

## 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 also 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 1912 to 1917, will serve to indicate generally the progress which has been made. Consequent on New South Wales, Victoria, and South Australia furnishing returns for the commercial year ended 30th June, the 1917 manufacturing figures published in this issue for these three States are for the year ended 30th June, 1917, while Queensland, Western Australian, and Tasmanian figures are for the year ended 31st December, 1917.

## NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 TO 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
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## NUMBER OF FACTORIES.

1861	601	531	..	..	..	..	..
1871	1,813	1,740	..	..	..	..	..
1881	2,961	2,488	571 <sup>d</sup>	823 <sup>d</sup>	..	..	..
1891	3,056	3,141	1,328 <sup>d</sup>	996 <sup>d</sup>	175	..	..
1901	3,367	3,240	2,110 <sup>d</sup>	1,335 <sup>d</sup>	662	420 <sup>e</sup>	11,143
1911	5,039	5,126	1,657	1,314	710	609	14,455
1912	5,162	5,263	1,790	1,341	711	611	14,878
1913	5,346	5,613	1,838	1,353	763	623	15,536
1914	5,269 <sup>c</sup>	5,650	1,796	1,323	787	603	15,428
1915	5,269 <sup>c</sup>	5,413	1,775	1,266	780	589	15,092
1916 <sup>a</sup>	5,210	5,413	1,782	1,266	771	568	15,010
1917 <sup>b</sup>	5,356	5,445	1,793	1,286	759	540	15,179

<sup>a</sup> New South Wales for year ended 30th June, 1916; Victoria and South Australia, calendar year 1915; Queensland, Western Australia, and Tasmania, calendar year 1916. <sup>b</sup> New South Wales, Victoria, and South Australia for year ended 30th June, 1917; the remaining States for year ended 31st December, 1917. See last paragraph above. <sup>c</sup> For year ended 30th June, 1915. <sup>d</sup> Not on same basis as other States. <sup>e</sup> For 1902.

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

NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 TO 1917—  
*continued.*

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
NUMBER OF EMPLOYEES.							
1861	..	4,395	..	..	..	..	..
1871	..	13,583	19,569	..	5,629 <sup>d</sup>	..	..
1881	..	31,191	43,209	..	10,995 <sup>d</sup>	..	..
1891	..	50,879	53,525	..	14,099 <sup>d</sup>	..	..
1901	..	66,135	66,529	26,172 <sup>d</sup>	19,233 <sup>d</sup>	12,198	7,466 <sup>e</sup>
1911	..	108,624	111,948	37,156	27,885	15,799	10,298
1912	..	115,561	116,108	40,948	28,500	16,382	9,957
1913	..	120,400	118,744	42,363	28,511	17,299	9,784
1914	..	116,611 <sup>c</sup>	118,399	43,282	26,874	17,640	8,922
1915	..	116,611 <sup>c</sup>	113,834	42,079	25,496	14,631	8,420
1916 <sup>a</sup>	..	116,401	113,834	39,983	25,496	12,676	8,362
1917 <sup>b</sup>	..	117,997	116,970	40,446	26,010	12,168	8,079

For notes see previous page.

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 eleven 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 shows 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.

<p><b>CLASS I.—TREATING RAW MATERIALS, ETC.</b>                      Boiling-down, Tallow Refining, etc.                      Tanneries                      Woolscouring and Fellmongering                      Chaff-cutting, etc.</p>	<p>Confectionery                      Corn-flour, Oatmeal, etc.                      Flour Mills                      Jam and Fruit Canning                      Pickles, Sauces and Vinegar                      Sugar Mills                      Sugar Refining                      Aerated Waters, Cordials, etc.                      Breweries                      Condiments, Coffee, Spices, etc.                      Distilleries                      Ice and Refrigerating                      Malting                      Tobacco, Cigars, etc.</p>	<p><b>CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING.</b>                      Docks and Slips                      Sailmaking                      Ship and Boat Building and Repairing</p>
<p><b>CLASS II.—OILS AND FAT, ETC.</b>                      Oil and Grease                      Soap and Candies</p>	<p><b>CLASS VII.—CLOTHING AND TEXTILE FABRICS.</b>                      Woollen and Tweed Mills                      Boots and Shoes                      Slop Clothing                      Clothing (Tailoring)                      Dressmaking and Millinery—                      Makers' material                      Customers' material                      Dyeworks and Cleaning                      Furriers                      Hats and Caps                      Waterproof and Oilskin                      Shirts, Ties, and Scarfs                      Rope and Cordage                      Tents and Tarpaulins</p>	<p><b>CLASS XIII.—FURNITURE, BEDDING, ETC.</b>                      Bedding, Flock, and Upholstery                      Billiard Tables                      Furniture and Cabinet Making                      Picture Frames                      Window Blinds</p>
<p><b>CLASS III.—STONE, CLAY, GLASS, ETC.</b>                      Bricks and Tiles                      Glass (including Bottles)                      Glass (Ornamental)                      Lime, Plaster, Cement and Asphalt                      Marble, Slate, etc.                      Modelling, etc.                      Pottery and Earthenware</p>	<p><b>CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.</b>                      Electrotyping and Stereotyping                      Paper-making, Paper Boxes, Bags, etc.                      Photo-engraving                      Printing and Binding</p>	<p><b>CLASS XIV.—DRUGS AND CHEMICALS, ETC.</b>                      Chemicals, Drugs, and Medicines                      Fertilisers                      Paints, Varnishes, and By-products</p>
<p><b>CLASS IV.—WORKING IN WOOD.</b>                      Boxes and Cases                      Cooperage                      Joinery                      Saw Mills                      Wood-turning, etc.</p>	<p><b>CLASS IX.—MUSICAL INSTRUMENTS, ETC.</b>                      Musical Instruments and Sewing Machines</p>	<p><b>CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS.</b>                      Surgical, Optical, and other Scientific Instruments</p>
<p><b>CLASS V.—METAL WORKS, MACHINERY, ETC.</b>                      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</p>	<p><b>CLASS X.—ARMS AND EXPLOSIVES.</b>                      Arms and Explosives</p>	<p><b>CLASS XVI.—TIMEPICES, JEWELLERY, AND PLATED WARE.</b>                      Electro-plating                      Manufacturing Jewellery, etc.</p>
<p><b>CLASS VI.—FOOD AND DRINK, ETC.</b>                      Bacon Curing                      Butter Factories                      Butterine and Margarine                      Cheese Factories                      Condensed Milk                      Meat and Fish Preserving                      Biscuits</p>	<p><b>CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.</b>                      Coach and Wagon Building                      Cycles                      Perambulators                      Saddlery, Harness, etc.                      Spokes, etc.</p>	<p><b>CLASS XVII.—HEAT, LIGHT, AND POWER.</b>                      Coke Works                      Electric Apparatus                      Electric Light and Power                      Gas Works and Kerosene                      Lamps and Fittings, etc.                      Hydraulic Power</p>
		<p><b>CLASS XVIII.—LEATHERWARE (N.E.I.).</b>                      Leather Belting, Fancy Leather, Portmanteaux and Bags</p> <p><b>CLASS XIX.—MINOR WARES.</b>                      Basket and Wickerware, Matting, etc.                      Brooms and Brushware                      Rubber Goods                      Toys                      Umbrellas                      Other Industries</p>

§ 2. Number of Factories.

1. **General.**—In stating the number of factories in the States of the Commonwealth, it is to be remembered that in the collection of statistics for years prior to 1907 the same basis has not been adopted in each State. In Queensland, for example, prior to 1906, the statistics included all establishments where two or more hands were employed, except Government railway workshops, which were not included till 1907. The difference in other respects is not material.

In the following table, shewing the total number of factories in the Commonwealth during the years 1903 and 1911 to 1917, it should be noted that the alteration in the

number of factories from year to year does not necessarily indicate a change in the position of the industry, since amalgamations may account for part of the reduction of the numbers. (See § 3, 5.)

### FACTORIES OF THE COMMONWEALTH, 1903 AND 1911 TO 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1903 ..	3,476	4,151	2,001 <sup>d</sup>	906 <sup>d</sup> <sub>e</sub>	586	431	11,551
1911 ..	5,039	5,126	1,657	1,314	710	609	14,455
1912 ..	5,162	5,263	1,790	1,341	711	611	14,878
1913 ..	5,346	5,613	1,838	1,353	763	623	15,536
1914 ..	5,269 <sup>c</sup>	5,650	1,796	1,323	787	603	15,428
1915 ..	5,269 <sup>c</sup>	5,413	1,775	1,266	780	589	15,092
1916 <sup>a</sup> ..	5,210	5,413	1,782	1,266	771	568	15,010
1917 <sup>b</sup> ..	5,356	5,445	1,793	1,286	759	540	15,179

<sup>a</sup> See note <sup>a</sup> first table this section.      <sup>b</sup> See note <sup>b</sup> first table this section.      <sup>c</sup> For year ended 30th June, 1915.      <sup>d</sup> Not on same basis as other States.      <sup>e</sup> 1904 results, those for 1903 not available.

(i) *Classification of Factories in Commonwealth, 1912 to 1917.* The following table shows the total number of factories in the Commonwealth for each year from 1912 to 1917, classified on the basis indicated in § 1, 3 hereof:—

### CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1912 TO 1917.

Class of Industry.	1912.	1913.	1914. <sup>a</sup>	1915. <sup>a</sup>	1916. <sup>b</sup>	1917. <sup>c</sup>
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . . .	871	907	870	839	817	797
II. Treating oils and fats, animal, vegetable, etc. . . . .	102	100	101	99	96	92
III. Processes in stone, clay, glass, etc. . . . .	709	732	706	654	626	606
IV. Working in wood . . . . .	1,752	1,812	1,764	1,702	1,661	1,646
V. Metal works, machinery, etc. . . . .	1,779	1,814	1,824	1,814	1,832	1,802
VI. Connected with food and drink, etc. . . . .	2,331	2,366	2,333	2,328	2,372	2,403
VII. Clothing and textile fabrics, etc. . . . .	3,115	3,266	3,254	3,117	3,085	3,176
VIII. Books, paper, printing and engraving . . . . .	1,158	1,206	1,229	1,225	1,225	1,232
IX. Musical instruments, etc. . . . .	21	21	19	19	20	25
X. Arms and explosives . . . . .	16	20	19	20	21	17
XI. Vehicles and fittings, saddlery and harness, etc. . . . .	1,249	1,396	1,365	1,337	1,334	1,374
XII. Ship and boat building and repairing . . . . .	97	96	93	88	72	74
XIII. Furniture, bedding, and upholstery . . . . .	670	719	703	693	697	704
XIV. Drugs, chemicals, and by-products . . . . .	202	206	213	206	207	238
XV. Surgical and other scientific instruments . . . . .	44	48	52	51	51	63
XVI. Jewellery, timepieces, and platedware . . . . .	177	190	200	199	195	190
XVII. Heat, light, and power . . . . .	372	420	454	474	466	479
XVIII. Leatherware, n.e.i. . . . .	66	67	65	67	69	74
XIX. Minor wares, n.e.i. . . . .	147	150	164	160	164	187
Total . . . . .	14,878	15,536	15,428	15,092	15,010	15,179

<sup>a</sup> New South Wales figures for year ended 30th June, 1915.      <sup>b</sup> See note <sup>a</sup> first table this section.      <sup>c</sup> See note <sup>b</sup> 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 increase in the number of factories according to this table from 1912 to 1917 was 301, or an average of 60 a year. The state of the manufacturing industries throughout Australia cannot, however, be gauged from a mere enumeration of the number of

factories. Some of the factories concerned were practically in their infancy, employing but few hands, while others were developed on a large scale. Also, as pointed out previously, amalgamations may in some instances account for a reduction in the numbers.

(ii) *Classification of Factories in each State, 1917.* The following table shews the number of factories in each State of the Commonwealth, classified according to the nature of the industry. (See classification given in § 1, 3 hereof) :—

CLASSIFICATION OF FACTORIES IN EACH STATE, 1917.

Class of Industry.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wth.
I. Treating raw material, product of agricul. & pastoral pursuits, etc.	256	304	41	107	43c	46c	797
II. Treating oils and fats, animal, vegetable etc.	38	27	14	13	d	d	92
III. Processes in stone, clay, glass, etc.	278	170	36	61	39	22	606
IV. Working in wood	647	424	301	88	61	125	1,646
V. Metal works, machinery, etc.	599	700	203	176	79	40	1,802
VI. Connected with food & drink, etc.	787	635	487	248	138	108	2,403
VII. Clothing and textile fabrics, etc.	1,038	1,441	252	242	136	67	3,176
VIII. Books, paper, printing & engraving	455	445	145	91	72	24	1,232
IX. Musical instruments, etc.	13	9	..	3a	..	..	25
X. Arms and explosives	5	12	..	b	..	..	17
XI. Vehicles and fittings, saddlery and harness, etc.	434	533	145	137	76	49	1,374
XII. Ship and boat building & repairing	35	11	10	8	5	5	74
XIII. Furniture, bedding and upholstery	253	268	73	45	41	19	704
XIV. Drugs, chemicals, and by-products	113	94	3	10	12	6	238
XV. Surgical and other scientific instruments	17	28	7	6	5	..	63
XVI. Jewellery, timepieces & platedware	52	91	18	15	8	6	190
XVII. Heat, light, and power	223	158	32	17	31	18	479
XVIII. Leatherware, n.e.i.	25	38	3	5	3	..	74
XIX. Minor wares, n.e.i.	88	57	13	14	10	5	187
Total .. .. .	5,356	5,445	1,793	1,286	759	540	15,179

a Includes Class X.    b Included in Class IX.    c Includes Class II.    d Included in Class I.

2. *Use of Mechanical Power.*—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 these many factories find it convenient to derive their motive power.

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 :—

UTILISATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1917.

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.
N.S.W., 1916-17	No. 4,272	No. 1,084	No. 5,356	H.P. 159,712	H.P. 13,312	H.P. 1,830	H.P. 61,702	H.P. 274	H.P. 236,830
Vic., 1916-17 ..	4,184	1,261	5,445	81,611	18,651	2,375	34,348	..	136,985
Q'land., 1917 ..	1,399	394	1,793	43,873	9,851	1,716	13,399	27	68,866
S. Aust., 1916-17	1,019	267	1,286	23,913	7,413	1,825	6,992	..	45,143
W. Aust., 1917 ..	611	148	759	39,887	5,365	768	5,814	..	51,834
Tas., 1917 ..	446	94	540	4,350	233	173	9,564	6,283	20,603
Commonwealth	11,931	3,248	15,179	358,346	54,825	8,687	131,819	6,584	560,261

A comparison of the above table with that immediately preceding will explain the preponderance of horse-power employed in the New South Wales factories, this State possessing by far 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 utilised.

The number of establishments in the Commonwealth using machinery worked by steam, gas, oil, or electricity was 11,931, or 78.60 per cent. of the total; 3,248 establishments, representing 21.40 per cent., used no mechanical power. The total actual horse-power in use was 560,261, distributed in the following proportions:—Steam, 63.96 per cent.; gas, 9.79 per cent.; oil, 1.55 per cent.; electricity, 23.53 per cent.; and water, 1.17 per cent.

The following table shews the horse-power of engines used in connection with factories in the Commonwealth during each of the last six years:—

**UTILISATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH,  
1912 TO 1917.**

Year.	Number of Establishments.			Actual Horse-power of Engines used.					
	Using Machinery worked by Steam, Gas, Oil or Electricity.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
1912 ..	10,558	4,320	14,878	284,228	43,905	6,829	56,797	..	391,759
1913 ..	11,239	4,237	15,536	313,085	48,677	8,142	72,250	..	442,154
1914a ..	11,396	4,032	15,428	336,766	50,976	8,542	95,253	..	491,537
1915a ..	11,438	3,654	15,092	333,494	54,994	8,558	107,788	..	504,834
1916b ..	11,550	3,460	15,010	349,157	53,921	8,541	118,149	..	529,768
1917c ..	11,931	3,248	15,179	358,346	54,825	8,687	131,819	6,584	560,261

a New South Wales figures for year ended 30th June, 1915. b See note a first table this section.  
c See note b first table this section.

During the last five years the number of establishments using mechanical power has increased 13 per cent., the actual horse-power of engines used increasing over 43 per cent. during the same period.

### § 3. 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 6 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, 1912 to 1917.* The following table shews, for each year from 1912 to 1917 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, 1912 TO 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
AVERAGE NUMBER.							
1912 .. ..	115,561	116,108	40,948	28,500	16,382	9,957	327,456
1913 .. ..	120,400	118,744	42,363	28,511	17,299	9,784	337,101
1914 .. ..	116,611 <sup>a</sup>	118,399	43,282	26,874	17,640	8,922	331,728
1915 .. ..	116,611 <sup>a</sup>	113,834	42,079	25,496	14,631	8,420	321,071
1916 <sup>b</sup> .. ..	116,401	113,834	39,983	25,496	12,676	8,362	316,752
1917 <sup>c</sup> .. ..	117,997	116,970	40,446	26,010	12,168	8,079	321,670

PERCENTAGE ON COMMONWEALTH TOTAL.							
	%	%	%	%	%	%	%
1912 .. ..	35.29	35.46	12.51	8.70	5.00	3.04	100.00
1913 .. ..	35.72	35.22	12.57	8.46	5.13	2.90	100.00
1914 .. ..	35.15	35.69	13.05	8.10	5.32	2.69	100.00
1915 .. ..	36.32	35.45	13.11	7.94	4.56	2.62	100.00
1916 <sup>b</sup> .. ..	36.75	35.94	12.62	8.05	4.00	2.64	100.00
1917 <sup>c</sup> .. ..	36.68	36.37	12.57	8.09	3.78	2.51	100.00

PER 10,000 OF MEAN POPULATION.							
1912 .. ..	665	856	648	676	543	519	705
1913 .. ..	665	852	649	658	551	499	702
1914 .. ..	626 <sup>a</sup>	832	641	611	545	450	674
1915 .. ..	626 <sup>a</sup>	798	612	580	454	422	650
1916 <sup>b</sup> .. ..	622	798	590	580	403	422	642
1917 <sup>c</sup> .. ..	635	836	600	601	394	406	659

<sup>a</sup> For year ended 30th June, 1915. <sup>b</sup> See note <sup>a</sup> first table this section.  
<sup>c</sup> See note <sup>b</sup> first table this section.

(ii) *Rates of Increase, 1912 to 1917.* The following table shews the percentage of increase or decrease on the average number of persons employed for the preceding year from 1913 to 1917. The figures for the past four 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, 1913 TO 1917.**

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1912-13 ..	4.19	2.27	3.46	0.04	5.60	-1.74	2.95
1913-14 ..	-3.27 <sup>a</sup>	-0.29	2.17	-5.74	1.97	-8.81	-1.64
1914-15 ..	-3.27 <sup>a</sup>	-3.86	-2.78	-5.13	-17.06	-5.63	-3.21
1915-16 <sup>b</sup> ..	-0.18	-3.86	-4.98	-5.13	-13.36	-0.69	-1.35
1916-17 <sup>c</sup> ..	1.37	2.75	1.16	2.02	-4.01	-3.38	1.55

Note.—The minus sign (-) indicates decrease.  
<sup>a</sup> Eighteen months ended 30th June, 1915. <sup>b</sup> See note <sup>a</sup> first table this section.  
<sup>c</sup> See note <sup>b</sup> first table this section.

2. Classification of Numbers Employed in Factories in the Commonwealth, 1912 to 1917.—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1912 to 1917 inclusive :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES  
IN THE COMMONWEALTH, 1912 TO 1917.**

Class of Industry.	1912.	1913.	1914. <i>a</i>	1915. <i>a</i>	1916. <i>b</i>	1917. <i>c</i>
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	9,624	9,495	9,221	9,306	9,009	9,411
II. Treating oils and fats, animal, vegetable, etc.	2,091	2,091	2,259	2,523	2,399	2,554
III. Processes in stone, clay, glass, etc.	12,909	13,794	13,570	12,616	11,604	10,949
IV. Working in wood	30,660	31,646	30,137	26,030	23,336	22,079
V. Metal works, machinery, etc.	66,472	68,839	66,112	65,368	65,850	62,115
VI. Connected with food and drink, etc.	46,812	49,882	51,980	49,266	48,272	52,781
VII. Clothing and textile fabrics, etc.	84,661	84,237	81,076	78,952	80,292	83,201
VIII. Books, paper, printing and engraving	25,077	26,013	25,213	24,928	24,890	24,954
IX. Musical instruments, etc.	628	616	542	515	542	652
X. Arms and explosives	899	1,240	1,674	2,028	2,571	2,951
XI. Vehicles and fittings, saddlery and harness, etc.	13,400	13,913	13,125	12,350	12,006	12,196
XII. Ship and boat building and repairing	3,821	4,216	5,633	6,097	4,605	4,953
XIII. Furniture, bedding, and upholstery	10,405	10,462	9,534	8,961	8,716	9,072
XIV. Drugs, chemicals, and by-products	4,381	4,328	4,490	4,601	4,738	5,036
XV. Surgical & other scientific instruments	238	264	282	301	293	361
XVI. Jewellery, timepieces, and platedware	2,302	2,170	2,026	1,878	1,835	1,975
XVII. Heat, light, and power	8,550	9,394	9,942	9,939	10,018	10,329
XVIII. Leatherware, n.e.i.	1,231	1,204	1,217	1,292	1,376	1,488
XIX. Minor wares, n.e.i.	3,295	3,297	3,695	4,120	4,400	4,613
Total	327,456	337,101	331,728	321,071	316,752	321,670

*a* New South Wales figures for year ended 30th June, 1915. *b* See note *a* first table this section.

