

SECTION XIII.

MANUFACTURING INDUSTRIES.

§ 1. General.

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

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

(ii) *Later Progress.* Soon after the discovery of gold, the construction of the first railways (1854) and the re-establishment of regular steamship communication with Europe (1856) helped to encourage the nascent industrial activity. The Colonies of New South Wales and Victoria, which had recently (1855) received the benefits of responsible government, soon turned their attention to the settlement of an agricultural population on the land. The Acts which were passed had a beneficial effect on the workers, giving them opportunities for employment not previously open to them, and fostering the manufacturing industries by increasing the measure of primary production. During the following years the various manufacturing industries prospered. The statistics of the States are not sufficiently complete or uniform to enable a statement of the progress of these industries to be given. The following table, however, shewing, so far as returns are available, the number of factories and the number of employees in each State at decennial periods from 1861 to 1911, and for each of the six years 1913 to 1918, 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 1918 manufacturing figures published in this issue for these three States are for the year ended 30th June, 1918, while Queensland, Western Australian, and Tasmanian figures are for the year ended 31st December, 1918.

NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 TO 1918.

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 ^d	823 ^d
1891	3,056	3,141	1,328 ^d	996 ^d	175
1901	3,367	3,249	2,110 ^d	1,335 ^d	662	420 ^e	11,143
1911	5,039	5,126	1,657	1,314	710	609	14,455
1913	5,346	5,613	1,838	1,353	763	623	15,536
1914	5,269 ^c	5,650	1,796	1,323	787	603	15,428
1915	5,269 ^c	5,413	1,775	1,266	780	589	15,092
1916 ^a	5,210	5,413	1,782	1,266	771	563	15,010
1917 ^b	5,356	5,445	1,793	1,286	759	540	15,179
1918 ^b	5,414	5,627	1,778	1,285	764	553	15,421

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

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

NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 TO 1918—
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 ^d	..	..
1881	..	31,191	43,209	..	10,995 ^d	..	..
1891	..	50,879	53,525	..	14,099 ^d	..	..
1901	..	66,135	66,529	26,172 ^d	19,283 ^d	12,198	7,466 ^e
1911	..	108,624	111,948	37,156	27,885	15,799	10,298
1913	..	120,400	118,744	42,363	28,511	17,299	9,784
1914	..	116,611 ^c	118,399	43,282	26,874	17,640	8,922
1915	..	116,611 ^c	113,834	42,079	25,496	14,631	8,420
1916 ^a	..	116,401	113,834	39,983	25,496	12,676	8,362
1917 ^b	..	117,997	116,970	40,446	26,010	12,168	8,079
1918 ^b	..	120,554	118,241	40,990	26,634	12,917	8,713

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 twelve 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>CLASS I.—TREATING RAW MATERIALS, 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>CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING. Docks and Slips Ship and Boat Building and Repairing</p>
<p>CLASS II.—OILS AND FAT, ETC. Oil and Grease Soap and Candles</p>	<p>CLASS VII.—CLOTHING AND TEXTILE FABRICS.</p>	<p>CLASS XIII.—FURNITURE, BEDDING, ETC. Bedding, Flock, and Upholstery Billiard Tables Furniture and Cabinet Making Picture Frames Window Blinds</p>
<p>CLASS III.—STONE, CLAY, GLASS, ETC. Bricks and Tiles Glass (including Bottles) Glass (Ornamental) Lime, Plaster, Cement and Asphalt Marble, Slate, etc. Modelling, etc. Pottery and Earthenware</p>	<p>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 Sailmaking</p>	<p>CLASS XIV.—DRUGS AND CHEMICALS, ETC. Chemicals, Drugs, and Medicines Fertilizers Paints, Varnishes, and By-products</p>
<p>CLASS IV.—WORKING IN WOOD. Boxes and Cases Cooperage Joinery Saw Mills Wood-turning, etc.</p>	<p>CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.</p>	<p>CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS. Surgical, Optical, and other Scientific Instruments</p>
<p>CLASS V.—METAL WORKS, MACHINERY, ETC. Agricultural Implements Brass and Copper Cutlery Engineering Galvanised Iron-working Ironworks and Foundries Lead Mills Railway Carriages Railway and Tramway Workshops Smelting Stoves and Ovens Tinsmithing Wireworking Other Metal Works</p>	<p>Electrotyping and Stereotyping Paper-making, Paper Boxes, Bags, etc. Photo-engraving Printing and Binding</p>	<p>CLASS XVI.—TIMEPIECES, JEWELLERY, AND PLATED WARE. Electro-plating Manufacturing Jewellery, etc.</p>
<p>CLASS VI.—FOOD AND DRINK, ETC. Bacon Curing Butter Factories Butterine and Margarine Cheese Factories Condensed Milk Meat and Fish Preserving Biscuits</p>	<p>CLASS IX.—MUSICAL INSTRUMENTS, ETC.</p>	<p>CLASS XVII.—HEAT, LIGHT, AND POWER.</p>
	<p>Musical Instruments and Sewing Machines</p>	<p>Coke Works Electric Apparatus Electric Light and Power Gas Works and Kerosene Lamps and Fittings, etc. Hydraulic Power</p>
	<p>CLASS X.—ARMS AND EXPLOSIVES.</p>	<p>CLASS XVIII.—LEATHERWARE (N.E.I.). Leather Belting, Fancy Leather Portmanteaux and Bags</p>
	<p>Arms and Explosives</p>	<p>CLASS XIX.—MINOR WARES. Basket and Wickerware, Matting, etc. Brooms and Brushware Rubber Goods Toys Umbrellas Other Industries</p>
	<p>CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.</p>	
	<p>Coach and Wagon Building Cycles and Motors Perambulators Saddlery, Harness, etc. Spokes, etc.</p>	

§ 2. Number of Factories.

I. General.—The presentation of the number of factories in each State does not furnish a clear indication of the extent or progress of the manufacturing industry throughout Australia.

Experience has shewn that the smaller establishments in many branches of industry tend to disappear before the superior competitive facilities of larger enterprises.

On the other hand, new factories are constantly under construction in districts advantageously located for manufacturing purposes, and small plants are as numerous as large ones.

The following table presents, for the years 1913 to 1918, the total number of factories in each State of the Commonwealth :—

FACTORIES IN THE COMMONWEALTH, 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1913 ..	5,346	5,613	1,838	1,353	763	623	15,536
1914 ..	5,269 ^c	5,650	1,796	1,323	787	603	15,428
1915 ..	5,269 ^c	5,413	1,775	1,266	780	589	15,092
1916 ^a ..	5,210	5,413	1,782	1,266	771	568	15,010
1917 ^b ..	5,356	5,445	1,793	1,286	759	540	15,179
1918 ^b ..	5,414	5,627	1,778	1,285	764	553	15,421

^a See note *a* first table this section. ^b See note *b* first table this section.
^c For year ended 30th June, 1915.

(i) *Classification of Factories in Commonwealth, 1913 to 1918.* The following table shows the total number of factories in the Commonwealth for each year from 1913 to 1918, classified on the basis indicated in § 1, 3 hereof :—

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1913 TO 1918.

Class of Industry.	1913.	1914. ^a	1915. ^a	1916. ^b	1917. ^c	1918. ^c
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	907	870	839	817	797	798
II. Treating oils and fats, animal, vegetable, etc. ..	100	101	99	96	92	90
III. Processes in stone, clay, glass, etc. ..	732	706	654	626	606	616
IV. Working in wood ..	1,712	1,764	1,702	1,661	1,646	1,713
V. Metal works, machinery, etc. ..	1,614	1,824	1,814	1,832	1,802	1,836
VI. Connected with food and drink, etc. ..	2,366	2,333	2,328	2,372	2,403	2,402
VII. Clothing and textile fabrics, etc. ..	3,266	3,254	3,117	3,085	3,176	3,177
VIII. Books, paper, printing and engraving ..	1,206	1,229	1,225	1,225	1,232	1,256
IX. Musical instruments, etc. ..	21	19	19	20	25	27
X. Arms and explosives ..	20	19	20	21	17	18
XI. Vehicles and fittings, saddlery and harness, etc. ..	1,396	1,365	1,337	1,334	1,374	1,423
XII. Ship and boat building and repairing ..	96	93	88	72	74	75
XIII. Furniture, bedding, and upholstery ..	719	703	693	697	704	722
XIV. Drugs, chemicals, and by-products ..	206	213	206	207	238	260
XV. Surgical and other scientific instruments ..	48	52	51	51	63	67
XVI. Jewellery, timepieces, and platedware ..	190	200	199	195	190	187
XVII. Heat, light, and power ..	420	454	474	466	479	489
XVIII. Leatherware, n.e.i. ..	67	65	67	69	74	81
XIX. Minor wares, n.e.i. ..	150	164	160	164	187	184
Total ..	15,536	15,428	15,092	15,010	15,179	15,421

^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.

For the purpose of the returns in the above table the definition of a factory adopted at the Conference of Statisticians in 1902 (see § 1, 2 hereof) is used, viz., "Any factory, workshop or mill where four or more persons are employed or power is used." The total number of factories has decreased by 115 since 1913. From 1913 to 1916 the decrease in the number of factories amounted to 526, but satisfactory increases of 169 and 242 factories respectively have been noticeable during the last two years. As previously pointed out, any increase or decrease in the number of factories from year to year does not necessarily indicate a change in the position of the industry.

(ii) *Classification of Factories in each State, 1918.* The following table shows 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, 1918.

Class of Industry.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
I. Treating raw material, product of agricul. & pastoral pursuits, etc.	253	310	41	107	38a	49a	798
II. Treating oils and fats, animal, vegetable, etc.	39	26	13	12	b	b	90
III. Processes in stone, clay, glass, etc.	282	172	39	67	34	22	616
IV. Working in wood	672	453	296	84	68	140	1,713
V. Metal works, machinery, etc.	617	717	214	171	78	39	1,836
VI. Connected with food & drink, etc.	794	649	477	243	139	100	2,402
VII. Clothing and textile fabrics, etc.	998	1,488	242	246	135	68	3,177
VIII. Books, paper, printing & engraving	471	451	146	89	73	26	1,256
IX. Musical instruments, etc.	15	11	..	1	..	..	27
X. Arms and explosives	5	12	..	1	..	..	18
XI. Vehicles and fittings, saddlery and harness, etc.	459	561	144	132	77	50	1,423
XII. Ship and boat building & repairing	35	13	10	7	4	6	75
XIII. Furniture, bedding and upholstery	256	274	80	51	43	18	722
XIV. Drugs, chemicals, and by-products	120	103	3	14	13	7	260
XV. Surgical and other scientific instruments	18	30	7	7	7	..	67
XVI. Jewellery, timepieces & platedware	50	92	17	15	8	5	187
XVII. Heat, light, and power	228	162	32	18	31	18	489
XVIII. Leatherware, n.e.i.	29	41	3	5	3	..	81
XIX. Minor wares, n.e.i.	75	62	14	15	13	5	184
Total	5,414	5,627	1,778	1,285	764	553	15,421

a Includes Class II.

b Included in Class I.

