1916. The total output shews an increase of £4,232,066, but this increase merely indicates the advance which has taken place in the price of clothing during recent years :—

**.DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.**

Items.	1916.	1917. <sup>a</sup>	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	1,274	1,248	1,205	1,206	1,219	1,272
Number of employees ..	28,232	26,799	25,188	25,013	26,190	25,803
Actual horse-power of engines used ..	1,647	1,426	1,379	1,313	1,287	1,408
Approx. value of land and buildings ..	£ 2,055,674	2,234,022	2,182,326	2,224,646	2,402,571	2,753,171
Approx. value of plant and machinery ..	£ 221,940	216,718	206,954	202,868	220,903	263,067
Total amount of wages paid ..	£ 1,889,195	1,941,667	1,954,356	2,007,826	2,556,112	2,859,971
Value of fuel used ..	£ 34,767	36,052	34,889	37,181	40,941	44,042
Value of raw material worked up ..	£ 3,403,019	3,356,572	3,759,152	4,451,166	5,566,172	6,020,891
Value of final output ..	£ 6,447,853	6,461,405	6,924,820	7,807,130	9,957,672	10,679,919
Value added in process of manufacture ..	£ 3,044,834	3,104,833	3,165,668	3,365,964	4,391,500	4,659,028

(a) Including two dyeworks and cleaning establishments in Western Australia.

25. Dressmaking and Millinery.—Particulars of dressmaking and millinery establishments are given in the following table :—

**DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	233	475	45	47	45	15	860
Number of employees ..	4,711	9,113	1,146	1,023	591	272	16,856
Actual horse-power of engines employed ..	181	384	63	11	29	5	673
Approximate value of land and buildings ..	£ 588,606	650,750	39,385	54,783	50,014	9,330	1,392,868
Approximate value of plant and machinery ..	£ 55,868	76,525	7,811	4,999	4,575	697	150,475
Total amount of wages paid during year ..	£ 397,688	739,104	79,658	65,588	50,055	18,503	1,350,596
Value of fuel used ..	£ 3,304	10,285	883	790	520	82	15,864
Value of raw material worked up ..	£ 812,903	1,654,045	92,590	110,140	90,688	21,676	2,782,042
Total value of output ..	£ 1,456,880	2,900,217	192,330	209,054	147,283	45,755	4,951,519
Value added by process of manufacture ..	£ 643,977	1,246,172	99,740	98,914	56,595	24,079	2,169,477

The development of dressmaking and millinery establishments in the Commonwealth during the past five years is shewn in the following table :—

**DEVELOPMENT OF DRESSMAKING AND MILLINERY ESTABLISHMENTS IN THE COMMONWEALTH, 1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories .. ..	890	932	920	876	854	860
Number of employees .. ..	18,383	18,211	18,575	17,683	17,954	16,856
Actual horse-power of engines used ..	509	602	648	623	636	673
Approximate value of land and buildings .. ..	£ 974,766	£ 1,036,251	£ 1,087,567	£ 1,159,550	£ 1,167,568	£ 1,392,868
Approximate value of plant and machinery .. ..	£ 82,057	£ 99,552	£ 111,622	£ 116,093	£ 128,646	£ 150,475
Total amount of wages paid .. ..	£ 749,377	£ 873,269	£ 986,440	£ 1,044,263	£ 1,237,811	£ 1,350,596
Value of fuel used .. ..	£ 10,746	£ 13,341	£ 14,227	£ 14,125	£ 15,070	£ 15,864
Value of raw material worked up .. ..	£ 1,266,755	£ 1,595,405	£ 1,884,888	£ 2,051,177	£ 2,685,382	£ 2,782,042
Value of final output .. ..	£ 2,481,266	£ 2,976,725	£ 3,403,574	£ 3,634,605	£ 4,882,988	£ 4,951,519
Value added in process of manufacture ..	£ 1,214,511	£ 1,381,230	£ 1,520,688	£ 1,585,518	£ 2,197,606	£ 2,169,477

Despite the high prices, the dressmaking and millinery establishments in the Commonwealth continued to progress during the past five years.

The number of employees, the actual horse-power of engines used, and the capital invested have all shewn increases since 1916, while the amount of salaries and wages paid advanced from £749,377 to £1,350,596, and the value of the final output from £2,481,266 to £4,951,519.

**26. Electrotyping, Stereotyping, Printing, and Binding.**—The printing industry ranks high in importance among the manufactories of the Commonwealth. It affords employment for more than 20,000 employees, and pays over £4,000,000 in salaries and wages. During 1920-21 the total value of the output amounted to £13,845,574.