*c* See note *b* first table this section.

There was a total decrease in the average number of hands employed from 1912 to 1917 of 5,786, or an annual average of 1,157. The greatest decline occurred in Classes III., IV., and V., the decreases being 1,960, 3,581, and 4,357 respectively. Increases occurred in Classes II., VI., IX., X., XII., XIV., XV., XVII., XVIII., and XIX.

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

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES  
IN EACH STATE, 1917.**

Class of Industry.	N.S.W. 1916-17.	Vic. 1916-17	Q'land. 1917.	S.A. 1916-17	W.A. 1917.	Tas. 1917.	C'wth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	3,659	3,535	665	834	335 <i>c</i>	383 <i>c</i>	9,411
II. Treating oils and fats, animal, vegetable, etc.	1,301	796	174	283	<i>d</i>	<i>d</i>	2,554
III. Processes in stone, clay, glass, etc.	5,321	3,519	423	1,026	424	236	10,949
IV. Working in wood	7,155	6,386	4,110	1,064	2,018	1,396	22,079
V. Metal works, machinery, etc.	27,090	17,180	5,575	8,448	2,528	1,294	62,115
VI. Connected with food and drink, etc.	15,520	15,354	15,247	3,383	1,594	1,703	52,781
VII. Clothing and textile fabrics, etc.	26,221	41,233	7,297	4,833	2,322	1,295	83,201
VIII. Books, paper, printing, and engraving	9,529	8,830	2,983	1,824	1,080	708	24,954
IX. Musical instruments, etc.	431	198	..	23 <i>a</i>	..	..	652
X. Arms and explosives	1,354	1,597	..	<i>b</i>	..	..	2,951
XI. Vehicles and fittings, saddlery, and harness, etc.	4,137	4,575	1,256	1,317	538	373	12,196
XII. Ship and boat building & repairing	4,185	464	134	112	27	31	4,953
XIII. Furniture, bedding, and upholstery	3,636	2,766	1,155	820	398	297	9,072
XIV. Drugs, chemicals, and by-products	1,812	2,086	84	674	359	21	5,036
XV. Surgical and other scientific instruments	147	135	34	25	20	..	361
XVI. Jewellery, timepieces, & platedware	689	948	125	123	58	32	1,975
XVII. Heat, light, and power	3,728	4,164	897	959	308	273	10,329
XVIII. Leatherware, n.e.i.	602	711	98	54	23	..	1,488
XIX. Minor wares, n.e.i.	1,480	2,563	189	208	136	37	4,613
Total	117,997	116,970	40,446	26,010	12,168	8,079	321,670

*a* Includes Class X. *b* Included in Class IX. *c* Includes Class II. *d* Included in Class I.



The largest number employed in any particular class in the Commonwealth was in Class VII., in which there were 83,201 employees, or 25.87 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 361 hands, or 0.11 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 4, 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 are classified according to the nature of their employment :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED ACCORDING TO NATURE OF EMPLOYMENT, 1917.**

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 <sup>a</sup>	Carters, Messengers, and Others.	
N.S. Wales, 1916-17	4,007	3,968	5,167	2,843	99,171	2,836	117,997
Victoria, 1916-17 ..	5,201	3,619	4,345	1,758	98,520	3,527	116,970
Queensland, 1917 ..	1,493	1,557	1,867	1,755	31,694	2,080	40,446
S. Australia, 1916-17	1,172	994	1,213	566	21,530	535	26,010
W. Australia, 1917	491	604	578	371	9,688	436	12,168
Tasmania, 1917 ..	383	353	419	277	6,351	296	8,079
Commonwealth	12,747	11,095	13,589	7,575	266,954	9,710	321,670

<sup>a</sup> Including outworkers.

5. Classification of Factories according to Number of Hands Employed.—(i) The number of factories in each State classified according to number of hands employed, and the average number of hands employed therein, are shewn in the following table :—

**CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1917.**

No. of Persons Employed in each Factory.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tasmania. 1917.	C'wealth.
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**NUMBER OF FACTORIES.**

Under 4 ..	976	1,165	343	216	169	127	2,996
4 ..	548	595	178	166	86	56	1,629
5 to 10 ..	1,795	1,744	560	472	248	188	5,007
11 to 20 ..	945	867	309	198	130	77	2,526
21 to 50 ..	671	647	241	138	84	67	1,848
51 to 100 ..	230	236	79	55	25	18	643
Over 100 ..	191	191	83	41	17	7	530
Total ..	5,356	5,445	1,793	1,286	759	540	15,179

**AVERAGE NUMBER OF HANDS EMPLOYED.**

Under 4 ..	2,206	2,632	748	531	344	270	6,731
4 ..	2,192	2,380	712	664	344	224	6,516
5 to 10 ..	12,345	12,033	3,892	3,228	1,735	1,267	34,500
11 to 20 ..	13,915	12,616	4,561	2,823	1,898	1,125	36,938
21 to 50 ..	20,922	20,427	7,510	4,382	2,670	2,091	58,002
51 to 100 ..	16,194	16,219	5,570	3,723	1,736	1,251	44,693
Over 100 ..	50,223	50,663	17,453	10,659	3,441	1,851	134,290
Total	117,997	116,970	40,446	26,010	12,168	8,079	321,670

(ii) 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 26.63 per cent. in 1912 to 26.33 in 1917. A heavier falling-off appears in establishments employing from 21 to 100 hands, viz., 33.94 to 31.92 per cent. The larger establishments with 101 hands and upwards during the same period exhibit an increase from 39.43 to 41.75 per cent. of total employed. The average number of hands per establishment in 1912 was 22.01, and in 1917, 21.19.

**CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO NUMBER OF HANDS EMPLOYED DURING THE YEARS 1912 TO 1917.**

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.
1912—								
Number .. .. .	11,660	87,231	2,673	111,126	545	129,099	14,878	327,456
Average per establishment .. .. .		7.48		41.57		236.88		22.01
Percentage on total .. .. .	78.37	26.63	17.97	33.94	3.66	39.43	100.00	100.00
1913—								
Number .. .. .	12,280	90,005	2,676	109,704	580	137,392	15,536	337,101
Average per establishment .. .. .		7.33		41.00		236.88		21.70
Percentage on total .. .. .	79.04	26.70	17.23	32.54	3.73	40.76	100.00	100.00
1914a—								
Number .. .. .	12,284	88,071	2,589	106,584	554	136,924	15,427	331,579
Average per establishment .. .. .		7.17		41.16		247.15		21.49
Percentage on total .. .. .	79.62	26.56	16.79	32.14	3.59	41.30	100.00	100.00
1915a—								
Number .. .. .	12,106	84,545	2,445	101,722	541	134,804	15,092	321,071
Average per establishment .. .. .		6.99		41.60		249.18		21.27
Percentage on total .. .. .	80.22	26.33	16.20	31.68	3.58	41.99	100.00	100.00
1916b—								
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
1917c—								
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

a New South Wales figures for year ended 30th June, 1915. b See note a first table this section.  
c See note b first table this section.

6. **Outworkers.**—The term “outworker” or “homeworker” has acquired a special meaning in connection 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 1912 to 1917 inclusive :—

**NUMBER OF OUTWORKERS(a) CONNECTED WITH FACTORIES, 1912 TO 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1912 .. .. .	895	1,959	140	71	14	86	3,165
1913 .. .. .	724	1,910	122	54	7	72	2,889
1914 .. .. .	582b	1,737	117	58	8	58	2,560
1915 .. .. .	582b	1,473	92	44	6	70	2,267
1916c .. .. .	577	1,473	99	44	6	35	2,234
1917d .. .. .	677	1,814	89	41	5	32	2,658

a In all tables relating to number of hands employed in factories, outworkers are included.  
b Year ended 30th June, 1915. c See note a first table this section. d See note b 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 *Industrial Unionism and Industrial Legislation*.)

#### § 4. 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, overtime being 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 *Industrial Unionism and Industrial Legislation*.)

2. **Distribution of Employees according to Sex, 1912 to 1917.**—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 just below 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 more than one to two. In South Australia and Western Australia the ratio at the latest date was one female employed to every four males, while Queensland was slightly less than one to four, and Tasmania less than one to five. The ratio for the whole of the Commonwealth was more than one to three. The employment of women is, however, largely 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, 1912 to 1917.* The following table shews the average number of male and female employees in factories in each State from 1912 to 1917:—

#### AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1912 TO 1917.

State.	1912.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i>
MALES.						
New South Wales ..	88,178	93,036	90,394 <sup>a</sup>	90,394 <sup>a</sup>	87,724	88,910
Victoria ..	77,565	80,054	79,772	75,971	75,971	74,924
Queensland ..	33,254	34,715	35,717	34,387	32,235	32,763
South Australia ..	23,083	23,323	22,111	20,772	20,772	20,798
Western Australia ..	13,805	14,625	14,996	12,290	10,259	9,704
Tasmania ..	8,391	8,354	7,613	7,161	7,046	6,860
Commonwealth ..	244,276	254,107	250,603	240,975	234,007	233,959

<sup>a</sup> Year ended 30th June, 1915.      <sup>b</sup> See note *a* first table this section.  
<sup>c</sup> See note *b* first table this section.

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN  
MANUFACTURING INDUSTRIES, 1912 TO 1917—*continued.*

State.	1912.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i>
FEMALES.						
New South Wales ..	27,383	27,364	26,217 <sup>a</sup>	26,217 <sup>a</sup>	28,677	29,087
Victoria ..	38,543	38,690	38,827	37,863	37,863	42,046
Queensland ..	7,694	7,648	7,565	7,692	7,748	7,683
South Australia ..	5,417	5,188	4,763	4,724	4,724	5,212
Western Australia ..	2,577	2,674	2,644	2,341	2,417	2,464
Tasmania ..	1,566	1,430	1,309	1,259	1,316	1,219
Commonwealth ..	83,180	82,994	81,125	80,096	82,745	87,711

<sup>a</sup> Year ended 30th June, 1915.    <sup>b</sup> See note *a* first table this section.  
<sup>c</sup> See note *b* first table this section.

It will be seen that during the years specified there has been for the whole Commonwealth a total decrease in the number of male employees of 10,317, or an annual average of 2,063, whilst the number of female employees has shewn a total increase of 4,531, or an annual average of 906. The decline in the number of males employed since 1913 is, of course, due in a large measure to the disorganising effect of the war.

(ii) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1912 to 1917.* The following table shews the average number of male and female employees per 10,000 of the mean male and female population respectively in each State from 1912 to 1917 :—

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000  
OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1912 TO 1917.

State.	1912.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i>
MALES.						
New South Wales ..	967	979	935 <sup>a</sup>	935 <sup>a</sup>	920	963
Victoria ..	1,145	1,151	1,119	1,077	1,077	1,125
Queensland ..	970	982	978	932	910	948
South Australia ..	1,077	1,062	1,002	960	960	1,030
Western Australia ..	802	823	826	696	615	612
Tasmania ..	854	823	741	702	706	690
Commonwealth ..	1,009	1,015	981	948	936	975
FEMALES.						
New South Wales ..	332	319	293 <sup>a</sup>	293 <sup>a</sup>	313	311
Victoria ..	567	555	543	525	525	574
Queensland ..	266	256	244	242	239	234
South Australia ..	261	242	217	212	212	226
Western Australia ..	199	196	186	161	163	164
Tasmania ..	168	151	137	129	134	122
Commonwealth ..	374	361	342	333	340	354

<sup>a</sup> Year ended 30th June, 1915.    <sup>b</sup> See note *a* first table this section.  
<sup>c</sup> See note *b* first table this section.

3. Rate of Variation for each Sex.—The percentages of annual increase or decrease during the years 1913 to 1917 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shewn below :—

PERCENTAGE OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1913 TO 1917.

State.	1912-13.	1913-14.	1914-15.	1915-16. <i>b</i>	1916-17. <i>c</i>
<b>MALES.</b>					
	%	%	%	%	%
New South Wales ..	5.51	-2.84 <sub>a</sub>	-2.84 <sub>a</sub>	-2.95	1.35
Victoria ..	3.21	-0.35	-4.76	-4.76	-1.38
Queensland ..	4.39	2.89	-3.72	-6.26	1.64
South Australia ..	1.04	-5.20	-6.06	-6.06	0.13
Western Australia ..	5.94	2.54	-18.04	-16.53	-5.41
Tasmania ..	-0.44	-8.87	-5.94	-1.61	-2.64
Commonwealth ..	4.02	-1.38	-4.90	-2.89	-0.02
<b>FEMALES.</b>					
New South Wales ..	-0.07	-4.19 <sub>a</sub>	-4.19 <sub>a</sub>	9.38	1.43
Victoria ..	0.38	-0.16	-1.98	-1.98	11.05
Queensland ..	-0.60	-1.08	1.68	0.73	-0.84
South Australia ..	-4.23	-8.19	-0.82	-0.82	10.33
Western Australia ..	3.76	-1.12	-11.46	3.25	1.94
Tasmania ..	-8.68	-8.46	-3.82	4.55	-7.37
Commonwealth ..	-0.22	-2.25	-1.27	3.31	6.00

Note.—The minus (-) sign indicates decrease.

*a* Eighteen months ended 30th June, 1915. *b* See note *a* first table this section.

*c* See note *b* first table this section.

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 1912 to 1917 inclusive :—

EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED, 1912 TO 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1912 .. ..	52.6	33.6	62.4	62.0	68.6	68.6	49.2
1913 .. ..	54.5	34.8	63.9	63.6	69.1	70.8	50.8
1914 .. ..	55.0 <sub>a</sub>	34.8	65.0	64.6	70.0	70.7	51.1
1915 .. ..	55.0 <sub>a</sub>	33.5	63.4	62.9	68.0	70.1	50.1
1916 <sub>b</sub> .. ..	50.7	33.5	61.2	62.9	61.9	68.5	47.8
1917 <sub>c</sub> .. ..	50.7	28.1	62.0	59.9	59.5	69.8	45.5

*a* Year ended 30th June, 1915. *b* See note *a* first table this section.

*c* See note *b* first table this section.

Since 1914, owing principally to the war, the excess of males employed over females per 100 of both sexes combined has gradually declined from 51.1 in 1914 to 45.5 in 1917 for the Commonwealth as a whole. This decline is in evidence in all the States. 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 largely confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII., viz., in connection 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, 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, 1917.**

Class.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
<b>AVERAGE NUMBER.</b>							
VI. Food, drink, etc. . . . .	4,093	4,326	937	561	242	218	10,377
VII. Clothing and textile fabrics . . . . .	19,020	30,341	5,537	3,594	1,808	815	61,615
VIII. Books, paper, printing, etc. . . . .	2,576	2,626	738	548	252	98	6,836
All other classes . . . . .	3,398	4,253	471	509	162	90	8,883
<b>Total . . . . .</b>	<b>29,087</b>	<b>42,046</b>	<b>7,683</b>	<b>5,212</b>	<b>2,464</b>	<b>1,219</b>	<b>87,711</b>

<b>PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.</b>							
VI. Food, drink, etc. . . . .	14.07	10.29	12.20	10.76	9.82	17.88	11.83
VII. Clothing and textile fabrics . . . . .	65.39	73.35	72.07	68.96	73.38	66.86	70.25
VIII. Books, paper, printing, etc. . . . .	8.86	6.24	9.60	10.51	10.23	7.88	7.79
All other classes . . . . .	11.68	10.12	6.13	9.77	6.57	7.38	10.13
<b>Total . . . . .</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

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 1917.**

Industry.	New South Wales. 1916-17.			Victoria. 1916-17.			Other States <sup>a</sup>		
	Males.	Females	Femi- ninity. <i>b</i>	Males.	Females	Femi- ninity. <i>b</i>	Males.	Females	Femi- ninity. <i>b</i>
Woolen and tweed mills	444	590	14.12	926	1,123	9.61	297	375	11.61
Boots and shoes . . . . .	2,694	1,702	-22.57	5,048	3,446	-18.86	1,514	882	-26.38
Slop clothing Clothing (tailoring) Dressmaking and milli- nery . . . . .	2,546	7,311	48.34	2,115	7,789	57.29	1,743	5,295	50.47
Dyeworks and cleaning	173	5,660	94.07	298	8,723	93.39	33	3,324	98.03
Furriers . . . . .	83	89	3.49	73	87	3.75	..	..	..
Hats and caps . . . . .	33	60	29.03	84	208	42.47	..	..	..
Waterproof and oilskin	468	895	31.33	657	1,052	23.11	71	116	24.06
Shirts, ties, and scarfs	50	185	57.45	46	160	55.34	..	..	..
Rope and cordage . . . . .	238	2,232	80.73	458	7,588	88.62	79	1,519	90.11
Tents and tarpaulins . . . . .	299	16	-89.84	553	413	-14.49	169	156	-4.00
Other . . . . .	171	277	23.66	121	120	-0.41	87	87	..
. . . . .	2	3	20.00	13	132	82.07	..	..	..
<b>Total, Class VII. . . . .</b>	<b>7,201</b>	<b>19,020</b>	<b>45.07</b>	<b>10,392</b>	<b>30,841</b>	<b>49.59</b>	<b>3,993</b>	<b>11,754</b>	<b>49.29</b>

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

<sup>a</sup> See note *b* first table this section. *b* Excess of females over males per 100 of both sexes combined.

### § 5. 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, 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 *Industrial Unionism and Industrial Legislation.*) 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, 1912 to 1917.**—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 1912 to 1917 :—

#### AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1912 TO 1917.

State.	1912.	1913.	1914.	1915.	1916. <sup>b</sup>	1917. <sup>c</sup>
MALES.						
New South Wales ..	2,225	2,385	2,437 <sup>a</sup>	2,437 <sup>a</sup>	2,578	2,604
Victoria ..	2,652	2,743	2,898	3,355	3,355	3,072
Queensland ..	1,114	1,122	1,148	1,247	1,197	1,170
South Australia ..	1,078	1,122	1,064	1,068	1,068	844
Western Australia ..	356	346	381	414	398	408
Tasmania ..	322	283	213	262	217	253
Commonwealth ..	7,747	8,001	8,141	8,783	8,813	8,351
FEMALES.						
New South Wales ..	2,093	2,086	2,326 <sup>a</sup>	2,326 <sup>a</sup>	2,605	2,449
Victoria ..	1,740	1,840	1,816	2,197	2,197	2,301
Queensland ..	764	701	713	835	745	704
South Australia ..	704	611	522	591	591	586
Western Australia ..	334	360	361	311	271	314
Tasmania ..	121	141	77	97	102	89
Commonwealth ..	5,756	5,739	5,815	6,357	6,511	6,443
TOTAL						
New South Wales ..	4,318	4,471	4,763 <sup>a</sup>	4,763 <sup>a</sup>	5,183	5,053
Victoria ..	4,392	4,583	4,714	5,552	5,552	5,373
Queensland ..	1,878	1,823	1,861	2,082	1,942	1,874
South Australia ..	1,782	1,733	1,586	1,659	1,659	1,430
Western Australia ..	690	706	742	725	669	722
Tasmania ..	443	424	290	359	319	342
Commonwealth ..	13,503	13,740	13,956	15,140	15,324	14,794

<sup>a</sup> Year ended 30th June, 1915. <sup>b</sup> See note <sup>a</sup> first table this section.

<sup>c</sup> See note <sup>b</sup> first table this section.

3. **Percentage of Children on Total Persons Employed.**—The foregoing table shows a general increase in several of the States in the number of children employed in factories during the past quinquennial period. The increase for the first year, however, when examined in conjunction with the total number of persons employed, shows a fairly regular decrease in the percentage of child labour. In 1914 there were both an actual and a percentage increase in several of the States, and in all of them during 1915. In 1916 New South Wales was the only State to show an actual increase, but percentage increases occurred in New South Wales and Western Australia, while Queensland and Tasmania showed decreases both actual and per cent. on total employees.

The 1917 figures reveal an actual and percentage decrease in all the States with the exception of Western Australia and Tasmania, where slight increases were recorded.

**PERCENTAGE OF CHILDREN IN FACTORIES ON TOTAL NUMBER OF EMPLOYEES, 1912 TO 1917.**

State.	1912.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i> ]
New South Wales ..	3.74	3.71	4.08 <sub>a</sub>	4.08 <sub>a</sub>	4.45	4.28
Victoria .. .. .	3.78	3.86	3.98	4.88	4.88	4.59
Queensland .. .	4.59	4.30	4.30	4.95	4.86	4.63
South Australia ..	6.25	6.08	5.90	6.51	6.51	5.50
Western Australia ..	4.21	4.08	4.21	4.96	5.28	5.93
Tasmania .. . . .	4.45	4.33	3.25	4.26	3.81	4.23
Commonwealth ..	4.12	4.08	4.21	4.72	4.84	4.60

*a* Year ended 30th June, 1915. *b* See note *a* first table this section.