§ 3. Factories Classified by Number of Employees.

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

The following table shows, for each State, the number of factories classified according to number of hands employed, and the average number of hands employed therein, during 1918 :—

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1918.

No. of Persons Employed in each Factory.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
NUMBER OF FACTORIES.							
Under 4 ..	1,002	1,213	334	190	169	122	3,030
4 ..	507	615	165	133	79	68	1,567
5 to 10 ..	1,790	1,810	548	495	244	188	5,075
11 to 20 ..	941	881	328	207	135	76	2,568
21 to 50 ..	728	669	242	162	90	67	1,958
51 to 100 ..	244	243	76	62	29	23	677
Over 100 ..	202	196	85	36	18	9	546
Total ..	5,414	5,627	1,778	1,285	764	553	15,421

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1918—*continued.*

No. of Persons Employed in each Factory.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
AVERAGE NUMBER OF HANDS EMPLOYED.							
Under 4 ..	2,266	2,738	738	475	356	267	6,840
4 ..	2,028	2,460	660	532	316	272	6,268
5 to 10 ..	12,341	12,472	3,821	3,415	1,738	1,276	35,063
11 to 20 ..	13,702	12,804	4,778	2,952	1,933	1,085	37,254
21 to 50 ..	22,870	21,166	7,556	5,181	2,869	2,101	61,743
51 to 100 ..	17,182	16,559	5,369	4,318	2,047	1,564	47,039
Over 100 ..	50,165	50,042	18,068	9,761	3,658	2,148	133,842
Total	120,554	118,241	40,990	26,634	12,917	8,713	328,049

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 employes in all factories shews a decline from 26.70 per cent. in 1913 to 26.04 in 1918. The larger establishments with 101 hands and upwards during the same period exhibit an increase from 40.76 to 40.80 per cent. of total employed. The average number of hands per establishment in 1913 was 21.70, and in 1918, 21.27.

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO NUMBER OF HANDS EMPLOYED DURING THE YEARS 1913 TO 1918.

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.
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
1914 ^a —								
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
1915 ^a —								
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
1916 ^b —								
Number ..	12,081	83,263	2,386	98,107	543	135,382	15,010	316,752
Average per establishment ..	..	6.89	..	41.11	..	249.32	..	21.10
Percentage on total ..	80.49	26.29	15.90	30.97	3.61	42.74	100.00	100.00
1917 ^c —								
Number ..	12,158	84,685	2,491	102,695	530	134,290	15,179	321,670
Average per establishment ..	..	6.97	..	41.23	..	253.38	..	21.19
Percentage on total ..	80.10	26.33	16.41	31.92	3.49	41.75	100.00	100.00
1918 ^c —								
Number ..	12,240	85,425	2,635	108,782	546	133,842	15,421	328,049
Average per establishment ..	..	6.98	..	41.28	..	245.13	..	21.27
Percentage on total ..	79.37	26.04	17.09	33.16	3.54	40.80	100.00	100.00

^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.

§ 4. Factories Using Mechanical Power.

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

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

The principal motive power is steam, but the chief towns possess electric power stations owned either by the Government, or by public bodies or private companies. From 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 :—

UTILIZATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1918.

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.	Electricity.	Water.	Total.
N.S.W., 1917-18	4,444	970	5,414	175,232	14,110	1,795	67,719	248	259,104
Vict., 1917-18 ..	4,330	1,297	5,627	89,561	19,045	2,243	38,246	..	149,095
Q'land., 1918 ..	1,370	408	1,778	46,553	9,515	1,522	13,811	40	71,441
S. Aust., 1917-18	1,019	266	1,285	29,126	7,370	1,954	9,787	30	48,767
W. Aust., 1918 ..	627	137	764	38,580	5,374	780	6,489	..	51,223
Tas., 1918 ..	460	93	553	5,742	223	282	12,680	11,769	30,696
Commonwealth	12,250	3,171	15,421	384,794	56,137	8,576	148,732	12,037	610,326

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

The number of establishments in the Commonwealth using machinery worked by steam, gas, oil, electricity, or water was 12,250, or 79.44 per cent. of the total; 3,171 establishments, representing 20.56 per cent., used no mechanical power. The total actual horse-power in use was 610,326, distributed in the following proportions :— Steam, 63.05 per cent.; gas, 9.20 per cent.; oil, 1.40 per cent.; electricity, 24.37 per cent.; and water, 1.98 per cent.

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

UTILIZATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH, 1913 TO 1918.

Year.	Number of Establishments.			Actual Horse-power of Engines used.					
	Using Machinery worked by Steam, Gas, Oil, Electricity or Water.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Water.	Total.
1913	No. 11,239	No. 4,297	No. 15,536	H.P. 313,085	H.P. 48,677	H.P. 8,142	H.P. 72,250	H.P. ..	H.P. 442,154
1914 ^a	11,396	4,032	15,428	336,766	50,976	8,542	95,253	..	491,537
1915 ^a	11,438	3,654	15,092	333,494	54,994	8,558	107,788	..	504,834
1916 ^b	11,550	3,460	15,010	349,157	53,921	8,541	118,149	..	529,768
1917 ^c	11,931	3,248	15,179	358,346	54,825	8,687	131,819	6,584	560,261
1918 ^c	12,250	3,171	15,421	384,794	56,137	8,576	148,732	12,087	610,326

^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.

From this table it appears that the number of manufacturing establishments using power increased from 11,239 in 1913 to 12,250 in 1918, an increase of 1,011, or 9 per cent. During the same period the number of establishments using no power decreased from 4,297 to 3,171, a decrease of 1,126, or 26.2 per cent. The corresponding increase in the actual horse-power of engines used was 168,172, or 38.03 per cent.

(i) *Classification of Mechanical Power Used in Factories in each State.*—The following table gives a classification of the actual horse-power of engines used in factories of different descriptions in each State during 1918 :—

ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES IN EACH STATE, 1918.

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	H.P. 7,155	H.P. 6,493	H.P. 1,028	H.P. 2,099	H.P. 536	H.P. 531	H.P. 17,842
II. Treating oils and fats, animal, vegetable, etc. . .	1,286	616	135	245	..	..	2,282
III. Processes in stone, clay, glass, etc. . .	14,009	6,837	1,830	2,721	589	397	26,383
IV. Working in wood . . .	17,363	11,107	8,967	1,809	6,377	1,937	47,560
V. Metal works, machinery, etc. . .	54,162	13,421	6,389	10,265	4,234	5,963	94,434
VI. Connected with food and drink, etc. . .	27,914	28,894	33,358	7,994	5,491	1,739	105,300
VII. Clothing and textile fabrics, etc. . .	6,357	9,057	1,377	967	281	323	18,362
VIII. Books, paper, printing, and engraving . . .	6,901	5,833	1,311	1,212	732	236	16,225
IX. Musical instruments, etc. . .	404	254	..	6	..	..	664
X. Arms and explosives . . .	778	768	..	1	..	..	1,547
XI. Vehicles and fittings, saddlery and harness, etc. . .	1,994	1,337	431	693	249	147	4,851
XII. Ship and boat building and repairing . . .	3,773	1,282	120	77	30	28	5,310
XIII. Furniture, bedding, and upholstery . . .	2,500	1,654	831	931	422	229	6,576
XIV. Drugs, chemicals, and by-products . . .	2,439	2,518	35	2,019	1,060	31	8,102
XV. Surgical and other scientific instruments . . .	37	44	17	14	8	..	120
XVI. Jewellery, timepieces, and plated ware . . .	258	241	50	61	17	8	635
XVII. Heat, light, and power . . .	110,687	51,916	15,508	17,419	31,117	19,120	245,767
XVIII. Leatherware, n.e.i. . .	223	262	16	6	5	..	512
XIX. Minor wares, n.e.i. . .	855	6,561	38	228	75	7	7,764
Total . . .	259,104	149,095	71,441	48,767	51,223	30,696	610,326

(ii) *Classification of Mechanical Power Used in Factories in the Commonwealth, 1913 to 1918.*—The following table shews a similar classification of the actual horse-power of engines used in manufacturing industries in the Commonwealth during the years 1913 to 1918 inclusive :—

ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES IN THE COMMONWEALTH, 1913 TO 1918.

Class of Industry.	1913.	1914.	1915.	1916.	1917.	1918.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	H.P. 14,818	H.P. 14,723	H.P. 15,294	H.P. 15,963	H.P. 15,483	H.P. 17,842
II. Treating oils and fats, animal, vegetable, etc.	1,868	2,019	2,028	2,435	2,140	2,282
III. Processes in stone, clay, glass, etc. . .	23,496	26,298	25,554	24,736	24,275	26,383
IV. Working in wood	47,108	48,805	47,894	45,997	45,712	47,560
V. Metal works, machinery, etc.	65,987	75,579	77,646	85,733	86,991	94,434
VI. Connected with food and drink, etc. . .	80,437	88,183	92,923	94,477	100,803	105,390
VII. Clothing and textile fabrics, etc. . . .	13,961	14,885	15,470	16,353	17,923	18,362
VIII. Books, paper, printing, and engraving	12,498	13,897	13,987	14,125	14,590	16,225
IX. Musical instruments, etc.	489	480	480	448	613	664
X. Arms and explosives	805	753	855	910	1,739	1,547
XI. Vehicles and fittings, saddlery and harness, etc.	3,767	3,927	4,215	4,310	4,620	4,851
XII. Ship and boat building and repairing	5,361	5,844	5,824	4,333	5,445	5,310
XIII. Furniture, bedding, and upholstery . .	5,033	5,207	5,638	5,894	5,876	6,576
XIV. Drugs, chemicals, and by-products . .	5,760	6,242	6,201	6,555	7,386	8,102
XV. Surgical and other scientific instruments	66	61	74	72	109	120
XVI. Jewellery, timepieces, and plated ware	559	535	554	586	658	635
XVII. Heat, light, and power	158,017	181,124	185,558	202,232	217,980	245,767
XVIII. Leatherware, n.e.l.	349	377	369	377	444	512
XIX. Minor wares, n.e.l.	1,775	2,598	4,270	4,232	7,474	7,764
Total	442,154	491,537	504,834	529,768	560,261	610,326

From the above table it will be seen that the actual horse-power of engines used increased in practically all of the various branches of industry during the last five years. The industries using the greatest amount of power were Class XVII. Heat, light, and power; Class VI. Connected with food and drink; and Class V. Metal works, machinery, etc. These three classes, which together accounted for 73 per cent. of the total power used in 1918, increased their horse-power from 304,441 to 445,591 during the five years under review, and are mainly responsible for the development of mechanical power in factories since 1913.