The following table gives particulars of these industries in each State for the year 1920-21 :—

**ELECTROTYPEING, STEREOTYPEING, PRINTING, AND BINDING ESTABLISHMENTS, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	425	405	132	75	70	25	1,132
Number of employees .. ..	8,547	8,271	2,894	1,415	1,137	789	23,053
Actual horse-power of engines employed .. ..	5,008	4,177	1,435	1,034	652	228	12,534
Approximate value of land and buildings .. ..	£ 1,814,041	£ 1,024,235	£ 540,551	£ 303,020	£ 236,373	£ 57,201	£ 3,976,321
Approximate value of plant and machinery .. ..	£ 1,513,574	£ 1,092,690	£ 341,590	£ 209,136	£ 178,842	£ 56,212	£ 3,392,044
Total amount of wages paid during year .. ..	£ 1,588,881	£ 1,427,199	£ 486,428	£ 252,298	£ 205,635	£ 123,291	£ 4,083,732
Value of fuel used .. ..	£ 40,053	£ 39,796	£ 28,739	£ 8,951	£ 6,502	£ 2,616	£ 126,657
Value of raw materials worked up .. ..	£ 2,619,199	£ 2,563,751	£ 484,147	£ 475,364	£ 274,874	£ 108,746	£ 6,526,081
Total value of output .. ..	£ 5,158,051	£ 5,317,251	£ 1,463,828	£ 906,325	£ 688,825	£ 311,294	£ 13,845,574
Value added in process of manufacture .. ..	£ 2,538,852	£ 2,753,500	£ 979,681	£ 430,961	£ 413,951	£ 202,548	£ 7,319,493

The development of electrotyping, stereotyping, printing, and binding in the Commonwealth since 1916 is shewn in the following table :—

**DEVELOPMENT OF ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS IN THE COMMONWEALTH, 1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of establishments ..	1,094	1,093	1,106	1,101	1,125	1,132
Number of employees ..	21,247	21,060	20,714	20,852	22,149	23,053
Actual horse-power of engines used ..	10,959	11,169	11,086	11,444	12,022	12,534
Approximate value of land and buildings ..	£ 3,346,985	3,387,008	3,449,394	3,474,345	3,661,054	3,976,321
Approximate value of plant and machinery ..	£ 2,666,977	2,664,637	2,683,781	2,722,729	3,087,143	3,392,044
Total amount of wages paid ..	£ 2,582,539	2,676,220	2,712,472	2,861,412	3,327,499	4,083,732
Value of fuel used ..	£ 84,637	87,301	89,663	94,257	105,093	126,657
Value of raw materials worked up ..	£ 2,394,703	3,112,140	3,690,419	4,386,629	5,003,681	6,526,081
Value of final output ..	£ 6,849,373	7,775,300	8,537,815	9,381,799	10,906,244	13,845,574
Value added in process of manufacture ..	£ 4,454,670	4,663,160	4,847,396	4,995,170	5,902,563	7,319,493

The latter table furnishes evidence of the activities of the printing establishments during the last five years. Since 1916 the expansion in this industry has necessitated the employment of 1,806 additional workers and 1575 horse-power units, while the values of the raw materials and the final output have been more than doubled.

**27. Coach and Wagon Building Works.**—This industry forms the principal branch of manufacture in Class XI. (see § 1, 3 above). The subjoined table gives particulars of factories in this branch of industry in each State. The returns include establishments for the manufacture of wheels, spokes, etc.

**COACH AND WAGON BUILDING WORKS, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	172	294	63	82	42	20	673
Number of employees ..	1,536	2,607	493	731	327	254	5,948
Actual horse-power of engines employed ..	984	884	262	502	166	85	2,883
Approximate value of land and buildings ..	£ 279,926	310,770	70,024	98,352	59,833	28,525	847,430
Approximate value of plant and machinery ..	£ 105,128	81,655	21,875	35,008	12,140	4,498	260,313
Total amount of wages paid during year ..	£ 232,975	381,333	61,752	102,251	45,822	21,994	846,127
Value of fuel used ..	£ 9,800	12,703	1,351	5,504	3,181	979	33,518
Value of raw material worked up ..	£ 294,539	474,958	79,403	133,927	62,334	29,673	1,074,834
Total value of output ..	£ 654,077	1,061,529	189,379	286,164	133,546	65,373	2,390,068
Value added in process of manufacture ..	£ 359,538	586,571	109,976	152,237	71,212	35,700	1,315,234

**28. Furniture and Cabinet Making and Billiard Table Making.**—These industries constitute the principal manufactures in Class XIII. (see § 1, 3 above). The following table gives particulars for each State :—