*c* See note *b* 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 shows the average number of children of each sex employed in the several industries indicated in each State :—

**NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1917.**

Class.	Industry.	N.S.W. 1916-17.		Victoria. 1916-17.		Q'land. 1917.		S. Aust. 1916-17.		W. Aust. 1917.		Tas. 1917.		C'wealth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
IV.	Joinery, boxes, cases, etc. . . . .	81	..	80	..	21	..	28	..	18	1	7	..	235	1
"	Saw mills .. . . .	62	..	19	..	51	2	5	..	6	..	35	..	178	2
V.	Engineering, ironworks, and foundries	223	7	354	2	47	..	76	..	59	1	9	..	768	10
"	Galvanised ironworking and tinsmithing	77	19	113	62	53	2	54	4	..	..	4	..	301	87
"	Railway carriage, railway and tramway workshops	104	..	112	..	19	..	85	..	13	..	3	..	336	..
VI.	Meat & fish preserving	5	7	37	..	114	3	..	..	..	..	..	..	156	10
"	Biscuits .. . . .	157	91	73	34	22	20	8	9	25	18	24	7	309	179
"	Confectionery .. .	43	79	47	82	23	46	28	21	7	16	1	..	149	244
"	Jams, pickles, sauces, etc. . . . .	17	10	16	14	26	16	27	31	2	4	19	1	107	76
"	Tobacco, cigars, etc.	82	93	44	32	2	3	..	..	2	2	..	..	130	130
VII.	Woollen, cotton, and tweed mills	35	69	121	99	8	20	5	16	..	..	3	6	172	210
"	Boots and shoes ..	158	235	250	327	41	61	40	40	17	13	16	7	522	683
"	Clothing (tailoring and slop)	80	446	75	277	53	192	17	99	13	34	8	15	246	1,063
"	Dressmaking and millinery .. . . .	10	490	11	495	1	153	..	134	1	135	..	30	23	1,437
"	Hats and caps .. .	32	75	48	27	..	3	2	6	..	..	..	..	82	111
"	Shirts, ties, scarfs, etc.	20	185	15	442	6	68	2	87	2	48	..	..	45	830
VIII.	Electrotyping, printing and binding .. .	341	212	343	133	223	54	77	27	46	16	24	10	1,054	452
"	Paper making, paper boxes, etc. . . . .	50	110	30	50	3	13	18	55	1	8	..	..	102	236
XI.	Coach and wagon building .. . . .	66	1	88	..	31	..	31	..	5	..	18	..	239	1
"	Cycles and motors ..	46	3	72	..	25	1	43	2	17	1	12	..	215	7
XIII.	Billiard tables, cabinet making and furniture	74	1	65	1	65	4	32	..	27	..	19	..	282	6



5. **Apprenticeship.**—It is obvious that the age of apprenticeship in each State must be limited by the conditions governing the employment of child labour in factories. The early Apprentices Acts in some of the States are apparently in conflict on this point with the Factories Acts. The statutes limiting the age at which children may begin to work may be regarded as applicable by way of preventing too early apprenticeship, as may also those directing that education be continued up to a certain age or standard.

Indentures must be entered into specifying the conditions of the employment. Apprenticeships may not exceed seven years in duration, and usually become inoperative at twenty-one years of age, or in the case of women, on marriage. In Tasmania, however, the section of the Wages Boards Act 1910 which deals with apprentices has been amended to provide for the issue of licenses by the Minister to enable persons to complete their term of apprenticeship after the age of twenty-one if necessary.

The Arbitration Courts and Wages Boards have power to limit the number of apprentices which may be taken into a factory and specify the term of apprenticeship. No general statistics of the number of apprentices in Australia have been collected up to the present time. Various enactments relating to child labour are referred to in the Section of this book dealing with *Industrial Unionism and Industrial Legislation*.

### § 6. 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 1917 was £206,386,646, of which amount the sum of £132,283,096 represents the value of the raw materials used. The difference between these two amounts, viz., £74,103,550, 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 1917 was £36,618,218.

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

AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES  
IN COMMONWEALTH, 1917.(a)

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	456,731	389,287	85,928	80,666	30,005 <sup>d</sup>	23,233 <sup>d</sup>	1,065,850
II. Treating oils and fats, animal, vegetable, etc. . .	150,175	97,201	19,967	31,560	e	e	298,903
III. Processes in stone, clay, glass, etc. . .	668,512	430,696	51,191	123,183	53,163	19,310	1,346,055
IV. Working in wood . .	860,556	747,568	480,897	146,198	315,970	143,393	2,694,582
V. Metal works, machinery, etc. . .	4,239,046	2,232,273	788,658	1,315,331	400,985	183,390	9,159,683
VI. Connected with food and drink, etc. . .	1,849,842	1,722,458	2,157,740	369,687	217,766	164,996	6,482,489
VII. Clothing and textile fabrics, etc. . .	2,053,388	2,884,445	479,625	322,537	167,438	89,467	5,996,900
VIII. Books, paper, printing and engraving . .	1,181,368	1,024,259	370,595	188,236	161,409	92,202	3,018,069
IX. Musical instruments, etc.	58,873	25,146	..	2,342 <sup>b</sup>	..	..	86,361
X. Arms and explosives	239,492	176,106	..	c	..	..	415,598
XI. Vehicles & fittings, saddlery & harness, etc.	462,983	463,177	121,483	145,058	60,581	34,767	1,288,049

a Excluding all amounts drawn by working proprietors. b Includes Class X. c Included in Class IX. d Includes Class II. e Included in Class I.

**AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN  
COMMONWEALTH, 1917(a)—continued.**

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
	£	£	£	£	£	£	£
XII. Ship and boat building and repairing . . .	674,056	67,235	13,599	13,873	4,114	2,888	775,765
XIII. Furniture, bedding and upholstery . . .	392,566	273,207	120,878	87,869	49,458	26,187	950,165
XIV. Drugs, chemicals, and by-products . . .	196,135	236,495	6,011	84,296	49,882	1,029	573,848
XV. Surgical & other scientific instruments . . .	17,336	11,383	4,175	2,682	1,620	..	37,196
XVI. Jewellery, timepieces, and platedware . . .	89,171	97,135	12,983	15,580	6,601	3,266	224,736
XVII. Heat, light and power . . .	590,355	619,462	147,327	141,858	58,473	52,007	1,609,482
XVIII. Leatherware, n.e.i. . .	57,703	58,083	8,830	4,168	1,433	..	130,217
XIX. Minor wares, n.e.i. . .	143,021	277,901	10,053	18,970	11,798	2,527	464,270
Total . . .	14,381,309	11,833,517	4,879,940	3,094,094	1,590,696	838,662	36,618,218

*a* Excluding all amounts drawn by working proprietors.

The maximum amount of salaries and wages paid in any particular class was in Class V., the amount being £9,159,683, or 25 per cent. on the total amount; the minimum amount was in Class XV., £37,196, or 0.10 per cent. on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shows the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1912 to 1917; 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, 1912 TO 1917.**

Year.	Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
		£	£	£	£	£	£	£
1912	Total amount paid . . .	11,592,052	10,102,244	3,699,065	2,869,653	2,169,144	855,334	31,287,492
	Average per employee . . .	104.44	91.19	93.88	105.63	136.65	90.41	99.74
1913	Total amount paid . . .	12,683,384	10,714,336	4,075,191	3,034,537	2,215,187	883,452	33,606,087
	Average per employee . . .	109.66	94.74	100.05	111.66	132.31	95.18	104.14
1914 <sup>a</sup>	Total amount paid . . .	12,667,721	11,099,940	4,211,489	2,946,296	2,342,428	835,829	34,103,703
	Average per employee . . .	112.94	98.50	100.91	115.31	137.30	98.82	107.36
1915 <sup>a</sup>	Total amount paid . . .	12,667,721	11,036,345	4,226,635	2,705,130	1,791,276	783,547	33,210,654
	Average per employee . . .	112.94	101.75	104.21	111.53	127.31	97.82	108.00
1916 <sup>b</sup>	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	111.53	136.29	104.88	111.35
1917 <sup>c</sup>	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

*a* New South Wales figures for year ended 30th June, 1915. *b* See note *a* first table this section.  
*c* See note *b* 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. The position occupied by Western Australia is principally due to the high ratio of male to female employees in that State.

It will be noted that there has been a persistent 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 1912-17 there has been an increase of 17 per cent. on the total amount of wages paid, and nearly 19 per cent. on the average paid per employee.

The following tables shew the approximate amount paid in salaries and wages to males and females in each class of industry in each State during 1917, 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 1917.**

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
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**MALES.**

	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . . .	450,405	388,071	85,554	80,098	d29,888	d22,843	1,056,859
II. Treating oils and fats, animal, vegetable, etc. . . . .	134,557	91,404	19,374	30,263	e	e	275,598
III. Processes in stone, clay, glass, etc. . . . .	663,646	425,915	50,848	122,703	52,713	19,196	1,335,021
IV. Working in wood . . . . .	853,055	741,687	477,197	144,653	315,514	142,383	2,674,489
V. Metal works, machinery, etc. . . . .	4,205,241	2,208,597	793,399	1,309,105	398,346	182,998	9,087,686
VI. Connected with food and drink, etc. . . . .	1,623,178	1,478,476	2,109,112	347,604	206,565	154,864	5,919,799
VII. Clothing and textile fabrics, etc. . . . .	980,067	1,285,732	213,249	150,097	63,590	49,119	2,741,854
VIII. Books, paper, printing and engraving . . . . .	1,030,291	881,900	330,024	166,217	146,658	87,427	2,642,517
IX. Musical instruments, etc. . . . .	56,024	24,521	..	b2,342	..	..	82,887
X. Arms and explosives . . . . .	239,270	108,173	..	c	..	..	347,443
XI. Vehicles and fittings, saddlery and harness etc. . . . .	452,148	448,467	117,951	140,997	59,059	33,398	1,252,020
XII. Ship and boat building and repairing . . . . .	672,804	67,021	13,599	13,873	4,114	2,888	774,299
XIII. Furniture, bedding, and upholstery . . . . .	363,889	254,428	114,681	86,328	48,058	25,246	892,630
XIV. Drugs, chemicals, and by-products . . . . .	156,052	210,557	4,163	80,617	47,267	877	499,533
XV. Surgical and other scientific instruments . . . . .	14,832	10,857	4,088	2,604	1,299	..	33,680
XVI. Jewellery, timepieces, and platedware . . . . .	82,904	90,224	12,059	15,024	6,458	3,214	209,883
XVII. Heat, light, and power . . . . .	586,327	587,520	145,548	139,001	58,473	51,655	1,568,524
XVIII. Leatherware, n.e.i. . . . .	47,917	43,622	6,970	3,324	1,276	..	102,109
XIX. Minor wares, n.e.i. . . . .	114,565	243,679	8,633	17,484	10,502	2,245	397,108
Total . . . . .	12,727,172	9,590,851	4,496,449	2,852,334	1,449,780	778,353	31,894,939

**FEMALES.**

J. Treating raw material, product of agricultural and pastoral pursuits, etc. . . . .	6,326	1,216	374	568	117d	300d	8,991
II. Treating oils and fats, animal, vegetable, etc. . . . .	15,618	5,797	593	1,297	e	e	23,305
III. Processes in stone, clay, glass, etc. . . . .	4,866	4,781	343	480	450	114	11,034
IV. Working in wood . . . . .	7,501	5,881	3,700	1,545	456	1,010	20,093
V. Metal works, machinery, etc. . . . .	33,805	23,676	5,259	6,226	2,639	392	71,997
VI. Connected with food and drink, etc. . . . .	226,664	243,982	48,628	22,083	11,201	10,132	562,690
VII. Clothing and textile fabrics, etc. . . . .	1,073,321	1,598,713	266,376	172,440	103,848	40,348	3,255,046
VIII. Books, paper, printing and engraving . . . . .	151,077	142,359	40,571	22,019	14,751	4,775	375,552
IX. Musical instruments, etc. . . . .	2,849	625	..	..	..	..	3,474
X. Arms and explosives . . . . .	222	67,933	..	..	..	..	68,155

a Exclusive of amount drawn by working proprietors. b Includes Class X. c Included in Class IX. d Includes Class II. e 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. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
<b>FEMALES—<i>continued.</i></b>							
XI. Vehicles and fittings, saddlery and harness, etc.	£ 10,835	£ 14,710	£ 3,532	£ 4,061	£ 1,522	£ 1,369	£ 36,029
XII. Ship and boat building and repairing.	1,252	214	..	..	..	..	1,466
XIII. Furniture, bedding and upholstery	28,677	18,779	6,197	1,541	1,400	941	57,535
XIV. Drugs, chemicals, and by-products	40,083	25,938	1,848	3,679	2,615	152	74,315
XV. Surgical and other scientific instruments.	2,504	526	87	78	321	..	3,516
XVI. Jewellery, timepieces and platedware	6,267	6,911	924	556	143	52	14,853
XVII. Heat, light, and power	4,028	31,942	1,779	2,857	..	352	40,958
XVIII. Leatherware, n.e.l.	9,786	14,461	1,860	844	157	..	27,108
XIX. Minor wares, n.e.l.	28,456	34,222	1,420	1,486	1,296	282	67,162
Total	1,654,137	2,242,666	383,491	241,760	140,916	60,309	4,723,279

a Exclusive of amount drawn by working proprietors.

## AMOUNT(a) OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN THE SEVERAL STATES OF THE COMMONWEALTH, 1912 TO 1917.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
<b>MALES.</b>							
1912. Amount paid ..£	10,283,733	8,388,613	3,386,191	2,647,842	2,024,318	798,098	27,528,795
Per cent on total ..	88.71	83.04	91.54	92.25	93.34	93.31	87.99
Average per employeef	122.50	115.18	106.57	121.42	152.02	100.85	118.87
1913. Amount paid ..£	11,323,791	8,925,814	3,744,050	2,809,066	2,068,212	826,358	29,697,291
Per cent. on total ..	89.28	83.30	91.87	92.57	93.37	93.54	88.37
Average per employeef	127.76	118.94	112.95	127.43	146.79	105.09	123.32
1914. bAmount paid ..£	11,296,572	9,252,336	3,880,472	2,734,603	2,199,961	782,300	30,146,244
Per cent. on total ..	89.18	83.35	92.14	92.81	93.92	93.60	88.40
Average per employeef	130.98	123.84	113.39	131.21	152.31	109.24	126.86
1915. bAmount paid ..£	11,296,572	9,161,852	3,886,165	2,506,579	1,667,477	723,010	29,241,655
Per cent. on total ..	89.18	83.02	91.94	92.66	93.09	92.27	88.05
Average per employeef	130.98	123.76	118.03	122.92	141.93	106.97	123.02
1916. cAmount 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 employeef	141.46	123.76	123.57	122.92	155.80	116.10	133.58
1917. dAmount paid ..£	12,727,172	9,590,851	4,496,449	2,852,334	1,449,780	773,352	31,894,939
Per cent. on total ..	88.50	81.05	92.14	92.19	91.14	92.81	87.10
Average per employeef	149.35	136.48	143.51	144.99	156.99	120.13	143.53
<b>FEMALES.</b>							
1912. Amount paid ..£	1,308,319	1,713,631	312,874	222,123	144,514	57,236	3,758,697
Per cent. on total ..	11.29	16.96	8.46	7.75	6.66	6.69	12.10
Average per employeef	48.39	45.15	41.00	41.43	56.56	37.00	45.79
1913. Amount paid ..£	1,359,593	1,788,522	331,141	225,471	146,975	57,094	3,908,796
Per cent. on total ..	10.72	16.70	8.13	7.43	6.63	6.46	11.63
Average per employeef	50.29	47.01	43.66	43.94	55.42	40.24	47.74
1914. bAmount paid ..£	1,371,149	1,847,604	331,017	211,693	142,467	53,529	3,957,459
Per cent. on total ..	10.82	16.65	7.86	7.19	6.08	6.40	11.60
Average per employeef	52.91	43.65	44.06	44.95	54.44	41.27	49.46
1915. bAmount paid ..£	1,371,149	1,874,493	340,470	198,551	123,799	60,537	3,968,999
Per cent. on total ..	10.82	16.98	8.06	7.34	6.91	7.73	11.95
Average per employeef	52.91	50.24	44.62	42.47	53.34	48.39	50.18
1916. cAmount 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 employeef	53.72	50.24	46.29	42.47	56.80	47.85	50.79
1917. dAmount 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 employeef	57.49	54.05	50.31	46.81	57.71	49.56	54.47

a Exclusive of amounts drawn by working proprietors.

b Year ended 30th June, 1915, for

New South Wales.

c See note a first table this section.

d See note b first table this section.

A further analysis of salaries and wages paid is given in the following table, 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 1917.(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. . .	126,060	2,865	930,799	6,126	1,056,859	8,991	1,065,850
II. Treating oils and fats, animal, vegetable, etc. . .	62,036	6,024	213,562	17,281	275,598	23,305	298,903
III. Processes in stone, clay, glass, etc. . .	158,833	6,469	1,176,183	4,565	1,335,021	11,034	1,346,055
IV. Working in wood . .	337,104	17,886	2,337,385	2,207	2,674,489	20,093	2,694,582
V. Metal works, machinery, etc. . .	859,590	39,976	8,228,096	32,021	9,087,686	71,997	9,159,683
VI. Connected with food and drink, etc. . .	1,097,690	67,593	4,822,109	495,097	5,919,799	562,690	6,482,489
VII. Clothing and textile fabrics, etc. . .	423,781	172,021	2,318,073	3,083,025	2,741,854	3,255,046	5,996,900
VIII. Books, paper, printing, and engraving . .	520,612	66,744	2,121,905	308,808	2,642,517	375,552	3,018,069
IX. Musical instruments, etc. . .	9,079	1,802	73,808	1,672	82,887	3,474	86,361
X. Arms and explosives . .	20,445	3,590	326,998	64,565	347,443	68,155	418,598
XI. Vehicles and fittings, saddlery and harness, etc. . .	126,786	16,504	1,125,234	19,525	1,252,020	36,029	1,288,049
XII. Ship and boat building and repairing . .	67,238	1,279	707,061	187	774,299	1,466	775,765
XIII. Furniture, bedding, and upholstery . .	69,671	11,371	822,959	46,164	892,630	57,535	950,165
XIV. Drugs, chemicals, and by-products . .	105,334	12,975	394,199	61,340	499,533	74,315	573,848
XV. Surgical & other scientific instruments . .	6,355	646	27,325	2,870	33,660	3,516	37,196
XVI. Jewellery, timepieces, and platedware . .	19,495	4,463	190,388	10,390	209,883	14,853	224,736
XVII. Heat, light, and power . .	296,959	14,228	1,271,565	26,730	1,568,524	40,958	1,609,482
XVIII. Leatherware, n.e.i. . .	17,540	2,892	85,569	24,216	103,109	27,108	130,217
XIX. Minor wares, n.e.i. . .	48,813	5,576	348,295	61,586	397,108	67,162	464,270
Total . . . . .	4,373,426	454,904	27,521,513	4,268,375	31,894,939	4,723,279	36,618,218
Average paid per employee . .	223.48	88.95	135.81	52.31	143.53	54.47	118.54

a See note b 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 1917 it amounted to £4,054,940. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £1,175,935; Class VI., Connected with Food, Drink, etc., £922,316; Class XVII., Heat, Light, Power, etc., £781,018, of which amount £665,596 was expended on generating electric light and power; and Class III., £401,017, of which

£276,944 was represented in brick and pottery works, etc., and glass factories. The following tables shew the value of fuel and light used in the different classes of industry in the several States of the Commonwealth at latest date, and of the total used for each of the last six years :—

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH, 1917.

Class of Industry.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	59,005	46,671	11,877	10,142	3,228 <sup>c</sup>	1,231 <sup>c</sup>	132,154
II. Treating oils and fats, animal, vegetable, etc.	35,014	22,621	3,237	6,419	<sup>d</sup>	<sup>d</sup>	67,291
III. Processes in stone, clay, glass, etc.	208,707	124,412	8,762	38,704	15,584	4,848	401,017
IV. Working in wood ..	29,085	20,153	10,130	4,270	2,683	1,147	67,468
V. Metal works, machinery, etc. ..	567,186	175,028	33,720	323,018	26,356	50,627	1,175,935
VI. Connected with food and drink, etc. ..	272,132	264,519	263,586	69,169	34,711	18,199	922,316
VII. Clothing and textile fabrics, etc. ..	54,879	91,834	10,873	10,474	3,979	1,933	173,972
VIII. Books, paper, printing, and engraving ..	41,586	46,112	15,540	7,615	5,462	1,741	118,056
IX. Musical instruments, etc. ..	851	422	..	42 <sup>a</sup>	..	..	1,315
X. Arms and explosives ..	4,874	10,710	..	<sup>b</sup>	..	..	15,584
XI. Vehicles and fittings, saddlery and harness, etc. ..	14,531	14,969	3,099	5,607	3,204	788	42,198
XII. Ship and boat building and repairing ..	21,226	2,842	188	298	22	75	24,651
XIII. Furniture, bedding, and upholstery ..	10,530	8,120	2,984	2,247	1,476	563	25,920
XIV. Drugs, chemicals, and by-products ..	16,640	22,095	633	13,156	6,603	33	59,160
XV. Surgical and other scientific instruments	239	516	187	137	73	..	1,152
XVI. Jewellery, timepieces, and platedware ..	2,058	2,988	562	777	191	45	6,621
XVII. Heat, light, and power	420,071	140,264	49,256	66,062	94,079	11,286	781,018
XVIII. Leatherware, n.e.l. ..	1,135	1,861	186	28	47	..	3,257
XIX. Minor wares, n.e.l. ..	6,915	28,019	232	359	302	28	35,855
Total ..	1,766,664	1,024,156	415,052	558,524	198,000	92,544	4,054,940

<sup>a</sup> Includes Class X. <sup>b</sup> Included in Class IX. <sup>c</sup> Includes Class II. <sup>d</sup> Included in Class I.