§ 5. Numbers Employed in Australian Factories.

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

(i) *Average Numbers Employed, 1913 to 1918.* The following table shews, for each year from 1913 to 1918 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, 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
AVERAGE NUMBER.							
1913 ..	120,400	118,744	42,363	28,511	17,299	9,784	337,101
1914 ..	116,611 ^a	118,399	43,282	26,874	17,640	8,922	331,728
1915 ..	116,611 ^a	113,834	42,079	25,496	14,631	8,420	321,071
1916 ^b ..	116,401	113,834	39,983	25,496	12,676	8,362	316,752
1917 ^c ..	117,997	116,970	40,446	26,010	12,168	8,079	321,670
1918 ^c ..	120,554	118,241	40,990	26,634	12,917	8,713	328,049

PERCENTAGE ON COMMONWEALTH TOTAL.							
	%	%	%	%	%	%	%
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 ^b ..	36.75	35.94	12.62	8.05	4.00	2.64	100.00
1917 ^c ..	36.68	36.37	12.57	8.09	3.78	2.51	100.00
1918 ^c ..	36.75	36.04	12.49	8.12	3.94	2.66	100.00

PER 10,000 OF MEAN POPULATION.							
1913 ..	665	852	649	658	551	499	702
1914 ..	626 ^a	832	641	611	545	450	674
1915 ..	626 ^a	798	612	580	454	422	650
1916 ^b ..	622	798	590	580	403	422	642
1917 ^c ..	635	836	600	601	394	406	659
1918 ^c ..	638	838	595	611	415	428	663

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

(ii) *Rates of Increase, 1913 to 1918.* The following table shows the percentage of increase or decrease on the average number of persons employed for the preceding year from 1914 to 1918. 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, 1914 TO 1918.

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	%	%	%	%	%	%	%
1913-14 ..	-3.27 ^a	-0.29	2.17	-5.74	1.97	-8.81	-1.64
1914-15 ..	-3.27 ^a	-3.86	-2.78	-5.13	-17.06	-5.63	-3.21
1915-16 ^b ..	-0.18	-3.86	-4.98	-5.13	-13.36	-0.69	-1.35
1916-17 ^c ..	1.37	2.75	1.16	2.02	-4.01	-3.38	1.55
1917-18 ^c ..	2.17	1.09	1.35	2.40	6.16	7.85	1.98

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.

2. Classification of Numbers Employed in Factories in the Commonwealth, 1913 to 1918.—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1913 to 1918 inclusive:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES
IN THE COMMONWEALTH, 1913 TO 1918.**

Class of Industry.	1913.	1914. <i>a</i>	1915. <i>a</i>	1916. <i>b</i>	1917. <i>c</i>	1918. <i>c</i>
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	9,495	9,221	9,306	9,009	9,411	9,084
II. Treating oils and fats, animal, vegetable, etc.	2,091	2,259	2,523	2,399	2,554	2,726
III. Processes in stone, clay, glass, etc.	13,794	13,570	12,616	11,604	10,949	12,575
IV. Working in wood	31,640	30,137	26,030	23,336	22,079	24,112
V. Metal works, machinery, etc.	68,859	66,112	65,368	65,850	62,115	60,392
VI. Connected with food and drink, etc.	49,882	51,980	49,266	48,272	52,781	56,297
VII. Clothing and textile fabrics, etc.	84,237	81,076	78,952	80,292	83,201	82,002
VIII. Books, paper, printing and engraving	26,013	25,213	24,928	24,890	24,954	25,054
IX. Musical instruments, etc.	616	542	515	542	652	677
X. Arms and explosives	1,240	1,674	2,028	2,571	2,951	2,225
XI. Vehicles and fittings, saddlery and harness, etc.	13,913	13,125	12,350	12,006	12,196	12,672
XII. Ship and boat building and repairing	4,216	5,633	6,097	4,605	4,953	4,569
XIII. Furniture, bedding, and upholstery	10,462	9,534	8,961	8,716	9,072	9,542
XIV. Drugs, chemicals, and by-products	4,328	4,490	4,601	4,738	5,056	5,564
XV. Surgical & other scientific instruments	264	282	301	293	361	415
XVI. Jewellery, timepieces, and plated ware	2,170	2,026	1,878	1,835	1,975	2,119
XVII. Heat, light, and power	9,394	9,942	9,939	10,018	10,329	10,714
XVIII. Leatherware, n.e.l.	1,204	1,217	1,292	1,376	1,488	1,647
XIX. Minor wares, n.e.l.	3,297	3,695	4,120	4,400	4,613	4,763
Total	337,101	331,728	321,071	316,752	321,670	328,049

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.

The number of persons employed in factories decreased by 9,052 since 1913. Heavy decreases occurred in 1914, 1915, and 1916, consequent upon the withdrawal from industrial life of considerable numbers of the male population for war purposes, but during 1917, and again in 1918, satisfactory increases were recorded on the previous year's figures.

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

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES
IN EACH STATE, 1918.**

Class of Industry.	N.S.W. 1917-18.	Vic. 1917-18	Q'land. 1918.	S.A. 1917-18	W.A. 1918.	Tas. 1918.	C'wth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	3,973	3,632	746	929	365 <i>a</i>	339 <i>a</i>	9,984
II. Treating oils and fats, animal, vegetable, etc.	1,405	883	173	265	<i>b</i>	<i>b</i>	2,726
III. Processes in stone, clay, glass, etc.	6,040	3,921	823	1,142	409	240	12,575
IV. Working in wood	7,444	6,948	4,385	1,202	2,544	1,589	24,112
V. Metal works, machinery, etc.	26,188	16,183	5,770	8,255	2,518	1,478	60,392
VI. Connected with food and drink, etc.	16,886	17,100	15,001	3,549	1,906	1,855	56,297
VII. Clothing and textile fabrics, etc.	26,399	40,312	6,994	4,867	2,132	1,298	82,002
VIII. Books, paper, printing, and engraving	9,562	8,940	2,916	1,860	1,085	691	25,054
IX. Musical instruments, etc.	433	229	..	3	..	..	677
X. Arms and explosives	1,192	1,030	..	15	..	..	2,225
XI. Vehicles and fittings, saddlery, and harness, etc.	4,299	4,654	1,302	1,478	544	395	12,672
XII. Ship and boat building & repairing	3,619	653	115	112	20	50	4,569
XIII. Furniture, bedding, and upholstery	3,760	2,867	1,240	907	447	321	9,542
XIV. Drugs, chemicals, and by-products	2,210	2,207	91	692	343	21	5,564
XV. Surgical and other scientific instruments	162	149	45	30	29	..	415
XVI. Jewellery, timepieces, & plated ware	728	1,028	117	155	62	29	2,119
XVII. Heat, light, and power	4,040	4,146	952	880	329	367	10,714
XVIII. Leatherware, n.e.l.	723	750	112	39	23	..	1,647
XIX. Minor wares, n.e.l.	1,491	2,609	208	254	161	40	4,763
Total	120,554	118,241	40,990	26,634	12,917	8,713	328,049

(*a*) Includes Class II.

(*b*) Included in Class I.

The largest number employed in any particular class in the Commonwealth was in Class VII., in which there were 82,002 employees, or 25 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 415 hands, or 0.13 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 6, 5 hereof.)

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

AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED ACCORDING TO NATURE OF EMPLOYMENT, 1918.

State.	Average Number of Persons Employed.						Total.
	Working Proprietors.	Managers and Overseers.	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled, in Factory Mill or Workshop ^a	Carters, Messengers, and Others.	
N.S. Wales, 1917-18	4,043	4,305	5,320	2,990	101,617	2,279	120,554
Victoria, 1917-18 ..	5,368	3,716	4,519	1,867	99,171	3,600	118,241
Queensland, 1918 ..	1,430	1,605	1,865	1,707	32,198	2,185	40,990
S. Australia, 1917-18	1,173	1,014	1,280	540	22,061	566	26,634
W. Australia, 1918	424	660	640	394	10,261	538	12,917
Tasmania, 1918 ..	372	407	481	295	6,887	271	8,713
Commonwealth	12,810	11,707	14,105	7,793	272,195	9,439	328,049

^a Including outworkers.

5. Outworkers.—The term “outworker” or “homeworker” has acquired a special meaning in connexion with manufacturing industries, and technically embraces only those to whom work is given out by factory owners to be wrought upon in the employees’ own homes. Individuals working for themselves are not included. The following table gives particulars of the average number of outworkers connected with factories in each State during each year from 1913 to 1918 inclusive :—

NUMBER OF OUTWORKERS(^a) CONNECTED WITH FACTORIES, 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1913	724	1,910	122	54	7	72	2,889
1914	582 ^b	1,737	117	58	8	58	2,560
1915	582 ^b	1,473	92	44	6	70	2,267
1916 ^c	577	1,473	99	44	6	35	2,234
1917 ^d	677	1,814	89	41	5	32	2,658
1918 ^d	637	1,406	30	25	4	20	2,122

^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.*)

§ 6. Sex Distribution in Factories.

1. **Employment of Females in Factories.**—In all the States the employment of female labour in factories is now regulated by Act of Parliament. In Victoria the first Act dealing with the subject was passed in the year 1873, and provided that no female should be employed for more than eight hours a day without the permission of the Chief Secretary. The number of working hours for women is now limited to forty-eight per week in all the States, 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, 1913 to 1918.**—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 slightly more than one to three. In Victoria the ratio of females to males during the year 1886 was about one to five. Five years later (1891) it was somewhat less, but in 1896 had increased to about one woman to three men, and at present is 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 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, 1913 to 1918.* The following table shews the average number of male and female employees in factories in each State from 1913 to 1918:—

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1913 TO 1918.

State.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i>	1918. <i>c</i>
MALES.						
New South Wales ..	93,036	90,409 ^a	90,409 ^a	87,724	88,910	90,025
Victoria ..	80,054	79,772	75,971	75,971	74,924	76,654
Queensland ..	34,715	35,717	34,387	32,235	32,763	33,597
South Australia ..	23,323	22,111	20,772	20,772	20,738	21,325
Western Australia ..	14,625	14,996	12,290	10,259	9,704	10,497
Tasmania ..	8,354	7,613	7,161	7,046	6,860	7,356
Commonwealth ..	254,107	250,618	240,990	234,007	233,959	239,454

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

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN
MANUFACTURING INDUSTRIES, 1913 TO 1918—*continued.*

State.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i>	1918. <i>c</i>
FEMALES.						
New South Wales ..	27,364	26,202 ^a	26,202 ^a	28,677	29,087	30,529
Victoria ..	38,690	38,627	37,863	37,863	42,046	41,587
Queensland ..	7,648	7,565	7,692	7,748	7,683	7,393
South Australia ..	5,188	4,763	4,724	4,724	5,212	5,309
Western Australia ..	2,674	2,644	2,341	2,417	2,464	2,420
Tasmania ..	1,430	1,309	1,259	1,316	1,219	1,357
Commonwealth ..	82,994	81,110	80,081	82,745	87,711	88,595

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 during the years specified there has been for the whole Commonwealth a total decrease in the number of male employees of 14,653, or an annual average of 2,931, whilst the number of female employees has shewn a total increase of 5,601, or an annual average of 1,120. 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, 1913 to 1918.* 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 1913 to 1918:—

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000
OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1913 TO 1918.