**FACTORIES FOR FURNITURE AND CABINETMAKING AND BILLIARD TABLE MAKING, 1920-21.**

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	213	301	82	48	36	9	689
Number of employees ..	3,162	2,997	1,281	941	522	365	9,268
Actual horse-power of engines employed ..	2,220	1,876	932	1,023	516	180	6,747
Approximate value of land and buildings ..	£ 525,539	417,645	139,632	100,968	84,245	15,425	1,283,454
Approximate value of plant and machinery ..	£ 148,232	109,520	51,198	39,862	26,643	7,600	383,055
Total amount of wages paid during year ..	£ 587,223	440,258	203,691	153,348	91,652	44,248	1,520,420
Value of fuel used ..	£ 12,154	11,943	5,252	3,722	2,338	608	36,017
Value of raw material used ..	£ 761,199	686,620	277,255	176,590	119,367	32,598	2,053,629
Total value of output ..	£ 1,560,182	1,372,723	593,398	402,652	239,302	104,858	4,273,115
Value added in process of manufacture ..	£ 798,983	686,103	316,143	226,062	119,935	72,260	2,219,486

29. **Electric Light and Power Works.**—Particulars of the electric light and power works of the Commonwealth are given in the subjoined table. In 1916 there were 245 establishments employing 3,079 hands, whose salaries and wages amounted to £559,170; in 1920-21 these had increased to 260 establishments, 4,044 hands, salaries and wages £935,895, while the value of output had increased during the five years from £2,673,568 to £4,066,617.

#### ELECTRIC LIGHT AND POWER WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories .. ..	117	79	13	13	25	13	260
Number of employees .. ..	1,353	1,242	477	546	234	192	4,044
Actual horse-power of engines employed .. ..	111,591	54,189	27,392	24,877	28,361	20,599	267,009
Approximate value of land and buildings .. .. £	1,381,092	494,025	62,511	199,972	185,082	8,084	2,330,766
Approximate value of plant and machinery .. .. £	2,531,358	2,660,945	380,333	629,792	494,320	269,536	6,966,284
Total amount of wages paid during year .. .. £	327,157	283,309	103,453	122,883	55,063	44,030	935,895
Value of fuel used .. .. £	590,373	373,064	67,866	140,161	90,581	8,178	1,270,223
Total value of output .. .. £	1,697,763	1,131,331	444,754	404,612	236,819	151,338	4,066,617

30. **Gas and Coke Works.**—There are gas works in operation in nearly all the chief towns in the Commonwealth. In New South Wales there are fourteen and in Queensland two coke factories which are worked as separate industries. The subjoined table gives particulars of gas and coke works in each State for the year 1920-21 :—

#### GAS AND COKE WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth
Number of factories .. ..	59	45	18	5	4	2	133
Number of employees .. ..	2,499	2,213	590	504	67	132	6,005
Actual horse-power of engines employed .. ..	6,897	1,865	387	707	42	77	9,975
Approximate value of land and buildings .. .. £	1,236,989	504,230	189,717	a	31,129	a	b2,009,273
Approximate value of plant and machinery .. .. £	2,941,470	1,422,035	1,024,885	a	60,118	a	b6,108,859
Total amount of wages paid during year .. .. £	645,054	576,515	133,892	a	15,946	a	b1,504,509
Value of fuel used .. .. £	116,588	5,644	9,898	a	5,131	a	b 160,360
Value of raw material used .. .. £	1,585,367	658,992	136,575	a	35,076	a	b2,585,367
Total value of output .. .. £	3,346,050	1,608,999	433,307	a	82,789	a	b5,945,238
Value added in process of manufacture .. .. £	1,760,683	950,007	296,732	a	47,713	a	b3,359,881

(a) Information not available for publication. (b) Including South Australia and Tasmania.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1920-21 :—

#### PRODUCTION OF GAS AND COKE WORKS, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
<b>QUANTITY.</b>							
Gas .. 1,000 cub. ft.	9,844,437	4,499,088	1,153,240	a	194,203	a	b16,757,216
Coke .. .. tons	935,138	216,771	67,778	a	6,998	a	b 1,278,939
<b>VALUE.</b>							
Gas .. .. £	1,692,249	1,237,249	356,062	a	65,381	a	b 3,693,129
Coke .. .. £	1,201,761	200,000	62,287	a	10,450	a	b 1,554,724

#### COAL USED.

Coal .. .. tons	1,445,204	339,250	119,544	a	13,894	a	b 1,998,269
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(a) Not available for publication.

(b) Including South Australia and Tasmania.