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1912 TO 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1912 ..	1,360,141	683,376	261,978	363,403	191,025	187,461	3,047,384
1913 ..	1,371,425	739,835	328,519	417,280	198,161	185,681	3,240,901
1914 ..	1,364,186 <sup>a</sup>	804,325	335,219	406,987	210,192	189,012	3,309,921
1915 ..	1,364,186 <sup>a</sup>	834,966	300,716	399,731	187,121	110,803	3,197,523
1916 <sup>b</sup> ..	1,528,220	834,966	310,454	399,731	193,523	116,704	3,383,598
1917 <sup>c</sup> ..	1,766,664	1,024,156	415,052	558,524	198,000	92,544	4,054,940

<sup>a</sup> Year ended 30th June, 1915. <sup>b</sup> See note <sup>a</sup> first table this section.

<sup>c</sup> See note <sup>b</sup> 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 1917 was £132,283,096, which represents 64 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, 1917.

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . . .	6,439,773	3,735,414	1,004,128	635,973	c268,265	c186,081	13,169,634
II. Treating oils and fats, animal, vegetable, etc. . . . .	1,537,066	681,648	112,912	155,290	d	d	2,486,911
III. Processes in stone, clay, glass, etc. . . . .	438,279	195,563	19,876	67,804	21,863	10,370	753,255
IV. Working in wood . . . . .	2,249,143	1,121,763	715,727	441,519	95,999	83,401	4,707,492
V. Metal works, machinery, etc. . . . .	13,377,135	3,268,458	827,594	4,932,320	387,710	727,659	23,520,876
VI. Connected with food and drink, etc. . . . .	23,058,427	15,258,083	15,457,551	3,435,328	1,504,888	1,158,667	59,872,944
VII. Clothing and textile fabrics, etc. . . . .	4,383,210	7,134,655	1,073,681	638,740	346,928	174,289	13,751,503
VIII. Books, paper, printing, and engraving . . . . .	1,532,211	1,407,671	342,788	266,373	170,725	75,511	3,804,279
IX. Musical instrum'ts. etc. . . . .	100,471	20,455	..	a2,958	..	..	123,884
X. Arms and explosives . . . . .	59,268	497,503	..	b	..	..	556,771
XI. Vehicles and fittings, saddlery and harness, etc. . . . .	452,551	559,818	156,604	167,439	77,805	44,175	1,458,392
XII. Ship and boat building and repairing . . . . .	366,483	54,720	11,508	8,377	3,036	2,643	446,767
XIII. Furniture, bedding, and upholstery . . . . .	633,017	465,741	157,434	99,185	75,250	30,887	1,461,514
XIV. Drugs, chemicals, and by-products . . . . .	986,603	940,898	18,173	353,903	290,164	13,257	2,611,998
XV. Surgical and other scientific instrum'ts. . . . .	16,720	11,179	3,109	1,320	1,865	..	34,193
XVI. Jewellery, timepieces, and platedware . . . . .	108,486	169,600	12,386	13,818	8,788	1,183	314,261
XVII. Heat, light, and power . . . . .	776,208	569,113	92,413	73,849	40,694	20,375	1,582,652
XVIII. Leatherware, n.e.l. . . . .	217,608	251,644	17,749	9,249	2,580	..	498,830
XIX. Minor wares, n.e.l. . . . .	312,008	750,889	14,633	28,869	17,864	2,677	1,126,940
Total . . . . .	57,044,667	37,103,750	20,938,266	11,331,814	3,323,424	2,541,175	132,283,096

a Includes Class X. b Included in Class IX. c Includes Class II. d 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 £59,872,944. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £23,520,876 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £34,193. The following table gives particulars for the six years ended 1917 :—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1912 TO 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1912 ..	37,122,441	27,002,302	11,078,954	8,199,110	2,586,195	2,286,618	88,275,620
1913 ..	40,537,476	28,465,699	14,183,539	8,354,258	2,782,839	2,083,666	96,407,477
1914 ..	42,559,370a	28,986,694	15,710,794	7,931,175	2,608,312	1,992,719	99,789,064
1915 ..	42,559,370a	30,728,743	15,939,583	8,720,436	2,634,700	2,193,250	102,776,082
1916b ..	44,227,079	30,728,743	16,127,926	8,720,436	3,033,638	2,342,623	105,180,445
1917c ..	57,044,667	37,103,750	20,938,266	11,331,814	3,323,424	2,541,175	132,283,096

a Year ended 30th June, 1915. b See note a first table this section. c See note b first table this section.

5. Total Value of Output of Manufacturing Industries.—The value of the output of new goods manufactured and repairs effected in factories of various classes in each State 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, 1917.**

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust 1917.	Tas. 1917.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . .	7,714,062	4,722,446	2,295,377	794,207	c348,359	c242,702	16,117,153
II. Treating oils and fats, animal, vegetable, etc. . . .	2,030,059	1,014,331	168,855	222,247	d	d	3,435,492
III. Processes in stone, clay, glass, etc. . . .	1,785,329	984,755	119,636	289,207	104,624	67,179	3,350,730
IV. Working in wood . . .	3,599,153	2,264,070	1,511,561	681,913	565,625	290,732	8,913,054
V. Metal works, machinery, etc. . . .	21,420,189	6,606,014	1,891,242	7,537,319	865,711	1,623,252	39,943,727
VI. Connected with food and drink, etc. . . .	28,047,685	20,305,035	21,533,272	4,339,562	2,185,700	1,597,286	78,008,540
VII. Clothing and textile fabrics, etc. . . .	7,804,506	11,991,448	1,895,743	1,174,338	597,571	333,407	23,797,013
VIII. Books, paper, printing, and engraving . . .	3,504,378	3,327,495	1,041,871	606,380	463,469	233,869	9,177,462
IX. Musical instruments, etc. . . .	192,585	55,480	..	a6,110	..	..	254,175
X. Arms and explosives . . .	406,476	761,241	..	b	..	..	1,167,717
XI. Vehicles and fittings, saddlery and harness, etc. . . .	1,124,913	1,261,373	351,157	386,898	171,352	100,068	3,395,761
XII. Ship and boat building and repairing . . .	1,084,808	151,950	28,521	30,456	8,342	7,468	1,311,545
XIII. Furniture, bedding, and upholstery . . .	1,190,923	893,331	346,602	215,505	140,712	77,256	2,864,329
XIV. Drugs, chemicals, and by-products . . .	1,656,748	1,521,953	49,550	541,575	394,075	16,287	4,180,188
XV. Surgical and other scientific instruments . . .	48,385	33,872	10,812	6,208	4,998	..	104,275
XVI. Jewellery, timepieces, and platedware . . .	238,247	352,611	34,428	40,956	17,928	5,783	689,953
XVII. Heat, light, and power . . .	3,237,029	2,208,846	627,631	449,656	344,705	176,801	7,044,668
XVIII. Leatherware, n.e.l. . . .	326,008	370,474	33,094	15,818	5,611	..	751,005
XIX. Minor wares, n.e.l. . . .	532,837	1,220,559	29,950	53,997	36,606	5,910	1,879,859
Total . . .	85,944,320	60,047,284	31,969,302	17,392,352	6,255,388	4,778,000	208,386,646

a Includes Class X.

b Included in Class IX.

c Includes Class II.

d 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 £85,944,320, or 41.64 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 29.09 per cent.; the value of the output of Queensland was 15.49 per cent.; of South Australia 8.43 per cent.; of Western Australia 3.03 per cent.; and of Tasmania 2.32 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 1917:—

**TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1912 TO 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1912 ..	61,163,328	45,410,773	18,798,904	13,438,218	6,092,268	3,871,916	148,775,407
1913 ..	65,672,495	47,936,647	23,688,789	13,998,670	6,481,331	3,782,831	161,560,763
1914 ..	68,253,332 <sup>a</sup>	49,439,985	25,491,955	13,215,970	6,381,512	3,667,754	166,450,508
1915 ..	68,253,332 <sup>a</sup>	51,466,093	25,444,812	13,994,223	5,712,793	4,215,447	169,086,700
1916 <sup>b</sup> ..	70,989,864	51,466,093	25,541,024	13,994,223	6,007,111	4,576,530	172,574,845
1917 <sup>c</sup> ..	85,944,320	60,047,284	31,969,302	17,392,352	6,255,388	4,778,000	208,386,646

a Year ended 30th June, 1915.

b See note a first table this section.

c See note b first table this section.



TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1912 TO 1917—*continued.*

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
PER EMPLOYEE. <sup>a</sup>							
	£	£	£	£	£	£	£
1912 ..	529	391	459	472	372	389	454
1913 ..	545	404	559	491	375	387	479
1914 ..	585 <sup>b</sup>	418	589	492	362	411	502
1915 ..	585 <sup>b</sup>	452	605	549	390	501	527
1916 <sup>c</sup> ..	610	452	639	549	474	547	545
1917 <sup>d</sup> ..	728	513	790	669	514	591	642
PER HEAD OF MEAN POPULATION.							
1912 ..	35.22	33.48	29.77	31.87	20.21	20.20	32.03
1913 ..	36.32	34.41	36.30	32.29	20.64	19.30	33.63
1914 ..	36.67 <sup>b</sup>	34.73	37.77	30.04	19.73	18.49	33.78
1915 ..	33.67 <sup>b</sup>	36.07	37.04	31.85	17.72	21.15	34.21
1916 <sup>c</sup> ..	37.95	36.07	37.69	31.85	19.09	23.09	34.97
1917 <sup>d</sup> ..	46.24	42.93	47.43	40.19	20.27	24.02	42.30

<sup>a</sup> Including working proprietors.      <sup>b</sup> Year ended 30th June, 1915.      <sup>c</sup> See note <sup>a</sup> first table this section.  
<sup>d</sup> See note <sup>b</sup> first table this section.

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 in each State for the various classes of factories :—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1917.

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	£ 1,274,289	£ 987,032	£ 391,249	£ 158,234	£ 680,094	£ 656,621	£ 2,947,519
II. Treating oils and fats, animal, vegetable, etc.	492,993	332,688	55,943	66,957	<i>d</i>	<i>d</i>	948,581
III. Processes in stone, clay, glass, etc. . .	1,347,050	789,192	99,760	221,903	82,761	56,809	2,597,475
IV. Working in wood . .	1,350,010	1,142,367	795,834	240,394	469,626	207,331	4,205,562
V. Metal works, machinery, etc. . .	8,043,054	3,337,556	1,063,648	2,604,999	478,001	895,593	16,422,851
VI. Connected with food and drink, etc. . .	4,989,258	5,046,952	6,075,721	904,234	680,812	438,619	18,135,596
VII. Clothing and textile fabrics, etc. . .	3,421,296	4,856,793	822,062	535,598	250,643	159,118	10,045,510
VIII. Books, paper, printing, and engraving . .	1,972,167	1,919,824	699,083	340,007	283,744	158,358	5,373,183
IX. Musical instruments, etc.	92,114	35,025	..	63,152	..	..	130,291
X. Arms and explosives . .	347,208	263,738	..	<i>b</i>	..	..	610,946
XI. Vehicles and fittings, saddlery and harness, etc. . .	672,362	701,555	194,553	219,459	93,547	55,893	1,937,369
XII. Ship and boat building and repairing . .	718,325	97,230	17,013	22,079	5,306	4,825	864,778
XIII. Furniture, bedding, and upholstery . .	557,906	427,590	189,168	116,320	65,462	46,369	1,402,815
XIV. Drugs, chemicals, and by-products . .	670,145	572,055	31,377	187,672	103,911	3,030	1,568,190
XV. Surgical & other scientific instruments . .	31,665	22,693	7,703	4,888	3,133	..	70,082
XVI. Jewellery, timepieces, and platedware . .	129,761	183,011	22,042	27,138	9,140	4,600	375,692
XVII. Heat, light, and power . .	2,469,821	1,639,733	535,218	375,807	304,011	146,426	5,462,016
XVIII. Leatherware, n.e.i. . .	108,400	118,830	15,345	6,569	3,031	..	252,175
XIX. Minor wares, n.e.i. . .	220,829	469,070	15,317	25,128	18,742	3,233	752,919
Total ..	28,899,653	22,943,534	11,031,036	6,060,538	2,931,964	2,236,825	74,103,550

<sup>a</sup> Includes Class X.      <sup>b</sup> Included in Class IX.      <sup>c</sup> Includes Class II.      <sup>d</sup> Included in Class I.

The amount of the value added in each State is not quite in the same order as in the case of value of output, the four most important classes being VI., V., VII., 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 1912 to 1917 :—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH.  
1912 TO 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
VALUE.							
	£	£	£	£	£	£	£
1912 ° ..	24,040,887	18,408,471	7,719,950	5,239,108	3,596,073	1,585,298	60,499,787
1913 ..	25,135,019	19,470,948	9,505,250	5,644,412	3,698,492	1,699,165	65,153,286
1914 ..	25,693,962 <sup>a</sup>	20,453,291	9,781,161	5,284,795	3,773,200	1,675,035	66,661,444
1915 ..	25,693,962 <sup>a</sup>	20,737,350	9,505,229	5,273,787	3,078,093	2,022,197	66,310,618
1916 <sup>b</sup> ..	26,762,785	20,737,350	9,413,098	5,273,787	2,973,473	2,233,907	67,394,400
1917 <sup>c</sup> ..	28,899,653	22,943,534	11,031,036	6,060,538	2,931,964	2,236,825	74,103,550

PER EMPLOYEE.

	£	£	£	£	£	£	£
1912 ..	208	159	189	184	214	159	185
1913 ..	209	164	224	198	214	174	193
1914 ..	220 <sup>a</sup>	173	226	197	214	188	201
1915 ..	220 <sup>a</sup>	182	226	207	210	240	207
1916 <sup>b</sup> ..	230	182	235	207	235	267	213
1917 <sup>c</sup> ..	245	196	273	233	241	277	230

PER HEAD OF MEAN POPULATION.

	£	£	£	£	£	£	£
1912 ..	13.84	13.57	12.22	12.43	11.63	8.27	13.03
1913 ..	13.80	13.98	14.57	13.02	11.78	8.67	13.56
1914 ..	13.80 <sup>a</sup>	14.37	14.49	12.01	11.07	8.44	13.53
1915 ..	13.80 <sup>a</sup>	14.54	13.84	12.00	9.55	10.14	13.41
1916 <sup>b</sup> ..	14.31	14.54	13.89	12.00	9.45	11.27	13.66
1917 <sup>c</sup> ..	15.55	16.40	16.37	14.01	9.50	11.24	15.19

<sup>a</sup> Year ended 30th June, 1915.      <sup>b</sup> See note <sup>a</sup> first table this section.

<sup>c</sup> See note <sup>b</sup> first table this section.

As the total value of the output for the Commonwealth was estimated at £206,386,646, there remained, after payment of £132,283,096, the value of the raw materials used, of £36,618,218 for salaries and wages, and of £4,054,940 for fuel, the sum of £33,430,392 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 :—

**VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH FACTORIES, 1917.(a)**

State.	Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure, Interest, and Profits.	Total Value of Output.
VALUE AND COST, ETC.					
	£	£	£	£	£
New South Wales, 1916-17	57,044,667	1,766,664	14,381,309	12,751,680	85,944,320
Victoria, 1916-17 ..	37,103,750	1,024,156	11,833,517	10,085,861	60,047,284
Queensland, 1917 ..	20,938,266	415,052	4,879,940	5,736,044	31,969,302
South Australia, 1916-17..	11,331,814	558,524	3,094,094	2,407,920	17,392,352
Western Australia, 1917 ..	3,323,424	198,000	1,590,696	1,143,268	6,255,388
Tasmania, 1917 ..	2,541,175	92,544	838,662	1,305,619	4,778,000
Commonwealth ..	132,283,096	4,054,940	36,618,218	33,430,392	206,386,646

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

	%	%	%	%	%
New South Wales, 1916-17	66.37	2.06	16.73	14.84	100.00
Victoria, 1916-17 ..	61.79	1.70	19.71	16.80	100.00
Queensland, 1917 ..	65.50	1.30	15.26	17.94	100.00
South Australia, 1916-17..	65.16	3.21	17.79	13.84	100.00
Western Australia, 1917 ..	53.13	3.16	25.43	18.28	100.00
Tasmania, 1917 ..	53.18	1.94	17.55	27.33	100.00
Commonwealth ..	64.10	1.96	17.74	16.20	100.00

a See note b first table this section.

**§ 7. 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 1912 to 1917 by £21,190,532, i.e., from £69,337,768 to £90,528,300, or at the rate of £4,238,106 per annum.

The following statement shows the values of land and buildings and of plant and machinery used in connection with manufacturing industries in each State :—

**VALUE OF LAND, BUILDINGS, PLANT, AND MACHINERY IN CONNECTION WITH MANUFACTURING INDUSTRIES, 1917.**

Value of—	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tasmania. 1917.	C'wealth.
	£	£	£	£	£	£	£
Land and buildings	18,920,057	12,052,227	5,251,877	3,462,296	2,398,264	1,127,716	43,212,437
Plant and machinery	20,364,122	11,732,062	7,846,834	3,313,113	2,835,085	1,224,647	47,315,863
Total ..	39,284,179	23,784,289	13,098,711	6,775,409	5,233,349	2,352,363	90,528,300

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1917 was approximately £90,528,300 (or £18 11s. 1d. per head of population); of that sum £43,212,437 was invested in land and buildings occupied as manufactories, the remaining £47,315,863 being the value of the plant and machinery used in connection therewith.

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

(i) *Total Value in Commonwealth, 1912 to 1917.* The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connection with manufacturing industries of various classes during each year from 1912 to 1917 inclusive:—

**VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1912 TO 1917.**

Class of Industry.	1912.	1913.	1914. <sup>a</sup>	1915. <sup>a</sup>	1916. <sup>b</sup>	1917. <sup>c</sup>
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . . .	1,004,221	1,014,783	1,063,549	1,069,890	1,002,686	1,126,504
II. Treating oils and fats, animal, vegetable, etc. . . . .	449,453	452,415	466,373	465,757	518,932	524,349
III. Processes in stone, clay, glass, etc. . . . .	1,382,062	1,593,769	1,679,050	1,666,097	1,620,520	1,657,760
IV. Working in wood . . . . .	1,923,963	2,184,257	2,244,995	2,146,909	2,036,786	2,083,755
V. Metal works, machinery, etc. . . . .	5,653,033	6,072,737	6,467,224	6,587,199	6,800,296	7,137,251
VI. Connected with food and drink, etc. . . . .	8,259,066	8,656,547	9,800,457	9,852,479	10,508,926	11,209,366
VII. Clothing and textile fabrics, etc. . . . .	4,928,474	5,188,631	5,270,374	5,244,627	5,239,362	5,580,472
VIII. Books, paper, printing, and engraving . . . . .	3,150,049	3,388,072	3,521,164	3,546,017	3,824,069	3,891,991
IX. Musical instruments, etc. . . . .	85,731	88,136	83,375	83,430	82,695	96,335
X. Arms and explosives . . . . .	112,300	184,772	179,723	194,149	212,267	252,498
XI. Vehicles and fittings, saddlery and harness, etc. . . . .	1,654,488	1,835,221	1,824,018	1,825,999	1,822,565	1,866,859
XII. Ship and boat building and repairing . . . . .	1,261,647	1,113,243	1,127,521	1,134,530	1,126,754	953,879
XIII. Furniture, bedding, and upholstery . . . . .	1,043,680	1,149,120	1,117,699	1,094,646	1,075,547	1,071,635
XIV. Drugs, chemicals, and by-products . . . . .	823,429	831,892	929,933	955,995	1,013,577	1,109,703
XV. Surgical and other scientific instruments . . . . .	59,308	70,968	64,263	67,021	70,536	83,304
XVI. Jewellery, timepieces, and platedware . . . . .	344,306	353,900	345,018	344,452	325,126	334,147
XVII. Heat, light, and power . . . . .	2,511,317	2,517,179	2,717,502	2,775,148	3,150,513	3,655,063
XVIII. Leatherware, n.e.i. . . . .	120,646	133,283	132,777	137,666	137,391	150,660
XIX. Minor wares, n.e.i. . . . .	257,298	270,307	317,417	343,529	344,651	426,906
Total . . . . .	35,024,471	37,099,232	39,352,432	39,535,540	40,913,199	43,212,437

<sup>a</sup> New South Wales figures for year ended 30th June, 1915.

<sup>b</sup> See note <sup>a</sup> first table this section.

<sup>c</sup> See note <sup>b</sup> first table this section.

As shewn in the above table, the total net increase during the five years was £8,187,966, or an annual average of £1,637,593. The largest increases were in Classes VI., V., and XVII., and amounted to £2,950,300, £1,484,218, and £1,143,746 respectively.

(ii) *Value in each State.* The following table gives similar information for each State up to latest date :—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1917.