State.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i>	1918. <i>c</i>
MALES.						
New South Wales ..	979	935 ^a	935 ^a	920	963	962
Victoria ..	1,151	1,119	1,077	1,077	1,125	1,142
Queensland ..	982	978	932	910	948	958
South Australia ..	1,062	1,002	960	960	1,030	1,059
Western Australia ..	823	826	696	615	612	658
Tasmania ..	823	741	702	706	690	717
Commonwealth ..	1,015	981	948	936	975	987
FEMALES.						
New South Wales ..	319	293 ^a	293 ^a	313	311	320
Victoria ..	555	543	525	525	574	562
Queensland ..	256	244	242	239	234	219
South Australia ..	242	217	212	212	226	226
Western Australia ..	196	186	161	163	164	160
Tasmania ..	151	137	129	134	122	134
Commonwealth ..	361	342	333	340	354	351

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

3. Rate of Variation for each Sex.—The percentages of annual increase or decrease during the years 1914 to 1918 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shown below :—

PERCENTAGE OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1914 TO 1918.

State.	1913-14.	1914-15.	1915-16.b	1916-17.c	1917-18.c
MALES.					
	%	%	%	%	%
New South Wales ..	-2.82 ^a	-2.82 ^a	-2.97	1.35	1.25
Victoria ..	-0.35	-4.76	-4.76	-1.38	2.31
Queensland ..	2.89	-3.72	-6.26	1.64	2.55
South Australia ..	-5.20	-6.06	-6.06	0.13	2.53
Western Australia ..	2.54	-18.04	-16.53	-5.41	8.17
Tasmania ..	-8.87	-5.94	-1.61	-2.64	7.23
Commonwealth ..	-1.37	-3.84	-2.90	-0.02	2.35
FEMALES.					
New South Wales ..	-4.25 ^a	-4.25 ^a	9.45	1.43	4.96
Victoria ..	-0.16	-1.98	-1.98	11.05	-1.09
Queensland ..	-1.08	1.68	0.73	-0.84	-3.77
South Australia ..	-8.19	-0.82	-0.82	10.33	1.86
Western Australia ..	-1.12	-11.46	3.25 [*]	1.94	-1.79
Tasmania ..	-8.46	-3.82	4.55	-7.37	11.32
Commonwealth ..	-2.27	-1.27	3.33	6.00	1.01

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 shown by giving the masculinity of employees for each State for a series of years. The following table furnishes particulars for each of the years 1913 to 1918 inclusive :—

EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED, 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1913 ..	54.5	34.8	63.9	63.6	69.1	70.8	50.8
1914 ..	55.1 ^a	34.8	65.0	64.6	70.0	70.7	51.1
1915 ..	55.1 ^a	33.5	63.4	62.9	68.0	70.1	50.1
1916 ^b ..	50.7	33.5	61.2	62.9	61.9	68.5	47.8
1917 ^c ..	50.7	28.1	62.0	59.9	59.5	69.8	45.5
1918 ^c ..	49.4	29.7	63.9	60.1	62.5	68.9	46.0

^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 declined from 51.1 in 1914 to 46.0 in 1918 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 connexion with food, drink, etc., clothing and textile fabrics, and books, paper, printing, etc. The following table shews the average number of females employed in each of these classes in each State, 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, 1918.

Class.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
AVERAGE NUMBER.							
VI. Food, drink, etc.	4,751	5,007	956	540	332	294	11,880
VII. Clothing and textile fabrics	19,181	29,865	5,202	3,584	1,645	838	60,315
VIII. Books, paper, printing, etc.	2,833	2,705	681	613	247	108	7,187
All other classes	3,764	4,010	554	572	196	117	9,213
Total	30,529	41,587	7,393	5,309	2,420	1,357	88,595
PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.							
VI. Food, drink, etc.	15.56	12.04	12.93	10.17	13.72	21.67	13.41
VII. Clothing and textile fabrics	62.83	71.81	70.37	67.51	67.97	61.75	68.08
VIII. Books, paper, printing, etc.	9.28	6.51	9.21	11.55	10.21	7.96	8.11
All other classes	12.33	9.64	7.49	10.77	8.10	8.62	10.40
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

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

FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII. DURING 1918.

Industry.	New South Wales. 1917-18.			Victoria. 1917-18.			Other States. ^a		
	Males.	Females	Femini- nity. <i>b</i>	Males.	Females	Femini- nity. <i>b</i>	Males.	Females	Femini- nity. <i>b</i>
Woolen and tweed mills	473	572	9.47	877	1,195	15.35	312	388	10.86
Boots and shoes	2,692	1,789	-20.15	5,115	3,450	-19.44	1,544	909	-25.89
Slop clothing	2,465	7,032	48.09	2,037	7,116	55.49	1,681	4,857	48.58
Clothing (tailoring)									
Dressmaking and millinery	184	5,937	99.19	299	8,750	93.39	26	3,379	98.47
Dyeworks and cleaning	85	87	1.16	87	104	8.90	23	27	8.00
Furriers	30	62	34.78	79	192	41.70	..	..	..
Hats and caps	509	976	31.45	707	1,087	21.18	73	113	21.51
Waterproof and oilskin	52	180	55.17	52	164	51.85	..	..	..
Shirts, ties, and scarfs	154	1,676	83.17	295	5,673	90.11	75	1,311	89.18
Hosiery and knitted Goods	99	540	69.01	160	1,377	79.18	..	..	..
Rope and cordage	300	19	-88.09	625	520	-9.17	174	174	..
Tents and tarpaulins	175	311	27.98	90	70	-12.50	107	86	-10.88
Other . . . . .	..	..	..	24	167	74.87	7	25	56.25
Total, Class VII.	7,218	19,181	45.32	10,447	29,865	43.21	4,022	11,269	47.39

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

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

§ 7. Child Labour in Factories.

1. **Conditions of Child Labour.**—The employment of young persons in factories in each State of the Commonwealth is regulated by Acts of Parliament in a similar manner to the employment of female labour. Excepting under special circumstances, children under a certain age may not be employed in factories. The minimum age in all the States is 14, with the exception of South Australia, where it is 13 years, and Victoria, 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, 1913 to 1918.**—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 1913 to 1918 :—

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1913 TO 1918.

State.	1913.	1914.	1915.	1916. ^b	1917. ^c	1918. ^c
MALES.						
New South Wales ..	2,385	2,437 ^a	2,437 ^a	2,578	2,604	2,584
Victoria ..	2,743	2,398	3,355	3,355	3,072	3,195
Queensland ..	1,122	1,148	1,247	1,197	1,170	1,171
South Australia ..	1,122	1,064	1,068	1,068	744	779
Western Australia ..	346	381	414	398	408	407
Tasmania ..	283	213	262	217	253	244
Commonwealth ..	8,001	8,141	8,783	8,813	8,251	8,380
FEMALES.						
New South Wales ..	2,086	2,326 ^a	2,326 ^a	2,605	2,449	2,492
Victoria ..	1,840	1,816	2,197	2,197	2,301	2,447
Queensland ..	701	713	835	745	704	711
South Australia ..	611	522	591	591	586	567
Western Australia ..	360	361	311	271	314	307
Tasmania ..	141	77	97	102	89	105
Commonwealth ..	5,739	5,815	6,357	6,511	6,443	6,629
TOTAL.						
New South Wales ..	4,471	4,763 ^a	4,763 ^a	5,183	5,053	5,076
Victoria ..	4,583	4,714	5,552	5,552	5,373	5,642
Queensland ..	1,823	1,861	2,082	1,942	1,874	1,882
South Australia ..	1,733	1,586	1,659	1,659	1,330	1,346
Western Australia ..	706	742	725	669	722	714
Tasmania ..	424	290	359	319	342	349
Commonwealth ..	13,740	13,956	15,140	15,324	14,694	15,009

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

^c See note ^b first table this section.

3. **Percentage of Children on Total Persons Employed.**—The foregoing table shows a general increase in the number of children employed in factories during the past quinquennial period. This increase is more marked among the females than the males, the respective gains being 890 and 379. Examined in conjunction with the total number of persons employed, the following table reveals a gradual increase in the percentage of children employed in factories since 1913 :—

PERCENTAGE OF CHILDREN IN FACTORIES ON TOTAL NUMBER OF EMPLOYEES,
1913 TO 1918.

State.	1913.	1914.	1915.	1916. <i>b</i>	1917. <i>c</i>	1918. <i>c</i>
	%	%	%	%	%	%
New South Wales ..	3.71	4.08 ^a	4.08 ^a	4.45	4.28	4.21
Victoria ..	3.86	3.98	4.88	4.88	4.59	4.77
Queensland ..	4.30	4.30	4.95	4.86	4.63	4.59
South Australia ..	6.08	5.90	6.51	6.51	5.11	5.05
Western Australia ..	4.08	4.21	4.96	5.28	5.93	5.53
Tasmania ..	4.33	3.25	4.26	3.81	4.23	4.01
Commonwealth ..	4.08	4.21	4.72	4.84	4.57	4.58

^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 shews the average number of children of each sex employed in the several industries indicated in each State :—

NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1918.