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . . .	£ 464,385	£ 410,759	£ 75,473	£ 95,321	£ c59,667	£ c20,899	£ 1,126,504
II. Treating oils and fats, animal, vegetable, etc. . . . .	311,176	126,035	28,093	59,045	d	d	524,349
III. Processes in stone, clay, glass, etc. . . . .	954,906	459,545	43,226	108,814	61,510	29,759	1,657,760
IV. Working in wood . . . . .	975,213	413,650	223,509	159,835	239,905	71,643	2,083,755
V. Metal works, machinery, etc. . . . .	3,349,493	1,590,177	690,870	831,371	614,329	61,011	7,137,251
VI. Connected with food and drink, etc. . . . .	3,764,426	2,936,768	2,662,696	791,113	441,247	613,116	11,209,366
VII. Clothing and textile fabrics, etc. . . . .	2,453,975	2,073,475	431,969	311,356	195,725	113,972	5,580,472
VIII. Books, paper, printing, and engraving . . . . .	1,761,013	1,006,125	478,272	339,995	249,292	57,294	3,891,991
IX. Musical instruments, etc. . . . .	61,095	29,290	..	a5,950	..	..	96,335
X. Arms and explosives . . . . .	93,178	159,320	..	b	..	..	252,498
XI. Vehicles and fittings, saddlery and harness, etc. . . . .	718,733	552,155	192,076	216,087	122,306	65,502	1,866,859
XII. Ship and boat building and repairing . . . . .	641,262	234,360	10,667	61,545	3,595	2,450	953,879
XIII. Furniture, bedding, and upholstery . . . . .	445,055	342,050	110,854	80,615	67,644	25,417	1,071,635
XIV. Drugs, chemicals, and by-products . . . . .	449,343	374,168	11,809	171,243	98,240	4,900	1,109,703
XV. Surgical and other scientific instruments . . . . .	32,440	25,235	11,604	8,370	5,655	..	83,304
XVI. Jewellery, timepieces, and platedware . . . . .	138,892	127,575	23,515	23,535	12,105	8,525	334,147
XVII. Heat, light, and power . . . . .	2,057,967	936,950	229,576	174,171	205,921	50,478	3,655,063
XVIII. Leatherware, n.e.i. . . . .	70,590	62,720	8,470	5,370	3,510	..	150,660
XIX. Minor wares, n.e.i. . . . .	176,915	191,870	19,198	18,560	17,613	2,750	426,906
Total . . . . .	18,920,057	12,052,227	5,251,877	3,462,296	2,398,264	1,127,716	43,212,437

a Includes Class X. b Included in Class IX. c Includes Class II. d Included in Class I.

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £11,209,366, or 25.94 per cent. on the total value. The next in order of importance were Classes V., VII., VIII., and XVII., in which the values were £7,137,251, £5,580,472, £3,891,991, and £3,655,063 respectively. The sum of the values for the five classes mentioned amounted to £31,474,143, or 72.84 per cent. on the total value for all classes.

(iii) *Total Value in each State, 1912 to 1917.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1912 to 1917 inclusive :—

TOTAL VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1912 TO 1917.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1912	14,765,810	10,362,661	3,524,991	3,366,149	1,910,372	1,094,488	35,024,471
1913	15,792,105	10,753,309	3,923,584	3,487,754	2,036,769	1,105,711	37,099,232
1914	16,843,698a	11,248,120	4,434,336	3,272,047	2,409,517	1,144,714	39,352,432
1915	16,843,698a	11,460,123	4,446,405	3,289,628	2,363,262	1,132,424	39,535,540
1916b	17,770,517	11,460,123	5,014,824	3,289,628	2,247,505	1,130,602	40,913,199
1917c	18,920,057	12,052,227	5,251,877	3,462,296	2,398,264	1,127,716	43,212,437

a Year ended 30th June, 1915. b See note a first table this section. c See note b first table this section.

It will be seen that since 1912 there has been a general increase throughout the Commonwealth. The States shewing the largest growth were New South Wales, Queensland, and Victoria, with an annual average increase of £830,849, £345,377, and £337,913 respectively.

3. Value of Plant and Machinery.—(i) *Total Value in Commonwealth, 1912 to 1917.* The following table shews for the whole Commonwealth the approximate value of plant and machinery used in factories during each year from 1912 to 1917 inclusive :—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH, 1912 TO 1917.

Class of Industry.	1912.	1913.	1914. <i>a</i>	1915. <i>a</i>	1916. <i>b</i>	1917. <i>c</i>
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	926,966	985,619	974,556	971,841	965,932	1,048,729
II. Treating oils and fats, animal, vegetable, etc. . .	417,231	444,502	469,680	545,796	576,877	597,327
III. Processes in stone, clay, glass, etc. . .	1,491,383	1,717,544	1,869,446	1,900,086	1,866,993	1,972,885
IV. Working in wood . . .	2,455,436	2,664,508	2,737,527	2,611,407	2,806,653	2,784,838
V. Metal works, machinery, etc. . .	6,417,719	6,996,932	7,745,988	7,761,871	8,604,804	9,549,635
VI. Connected with food and drink, etc. . .	9,029,735	9,650,298	10,782,825	10,914,862	11,654,182	12,318,334
VII. Clothing and textile fabrics, etc. . .	1,620,437	1,746,713	1,774,910	1,798,554	1,846,758	1,926,718
VIII. Books, paper, printing, and engraving . . .	2,628,039	2,814,226	2,974,120	2,987,190	3,054,941	3,070,739
IX. Musical instruments, etc. . .	20,960	22,630	19,030	19,119	21,191	22,841
X. Arms and explosives . . .	158,823	190,060	216,581	228,031	228,210	308,536
XI. Vehicles and fittings, saddlery and harness, etc. . .	329,933	374,371	395,463	411,295	421,416	433,716
XII. Ship and boat building, and repairing . . .	597,783	725,934	764,782	768,159	511,237	1,312,832
XIII. Furniture, bedding, and upholstery . . .	207,211	235,068	238,547	244,796	251,822	267,180
XIV. Drugs, chemicals, and by-products . . .	629,402	650,185	832,686	916,136	868,126	906,091
XV. Surgical and other scientific instruments . . .	11,615	13,121	13,758	13,955	13,873	19,021
XVI. Jewellery, timepieces, and platedware . . .	61,791	68,186	69,724	72,988	74,617	72,757
XVII. Heat, light, and power . . .	7,135,997	7,560,198	9,044,847	9,532,800	9,970,117	10,365,297
XVIII. Leatherware, n.e.i. . .	27,695	28,035	30,576	31,706	34,240	33,029
XIX. Minor wares, n.e.i. . .	145,141	166,172	199,343	226,285	234,313	305,358
Total . . .	34,313,297	37,054,302	41,154,389	41,956,877	44,006,302	47,315,863

*a* New South Wales figures for year ended 30th June, 1915.

*b* See note *a* first table this section.

*c* See note *b* 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 £13,002,566, or an annual average of £2,600,513. Development has occurred in all classes of industry, the largest increase being in Class VI., "Connected with Food and Drink, etc.," where it amounted to £3,288,599, while the two next were in Class XVII., "Heat, Light, and Power," with an increase of £3,229,300, and Class V., "Metal Works, Machinery, etc.," £3,131,916.

(ii) *Total Value in each State, 1912 to 1917.* 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., £6,568,927; while Victoria comes next with £2,636,928.

VALUE OF PLANT AND MACHINERY IN FACTORIES, 1912 TO 1917.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1912 . .	13,795,195	9,095,134	5,442,471	2,577,942	2,241,536	1,161,019	34,313,297
1913 . .	14,861,676	10,022,429	5,877,387	2,779,667	2,264,455	1,248,688	37,054,302
1914 . .	16,866,982 <i>a</i>	10,727,526	6,898,673	2,985,037	2,484,793	1,191,378	41,154,389
1915 . .	16,866,982 <i>a</i>	11,068,949	7,051,113	3,101,413	2,640,168	1,228,252	41,956,877
1916 <i>b</i> . .	18,211,104	11,068,949	7,543,873	3,101,413	2,817,863	1,263,100	44,006,302
1917 <i>c</i> . .	20,364,122	11,732,062	7,846,834	3,313,113	2,835,035	1,224,647	47,315,863

*a* Year ended 30th June, 1915.

*b* See note *c* first table this section.

*c* See note *b* 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, classified according to the nature of the industry in which used:—

**VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1917.**

Class of Industry.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . . .	£ 437,304	£ 338,195	£ 116,034	£ 68,022	£ 45,799	£ 43,375	£ 1,048,729
II. Treating oils and fats, animal, vegetable, etc. . . . .	362,421	146,780	45,871	42,255	d	d	597,327
III. Processes in stone, clay, glass, etc. . . . .	1,193,383	436,269	66,705	177,864	76,107	22,557	1,972,885
IV. Working in wood . . . . .	854,300	539,895	457,209	85,394	686,359	161,681	2,784,838
V. Metal works, machinery, etc. . . . .	5,660,149	1,634,972	652,326	767,459	638,843	195,886	9,549,635
VI. Connected with food and drink, etc. . . . .	3,846,352	2,463,738	4,806,893	623,329	412,830	165,192	12,318,334
VII. Clothing and textile fabrics, etc. . . . .	629,116	952,094	142,836	112,876	37,173	51,723	1,926,718
VIII. Books, paper, printing, and engraving . . . . .	1,281,310	1,023,278	321,224	222,721	158,903	63,303	3,070,739
IX. Musical instruments, etc. . . . .	14,511	7,310	..	a1,020	..	..	22,841
X. Arms and explosives . . . . .	144,913	163,623	..	b	..	..	308,536
XI. Vehicles and fittings, saddlery and harness, etc. . . . .	166,922	134,650	39,618	55,847	22,045	14,634	433,716
XII. Ship and boat building, and repairing . . . . .	1,200,586	88,905	9,405	11,510	1,226	1,200	1,312,832
XIII. Furniture, bedding, and upholstery . . . . .	87,507	82,840	42,244	31,313	14,114	9,162	267,180
XIV. Drugs, chemicals, and by-products . . . . .	248,776	303,748	6,762	214,465	131,603	737	906,091
XV. Surgical and other scientific instruments . . . . .	7,930	5,803	1,817	2,200	1,271	..	19,021
XVI. Jewellery, timepieces, and platedware . . . . .	27,913	30,565	4,213	6,561	1,765	1,740	72,757
XVII. Heat, light, and power . . . . .	4,089,116	3,163,925	1,130,662	886,968	601,621	493,005	10,365,297
XVIII. Leatherware, n.e.i. . . . .	13,780	16,115	1,316	706	1,112	..	33,029
XIX. Minor wares, n.e.i. . . . .	97,833	198,457	1,699	2,603	4,314	452	305,358
Total . . . . .	20,364,122	11,732,062	7,846,834	3,313,113	2,835,085	1,224,647	47,315,863

a Includes Class X.

b Included in Class IX.

c Includes Class II.

d 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 £12,318,334, or 26.03 per cent. on the total for all classes. The next in order of importance is Class XVII., "Heat, Light, and Power," which amounts to £10,365,297, or 21.91 per cent. on the total; followed by Class V., "Metal Works, Machinery, etc.," amounting to £9,549,635, or 20.18 per cent. on the total value. The total for these three classes amounts to £32,233,266, or 68.12 per cent. on the total value for all classes.

## § 8. 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 article, 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) 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 present position of the industry in the several States is as follows :—

## TANNERIES, 1917.

Item.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S.A. 1916-17.	W.A. 1917. <sup>a</sup>	Tas. 1917.	C'wlth.
Number of factories .. ..	75	45	17	11	4	4	156
Number of employees .. ..	1,040	1,834	236	208	60	59	3,437
Actual horse-power of engines employed .. ..	1,083	2,475	328	279	166	118	4,449
Approx. value of land and buildings £ .. ..	146,762	197,236	18,711	25,344	16,320	7,938	412,311
Approx. value of plant and machinery £ .. ..	98,586	149,196	19,715	14,607	16,515	8,864	307,483
Total amount of wages paid during year £ .. ..	148,613	241,934	29,043	29,398	8,827	8,258	466,071
Value of fuel used .. ..	£ 10,329	£ 18,089	£ 2,029	£ 2,405	£ 938	£ 312	£ 34,102
Value of raw material worked up .. ..	£ 1,394,851	£ 1,926,154	£ 313,141	£ 171,660	£ 90,354	£ 55,106	£ 3,951,266
Total value of output .. ..	£ 1,709,689	£ 2,464,798	£ 397,446	£ 225,184	£ 103,667	£ 74,204	£ 4,979,988
Value added in process of manufacture £ .. ..	£ 314,838	£ 538,644	£ 84,305	£ 53,524	£ 18,313	£ 19,098	£ 1,028,722

<sup>a</sup> Including one wool-scouring and fellmongering establishment.

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

## RAW MATERIALS USED IN TANNERIES, 1917.

Particulars.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Hides and calf skins .. No.	473,704	953,029	108,021	82,734	26,603	22,383	1,666,474
Sheep pelts .. ..	3,093,811	663,249	86,208	64,587	..	58,618	3,966,471
Other skins .. ..	303,675	364,598	270,667	19,369	16,314	1,816	978,439
Bark .. .. Tons	11,044	12,340	2,661	1,501	692	457	23,695

(iii) *Progress of Tanning Industries, 1912 to 1917.* The development of the tanning industry during the period 1912 to 1917 is shewn in the following table :—

## DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1912 TO 1917.

Items.	1912.	1913.	1914. <sup>a</sup>	1915.	1916.	1917. <sup>b</sup>
Number of factories .. ..	174	164	166	165	163	156
Number of employees .. ..	3,071	2,892	3,091	3,376	3,303	3,437
Actual horse-power of engines used .. ..	3,274	3,748	3,803	3,899	4,145	4,449
Approx. value of land and buildings £ .. ..	366,898	366,696	392,420	389,924	387,706	412,311
Approx. value of plant and machinery £ .. ..	250,495	276,610	283,499	287,856	285,956	307,483
Total amount of wages paid .. ..	£ 328,060	£ 322,747	£ 366,484	£ 418,363	£ 422,014	£ 466,071
Value of fuel used .. ..	£ 21,341	£ 19,642	£ 22,573	£ 26,140	£ 27,292	£ 34,102
Value of raw materials worked up .. ..	£ 2,216,705	£ 2,428,003	£ 2,732,525	£ 3,188,817	£ 3,284,787	£ 3,951,266
Value of final output .. ..	£ 2,834,007	£ 3,030,785	£ 3,468,475	£ 4,088,140	£ 4,233,427	£ 4,979,988
Value added in process of manufacture £ .. ..	£ 617,802	£ 602,782	£ 735,950	£ 899,323	£ 949,640	£ 1,028,722

<sup>a</sup> Including three bone milling establishments in Western Australia. <sup>b</sup> Including one wool-scouring and fellmongering establishment in Western Australia.

It will be seen from the above table that during the last five years the number of factories has decreased by about 10 per cent., while the number of hands employed has increased by about 12 per cent. The approximate amount of permanently invested capital shews a substantial increase, amounting to 12.38 per cent. in the value of land and buildings, and 22.75 per cent. in that of plant and machinery. The amount of wages



paid, value of materials used, and of final output, shew the large increases of 42.07, 78.25, and 75.72 per cent. respectively during the same period, while the value added in process of manufacture increased by 66.65 per cent.

3. **Fellmongering and Wool-scouring.**—(i) 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 :—

**FELLMONGERING AND WOOL-SCOURING, 1917.**

Items.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W.A. 1917. <sup>a</sup>	Tas. 1917.	C'wealth.
Number of factories .. ..	49	29	17	3	..	..	98
Number of employees .. ..	1,610	528	386	75	..	..	2,599
Actual horse-power of engines used .. ..	2,734	712	613	98	..	..	4,157
Approx. value of land and buildings £	148,310	73,106	50,256	4,490	..	..	276,162
Approx. value of plant and machinery £	215,720	65,700	83,458	4,850	..	..	369,728
Total amount of wages paid £	213,521	58,862	51,309	8,891	..	..	332,583
Value of fuel used .. ..	£ 32,769	11,431	8,293	1,174	..	..	53,667
Value of raw material worked up .. ..	£ 4,262,924	1,257,272	1,580,570	240,872	..	..	7,341,638
Value of final output .. ..	£ 4,928,325	1,497,404	1,878,618	268,232	..	..	8,572,579
Value added in process of manufacture £	665,401	240,132	298,048	27,360	..	..	1,230,941

<sup>a</sup> There is one fellmongering and wool-scouring establishment in Western Australia. Particulars are included in tanneries.

(ii) *Development of Fellmongering and Wool-scouring, 1912 to 1917.* 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, 1912 TO 1917.**

Items.	1912.	1913.	1914.	1915.	1916.	1917. <sup>a</sup>
Number of factories .. ..	120	119	108	106	100	98
Number of employees .. ..	2,544	2,375	2,298	2,337	2,379	2,599
Actual horse-power of engines used .. ..	3,831	3,966	3,772	3,754	4,463	4,157
Approx. value of land and buildings £	267,188	269,895	256,330	266,440	263,530	276,162
Approx. value of plant and machinery £	348,970	346,381	330,047	329,780	334,131	369,728
Total amount of wages paid £	209,352	230,445	226,509	245,362	279,128	332,583
Value of fuel used .. ..	£ 31,445	33,404	36,658	40,834	44,914	53,667
Value of raw materials worked up .. ..	£ 3,859,200	4,365,413	4,238,705	5,223,231	5,903,149	7,341,638
Value of final output .. ..	£ 4,444,938	4,940,410	4,742,531	5,919,690	6,989,122	8,572,579
Value added in process of manufacture £	585,738	574,997	503,826	696,459	1,085,973	1,230,941

<sup>a</sup> Excluding one establishment in Western Australia, particulars of which are included in tanneries.

A decline in the number of establishments to the extent of about 18 per cent. has taken place in this industry during the last five years, and the number of hands is practically the same as five years earlier. On the other hand, the amount paid in wages shews the substantial increase of 58.86 per cent., while the values of materials used and of the final output have been nearly doubled, shewing increases amounting to 90.24 per cent. and 92.86 per cent. respectively. The added value has more than doubled during the period, and shews an increase of no less than 110.15 per cent.

4. **Soap and Candle Factories.**—(i) 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 1917 :—

### SOAP AND CANDLE FACTORIES, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W.A. 1917. <sup>a</sup>	Tas. 1917. <sup>a</sup>	C'wealth.
Number of factories .. .. .	27	18	14	6	..	..	65
Number of employees .. .. .	955	685	174	235	..	..	2,049
Actual horse-power of engines employed .. .. .	377	471	135	182	..	..	1,165
Approx. value of land and buildings £ .. .. .	192,231	106,525	28,093	46,528	..	..	373,377
Approx. value of plant and machinery £ .. .. .	214,523	128,100	45,871	36,448	..	..	424,942
Total amount of wages paid during year £ .. .. .	95,999	84,036	19,967	28,282	..	..	228,284
Value of fuel used .. .. .	23,949	18,937	3,237	5,962	..	..	52,085
Value of raw material worked up .. .. .	£ 610,530	536,265	112,912	147,724	..	..	1,407,431
Total value of output .. .. .	£ 857,117	802,179	168,855	208,827	..	..	2,036,978
Value added in process of manufacture £ .. .. .	246,587	265,914	55,943	61,103	..	..	629,547

<sup>a</sup> Western Australia has three soap and candle establishments and Tasmania one, but separate details are not available for publication.

(ii) *Development of Soap and Candle Factories, 1912 to 1917.* 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, 1912 TO 1917.

Items.	1912.	1913.	1914. <sup>a</sup>	1915. <sup>a</sup>	1916.	1917. <sup>b</sup>
Number of factories .. .. .	77	74	75	75	72	65
Number of employees .. .. .	1,776	1,755	1,801	2,141	2,009	2,049
Actual horse-power of engines used .. .. .	1,274	1,314	1,434	1,420	1,477	1,165
Approx. value of land and buildings .. .. .	£ 360,572	360,783	374,418	374,886	391,619	373,377
Approx. value of plant and machinery .. .. .	£ 348,365	364,357	385,744	460,519	447,005	424,942
Total amount of wages paid .. .. .	£ 162,551	172,247	190,349	219,865	219,398	228,284
Value of fuel used .. .. .	£ 30,896	31,692	33,949	36,101	38,548	52,085
Value of raw material worked up .. .. .	£ 1,030,770	1,067,001	1,117,140	1,285,950	1,318,105	1,407,431
Value of final output .. .. .	£ 1,614,898	1,644,188	1,756,938	1,971,513	1,965,881	2,036,978
Value added in process of manufacture .. .. .	£ 584,128	577,187	639,798	685,563	647,776	629,547

<sup>a</sup> Including three bark milling establishments in Western Australia in 1914, and three oil establishments in 1915. <sup>b</sup> Excluding three soap and candle establishments in Western Australia, and one in Tasmania.

(iii) *Production of Soap and Candles, 1912 to 1917.* 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, 1912 TO 1917.

Particulars.	1912.	1913.	1914. <sup>a</sup>	1915. <sup>a</sup>	1916. <sup>a</sup>	1917. <sup>b</sup>
Soap .. .. . cwt.	688,722	700,878	697,807	729,984	727,349	584,972
Candles .. .. . "	130,785	129,877	110,734	104,986	102,775	91,066

<sup>a</sup> Exclusive of Western Australia, for which State particulars are not available for publication. <sup>b</sup> Exclusive of Queensland, Western Australia, and Tasmania, for which States particulars are not available for publication.

(iv) *Raw Materials Used, 1912 to 1917.* The following statement shows the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1912 to 1917:—

**RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1912 TO 1917.**

Particulars.		1912.	1913.	1914. <sup>a</sup>	1915. <sup>a</sup>	1916. <sup>a</sup>	1917. <sup>b</sup>
Tallow .. .. .	cwt.	411,701	391,133	410,235	439,402	416,649	341,707
Alkali .. .. .	..	135,643	135,231	153,624	159,344	154,348	125,258
Cocoonut oil .. .. .	gal.	489,329	457,693	460,561	485,851	630,298	520,684

<sup>a</sup> Exclusive of Western Australia, for which State figures are not available for publication.  
<sup>b</sup> Exclusive of Queensland, Western Australia, and Tasmania, for which States figures are not available for publication.

5. *Saw Mills, &c.*—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., 1917.**

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917. <sup>a</sup>	C'wealth.
Number of factories .. .. .	589	377	287	82	61	121	1,517
Number of employees .. .. .	6,654	5,814	4,015	1,018	2,018	1,383	20,902
Actual horse-power of engines employed .. .. .	16,560	9,481	8,932	1,505	5,588	1,767	43,833
Approximate value of land and buildings .. .. .	£ 871,453	358,705	210,786	150,743	239,905	69,913	1,901,505
Approximate value of plant and machinery .. .. .	£ 782,395	505,410	448,423	79,857	686,359	160,181	2,662,625
Total amount of wages paid during year .. .. .	£ 802,661	689,542	467,108	140,200	315,970	142,931	2,558,412
Value of fuel used .. .. .	£ 26,235	17,303	9,271	4,097	2,683	978	60,567
Value of raw material worked up .. .. .	£ 2,116,485	1,047,838	690,490	430,371	95,999	82,813	4,463,996
Total value of output .. .. .	£ 3,362,760	2,102,420	1,461,557	661,995	565,625	238,898	8,443,255
Value added in process of manufacture .. .. .	£ 1,246,275	1,054,582	771,067	231,624	469,626	206,085	3,979,259

<sup>a</sup> Includes one cooperage establishment.

The development of forest and other saw mills, etc., since 1912 is shewn in the following table:—

**DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, JOINERY, ETC., IN THE COMMONWEALTH FROM 1912 TO 1917.**

Items.	1912.	1913.	1914.	1915.	1916.	1917. <sup>a</sup>
Number of establishments .. .. .	1,609	1,670	1,623	1,567	1,526	1,517
Number of employees .. .. .	29,358	30,371	23,864	24,847	22,173	20,902
Actual horse-power of engines used .. .. .	40,256	45,634	47,341	46,479	44,456	43,833
Approx. value of land and buildings .. .. .	£ 1,754,241	2,008,035	2,063,437	1,969,758	1,845,812	1,901,505
Approx. value of plant and machinery .. .. .	£ 2,385,462	2,571,701	2,632,465	2,502,325	2,693,132	2,662,625
Total amount of wages paid .. .. .	£ 3,211,625	3,383,907	3,401,045	2,780,990	2,552,197	2,558,412
Value of fuel used .. .. .	£ 43,913	51,436	50,650	51,276	52,273	60,567
Value of raw material worked up .. .. .	£ 4,900,612	5,273,688	5,012,211	4,602,863	4,487,201	4,463,996
Value of final output .. .. .	£ 9,882,810	10,411,923	10,100,683	8,892,082	8,297,110	8,443,255
Value added in process of manufacture .. .. .	£ 4,982,198	5,168,235	5,088,475	4,239,219	3,809,909	3,979,259

<sup>a</sup> Including one cooperage establishment in Tasmania.

The great development in the building and other trades in Australia using timber during the years immediately preceding the war was reflected in the very satisfactory progress of the timber industries, in which there were large increases in wages paid, value of materials used, and final output, as well as in capital invested in land and buildings, and plant and machinery. For the past four years, however, there was, as might have been expected, a fairly considerable decline on the returns for 1913.

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 the so-called "New Protection" system was sought to be applied. 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 1917:—

#### AGRICULTURAL IMPLEMENT WORKS, 1917.

Items.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S.A. 1916-17.	W.A. 1917. <sup>a</sup>	Tas. 1917. <sup>a</sup>	C'wealth.
Number of factories .. ..	21	63	7	51	..	..	142
Number of employees .. ..	444	1,900	69	900	..	..	3,313
Actual horse-power of engines employed	248	1,362	92	911	..	..	2,613
Approx. value of land and buildings £	99,151	165,930	10,152	65,288	..	..	340,521
Approx. value of plant and machinery £	36,134	218,450	8,306	76,354	..	..	339,244
Total amount of wages paid during year £	61,611	250,450	6,611	108,430	..	..	427,102
Value of fuel used .. .. £	2,312	18,666	331	6,350	..	..	27,659
Value of raw material worked up .. £	303,866	359,342	6,666	128,236	..	..	798,110
Total value of output .. .. £	417,450	743,196	17,875	287,434	..	..	1,465,955
Value added in process of manufacture £	113,584	383,854	11,209	159,198	..	..	667,845

<sup>a</sup> Western Australia has three agricultural implement establishments and Tasmania one, but separate details are not available for publication.

The following table shews the conditions of this industry during the years 1912 to 1917 to have been somewhat fluctuating. A general decline took place during 1914 and 1915, attributable to various causes, the recent drought and a reduction in the exports to other countries being the principal contributing factors. The 1916 and 1917 figures, however, shew more satisfactory results, being an advance on either of the two previous years as regards material worked up and output:—

#### DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE COMMONWEALTH, FROM 1912 TO 1917.

Items.	1912.	1913.	1914.	1915.	1916.	1917. <sup>a</sup>
Number of factories .. ..	159	154	154	153	151	142
Number of employees .. ..	4,733	4,444	3,865	3,606	3,538	3,313
Actual horse-power of engines used ..	2,419	2,698	2,665	2,905	2,811	2,613
Approx. value of land and buildings £	331,348	348,666	360,916	363,166	355,108	340,521
Approx. value of plant and machinery £	281,923	309,015	324,292	337,459	338,397	339,244
Total amount of wages paid .. .. £	527,406	502,244	466,686	428,370	425,866	427,102
Value of fuel used .. .. £	30,961	30,408	29,892	29,167	29,067	27,659
Value of raw material worked up .. £	751,596	824,556	749,153	664,412	757,231	798,110
Value of final output .. .. £	1,538,421	1,536,378	1,413,789	1,299,308	1,457,645	1,465,955
Value added in process of manufacture £	786,825	711,822	664,636	634,896	700,414	667,845

<sup>a</sup> Excluding three establishments in Western Australia and one in Tasmania.

**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, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917. <sup>a</sup>	Tas. 1917.	C'wealth.
Number of factories .. .. .	326	395	86	67	68	20	962
Number of employees .. .. .	10,600	8,102	1,855	1,535	1,119	332	23,543
Actual horse-power of engines empl'd ..	28,360	8,775	1,908	1,417	1,740	302	42,502
Approx. value of land and buildings £	1,387,692	676,390	185,139	137,606	167,043	27,735	2,581,605
Approx. value of plant & machinery £	2,829,786	871,770	208,429	162,889	166,268	34,925	4,274,067
Total amount of wages paid during year .. .. .	£ 1,555,851	£ 1,054,625	£ 250,480	£ 195,149	£ 167,539	£ 42,094	£ 3,265,738
Value of fuel used .. .. .	£ 275,596	£ 107,925	£ 13,370	£ 18,327	£ 13,279	£ 2,951	£ 431,448
Value of raw materials worked up .. .. .	£ 3,689,404	£ 1,471,313	£ 260,700	£ 229,000	£ 245,613	£ 36,134	£ 5,932,214
Total value of output .. .. .	£ 6,242,237	£ 3,130,441	£ 630,784	£ 512,026	£ 486,635	£ 94,618	£ 11,096,741
Value added in process of m'ufacture £	2,552,833	1,659,128	370,084	283,026	241,022	58,434	5,164,527

<sup>a</sup> 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 1912 is shewn in the following table :—

### DEVELOPMENT OF ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, FROM 1912 TO 1917.

Items.	1912.	1913.	1914.	1915.	1916.	1917. <sup>a</sup>
Number of factories .. .. .	877	919	950	950	956	962
Number of employees .. .. .	25,151	26,014	25,766	25,219	25,718	23,543
Actual horse-power of engines used .. .. .	18,744	20,630	33,630	34,049	39,658	42,502
Approx. value of land and buildings £	1,792,169	1,980,453	2,264,889	2,315,984	2,424,759	2,581,605
Approx. value of plant and machinery £	1,953,478	2,188,935	2,946,347	2,988,650	3,655,662	4,274,067
Total amount of wages paid .. .. .	£ 2,846,180	£ 3,044,263	£ 3,143,920	£ 3,134,873	£ 3,468,260	£ 3,265,738
Value of fuel used .. .. .	£ 195,729	£ 217,173	£ 357,071	£ 369,170	£ 420,139	£ 431,448
Value of raw material worked up .. .. .	£ 3,536,179	£ 3,719,643	£ 3,960,252	£ 4,005,914	£ 4,718,516	£ 5,932,214
Value of final output .. .. .	£ 7,930,060	£ 3,315,320	£ 3,881,777	£ 3,944,601	£ 10,205,424	£ 11,096,741
Value added in process of manufacture £	4,393,881	4,595,677	4,921,525	4,938,687	5,486,908	5,164,527

<sup>a</sup> Including three agricultural implement establishments in Western Australia.

The progress in these industries during late years has been very marked. Since 1912 the number of establishments has increased over 9½ per cent., the amount of wages paid 14.74 per cent., the amount of capital invested in land, buildings, plant and machinery, 83 per cent., and the output nearly 40 per cent.

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, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	40	17	12	10	8	7	94
Number of employees .. ..	9,342	4,180	2,459	2,917	1,380	288	20,566
Actual horse-power of engines employed .. ..	5,814	1,534	2,960	653	2,206	196	13,363
Approximate value of land and buildings .. ..	£ 1,129,568	398,920	356,964	274,388	442,517	7,075	2,609,432
Approximate value of plant and machinery .. ..	£ 1,138,214	323,798	255,014	202,682	471,084	89,449	2,480,239
Total amount of wages paid during year .. ..	£ 1,573,091	615,960	400,999	402,211	229,856	48,700	3,270,817
Value of fuel used .. ..	£ 30,807	25,087	8,531	8,594	12,923	1,959	87,701
Value of raw material worked up .. ..	£ 836,291	665,650	181,776	171,964	136,516	18,091	2,010,288
Total value of output .. ..	£ 2,507,143	1,409,770	608,158	600,766	366,456	74,647	5,566,940
Value added in process of manufacture .. ..	£ 1,670,852	744,120	426,382	428,802	229,940	56,556	3,556,652

(ii) *Northern Territory Railway Workshops.* 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, 1912 to 1917.* The following table shews the development of railway and tramway workshops in the Commonwealth since 1912 :—

## DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, ETC., FROM 1912 TO 1917.

Items.	1912.	1913.	1914.	1915.	1916.	1917.
Number of factories .. ..	73	73	75	77	92	94
Number of employees .. ..	19,662	26,014	21,745	22,224	22,995	20,566
Actual horse-power of engines used .. ..	9,637	9,581	11,025	12,571	14,350	13,363
Approximate value of land and buildings .. ..	£ 2,128,273	2,213,697	2,378,764	2,471,731	2,548,223	2,609,432
Approximate value of plant and machinery .. ..	£ 1,563,710	1,685,050	2,141,654	2,236,578	2,389,065	2,480,239
Total amount of wages paid .. ..	£ 2,702,711	3,018,988	3,086,734	3,174,946	3,409,265	3,270,817
Value of fuel used .. ..	£ 75,476	77,155	90,332	90,490	92,200	87,701
Value of raw material worked up .. ..	£ 2,574,737	2,874,535	2,492,217	2,363,785	2,234,063	2,010,288
Value of final output .. ..	£ 5,695,221	6,435,823	6,134,588	6,046,521	6,298,338	5,566,940
Value added in process of manufacture .. ..	£ 3,120,484	3,561,288	3,642,371	3,682,736	3,974,275	3,556,652

The growth of the railway and tramway systems, conjointly with heavy increases in passenger and goods traffic throughout the Commonwealth during the past few years, has resulted in corresponding activity in workshops engaged in the manufacture or repair of rolling stock, etc. The above table shews that for the period 1912 to 1916, the number of employees increased 17 per cent., the amount of wages paid 26 per cent., the final output 10½ per cent., while the value added in process of manufacture shewed an increase of over 27 per cent.

The 1917 figures, however, reveal a general reduction on the figures for 1916. This decline is the result of the policy of economy adopted by the various State Governments, which largely control this industry, in view of the financial stringency caused by the war.

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 a 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, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W.A. <sup>a</sup> 1917.	Tasmania. 1917.	C'wealth.
Number of factories .. ..	31	30	13	6	..	3	83
Number of employes .. ..	3,675	204	167	2,252	..	567	6,865
Actual horse-power of engines employed .. ..	14,207	283	1,175	5,370	..	2,391	23,426
Approximate value of land and buildings .. .. £	288,241	11,390	16,420	266,953	..	18,911	601,915
Approximate value of plant and machinery .. .. £	1,330,852	32,140	101,002	257,228	..	68,597	1,789,819
Total amount of wages paid during year .. .. £	709,057	22,027	18,849	512,907	..	83,523	1,346,363
Value of fuel used .. .. £	233,489	6,671	9,102	284,612	..	45,291	579,165
Value of raw material worked up .. .. £	7,495,633	82,431	94,816	4,206,982	..	661,870	12,541,732
Total value of output .. .. £	10,502,882	135,048	145,507	5,797,109	..	1,425,426	18,005,972
Value added in process of manufacture .. .. £	3,007,249	52,617	50,691	1,590,127	..	763,556	5,464,240

<sup>a</sup> See third paragraph below.

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

The greatest output was in New South Wales, viz., £10,502,882, or 58 per cent. on the total output for the Commonwealth. South Australia came next with £5,797,109, or 32 per cent.; this amount is largely made up of smelting. For Tasmania the output of smelting was £1,425,426. The output in Victoria was pyrites, £62,749; smelting, £50,894; and cyanide and metallurgical works, £21,405.

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:—

## BACON-CURING FACTORIES, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17 <sup>a</sup>	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	21	23	7	14	4	5	74
Number of employes .. ..	226	433	429	230	24	19	1,361
Actual horse-power of engines employed .. ..	354	1,000	843	141	87	65	2,490
Approx. value of land and buildings .. .. £	81,767	94,505	103,238	19,281	9,676	4,886	313,353
Approx. value of plant and machinery .. .. £	27,798	59,710	54,853	11,937	5,674	1,447	161,419
Total amount of salaries and wages paid .. .. £	37,274	58,191	62,551	22,251	3,205	2,244	185,716
Value of fuel used .. .. £	6,671	7,243	7,066	2,088	388	355	23,811
Value of raw material worked up .. .. £	626,607	808,691	571,224	166,813	100,684	41,081	2,315,100
Total value of output .. .. £	719,848	972,477	956,123	235,427	104,247	46,115	3,034,237
Value added in process of manufacture .. .. £	93,241	163,786	384,899	68,614	3,563	5,034	719,137

<sup>a</sup> Including two meat preserving establishments employing 141 hands.

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

PRODUCTION OF BACON-CURING FACTORIES, 1917.

Particulars.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917. <sup>a</sup>	Tasmania. 1917.	C'wealth.
QUANTITY (,000 OMITTED).							
Bacon and ham .. lbs.	13,551	15,376	14,032	2,598	2,011	857	48,425
Lard .. lbs.	656	728	761	131	12	51	2,339

VALUE.

Bacon and ham .. £	640,643	897,775	739,152	130,685	104,561	40,147	2,552,963
Lard .. £	27,658	33,350	27,134	5,363	432	2,036	95,973
Other products .. £	39,123	41,352	189,837	11,437	..	3,932	285,681

PIGS KILLED.

Number .. ..	158,886	167,003	158,041	32,029	<i>b</i>	9,569	525,528
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<sup>a</sup> In Western Australia, a portion of the bacon and ham treated in factories is imported and subsequently smoked in that State. <sup>b</sup> 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 1917 :—

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17. <sup>a</sup>	W. Aust. 1917.	Tasmania. 1917.	C'wealth.
Number of factories ..	164	182	135	45	4	30	560
Number of employees ..	1,085	1,445	948	197	20	106	3,801
Actual horse-power of engines employed ..	3,148	3,030	2,096	377	64	246	8,961
Approximate value of land and buildings .. £	237,940	307,078	142,147	39,417	9,385	20,487	756,454
Approximate value of plant and machinery .. £	326,660	340,050	207,133	33,495	5,160	20,588	933,086
Total amount of wages paid £	167,486	185,024	125,309	19,982	2,813	10,218	510,832
Value of fuel used .. £	39,365	39,141	17,187	4,091	372	1,340	101,496
Value of raw material worked up .. £	4,917,520	3,924,632	2,591,278	457,953	30,771	206,366	12,128,520
Total value of output .. £	5,363,088	4,815,833	3,180,416	509,699	34,515	247,748	14,151,299
Value added in process of manufacture .. £	445,568	891,201	589,138	51,746	3,744	41,382	2,022,779

<sup>a</sup> Includes one margarine establishment.



(ii) *Development of Factories, 1912 to 1917.* 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, 1912 TO 1917.**

Items.	1912.	1913.	1914.	1915.	1916.	1917. <sup>a</sup>
Number of factories .. ..	530	531	528	536	559	560
Number of employees .. ..	3,518	3,507	3,568	3,300	3,287	3,801
Actual horse-power of engines used .. ..	8,156	7,726	7,895	7,948	8,329	8,961
Approx. value of land and buildings £	659,673	664,735	664,999	683,413	734,686	756,454
Approx. value of plant and machinery £	788,022	828,986	850,770	852,260	881,267	933,086
Total amount of wages paid .. ..	£ 385,793	£ 411,491	£ 439,121	£ 408,181	£ 403,136	£ 510,832
Value of fuel used .. ..	£ 70,155	£ 72,214	£ 81,809	£ 71,796	£ 70,053	£ 101,496
Value of raw material worked up .. ..	£ 8,676,346	£ 8,146,178	£ 8,709,272	£ 8,040,316	£ 7,763,596	£ 12,128,520
Value of final output .. ..	£ 9,760,205	£ 9,284,747	£ 9,898,398	£ 9,203,041	£ 8,974,067	£ 14,151,299
Value added in process of manufacture £	1,083,859	1,138,569	1,189,126	1,162,725	1,210,471	2,022,779

<sup>a</sup> 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 :—

**PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1917.**

Particulars.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
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QUANTITY (,000 OMITTED).

Butter .. .. lbs.	75,065	54,488	36,854	6,068	483	3,478	176,436
Cheese .. .. "	5,672	4,189	10,974	2,474	..	426	23,735
Condensed and concentrated milk .. .. "	5,830	33,281	9,409	..	..	..	48,520

VALUE (,000 OMITTED).

Butter .. .. £	4,859	3,864	2,530	420	34	234	11,941
Cheese .. .. £	209	159	407	77	..	14	866
Condensed and concentrated milk .. .. £	125	705	244	..	..	..	1,074

MILK USED (,000 OMITTED).

Butter factories .. gals.	166,095	126,330	77,571	12,312	1,028	8,657	391,993
Cheese .. .. "	5,848	4,084	10,080	2,462	..	429	22,903
Condensed milk factories .. "	1,693	12,293	2,893	..	..	..	16,879

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. Extensive meat freezing and canning works have recently been erected in the Northern Territory at Darwin at a cost of approximately £750,000. The Commonwealth Government has entered into an agreement with the proprietors in regard to the carriage of cattle at special rates provided that private owners of cattle may have their stock treated under reasonable terms and conditions. The killing season in the Northern Territory generally extends from April to August, and is necessarily short, because the drying of stock route waters precludes the travelling of stock to the freezing works. The works accommodation provides for killing and chilling 500 cattle, while 400 carcasses can be frozen and 200 canned per day. When the works are in full operation it is expected that from 400 to 500 head of stock will be treated daily, and that the annual killing will approximate 50,000 cattle. Operations were commenced early in 1917, and between April and August 18,911 cattle were treated. A dispute arose between the Company and the employees over the question of wages during the early part of 1918, and six weeks of the killing season were lost before an agreement was arrived at. Owing to the dispute, instead of from 40,000 to 50,000 bullocks being treated, only 29,011 could be handled during the 1918 season.

Particulars regarding the export of frozen beef and mutton may be found on pages 303 and 306 hereof respectively.