Class.	Industry.	N.S.W. 1917-18.		Victoria. 1917-18.		Q'land. 1918.		S. Aust. 1917-18.		W. Aust. 1918.		Tas. 1918.		C'wealth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
IV.	Joinery, boxes, cases, etc. ..	76	..	87	..	38	2	18	..	10	1	7	..	236	3
V.	Saw mills ..	64	..	16	..	38	3	2	..	11	..	52	..	183	3
	Engineering, ironworks, and foundries ..	224	6	362	..	62	4	50	..	58	2	10	..	766	12
	Galvanised ironworking and tinsmithing ..	82	18	92	29	45	3	38	5	..	..	7	..	264	55
	Railway carriage, railway and tramway workshops ..	39	..	83	..	32	..	11	..	26	..	..	..	191	..
VI.	Meat & fish preserving ..	5	2	23	3	124	5	2	..	..	..	..	..	154	10
	Biscuits ..	160	131	58	39	10	18	12	14	33	36	18	4	291	242
	Confectionery ..	35	86	39	81	32	45	9	36	9	37	..	..	124	285
	Jams, pickles, sauces, etc. ..	27	23	22	13	23	15	23	20	2	..	22	10	119	81
	Tobacco, cigars, etc. ..	64	88	59	16	3	3	4	1	1	7	..	..	131	115
VII.	Woolen, cotton, and tweed mills ..	33	77	85	117	14	29	7	15	..	..	1	4	140	242
	Boots and shoes ..	173	217	245	333	40	55	41	55	9	10	14	23	522	693
	Clothing (tailoring and slop) ..	70	436	87	320	43	192	17	93	15	32	2	9	234	1,082
	Dressmaking and millinery ..	12	469	8	510	1	161	1	118	1	104	..	30	23	1,392
	Hats and caps ..	28	91	47	46	1	2	3	2	..	..	..	..	79	141
	Shirts, ties, scarfs, etc. ..	9	135	18	346	8	51	3	63	1	20	..	2	39	617
VIII.	Electrotyping, printing and binding ..	327	156	365	130	170	61	70	31	39	17	27	14	998	409
	Paper making, paper boxes, etc. ..	64	154	31	53	3	13	14	52	1	12	..	..	113	284
XI.	Coach and wagon building ..	58	..	98	..	42	..	40	..	8	..	14	..	260	..
	Cycles and motors ..	42	1	85	..	19	1	59	..	15	..	13	..	233	2
XIII.	Billiard tables, cabinet making and furniture ..	57	..	100	2	90	2	39	..	17	..	10	..	313	4

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*.

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

1. **Introduction.**—The importance of the manufacturing industries of the Commonwealth is indicated by the fact that the total value of the output for 1918 was £225,753,611, of which amount the sum of £146,181,866 represents the value of the raw materials used. The difference between these two amounts, viz., £79,571,745, 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 1918 was £38,379,268.

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, 1918.(a)

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	482,855	441,965	106,326	101,197	40,290b	23,797b	1,196,430
II. Treating oils and fats, animal, vegetable, etc. . .	169,173	105,223	25,153	33,365	c	c	332,914
III. Processes in stone, clay, glass, etc. . .	733,796	494,417	102,008	141,724	52,764	24,908	1,549,617
IV. Working in wood . .	940,806	836,083	556,680	161,372	372,433	167,501	3,034,875
V. Metal works, machinery, etc. . .	3,985,818	2,180,711	829,964	1,393,914	409,806	216,984	9,017,197
VI. Connected with food and drink, etc. . .	2,097,106	1,989,964	2,083,282	422,614	264,937	191,989	7,049,892
VII. Clothing and textile fabrics, etc. . .	2,145,362	2,967,355	506,612	354,558	167,891	95,175	6,236,953
VIII. Books, paper, printing, and engraving . .	1,175,067	1,077,345	399,952	195,083	162,134	94,354	3,103,935
IX. Musical instruments, etc.	65,466	28,071	..	1,600	..	..	95,137
X. Arms and explosives	227,096	133,130	..	78	..	..	360,304
XI. Vehicles & fittings, saddlery & harness, etc.	492,075	478,298	136,200	163,414	65,154	39,568	1,374,709

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

AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN COMMONWEALTH, 1918(a)—continued.

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
XII. Ship and boat building and repairing ..	560,358	99,178	13,747	16,153	2,942	7,756	700,134
XIII. Furniture, bedding, and upholstery ..	441,687	294,933	140,333	102,639	56,838	28,766	1,065,196
XIV. Drugs, chemicals, and by-products ..	238,733	254,993	7,738	85,358	47,398	1,364	635,584
XV. Surgical & other scientific instruments ..	18,965	12,804	5,195	3,273	1,830	..	42,067
XVI. Jewellery, timepieces, and plated ware ..	97,782	111,985	14,032	18,458	7,342	3,235	252,834
XVII. Heat, light, and power ..	615,938	640,013	168,381	137,167	63,087	65,837	1,690,423
XVIII. Leatherware, n.e.i. ..	68,507	68,378	9,392	4,194	1,848	..	152,319
XIX. Minor wares, n.e.i. ..	144,665	287,755	16,193	23,193	14,202	2,740	488,748
Total ..	14,701,255	12,502,601	5,121,188	3,359,354	1,730,896	963,974	38,379,268

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 £9,017,197, or 23.49 per cent. on the total amount; the minimum amount was in Class XV., £42,067, or 0.11 per cent. on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shews the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1913 to 1918; 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, 1913 TO 1918.

Year.	Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
		£	£	£	£	£	£	£
1913	Total amount paid ..	12,688,384	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
1914a	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
1915a	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	111.54	127.31	97.82	108.00
1916b	Total amount paid ..	13,413,845	11,036,345	4,181,254	2,705,130	1,656,799	835,467	33,828,340
	Average per employee ..	119.29	101.75	108.13	111.54	136.29	104.88	111.35
1917c	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
1918c	Total amount paid ..	14,701,255	12,502,601	5,121,188	3,359,354	1,730,896	963,974	38,379,268
	Average per employee ..	126.18	110.77	129.45	131.94	138.55	115.57	121.75

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 1913-18 there has been an increase of 14 per cent. on the total amount of wages paid, and nearly 17 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 1918, 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 1918.

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
MALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	475,886	440,905	105,757	100,528	39,843b	623,526b	1,186,445
II. Treating oils and fats, animal, vegetable, etc. . .	152,443	95,755	24,184	31,572	c	c	303,954
III. Processes in stone, clay, glass, etc. . .	727,307	488,512	101,358	141,160	52,281	24,758	1,535,376
IV. Working in wood . .	932,123	828,486	551,834	159,245	372,094	166,275	3,010,057
V. Metal works, machinery, etc. . .	3,949,645	2,155,946	823,925	1,387,572	407,420	215,882	8,940,390
VI. Connected with food and drink, etc. . .	1,809,381	1,702,877	2,026,703	397,367	248,335	176,524	6,361,187
VII. Clothing and textile fabrics, etc. . .	975,459	1,308,426	230,996	164,516	60,646	52,447	2,792,490
VIII. Books, paper, printing and engraving . .	1,003,021	922,138	357,505	169,495	146,775	88,603	2,687,537
IX. Musical instruments, etc. . .	62,373	27,367	..	1,600	..	..	91,340
X. Arms and explosives	226,966	92,726	..	78	..	..	319,770
XI. Vehicles and fittings, saddlery and harness, etc. . .	480,733	465,297	131,255	158,117	62,826	38,226	1,336,454
XII. Ship and boat building and repairing . .	559,074	98,906	13,747	16,153	2,942	7,756	698,578
XIII. Furniture, bedding, and upholstery . .	410,088	275,555	132,613	100,465	55,107	27,219	1,001,047
XIV. Drugs, chemicals, and by-products . .	193,689	225,189	5,420	80,674	44,319	1,137	550,428
XV. Surgical and other scientific instruments	14,600	12,188	4,993	3,084	1,449	..	36,314
XVI. Jewellery, timepieces, and plated ware . .	90,621	103,040	13,159	17,652	7,148	3,157	234,777
XVII. Heat, light, and power	610,504	603,147	165,867	133,582	63,987	64,761	1,640,948
XVIII. I.eatherware, n.e.i. . .	56,400	52,862	7,513	3,336	1,518	..	121,629
XIX. Minor wares, n.e.i. . .	117,704	242,428	13,888	20,867	12,810	2,472	410,169
Total . .	12,848,017	10,141,750	4,710,717	3,087,063	1,578,600	892,743	33,258,890
FEMALES.							
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	6,969	1,060	569	669	447b	271b	9,985
II. Treating oils and fats, animal, vegetable, etc. . .	16,730	9,468	969	1,793	c	c	28,960
III. Processes in stone, clay, glass, etc. . .	6,489	5,905	650	564	483	150	14,241
IV. Working in wood . .	8,683	7,597	4,846	2,127	339	1,226	24,818
V. Metal works, machinery, etc. . .	36,173	24,765	6,039	6,342	2,386	1,102	76,807
VI. Connected with food and drink, etc. . .	287,725	287,087	56,579	25,247	16,602	15,465	688,705
VII. Clothing and textile fabrics, etc. . .	1,169,903	1,658,929	275,616	190,042	107,245	42,728	3,444,468
VIII. Books, paper, printing and engraving . .	172,046	155,207	42,447	25,588	15,359	5,751	416,398
IX. Musical instruments, etc. . .	3,093	704	..	..	..	..	3,797
X. Arms and explosives	130	40,404	..	..	..	..	40,534

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

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

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
FEMALES—<i>continued.</i>							
XI. Vehicles and fittings, saddlery and harness, etc.	£ 11,342	£ 13,001	£ 4,945	£ 5,297	£ 2,328	£ 1,342	£ 38,255
XII. Ship and boat building and repairing..	1,284	272	..	..	..	..	1,556
XIII. Furniture, bedding, and upholstery ..	31,599	19,378	7,720	2,174	1,731	1,547	64,149
XIV. Drugs, chemicals, and by-products ..	45,044	29,804	2,318	4,684	3,079	227	85,156
XV. Surgical and other scientific instrumnts.	4,365	616	202	189	381	..	5,753
XVI. Jewellery, timepieces, and plated ware ..	7,161	8,945	873	806	194	78	18,057
XVII. Heat, light, and power	5,434	36,866	2,514	3,585	..	1,076	49,475
XVIII. Leatherware, n.e.i. ...	12,107	15,516	1,879	858	330	..	30,690
XIX. Minor wares, n.e.i. ...	26,961	45,327	2,305	2,326	1,392	268	78,579
Total ..	1,853,238	2,360,851	410,471	272,291	152,296	71,231	5,120,378

a Exclusive of amount drawn by working proprietors.