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

#### MEAT AND FISH PRESERVING, ICE AND REFRIGERATING WORKS, 1917.

Items.	N.S.W. 1916-17.	Vic. 1916-17. <sup>a</sup>	Q'land. 1917.	S.A. 1916-17. <sup>b</sup>	W.A. 1917.	Tas. 1917.	C'wealth.
Number of factories .. .. .	120	38	60	15	19	7	259
Number of employees .. .. .	2,241	1,150	4,929	158	113	42	8,631
Actual horse-power of engines employed	7,319	6,640	11,385	941	1,045	173	27,503
Approx. value of land and buildings £	812,056	571,380	1,425,260	177,491	46,762	11,164	3,044,113
Approx. value of plant and machinery £	633,681	316,827	877,566	84,242	56,404	8,172	1,976,892
Total amount of wages paid during year .. .. .	£ 260,659	145,776	788,525	17,446	17,131	3,456	1,232,993
Value of fuel used .. .. .	£ 53,148	36,363	96,304	6,729	7,814	1,668	202,026
Value of raw material worked up	£ 5,633,455	822,884	5,881,211	51,582	4,490	1,230	12,394,902
Total value of output .. .. .	£ 6,279,558	1,078,294	7,539,734	82,315	39,693	10,786	15,030,380
Value added in process of manufacture £	646,103	255,410	1,658,523	30,733	35,203	9,506	2,635,478

<sup>a</sup> Including two salt refining establishments.

<sup>b</sup> Excluding two meat preserving establishments employing 141 hands.

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

#### MEAT PRESERVING WORKS—OUTPUT, 1917.

Output.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Tinned meat .. cwt.	75,816 <sup>a</sup>	20,075	222,763 <sup>b</sup>	1,058 <sup>c</sup>	..	..	319,712

<sup>a</sup> Also 9,353 cwt. tinned rabbits. <sup>b</sup> Also 2,540 cwt. salted meat. <sup>c</sup> Exclusive of large quantity of tinned rabbits, particulars of which are not available for publication.

Large quantities of rabbits, hares, and poultry, for which, however, complete returns are not available, were treated in freezing works. During 1917, about 3,000,000 rabbits and hares were treated in Victoria alone. Exclusive of Victoria, for which State particulars are not available, the returns shew that 87,535 tons of ice, valued at £178,685, were manufactured in the Commonwealth in 1917.

Full particulars of quantities and value 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 1917:—

## BISCUIT, ETC., FACTORIES, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917. <sup>a</sup>	Tas. 1917.	C'wealth.
Number of factories .. ..	9	7	23	3	6	3	51
Number of employees .. ..	1,546	1,406	561	133	145	127	3,918
Actual horse-power of engines employed .. ..	810	386	360	97	136	79	1,868
Approximate value of land and buildings .. ..	£ 123,075	£ 73,680	£ 77,400	£ 19,056	£ 14,588	£ 20,600	£ 323,399
Approximate value of plant and machinery .. ..	£ 112,089	£ 61,015	£ 52,835	£ 11,112	£ 12,767	£ 10,075	£ 259,893
Total amount of wages paid during year .. ..	£ 107,472	£ 119,628	£ 63,045	£ 9,461	£ 10,806	£ 10,299	£ 320,711
Value of fuel used .. ..	£ 11,296	£ 12,122	£ 3,827	£ 1,784	£ 1,309	£ 1,152	£ 31,490
Value of raw material worked up .. ..	£ 518,114	£ 499,301	£ 168,745	£ 35,190	£ 43,205	£ 32,556	£ 1,297,111
Total value of output .. ..	£ 805,940	£ 735,158	£ 303,734	£ 61,266	£ 65,318	£ 57,410	£ 2,028,826
Value added in process of manufacture .. ..	£ 287,826	£ 235,857	£ 134,989	£ 26,076	£ 22,113	£ 24,854	£ 731,715

<sup>a</sup> Including one butterine and margarine, and one macaroni establishment.

14. **Jam and Fruit Preserving, Pickles, Sauces, and Vinegar.**—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 has shown considerable expansion during the past three years. During the year ended 30th June, 1918, 64,891,116 lbs. of jams and jellies, valued at £1,410,548, were exported from the Commonwealth. The subjoined table gives particulars of factories at which these industries were carried on in each State during the year. 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, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	41	35	22	26	8	18	150
Number of employees .. ..	1,197	2,181	377	468	71	1,029	5,323
Actual horse-power of engines employed .. ..	498	439	96	120	33	873	2,059
Approximate value of land and buildings .. ..	£ 148,696	£ 144,055	£ 23,169	£ 35,509	£ 5,162	£ 70,328	£ 426,919
Approximate value of plant and machinery .. ..	£ 69,036	£ 67,543	£ 17,335	£ 18,946	£ 2,211	£ 34,477	£ 209,548
Total amount of wages paid during year .. ..	£ 111,616	£ 180,083	£ 26,766	£ 29,262	£ 3,877	£ 92,189	£ 443,793
Value of fuel used .. ..	£ 7,691	£ 13,310	£ 1,581	£ 2,543	£ 486	£ 7,115	£ 32,726
Value of raw material worked up .. ..	£ 709,121	£ 836,430	£ 87,651	£ 141,106	£ 15,016	£ 482,642	£ 2,271,966
Total value of output .. ..	£ 966,829	£ 1,225,856	£ 148,838	£ 215,308	£ 24,422	£ 703,591	£ 3,284,844
Value added in process of manufacture .. ..	£ 257,708	£ 389,426	£ 61,187	£ 74,202	£ 9,406	£ 220,949	£ 1,012,878

The following table shows the quantity and value of jams, pickles, and sauces manufactured in each State:—

**QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCES MANUFACTURED, 1917.**

Particulars.	N.S.W. 1916-17.	Victoria, 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
QUANTITY (,000 OMITTED).							
Jams .. .. lbs.	32,932	38,810	2,113	8,057	<i>b</i>	28,268	c110,180
Fruit, preserved .. lbs.	5,310	10,651	4,304	2,417	<i>b</i>	5,163	c27,845
Pickles .. .. pints	2,077	1,803	<i>a</i>	164	93	16	4,153
Sauces .. .. pints	3,632	6,433	665	823	287	80	11,920
VALUE.							
Jams .. .. £	635,812	825,025	32,111	143,124	<i>b</i>	518,711	c2,154,783
Fruit, preserved .. £	95,100	210,038	64,875	32,940	<i>b</i>	101,305	c504,258
Pickles .. .. £	48,909	46,770	9,677	4,515	3,063	482	113,416
Sauces .. .. £	73,844	144,023	10,976	20,067	6,708	1,748	257,366

*a* Information not available. *b* Information not available for publication.  
*c* Exclusive of Western Australia.

15. **Confectionery.**—The following table shows the present 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, 1917.**

Items.	N.S.W. 1916-17.	Victoria, 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W.A. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	58	46	8	11	4	4	131
Number of employees .. ..	1,685	2,537	511	334	176	23	5,286
Actual horse-power of engines employed	804	1,377	150	366	185	20	2,802
Approx. value of land and buildings £	246,163	144,820	28,312	38,598	26,045	11,550	495,488
Approx. value of plant and machinery £	118,313	154,730	21,717	36,207	20,359	3,213	354,539
Total amount of wages paid during year .. .. £	168,652	217,562	36,855	23,703	14,419	1,876	463,067
Value of fuel used .. .. £	15,788	23,680	1,656	2,819	1,247	114	45,304
Value of raw material worked up .. £	629,656	725,093	88,328	91,182	40,944	14,150	1,586,353
Total value of output .. .. £	955,757	1,156,007	168,786	139,726	65,886	18,570	2,504,732
Value added in process of manufacture .. £	329,101	430,914	80,458	48,544	24,942	4,420	918,379

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

**FLOUR MILLS, 1917.**

Items.	N.S.W. 1916-17.	Victoria, 1916-17.	Q'land. 1917. <sup>a</sup>	S. Aust. 1916-17. <i>a</i>	W. Aust. 1917.	Tas. 1917. <sup>a</sup>	C'wealth.
Number of factories .. ..	62	54	12	44	15	14	201
Number of employees .. ..	1,097	897	239	567	325	127	3,252
Actual horse-power of engines employed	4,970	4,305	980	2,825	1,910	652	15,642
Approx. value of land and buildings £	385,674	206,450	71,972	119,152	105,245	53,050	941,543
Approx. value of plant and machinery .. £	342,141	292,020	81,943	154,245	108,850	28,650	1,007,849
Total amount of wages paid during year .. .. £	180,263	126,280	40,298	77,317	50,917	15,119	490,194
Value of fuel used .. .. £	32,129	28,642	4,828	19,962	10,070	2,701	98,032
Value of raw material worked up .. £	3,758,289	2,941,140	603,249	1,223,117	1,111,107	326,215	9,969,117
Total value of output .. .. £	4,259,361	3,458,633	717,481	1,396,770	1,308,046	346,593	11,486,884
Value added in process of manufacture .. £	501,072	517,493	114,232	167,653	196,939	20,378	1,517,767

<sup>a</sup> 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 1912 to 1917 was as follows :—

**FLOUR MILLS—PRODUCTION, 1912 TO 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>
1912 ..	255,359	225,376	25,855	103,100	49,319	18,044	677,053
1913 ..	285,425	252,763	33,889	107,994	61,997	18,545	760,613
1914 ..	266,302 <i>b</i>	246,136	35,402	84,701	61,922	19,382	713,845
1915 ..	266,302 <i>b</i>	134,401	39,734	49,404	32,396	19,573	541,810
1916 <i>c</i> ..	254,393	134,401	42,559	49,404	70,912	25,369	577,038
1917 <i>d</i> ..	331,233	263,095	46,244	105,925	102,300	21,178	869,975

*a* Tons of 2,000 lbs. *b* Year ended 30th June, 1915. *c* See note *a* first table this section.  
*d* See note *b* first table this section.

The total production of flour for the Commonwealth for the last year, viz., 869,975 tons, was valued at £9,468,254; in addition 370,910 tons of bran and pollard, valued at £1,850,620, were made. The total quantity of wheat ground was 41,896,892 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 the sugar-cane is grown.

**SUGAR MILLS, 1917.**

Items.	N.S.W. 1916-17.	Queensland. 1917.	Total.
Number of factories .. .. .	3	47	50
Number of employees .. .. .	427	5,500	5,927
Actual horse-power of engines employed .. .. .	1,491	14,095	15,586
Approximate value of land and buildings .. .. .	£ 54,000	457,741	511,741
Approximate value of plant and machinery .. .. .	£ 470,762	3,018,774	3,489,536
Total amount of wages paid during year .. .. .	£ 48,709	814,901	863,610
Value of fuel used .. .. .	£ 5,224	83,610	88,834
Value of raw material worked up .. .. .	£ 225,074	4,334,563	4,559,637
Total value of output .. .. .	£ 291,944	6,431,433	6,723,377
Value added in course of manufacture .. .. .	£ 66,870	2,096,870	2,163,740

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 in 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 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 1917.**

Items.	1870.	1877.	1886.	1896.	1901.	1911.	1913.	1914-15.	1915-16.	1916-17.
No. of factories	27	50	64	23	12	4	3	3	3	3
No. of employees	..	1,065	2,259	1,475	695	469	486	437	463	427
Cane crushed tons	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	167,799	135,910	181,606	157,748	143,558
Sugar produced tons	677	7,537	13,750	28,557	19,519	17,299	22,192	20,029	19,144	16,064
Molasses pro- duced gals.	..	345,543	507,000	2,520,580	1,300,909	796,440	966,000	1,104,000	1,099,000	781,870

*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 connection with the dairying industry.

## SUGAR MILLS, QUEENSLAND, 1868 TO 1917.

Items.	1868.	1876.	1886.	1896.	1901.	1911.	1915.	1916.	1917.
No. of factories ..	10	70	118	63	52	49	44	42	47
No. of employees ..		b	b	3,796	b	4,295	4,220	4,528	5,500
Cane crushed tons		7,245 <sup>c</sup>	40,756 <sup>c</sup>	66,640 <sup>c</sup>	78,160 <sup>c</sup>	1,534,451	1,152,516	1,579,514	2,704,211
Sugar produced tons	619	8,214	59,225	100,774	120,858	173,296	140,496	176,973	307,714
Molasses— Sold to distillers gals.						2,393,669	1,063,298	818,812	1,558,407
Used as fodder gals.						789,564	1,847,112	1,439,108	1,464,084
Used as manure gals.						223,000	64,400	54,600	627,000
Run to waste or burnt a gals.	b	b	b	b	b	1,847,333	1,892,201	3,232,835	6,986,813
In stock ..						1,197,626	869,914	797,084	878,332
Total molasses a gals.	68,622	416,415	1,784,266	2,195,470	3,679,952	6,451,192	5,736,925	6,342,439	11,514,636

a Quantity recorded; large quantities run to waste of which no record is kept. b No record.  
c Acres crushed. d Includes 45,360 gallons sold to other than distillers.

Information regarding the cultivation of sugar-cane may be found in the section of this book dealing with *Agricultural Production*. (See pages 363 to 365.)

**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 1917 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 1,689 hands was employed during the year. The approximate value of land and buildings was £460,243; of plant and machinery, £1,081,526; and the total amount of wages paid during the year was £235,060. The value of all materials used in sugar refineries was £5,855,935, while the total output reached £6,875,768. The amount of crude sugar used was 271,131 tons, and of refined sugar produced 263,145 tons, valued at £6,845,448.

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

## BREWERIES, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917 <sup>a</sup>	Tas. 1917.	C'wealth.
Number of breweries ..	22	19	10	9	13	4	77
Number of employees ..	1,003	866	430	309	459	124	3,191
Actual horse-power of engines employed ..	2,646	3,382	619	945	1,266	97	8,955
Approximate value of land and buildings ..	£ 632,628	£ 471,170	£ 134,126	£ 95,757	£ 174,857	£ 392,950	£ 1,901,488
Approximate value of plant and machinery ..	£ 678,879	£ 452,988	£ 120,555	£ 94,309	£ 174,855	£ 44,328	£ 1,565,914
Total amount of wages paid during year ..	£ 189,134	£ 168,041	£ 74,953	£ 54,532	£ 89,256	£ 18,771	£ 594,687
Value of fuel used ..	£ 36,971	£ 33,711	£ 10,690	£ 8,663	£ 11,730	£ 2,864	£ 104,629
Value of raw material worked up ..	£ 725,028	£ 505,579	£ 136,593	£ 121,452	£ 117,590	£ 31,326	£ 1,637,568
Total value of output ..	£ 1,436,733	£ 1,118,288	£ 556,175	£ 276,138	£ 444,177	£ 121,136	£ 3,952,647
Value added by processes of manufacture ..	£ 711,705	£ 612,709	£ 419,582	£ 154,686	£ 326,587	£ 89,810	£ 2,315,079

<sup>a</sup> 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 :—

**PRODUCTION AND MATERIALS USED IN BREWERIES, 1917.**

Particulars.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tasmania. 1917.	C'wealth.
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**ALE AND STOUT BREWED.**

Quantity	gallons	21,851,727	20,111,704	6,019,813	4,666,135	5,018,208	1,713,624	59,381,211
Value a ..	£	1,042,309	1,118,288	556,175	273,559	427,360	121,046	3,538,737

**RAW MATERIALS USED.**

Malt ..	bush.	678,206	616,630	181,067	125,513	157,024	61,505	1,819,945
Hops ..	lbs.	805,514	710,470	263,489	153,910	195,028	93,827	2,222,238
Sugar ..	cwt.	107,220	105,238	39,174	24,201	23,430	5,970	305,233

**RAW MATERIALS USED PER 1,000 GALLONS OF ALE AND STOUT PRODUCED.**

Malt ..	bush.	31.04	30.66	30.08	26.90	31.29	35.89	30.65
Hops ..	lbs.	36.86	35.33	43.77	32.98	38.86	54.75	37.42
Sugar ..	cwt.	4.91	5.23	6.51	5.19	4.67	3.48	5.14

a Exclusive of excise duty.

(iii) *Development of Breweries, 1912 to 1917.* The following table shews the progress of this industry during the past five years :—

**DEVELOPMENT OF BREWERIES FROM 1912 TO 1917.**

Items.	1912.	1913.	1914.	1915.	1916.	1917.
Number of breweries .. ..	110	101	95	90	86	77
Number of employes .. ..	3,532	3,551	3,535	3,295	3,179	3,191
Actual horse-power of engines used ..	5,078	6,930	8,313	8,430	8,882	8,955
Approx. value of land and buildings ..	£ 1,526,629	1,554,187	1,860,584	1,872,535	1,864,712	1,901,488
Approx. value of plant and machinery ..	£ 1,078,724	1,171,595	1,433,616	1,452,639	1,518,846	1,565,914
Total amount of wages paid .. ..	£ 523,812	552,843	575,446	548,632	560,004	594,687
Value of fuel used .. ..	£ 76,906	75,824	86,175	81,252	87,375	104,629
Value of raw material worked up .. ..	£ 1,494,070	1,568,620	1,534,656	1,494,974	1,548,615	1,637,568
Value of final output .. ..	£ 3,647,850	3,817,396	4,107,498	3,869,786	3,872,044	3,952,647
Value added in process of manufacture ..	£ 2,153,780	2,248,776	2,572,842	2,374,812	2,323,429	2,315,079

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 £3,647,850 in 1912 to £3,952,647 in 1917, while the quantity of ale and stout brewed during the same period decreased from 60,671,882 to 59,381,211 gallons. The average production per head of mean population likewise decreased from 13.06 gallons per head for 1912 to 12.17 gallons for 1917.

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

## DISTILLERIES, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth
Number of distilleries .. ..	3	9	3	18	..	..	33
Number of employees .. ..	34	136	38	91	..	..	299
Actual horse-power of engines employed	132	299	77	224	..	..	732
Approx. value of land and buildings £	22,230	107,135	12,725	34,771	..	..	176,861
Approx. value of plant and machinery £	62,165	79,230	17,455	26,469	..	..	185,319
Total amount of wages paid during year £	7,369	20,117	5,701	9,845	..	..	43,032
Value of fuel used .. ..	£ 2,339	5,488	3,486	2,947	..	..	14,260
Value of raw materials worked up ..	£ 58,811	91,117	14,105	63,708	..	..	227,741
Total value of output .. ..	£ 83,805	147,538	86,164	87,251	..	..	404,758
Value added in process of manufacture £	24,994	56,421	72,059	23,543	..	..	177,017

The total quantity of rum distilled during the year was 889,402, of whisky 307,401, of brandy 171,042, and of other spirits 2,323,393 gill gallons. The materials used comprised 2,120,964 cwt. of molasses and sugar, and 2,991,836 gallons of wine. Particulars for the separate States are not available for publication.

21. **Tobacco, Cigars, and Cigarettes.**—(i) *Details for each State.* During the year there were thirty-five 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, 1917.

Items.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917. <sup>a</sup>	S.A. 1916-17.	W.A. 1917.	Tas. 1917.	C'wealth. <sup>b</sup>
Number of factories .. ..	15	13	5	2	3	..	36
Number of employees .. ..	1,930	1,711	137	c	36	..	3,814
Actual horse-power of engines employed	462	376	95	c	1	..	934
Approx. value of land and buildings £	217,853	176,170	27,184	c	3,045	..	424,252
Approx. value of plant and machinery £	131,878	114,760	13,201	c	533	..	260,372
Total amount of wages paid during year £	210,237	211,866	13,826	c	2,213	..	438,142
Value of fuel used .. ..	£ 8,815	3,796	889	c	23	..	13,523
Value of raw material worked up ..	£ 1,379,799	920,872	38,898	c	4,494	..	2,344,063
Total value of output .. ..	£ 1,983,839	1,470,715	79,367	c	9,783	..	3,543,704
Value added in process of manufacture £	604,040	549,843	40,469	c	5,289	..	1,199,641

<sup>a</sup> Including one condiment and two malting establishments.

<sup>b</sup> Exclusive of South Australia.

<sup>c</sup> Not available for publication.

(ii) *Quantity 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, 1917.

Particulars.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
QUANTITY (,000 OMITTED).							
Manufactured tobacco .. lbs.	5,013	6,090	a	..	4	..	511,107
.. .. f lbs.	101	297	..	a	a	..	898
Cigars .. .. { No.	8,882	26,269	..	a	a	..	535,151
.. .. { lbs.	2,791	284	..	..	a	..	63,075
Cigarettes .. .. { No.	1,245,560	123,480	..	..	a	..	51,369,040

## TOBACCO LEAF USED (,000 OMITTED).

	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Australian leaf .. .. lbs.	863	656	a	a	..	..	c1,636
Imported leaf .. .. lbs.	6,240	5,254	a	a	19	..	c11,530

<sup>a</sup> Not available for publication.

<sup>b</sup> Incomplete.

<sup>c</sup> Including Queensland and South 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 1917-18 were—manufactured tobacco 1,044,607 lbs., cigars 140,044 lbs., and cigarettes 107,558 lbs., while the quantities manufactured in Australian factories were respectively 11,107,323 lbs., 397,507 lbs., and 3,074,727 lbs. The following tables show the development of the tobacco manufacturing industry in the Commonwealth during recent years:—

**DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE COMMONWEALTH, 1912 TO 1917.**

Items.	1912.	1913.	1914.	1915. <sup>a</sup>	1916. <sup>a</sup>	1917. <sup>b</sup>
Number of factories .. .. .	35	36	36	34	35	38
Number of employes .. .. .	3,484	3,566	3,658	3,547	3,739	3,814
Actual horse-power of engines used .. .. .	917	1,119	808	826	914	934
Approx. value of land and buildings £ .. .. .	349,022	353,447	402,462	404,593	412,068	424,252
Approx. value of plant and machinery £ .. .. .	227,294	231,547	248,532	241,501	253,953	260,372
Total amount of wages paid .. .. .	£ 358,081	£ 373,963	£ 380,821	£ 370,227	£ 394,435	£ 438,142
Value of fuel used .. .. .	£ 4,267	£ 4,053	£ 7,365	£ 7,607	£ 9,720	£ 13,523
Value of raw material worked up .. .. .	£ 1,622,713	£ 1,651,226	£ 1,905,489	£ 1,950,525	£ 2,124,204	£ 2,344,063
Value of final output .. .. .	£ 2,696,157	£ 2,713,363	£ 3,006,482	£ 3,041,050	£ 3,223,433	£ 3,543,704
Value added in process of manufacture £ .. .. .	£ 1,073,444	£ 1,062,137	£ 1,100,993	£ 1,081,525	£ 1,099,229	£ 1,199,641

**PRODUCTION.**

Tobacco made .. .. . 1,000 lbs.	10,298	9,956	9,964	9,776	10,306	11,107
Cigars .. .. . "	389	406	401	365	362	398
Cigarettes .. .. . "	2,606	2,768	3,197	3,175	3,351	3,075
Leaf used .. .. . "	11,827	11,677	12,091	11,858	12,541	13,166

<sup>a</sup> Including four condiment establishments in Western Australia. <sup>b</sup> Including one condiment and two malting establishments in Queensland, and excluding two cigar factories in South Australia. <sup>c</sup> Exclusive of two factories in South Australia. <sup>d</sup> 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, shows that the industry is now well established:—

**WOOLLEN, COTTON, AND TWEED MILLS, 1917.**

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917. <sup>a</sup>	S. Aust. 1916-17. <sup>b</sup>	W.A. 1917.	Tas. 1917.	C'wealth.
Number of factories .. .. .	6	10	4	3	..	4	27
Number of employes .. .. .	1,034	2,049	184	235	..	253	3,755
Actual horse-power of engines employed .. .. .	2,478	3,215	591	324	..	245	6,853
Approx. value of land and buildings £ .. .. .	135,609	145,790	20,819	19,023	..	21,250	342,491
Approx. value of plant and machinery .. .. .	£ 188,158	£ 276,330	£ 32,952	£ 34,064	..	£ 40,133	£ 571,637
Total amount of wages paid during year .. .. .	£ 120,783	£ 181,358	£ 16,158	£ 15,510	..	£ 18,831	£ 352,640
Value of fuel used .. .. .	£ 14,108	£ 24,205	£ 1,949	£ 2,188	..	£ 1,613	£ 44,063
Value of raw material worked up .. .. .	£ 432,042	£ 535,409	£ 29,121	£ 34,628	..	£ 45,441	£ 1,076,641
Total value of output .. .. .	£ 712,531	£ 1,006,635	£ 69,720	£ 63,956	..	£ 95,309	£ 1,948,151
Value added in process of manufacture .. .. .	£ 280,489	£ 471,226	£ 40,599	£ 29,328	..	£ 49,868	£ 871,510

<sup>a</sup> Including two dyeworks and cleaning establishments.  
<sup>b</sup> Including one ostrich feather dressing establishment.

(ii) *Progress of Industry, 1912 to 1917.* The progress of woollen and tweed manufactories in the Commonwealth during the last five years is shewn in the following table:—

**DEVELOPMENT OF WOOLLEN, COTTON, AND TWEED MILLS IN THE  
COMMONWEALTH FROM 1912 TO 1917.**

Items.	1912.	1913. <i>a</i>	1914. <i>a</i>	1915. <i>a</i>	1916. <i>a</i>	1917. <i>ab</i>
Number of factories .. .. .	32	22	22	22	23	27
Number of employees .. .. .	3,379	3,090	2,290	3,620	3,927	3,755
Actual horse-power of engines used .. .. .	3,692	4,358	5,072	5,364	5,538	6,853
Approx. value of land and buildings £	307,049	299,306	311,391	310,114	319,273	342,491
Approx. value of plant and machinery £	497,827	516,659	532,084	537,840	553,671	571,637
Total amount of wages paid .. .. .	£ 232,561	£ 231,018	£ 257,590	£ 313,826	£ 357,137	£ 352,640
Value of fuel used .. .. .	£ 22,709	£ 21,778	£ 27,306	£ 36,275	£ 40,283	£ 44,063
Value of raw material worked up .. .. .	£ 468,728	£ 475,637	£ 603,387	£ 836,298	£ 971,144	£ 1,076,641
Value of final output .. .. .	£ 930,485	£ 925,602	£ 1,152,657	£ 1,615,223	£ 1,888,115	£ 1,948,151
Value added in process of manufacture £	£ 461,757	£ 449,965	£ 549,270	£ 778,925	£ 916,971	£ 871,510

*a* Excluding manufactures of hosiery and knitted goods, numbering 13 establishments in 1912, included in New South Wales returns previous to 1913. *b* Including two dyeworks and cleaning establishments in Queensland, and one ostrich feather dressing establishment in South Australia.

(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 1917 was 4,161,069 yards. In New South Wales 2,194,955 yards of tweed and cloth, and in Victoria 1,238,363 yards were manufactured. The production of flannel in the Commonwealth amounted to 6,077,108 yards, while blankets, shawls, and rugs to the number of 810,217 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 a mill was lately reopened at Ipswich in Queensland.

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 latest available particulars of this industry for each State:—

**BOOT AND SHOE FACTORIES, 1917.**

Items.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S.A. 1916-17.	W.A. 1917.	Tas. 1917.	C'wealth.
Number of factories .. .. .	115	201	26	32	15	10	399
Number of employees .. .. .	4,396	8,494	1,108	792	247	249	15,286
Actual horse-power of engines employed .. .. .	1,343	1,674	246	218	55	54	3,590
Approx. value of land and buildings £	311,468	311,240	38,401	51,045	22,703	15,694	750,551
Approx. value of plant and machinery £	155,947	218,710	24,506	31,127	9,769	7,330	447,389
Total amount of wages paid during year £	492,534	843,772	111,868	82,884	24,518	19,047	1,574,623
Value of fuel used .. .. .	£ 12,706	£ 15,074	£ 1,086	£ 1,555	£ 637	£ 73	£ 31,131
Value of raw material worked up .. .. .	£ 1,120,340	£ 2,171,812	£ 221,514	£ 150,742	£ 65,999	£ 53,931	£ 3,784,338
Total value of output .. .. .	£ 1,829,323	£ 3,460,404	£ 399,246	£ 268,643	£ 103,964	£ 81,468	£ 6,143,048
Value added in process of manufacture £	£ 708,983	£ 1,288,592	£ 177,732	£ 117,901	£ 37,965	£ 27,537	£ 2,358,710

(ii) *Progress of Industry, 1912 to 1917.* 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, 1912 TO 1917.**

Items.	1912.	1913.	1914.	1915.	1916.	1917.
Number of factories .. .. .	332	346	357	358	352	399
Number of employees .. .. .	13,341	13,456	13,192	13,175	13,322	15,286
Actual horse-power of engines used .. .. .	2,646	2,823	3,091	3,029	3,249	3,590
Approx. value of land and buildings £	598,659	629,787	656,576	677,307	692,673	750,551
Approx. value of plant and machinery £	398,014	429,994	415,695	418,529	428,837	447,389
Total amount of wages paid .. .. .	£ 1,144,465	£ 1,154,658	£ 1,193,900	£ 1,220,987	£ 1,244,700	£ 1,574,623
Value of fuel used .. .. .	£ 17,244	£ 18,073	£ 18,902	£ 20,713	£ 22,248	£ 31,131
Value of raw material worked up .. .. .	£ 2,184,750	£ 2,308,194	£ 2,437,169	£ 2,673,016	£ 2,793,391	£ 3,784,338
Value of final output .. .. .	£ 3,819,371	£ 4,004,486	£ 4,156,590	£ 4,486,885	£ 4,617,322	£ 6,143,048
Value added in process of manufacture £	£ 1,634,621	£ 1,696,292	£ 1,719,421	£ 1,813,369	£ 1,823,931	£ 2,358,710

The above table furnishes evidence of substantial and consistent development in the manufacture of boots and shoes in the Commonwealth during the period under review. Since 1912, the amount of wages paid increased from £1,144,465 to £1,574,623; the value of materials used from £2,184,750 to £3,784,338; and the final output from £3,819,371 to £6,143,048.

(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, 1917.**

Particulars.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
QUANTITY (,000 OMITTED).							
Boots and shoes .. .. . pairs	3,784	6,211	757	613	197	172	11,734
Slippers .. .. . pairs	389	213	18	15	2	..	637
Uppers <i>a</i> .. .. . pairs	56	20	31	9	..	6	122
VALUE.							
Boots and shoes .. .. . £	1,718,177	3,427,730	362,770	233,865	89,974	77,858	5,910,374
Slippers .. .. . £	53,282	26,570	3,603	2,891	715	25	87,086
Uppers <i>a</i> .. .. . £	17,922	6,100	12,225	2,899	..	1,610	40,756

*a* Made for other than factory use.

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, 1917.**

Items.	N.S.W. 1916-17.	Vic. 1916-17.	Q'land. 1917.	S.A. 1916-17.	W.A. 1917. <sup>a</sup>	Tas. 1917.	C'wealth.
Number of factories .. .. .	442	448	140	125	58	35	1,248
Number of employees .. .. .	9,857	9,904	3,437	2,162	952	487	26,799
Actual horse-power of engines employed .. .. .	493	496	245	104	76	12	1,426
Approx. value of land and buildings £	1,076,781	576,435	253,508	157,474	102,515	67,309	2,234,022
Approx. value of plant and machinery £	66,019	83,884	37,875	15,420	10,319	3,201	216,718
Total amount of wages paid during year £	786,743	667,228	230,983	139,020	81,327	36,366	1,941,667
Value of fuel used .. .. .	£ 11,256	£ 13,881	£ 5,150	£ 3,619	£ 1,942	£ 204	£ 36,052
Value of raw material worked up .. .. .	£ 1,118,572	£ 1,422,740	£ 413,798	£ 217,131	£ 132,763	£ 51,568	£ 3,356,572
Total value of output .. .. .	£ 2,407,601	£ 2,448,673	£ 798,455	£ 432,852	£ 258,794	£ 115,030	£ 6,461,405
Value added in process of manufacture £	£ 1,289,029	£ 1,025,933	£ 384,657	£ 215,721	£ 126,031	£ 63,462	£ 3,104,833

*a* Including two dyeworks and cleaning establishments.

The substantial development that has taken place in the tailoring and slop branch of this industry may be accepted as an indication of the general prosperity of the community. The value of the output increased from £5,807,431 in 1912 to £6,461,405 in 1917, or approximately 11½ per cent.

#### DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH FROM 1912 TO 1917.

Items.	1912.	1913.	1914.	1915.	1916.	1917. <sup>a</sup>
Number of factories .. ..	1,238	1,342	1,340	1,297	1,274	1,248
Number of employees .. ..	31,068	30,965	29,774	28,616	28,232	26,799
Actual horse-power of engines used .. ..	1,206	1,201	1,257	1,323	1,647	1,426
Approx. value of land and buildings £	2,155,643	2,212,346	2,219,346	2,195,419	2,053,674	2,234,022
Approx. value of plant and machinery £	173,706	191,752	209,167	214,967	221,940	216,718
Total amount of wages paid £	2,010,779	2,075,916	1,979,088	1,895,146	1,889,195	1,941,667
Value of fuel used .. ..	29,550	31,219	31,825	33,312	34,767	36,052
Value of raw material worked up £	2,696,987	2,732,241	2,864,893	3,096,134	3,403,019	3,356,572
Value of final output .. ..	5,807,431	5,878,119	5,953,001	6,125,272	6,447,853	6,461,405
Value added in process of manufacture £	3,110,444	3,145,878	3,088,108	3,029,138	3,044,834	3,104,833

<sup>a</sup> 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, 1917.

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	319	448	54	50	48	13	932
Number of employees .. ..	5,833	9,021	1,518	824	737	278	18,211
Actual horse-power of engines employed .. ..	223	331	18	13	15	2	602
Approximate value of land and buildings .. .. £	440,589	466,470	42,493	35,154	45,095	6,450	1,036,251
Approximate value of plant and machinery .. .. £	23,964	54,651	8,285	2,658	4,342	652	99,552
Total amount of wages paid during year .. ..	230,764	438,932	66,699	34,427	38,890	13,557	873,269
Value of fuel used .. ..	2,889	3,885	545	434	588	..	13,341
Value of raw material worked up £	452,405	912,630	104,784	48,826	55,605	21,195	1,595,495
Total value of output .. ..	905,275	1,629,543	200,088	103,398	101,680	36,741	2,976,725
Value added by process of manufacture .. .. £	452,870	716,863	95,304	54,572	46,075	15,546	1,381,230

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 FROM 1912 TO 1917.

Items.	1912.	1913.	1914.	1915.	1916.	1917.
Number of factories .. ..	994	995	991	892	890	932
Number of employees .. ..	18,476	18,217	17,318	15,616	16,383	18,211
Actual horse-power of engines used .. ..	371	376	410	428	509	602
Approx. value of land and buildings £	878,231	939,072	956,416	917,895	974,766	1,036,251
Approx. value of plant and machinery £	74,466	72,257	79,182	79,357	82,057	99,552
Total amount of wages paid £	748,222	772,748	759,221	714,131	749,377	873,269
Value of fuel used .. ..	9,143	9,238	9,164	9,440	10,746	13,341
Value of raw material worked up £	1,249,930	1,287,050	1,272,420	1,224,687	1,266,755	1,595,495
Value of final output .. ..	2,429,315	2,482,105	2,429,133	2,364,862	2,481,266	2,976,725
Value added in process of manufacture £	1,179,385	1,205,055	1,156,713	1,140,175	1,214,511	1,381,230

The amount of wages paid increased nearly 17 per cent. during the last five years, and the final output 22½ per cent. during the same period.

26. **Electroplating, Stereotyping, Printing, and Binding.**—The industries comprised under this head have long been firmly established in the Commonwealth, and they continue to make steady progress. During the past five years, the amount of wages paid has increased 14.08 per cent., the value of raw materials worked up 63.48 per cent., and the value of the final output 26.49 per cent.

The following table gives particulars of these industries in each State for the year 1917 :—

**ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS, 1917.**

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	410	380	139	76	64	24	1,093
Number of employees .. ..	7,952	7,309	2,823	1,268	1,000	708	21,060
Actual horse-power of engines employed .. ..	4,183	3,693	1,369	977	720	227	11,169
Approximate value of land and buildings .. .. £	1,501,957	848,105	464,433	285,512	229,707	57,294	3,387,008
Approximate value of plant and machinery .. .. £	1,067,214	887,045	313,557	181,660	151,858	63,303	2,664,637
Total amount of wages paid during year .. .. £	1,029,609	892,315	356,212	152,101	153,781	92,202	2,676,220
Value of fuel used .. .. £	32,451	26,466	15,178	6,277	5,188	1,741	87,301
Value of raw materials worked up .. .. £	1,205,287	1,162,083	323,827	175,620	169,812	75,511	3,112,140
Total value of output .. .. £	2,855,782	2,809,757	1,000,279	433,837	441,776	233,869	7,775,300
Value added in process of manufacture .. .. £	1,650,495	1,647,674	676,452	258,217	271,964	158,358	4,663,160

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, 1917.**

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	229	299	74	83	39	22	746
Number of employees .. ..	2,090	2,341	562	629	242	154	6,018
Actual horse-power of engines employed .. ..	1,095	727	270	450	169	56	2,767
Approximate value of land and buildings .. .. £	331,600	254,210	60,933	89,738	49,155	23,742	809,378
Approximate value of plant and machinery .. .. £	90,923	65,395	19,850	28,570	10,119	4,248	219,105
Total amount of wages paid during year .. .. £	235,436	224,354	50,922	62,275	25,277	13,485	611,749
Value of fuel used .. .. £	9,640	9,062	1,515	3,035	1,958	485	25,695
Value of raw material worked up .. .. £	230,085	249,406	62,742	70,384	35,788	17,454	665,859
Total value of output .. .. £	574,952	593,611	157,280	171,274	81,636	42,148	1,620,901
Value added in process of manufacture .. .. £	344,867	344,205	94,538	100,890	45,848	24,694	955,042

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 CABINET MAKING AND BILLIARD TABLE MAKING, 1917.**

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	184	191	65	25	31	9	505
Number of employes .. ..	2,431	1,843	1,043	692	332	226	6,567
Actual horse-power of engines employed .. ..	1,424	1,142	695	800	317	166	4,544
Approx. value of land and buildings £	316,156	234,140	95,139	59,545	56,608	18,710	780,298
Approx. value of plant and machinery .. ..	£ 68,523	51,100	37,137	28,649	12,482	6,313	204,204
Total amount of wages paid during year .. ..	£ 281,969	184,379	111,385	75,623	43,138	20,091	716,585
Value of fuel used .. ..	£ 7,658	4,240	2,576	1,755	1,339	263	17,831
Value of raw material used .. ..	£ 323,035	245,034	135,419	71,804	58,954	20,725	854,971
Total value of output .. ..	£ 708,828	524,611	305,101	164,623	116,384	53,760	1,873,307
Value added in process of manufacture .. ..	£ 385,793	279,577	169,682	92,819	57,430	33,035	1,018,336

29. Electric Light and Power Works.—Particulars of the electric light and power works of the Commonwealth for latest date available are given in the subjoined table. In 1912 there were 179 establishments employing 2,663 hands, whose salaries and wages amounted to £398,380; in 1917 these had increased to 261 establishments, 3,911 hands, salaries and wages £653,261, while the value of output had increased during the five years from £1,941,421 to £3,096,546.

**ELECTRIC LIGHT AND POWER WORKS, 1917.**

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17. <sup>a</sup>	W. Aust. 1917.	Tas. 1917.	C'wealth.
Number of factories .. ..	124	74	14	12	22	15	261
Number of employes .. ..	1,156	1,144	363	885	242	121	3,911
Actual horse-power of engines employed .. ..	90,302	42,144	14,234	17,439	32,970	11,762	208,851
Approx. value of land and buildings .. ..	£ 923,054	344,665	37,527	167,511	182,618	14,534	1,669,909
Approx. value of plant and machinery .. ..	£ 2,097,443	1,787,477	211,182	883,721	535,757	333,522	5,849,102
Total amount of wages paid during year .. ..	£ 213,644	178,430	54,431	136,418	46,203	24,135	653,261
Value of fuel used .. ..	£ 333,702	129,743	38,826	65,699	89,696	7,930	665,596
Total value of output .. ..	£ 1,232,775	673,769	326,774	433,810	281,914	97,504	3,096,546

<sup>a</sup> Including five gasworks.

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 thirteen 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 :—

**GAS AND COKE WORKS, 1917.**

Items.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17. <sup>a</sup>	W. Aust. 1917.	Tas. 1917. <sup>b</sup>	C'wealth. <sup>c</sup>
Number of factories .. ..	57	47	18	..	4	3	129
Number of employes .. ..	1,857	2,093	534	..	58	152	4,694
Actual horse-power of engines employed .. ..	4,654	1,985	174	..	43	31	6,887
Approx. value of land and buildings .. ..	£ 975,330	475,830	192,049	..	21,568	35,944	1,700,721
Approx. value of plant and machinery .. ..	£ 1,915,714	1,250,470	919,480	..	64,748	159,483	4,309,895
Total amount of wages paid during year .. ..	£ 305,204	365,777	92,896	..	11,281	27,872	803,030
Value of fuel used .. ..	£ 82,305	4,406	10,430	..	4,332	3,356	104,829
Value of raw material used .. ..	£ 631,693	383,675	92,413	..	23,744	28,270	1,159,795
Total value of output .. ..	£ 1,744,731	1,181,096	300,857	..	60,260	79,297	3,366,241
Value added in process of manufacture .. ..	£ 1,113,038	797,421	208,444	..	36,516	51,027	2,206,446

<sup>a</sup> Excluding five gasworks, particulars of which are not available for publication. <sup>b</sup> Including one establishment for the manufacture of electric apparatus. <sup>c</sup> Exclusive of South Australia.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1917 :—

**PRODUCTION OF GAS AND COKE WORKS, 1917.**

Particulars.	N.S.W. 1916-17.	Victoria. 1916-17.	Q'land. 1917.	S. Aust. 1916-17.	W. Aust. 1917.	Tas. 1917.	C'wealth.
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**QUANTITY.**

Gas made .. 1,000 cub. ft.	6,384,429	4,449,230	952,651	<i>a</i>	160,853	<i>a</i>	612,885,051
Coke .. .. tons	650,998	200,673	54,333	<i>a</i>	6,536	<i>a</i>	6955,681

**VALUE.**

Gas .. .. £	1,084,265	926,000	246,528	<i>a</i>	44,894	<i>a</i>	62,523,938
Coke .. .. £	538,364	175,000	41,096	<i>a</i>	9,523	<i>a</i>	6812,174

**COAL USED.**

Coal .. .. tons	998,617	317,450	98,292	<i>a</i>	12,537	<i>a</i>	61,493,568
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*a* Not available for publication.

*b* Including South Australia and Tasmania.