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN FACTORIES IN THE SEVERAL STATES OF THE COMMONWEALTH, 1913 TO 1918.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
MALES.							
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.b Amount 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	139.96	123.84	113.39	131.21	152.31	109.24	126.86
1915.b Amount 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	139.96	128.76	118.03	122.92	141.93	106.97	128.01
1916.c Amount paid ..£	11,888,028	9,161,852	3,823,488	2,506,579	1,520,760	772,789	29,673,496
Per cent. on total ..	88.63	83.02	91.44	92.66	91.79	92.50	87.72
Average per employeef	141.46	128.76	123.57	122.62	155.50	116.10	133.66
1917.d Amount paid ..£	12,727,172	9,590,851	4,496,449	2,852,334	1,449,780	778,352	31,894,939
Per cent. on total ..	88.50	81.05	92.14	92.19	91.14	92.81	87.10
Average per employeef	149.35	136.48	143.51	144.99	156.99	120.13	143.53
1918.d Amount paid ..£	12,848,017	10,141,750	4,710,717	3,087,063	1,578,600	892,743	33,258,890
Per cent. on total ..	87.39	81.12	91.98	91.89	91.20	92.61	86.66
Average per employeef	148.93	141.12	146.19	152.89	156.41	127.75	146.11

FEMALES.							
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	43.04	55.42	40.24	47.74
1914.b Amount 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	52.94	43.65	44.06	44.95	54.44	41.27	49.48
1915.b Amount 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	52.94	50.24	44.62	42.47	53.34	48.39	50.18
1916.c Amount paid ..£	1,525,817	1,874,493	357,766	198,551	136,039	62,678	4,155,344
Per cent. on total ..	11.37	16.98	8.56	7.34	8.21	7.50	12.28
Average per employeef	53.72	50.24	46.29	42.47	56.80	47.85	50.81
1917.d Amount paid ..£	1,654,137	2,242,666	383,491	241,760	140,916	60,300	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
1918.d Amount paid ..£	1,853,238	2,360,851	410,471	272,291	152,296	71,231	5,120,378
Per cent. on total ..	12.61	18.88	8.02	8.11	8.80	7.39	13.34
Average per employeef	61.27	57.57	55.95	51.67	63.46	52.65	58.45

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 1918.(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. . .	148,473	3,540	1,037,972	6,445	1,186,445	9,985	1,196,430
II. Treating oils and fats, animal, vegetable, etc. . .	61,050	6,135	242,904	22,825	303,954	28,960	332,914
III. Processes in stone, clay, glass, etc. . .	171,608	7,164	1,363,768	7,077	1,535,376	14,241	1,549,617
IV. Working in wood . .	374,711	21,320	2,635,346	3,498	3,010,057	24,818	3,034,875
V. Metal works, machinery, etc. . .	949,068	41,623	7,991,322	35,184	8,940,390	76,807	9,017,197
VI. Connected with food and drink, etc. . .	1,166,843	80,005	5,194,344	608,700	6,361,187	688,705	7,049,892
VII. Clothing and textile fabrics, etc. . .	450,748	200,122	2,341,742	3,244,341	2,792,490	3,444,463	6,236,953
VIII. Books, paper, printing, and engraving . .	543,870	75,379	2,143,667	341,019	2,687,537	416,398	3,103,935
IX. Musical instruments, etc. . .	12,192	2,045	79,148	1,752	91,340	3,797	95,137
X. Arms and explosives . .	28,698	3,073	291,072	37,461	319,770	40,534	360,304
XI. Vehicles and fittings, saddlery and harness, etc. . .	138,443	20,010	1,198,011	18,245	1,336,454	38,255	1,374,709
XII. Ship and boat building and repairing . .	79,765	1,556	618,813	..	698,578	1,556	700,134
XIII. Furniture, bedding, and upholstery . .	79,803	13,202	921,244	50,947	1,001,047	64,149	1,065,196
XIV. Drugs, chemicals, and by-products . .	115,354	14,446	435,074	70,710	550,428	85,156	635,584
XV. Surgical & other scientific instruments . .	5,244	1,024	31,070	4,729	36,314	5,753	42,067
XVI. Jewellery, timepieces, and plated ware . .	21,317	4,843	213,460	13,214	234,777	18,057	252,834
XVII. Heat, light, and power . .	319,998	19,361	1,320,950	30,114	1,640,948	49,475	1,690,423
XVIII. Leatherware, n.e.i. . .	20,276	2,878	101,353	27,812	121,629	50,690	152,319
XIX. Minor wares, n.e.i. . .	48,243	5,843	361,926	72,736	410,169	78,579	488,748
Total . . .	4,735,704	523,569	28,523,186	4,596,809	33,258,890	5,120,378	38,379,268
Average paid per employee . .	233.18	95.14	137.58	55.99	146.11	58.45	121.75

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 1918 it amounted to £4,732,890. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £1,331,773; Class VI., Connected with Food, Drink, etc., £1,079,228; Class XVII., Heat, Light, Power, etc., £935,299, of which amount £800,255 was expended on generating electric light and power; and Class III., £500,303. 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, 1918.

Class of Industry.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . .	64,709	60,104	14,984	13,999	4,633a	1,520a	159,949
II. Treating oils and fats, animal, vegetable, etc. . . .	44,870	29,282	4,245	8,252	b	b	86,649
III. Processes in stone, clay, glass, etc. . . .	247,142	158,368	20,805	50,821	16,602	6,565	500,303
IV. Working in wood . . .	32,483	23,600	12,181	5,331	2,787	1,870	78,252
V. Metal works, machinery, etc. . . .	646,792	183,272	33,471	385,569	27,329	55,340	1,331,773
VI. Connected with food and drink, etc. . . .	326,212	336,003	249,853	97,295	52,239	17,626	1,079,228
VII. Clothing and textile fabrics, etc. . . .	54,529	103,109	10,398	11,219	3,876	2,105	185,236
VIII. Books, paper, printing, and engraving . . .	44,780	53,980	16,736	8,407	5,908	2,203	132,014
IX. Musical instruments, etc. . . .	1,100	652	..	31	..	..	1,783
X. Arms and explosives . . .	3,650	11,808	..	15	..	..	15,473
XI. Vehicles and fittings, saddlery and harness, etc. . . .	17,672	16,267	3,080	6,416	3,187	844	47,466
XII. Ship and boat building and repairing . . .	15,430	4,290	211	395	17	105	20,448
XIII. Furniture, bedding, and upholstery . . .	12,967	8,492	3,828	2,638	1,746	601	30,272
XIV. Drugs, chemicals, and by-products . . .	21,819	26,475	610	17,741	4,949	50	71,844
XV. Surgical and other scientific instruments . . .	239	588	197	205	90	..	1,319
XVI. Jewellery, timepieces, and plated ware . . .	1,975	3,474	596	969	179	45	7,238
XVII. Heat, light, and power . . .	515,786	190,317	52,526	72,332	87,861	16,477	935,299
XVIII. Leatherware, n.e.i. . . .	1,537	2,086	165	45	73	..	3,906
XIX. Minor wares, n.e.i. . . .	6,384	36,019	213	1,507	474	41	44,638
Total . . .	2,060,076	1,248,186	424,099	683,187	211,950	105,392	4,732,890

a Includes Class II.

b Included in Class I.

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1913 . . .	1,371,425	739,835	328,519	417,280	198,161	185,681	3,240,901
1914 . . .	1,364,186a	804,325	335,219	406,987	210,192	189,012	3,309,921
1915 . . .	1,364,186a	834,966	300,716	399,731	187,121	110,803	3,197,523
1916b . . .	1,528,220	834,966	310,454	399,731	193,523	116,704	3,383,598
1917c . . .	1,766,664	1,024,156	415,052	558,524	198,000	92,544	4,054,940
1918c . . .	2,060,076	1,248,186	424,099	683,187	211,950	105,392	4,732,890

a Year ended 30th June, 1915. b See note a first table this section.
c See note b 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 1918 was £146,181,866, which represents 64.75 per cent. of the total value of the finished products. (See next paragraph.) The following table shows 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, 1918.

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	7,809,944	4,665,646	2,477,075	789,655	2,359,642	2,277,758	16,379,720
II. Treating oils and fats, animal, vegetable, etc. . .	2,092,309	781,835	142,051	216,836	b	b	3,233,031
III. Processes in stone, clay, glass, etc. . .	530,213	237,453	54,180	87,628	20,209	9,749	939,432
IV. Working in wood . .	2,522,473	1,262,067	866,612	593,729	117,957	103,343	5,466,181
V. Metal works, machinery, etc. . .	15,018,690	3,358,608	867,706	4,802,567	439,583	1,095,263	25,582,417
VI. Connected with food and drink, etc. . .	25,135,986	17,353,596	12,984,071	3,964,793	1,947,234	1,338,249	62,723,929
VII. Clothing and textile fabrics, etc. . .	4,791,680	7,850,380	1,277,937	770,670	392,662	175,591	15,258,920
VIII. Books, paper, printing, and engraving . . .	1,836,026	1,718,071	431,475	331,784	198,430	97,653	4,613,439
IX. Musical instruments, etc.	98,766	25,276	..	1,100	..	..	125,142
X. Arms and explosives	145,976	424,646	..	465	..	..	571,087
XI. Vehicles and fittings, saddlery and harness, etc. . .	532,205	613,357	183,990	202,583	85,090	45,372	1,662,597
XII. Ship and boat building and repairing . .	335,228	99,092	11,674	11,114	2,452	11,523	471,083
XIII. Furniture, bedding, and upholstery . . .	721,000	543,138	201,200	119,778	85,510	34,582	1,705,208
XIV. Drugs, chemicals, and by-products . . .	1,450,744	1,072,303	24,843	397,802	233,921	11,405	3,191,018
XV. Surgical and other scientific instruments.	18,692	12,900	2,845	2,030	2,940	..	39,407
XVI. Jewellery, timepieces, and platedware . .	124,396	208,591	13,302	18,630	9,761	1,196	375,876
XVII. Heat, light, and power	960,740	660,210	108,304	91,038	45,459	25,918	1,891,669
XVIII. Leatherware, n.e.i. . .	255,495	301,560	23,120	11,296	2,540	..	594,011
XIX. Minor wares, n.e.i. . .	338,163	944,907	22,658	29,305	20,080	2,586	1,357,699
Total . . .	64,718,726	42,133,636	19,693,043	12,442,803	3,963,470	3,230,188	146,181,866

a Includes Class II. b Included in Class I.

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £62,723,929. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £25,582,417 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £39,407. The following table gives particulars for the six years ended 1918 :—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1913 . .	40,537,476	28,465,609	14,183,539	8,351,258	2,782,839	2,083,666	96,407,477
1914 . .	42,559,370a	28,986,604	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	2,541,173	132,283,096
1918c . .	64,718,726	42,133,636	19,693,043	12,442,803	3,963,470	3,230,188	146,181,866

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, 1918.

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	9,473,367	5,924,913	3,031,623	1,010,486	468,883	637,701	20,246,973
II. Treating oils and fats, animal, vegetable, etc.	2,883,273	1,171,575	238,558	305,844	b	b	4,599,250
III. Processes in stone, clay, glass, etc.	1,951,841	1,131,409	215,983	366,548	110,551	56,019	3,832,351
IV. Working in wood	4,066,585	2,616,051	1,870,980	878,446	634,418	361,081	10,427,561
V. Metal works, machinery, etc.	23,416,570	6,820,180	1,905,982	7,566,506	970,607	1,993,492	42,673,337
VI. Connected with food and drink, etc.	30,698,691	22,651,445	18,190,762	5,086,382	2,628,052	1,864,924	81,120,256
VII. Clothing and textile fabrics, etc.	8,303,314	13,094,684	2,175,189	1,346,832	637,172	373,145	25,930,336
VIII. Books, paper, printing, and engraving	3,959,322	3,803,147	1,179,442	696,054	480,430	235,907	10,354,302
IX. Musical instruments, etc.	208,293	70,376	..	3,490	..	..	282,159
X. Arms and explosives	372,342	662,842	..	760	..	..	1,035,944
XI. Vehicles and fittings, saddlery and harness, etc.	1,267,346	1,359,817	411,152	451,226	180,522	104,566	3,774,629
XII. Ship and boat building and repairing	967,571	228,451	29,309	34,910	7,011	21,888	1,289,140
XIII. Furniture, bedding, and upholstery	1,375,264	1,013,071	425,842	267,429	165,049	86,485	3,333,140
XIV. Drugs, chemicals, and by-products	2,412,794	1,750,546	56,687	588,940	325,748	14,456	5,149,171
XV. Surgical and other scientific instruments	59,723	38,248	11,285	8,060	6,716	..	124,032
XVI. Jewellery, timepieces, and plated ware	261,468	411,228	35,335	50,440	19,620	5,682	783,773
XVII. Heat, light, and power	3,548,484	2,430,852	703,199	515,833	320,342	222,627	7,741,337
XVIII. Leatherware, n.e.i.	384,632	442,763	35,319	19,167	5,360	..	887,241
XIX. Minor wares, n.e.i.	567,311	1,445,117	43,192	63,789	43,024	6,246	2,168,679
Total	96,178,191	67,066,715	30,559,839	19,261,142	7,003,505	5,684,219	225,753,611

a Includes Class II. b Included in Class I.

It will be seen that the State of New South Wales far outstrips the other States in the total value of the output of her factories, the value being £96,178,191, or 42.60 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 29.71 per cent.; the value of the output of Queensland was 13.54 per cent.; of South Australia 8.53 per cent.; of Western Australia 3.10 per cent.; and of Tasmania 2.52 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 1918 :—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
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 ^a	49,439,985	25,491,955	13,215,970	6,381,512	3,667,754	166,450,508
1915	68,253,332 ^a	51,466,093	25,444,812	13,994,223	5,712,793	4,215,447	169,086,700
1916 ^b	70,989,864	51,466,093	25,541,024	13,994,223	6,007,111	4,576,530	172,574,845
1917 ^c	85,944,320	60,047,284	31,969,302	17,392,352	6,255,388	4,768,000	206,376,646
1918 ^c	96,178,191	67,066,715	30,559,839	19,261,142	7,003,505	5,684,219	225,753,611

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 1913 TO 1918—continued.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
PER EMPLOYEE.a							
1913 ..	£ 545	£ 404	£ 559	£ 491	£ 375	£ 387	£ 479
1914 ..	585 ^b	418	589	492	362	411	502
1915 ..	585 ^b	452	605	549	390	501	527
1916 ^c ..	610	452	639	549	474	547	545
1917 ^d ..	728	513	790	669	514	590	642
1918 ^d ..	798	567	746	723	542	652	688
PER HEAD OF MEAN POPULATION.							
1913 ..	36.32	34.41	36.30	32.29	20.64	19.30	33.63
1914 ..	36.67 ^b	34.73	37.77	30.04	19.73	18.49	33.78
1915 ..	33.67 ^b	36.07	37.04	31.85	17.72	21.15	34.21
1916 ^c ..	37.95	36.07	37.69	31.85	19.09	23.09	34.97
1917 ^d ..	46.24	42.93	47.43	40.19	20.27	23.97	42.30
1918 ^d ..	50.87	47.53	44.38	44.16	22.51	27.89	45.62

a Including working proprietors.

b Year ended 30th June, 1915.

c See note a first table this section.

d See note b 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,
1918.**

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	£ 1,663,423	£ 1,259,267	£ 554,548	£ 220,831	£ a109,241	£ a59,943	£ 3,867,253
II. Treating oils and fats, animal, vegetable, etc. ..	790,964	389,740	96,507	89,008	b	b	1,366,219
III. Processes in stone, clay, glass, etc. ..	1,421,628	893,956	161,803	278,920	90,342	46,270	2,892,919
IV. Working in wood ..	1,544,112	1,353,984	1,004,368	284,717	516,461	257,738	4,961,380
V. Metal works, machinery, etc. ..	8,397,880	3,461,572	1,038,276	2,763,939	531,024	898,229	17,090,920
VI. Connected with food and drink, etc. ..	5,562,705	5,297,849	5,206,691	1,121,589	680,818	526,675	18,396,327
VII. Clothing and textile fabrics, etc. ..	3,511,634	5,244,304	897,252	576,162	244,510	197,554	10,671,416
VIII. Books, paper, printing, and engraving ..	2,123,296	2,085,076	747,967	364,270	282,000	138,254	5,740,863
IX. Musical instruments, etc. ..	109,527	45,100	..	2,390	..	..	157,017
X. Arms and explosives. ..	226,366	238,196	..	295	..	..	464,857
XI. Vehicles and fittings, saddlery and harness, etc. ..	735,141	746,460	227,162	248,643	95,432	59,194	2,112,032
XII. Ship and boat building and repairing ..	632,343	129,359	17,635	23,796	4,559	10,365	818,057
XIII. Furniture, bedding, and upholstery ..	654,264	469,933	224,642	147,651	79,539	51,903	1,627,932
XIV. Drugs, chemicals, and by-products ..	962,050	678,243	31,844	191,138	91,827	3,051	1,958,153
XV. Surgical & other scientific instruments ..	41,031	25,348	8,440	6,030	3,776	..	84,625
XVI. Jewellery, timepieces, and plated ware ..	137,072	202,637	22,033	31,810	9,859	4,486	407,897
XVII. Heat, light, and power ..	2,587,744	1,770,642	594,895	424,795	274,883	196,709	5,849,668
XVIII. Leatherware, n.e.i. ..	129,137	141,203	12,199	7,871	2,820	..	293,230
XIX. Minor wares, n.e.i. ..	229,148	500,210	20,534	34,484	22,944	3,660	810,980
Total ..	31,459,465	24,933,079	10,866,796	6,818,339	3,040,035	2,454,031	79,571,745

a Includes Class II.

b 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 five most important classes being VI., V., VII., XVII., and VIII., 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 1913 to 1918 :—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
VALUE.							
	£	£	£	£	£	£	£
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 ^a	20,453,291	9,781,161	5,284,795	3,773,200	1,675,035	66,661,444
1915 ..	25,693,962 ^a	20,737,350	9,505,229	5,273,787	3,078,093	2,022,197	66,310,618
1916 ^b ..	26,762,785	20,737,350	9,413,098	5,273,787	2,973,473	2,233,907	67,394,400
1917 ^c ..	28,899,653	22,943,534	11,031,036	6,060,538	2,931,964	2,226,825	74,093,550
1918 ^c ..	31,459,465	24,933,079	10,866,796	6,818,339	3,040,035	2,454,031	79,571,745

PER EMPLOYEE.

	£	£	£	£	£	£	£
1913 ..	209	164	224	198	214	174	193
1914 ..	220 ^a	173	226	197	214	188	201
1915 ..	220 ^a	182	226	207	210	240	207
1916 ^b ..	230	182	235	207	235	267	213
1917 ^c ..	245	196	273	233	241	276	230
1918 ^c ..	261	211	265	256	235	282	243

PER HEAD OF MEAN POPULATION.

	£	£	£	£	£	£	£
1913 ..	13.90	13.98	14.57	13.02	11.78	8.67	13.56
1914 ..	13.80 ^a	14.37	14.49	12.01	11.67	8.44	13.53
1915 ..	13.80 ^a	14.54	13.84	12.00	9.55	10.14	13.41
1916 ^b ..	14.31	14.54	13.87	12.00	9.45	11.27	13.66
1917 ^c ..	15.55	16.40	16.37	14.01	9.50	11.19	15.19
1918 ^c ..	16.64	17.67	15.78	15.63	9.77	12.04	16.08

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

^c See note ^b first table this section.

As the total value of the output for the Commonwealth was estimated at £225,753,611, there remained, after payment of £146,181,866, the value of the raw materials used, of £38,379,268 for salaries and wages, and of £4,732,890 for fuel, the sum of £36,459,587 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, 1918.

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, 1917-18	64,718,726	2,060,076	14,701,255	14,698,134	96,178,191
Victoria, 1917-18 ..	42,133,636	1,248,186	12,502,601	11,182,292	67,066,715
Queensland, 1918 ..	19,693,043	424,099	5,121,188	5,321,509	30,559,839
South Australia, 1917-18 ..	12,442,803	683,187	3,359,354	2,775,798	19,261,142
Western Australia, 1918 ..	3,963,470	211,950	1,730,896	1,097,189	7,003,505
Tasmania, 1918 ..	3,230,188	105,392	963,974	1,384,665	5,684,219
Commonwealth ..	146,181,866	4,732,890	38,379,268	36,459,587	225,753,611

PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.

	%	%	%	%	%
New South Wales, 1917-18	67.29	2.14	15.29	15.28	100.00
Victoria, 1917-18 ..	62.83	1.86	18.64	16.67	100.00
Queensland, 1918 ..	64.44	1.39	16.76	17.41	100.00
South Australia, 1917-18 ..	64.60	3.55	17.44	14.41	100.00
Western Australia, 1918 ..	56.59	3.03	24.71	15.67	100.00
Tasmania, 1918 ..	56.83	1.85	16.96	24.36	100.00
Commonwealth ..	64.75	2.10	17.00	16.15	100.00

§ 9. Land, Buildings, Plant and Machinery.

1. **General.**—As an indication of the permanent character and stability of the industries which have been established in the Commonwealth, it may be noted that the values of land and buildings and of plant and machinery used in the factories are rapidly increasing. Thus, for the whole Commonwealth the total value of land and buildings and plant and machinery has increased from 1913 to 1918 by £22,434,475, i.e., from £74,153,534 to £96,588,009, or at the rate of £4,486,895 per annum.

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

VALUE OF LAND, BUILDINGS, PLANT, AND MACHINERY IN CONNEXION WITH MANUFACTURING INDUSTRIES, 1918.

Value of—	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
	£	£	£	£	£	£	£
Land and buildings	20,533,171	12,847,485	5,519,316	3,564,366	2,487,967	843,399	45,795,704
Plant and machinery	21,739,739	12,612,797	8,391,480	3,389,719	2,742,386	1,916,184	50,792,305
Total ..	42,272,910	25,460,282	13,910,796	6,954,085	5,230,353	2,759,583	96,588,009

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1918 was approximately £96,588,009 (or £19 10s. 4d. per head of population); of that sum £45,795,704 was invested in land and buildings occupied as manufactories, the remaining £50,792,305 being the value of the plant and machinery used in connexion therewith.

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

(i) *Total Value in Commonwealth, 1913 to 1918.* The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connexion with manufacturing industries of various classes during each year from 1913 to 1918 inclusive:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1913 TO 1918.

Class of Industry.	1913.	1914. ^a	1915. ^a	1916. ^b	1917. ^c	1918. ^c
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	1,014,783	1,063,549	1,069,890	1,002,686	1,126,504	1,237,117
II. Treating oils and fats, animal, vegetable, etc.	452,415	466,373	465,757	518,932	524,349	573,005
III. Processes in stone, clay, glass, etc.	1,593,769	1,679,050	1,666,097	1,620,520	1,657,760	1,739,247
IV. Working in wood	2,184,257	2,244,995	2,146,909	2,036,786	2,083,755	2,283,985
V. Metal works, machinery, etc.	6,072,737	6,467,224	6,587,199	6,800,296	7,137,251	7,961,012
VI. Connected with food and drink, etc.	8,656,547	9,800,457	9,852,479	10,508,926	11,209,366	11,640,843
VII. Clothing and textile fabrics, etc.	5,188,631	5,270,374	5,244,627	5,239,362	5,580,472	5,695,268
VIII. Books, paper, printing, and engraving	3,388,072	3,521,164	3,546,017	3,824,069	3,891,991	4,028,048
IX. Musical instruments, etc.	88,136	83,375	83,430	82,695	96,335	98,680
X. Arms and explosives	184,772	179,723	194,149	212,267	252,498	260,550
XI. Vehicles and fittings, saddlery and harness, etc.	1,835,221	1,824,018	1,825,999	1,822,565	1,866,859	1,955,096
XII. Ship and boat building and repairing	1,113,243	1,127,521	1,134,530	1,126,754	953,879	1,009,201
XIII. Furniture, bedding, and upholstery	1,149,120	1,117,699	1,094,646	1,075,547	1,071,635	1,103,679
XIV. Drugs, chemicals, and by-products	831,892	929,933	955,995	1,013,577	1,109,703	1,318,731
XV. Surgical and other scientific instruments	70,968	64,263	67,021	70,536	83,304	94,524
XVI. Jewellery, timepieces, and plated ware	353,900	345,018	344,452	325,126	334,147	336,289
XVII. Heat, light, and power	2,517,179	2,717,502	2,775,148	3,150,513	3,655,063	3,873,924
XVIII. Leatherware, n.e.i.	133,283	132,777	137,666	137,391	150,660	165,835
XIX. Minor wares, n.e.i.	270,307	317,417	343,529	344,651	426,906	421,370
Total	37,099,232	39,352,432	39,535,540	40,913,199	43,212,437	45,795,704

^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.

As shewn in the above table, the total net increase during the five years was £8,696,472, or an annual average of £1,739,294. The largest increases were in Classes VI., V., and XVII., and amounted to £2,984,296, £1,888,275, and £1,356,045 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, 1918.

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	512,071	466,810	74,069	103,061	a62,577	a18,529	1,237,117
II. Treating oils and fats, animal, vegetable, etc.	341,455	140,095	31,989	59,466	(b)	(b)	573,005
III. Processes in stone, clay, glass, etc.	971,374	468,320	95,926	125,189	49,547	28,891	1,739,247
IV. Working in wood	1,082,106	442,310	239,268	178,289	260,920	81,092	2,283,985
V. Metal works, machinery, etc.	3,836,875	1,887,495	713,978	823,799	612,804	86,061	7,961,012
VI. Connected with food and drink, etc.	4,137,103	3,110,415	2,824,970	797,928	482,042	288,385	11,640,843
VII. Clothing and textile fabrics, etc.	2,424,116	2,204,265	423,995	330,453	198,586	113,853	5,695,268
VIII. Books, paper, printing, and engraving	1,883,531	1,011,065	486,532	345,927	242,558	58,435	4,028,048
IX. Musical instruments, etc.	61,515	34,765	..	2,400	..	..	98,680
X. Arms and explosives	93,360	163,690	..	3,500	..	..	200,550
XI. Vehicles and fittings, saddlery and harness, etc.	774,436	558,215	193,531	225,059	134,433	69,422	1,955,096
XII. Ship and boat building and repairing	692,204	246,215	11,207	53,945	3,180	2,450	1,009,201
XIII. Furniture, bedding, and upholstery	455,852	335,780	115,958	90,171	80,076	25,842	1,103,679
XIV. Drugs, chemicals, and by-products	616,988	398,970	12,814	185,304	99,655	5,000	1,318,731
XV. Surgical and other scientific instruments	39,855	26,105	12,064	8,415	8,085	..	94,524
XVI. Jewellery, timepieces, and plated ware	137,157	131,135	23,167	22,895	14,160	7,775	336,289
XVII. Heat, light, and power	2,226,378	968,035	232,603	180,735	210,839	54,634	3,873,224
XVIII. Leatherware, n.e.i.	80,765	66,155	8,470	5,940	4,485	..	165,835
XIX. Minor wares, n.e.i.	166,010	187,645	18,775	21,890	24,020	3,030	421,370
Total	20,533,171	12,847,485	5,519,316	3,564,366	2,487,967	843,399	45,795,704

a Includes Class II.

b Included in Class I.

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £11,640,843, or 25.42 per cent. on the total value. The next in order of importance were Classes V., VII., VIII., and XVII., in which the values were £7,961,012, £5,695,268, £4,028,048, and £3,873,224 respectively. The sum of the values for the five classes mentioned amounted to £33,193,395, or 72.49 per cent. on the total value for all classes.

(iii) *Value in each State, 1913 to 1918.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1913 to 1918 inclusive :—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1913 TO 1918.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
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
1918c	20,533,171	12,847,485	5,519,316	3,564,366	2,487,967	843,399	45,795,704

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 1913 there has been a general increase throughout the Commonwealth, with the exception of Tasmania, where, since 1914, a gradual decline has been in evidence. The States shewing the largest growth were New South Wales, Victoria, and Queensland, with an annual average increase of £948,213, £418,835, and £319,146 respectively.

3. Value of Plant and Machinery.—(i) *Total Value in Commonwealth, 1913 to 1918.* The following table shews for the whole Commonwealth the approximate value of plant and machinery used in factories during each year from 1913 to 1918 inclusive :—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH, 1913 TO 1918.

Class of Industry.	1913.	1914. <i>a</i>	1915. <i>a</i>	1916. <i>b</i>	1917. <i>c</i>	1918. <i>c</i>
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	985,619	974,556	971,841	965,932	1,048,729	1,216,281
II. Treating oils and fats, animal, vegetable, etc. . .	444,502	469,680	545,796	576,877	597,327	634,936
III. Processes in stone, clay, glass, etc. . .	1,717,544	1,869,446	1,900,086	1,866,993	1,972,885	2,172,225
IV. Working in wood . .	2,664,508	2,737,527	2,611,407	2,806,653	2,784,838	2,915,781
V. Metal works, machinery, etc. . .	6,996,932	7,745,988	7,761,871	8,604,804	9,549,635	10,259,558
VI. Connected with food and drink, etc. . .	9,650,298	10,782,825	10,914,862	11,654,182	12,318,334	13,026,771
VII. Clothing and textile fabrics, etc. . .	1,746,713	1,774,910	1,798,554	1,846,758	1,926,718	2,006,983
VIII. Books, paper, printing, and engraving . . .	2,814,226	2,974,120	2,987,190	3,054,941	3,070,739	3,124,559
IX. Musical instruments, etc. . .	22,630	19,030	19,119	21,191	22,841	26,827
X. Arms and explosives . .	190,060	216,581	228,031	228,210	308,536	323,073
XI. Vehicles and fittings, saddlery and harness, etc. . .	374,371	395,463	411,295	421,416	433,716	477,472
XII. Ship and boat building, and repairing . . .	725,934	764,782	768,159	511,237	1,312,832	1,477,247
XIII. Furniture, bedding, and upholstery . . .	235,068	238,547	244,796	251,822	267,180	281,229
XIV. Drugs, chemicals, and by-products . . .	650,185	832,686	916,136	868,126	906,091	1,055,262
XV. Surgical and other scientific instruments . . .	13,121	13,758	13,955	13,873	19,021	19,813
XVI. Jewellery, timepieces, and plated ware . . .	68,186	69,724	72,988	74,617	72,757	75,437
XVII. Heat, light, and power . .	7,560,198	9,044,847	9,532,800	9,970,117	10,365,297	11,274,492
XVIII. Leatherware, n.e.i. . .	28,035	30,576	31,706	34,240	33,029	37,103
XIX. Minor wares, n.e.i. . .	166,172	199,343	226,285	234,313	305,358	387,256
Total . . .	37,054,302	41,154,389	41,956,877	44,006,302	47,315,863	50,792,305

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 £13,738,003, or an annual average of £2,747,601. Development has occurred in all classes of industry, the largest increase being in Class XVII., "Heat, Light, and Power," where it amounted to £3,714,294, while the two next were in Class VI., "Connected with Food and Drink, etc.," with an increase of £3,376,473, and Class V., "Metal Works, Machinery, etc.," £3,262,626.

(ii) *Value in each State, 1913 to 1918.* 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., £6,878,063; while Victoria comes next with £2,590,368. The establishment of the Electrolytic Zinc Works at Risdon, and a further extension of the State Hydro-electric Works to cope with the demand for increased power, have been mainly responsible for the substantial increase noted in Tasmania during 1918.

VALUE OF PLANT AND MACHINERY IN FACTORIES, 1913 TO 1918.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
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	2,640,163	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	2,835,085	1,224,647	47,315,863
1918 <i>c</i> . .	21,739,739	12,612,797	8,331,400	3,339,719	2,742,376	1,916,184	50,792,305

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, 1918.

Class of Industry.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . . .	£ 527,326	£ 394,890	£ 127,944	£ 81,218	£ a47,593	£ a37,310	£ 1,216,281
II. Treating oils and fats, animal, vegetable, etc. . . .	393,734	150,170	51,188	39,844	(b)	(b)	634,936
III. Processes in stone, clay, glass, etc. . . .	1,212,078	448,380	239,611	195,807	53,258	23,091	2,172,225
IV. Working in wood . . .	922,910	561,400	473,132	80,679	691,303	186,357	2,915,781
V. Metal works, machinery, etc. . . .	6,037,231	1,856,870	646,010	760,484	573,614	385,349	10,259,558
VI. Connected with food and drink, etc. . . .	4,151,037	2,587,980	5,070,442	632,445	421,946	162,921	13,026,771
VII. Clothing and textile fabrics, etc. . . .	652,447	1,016,640	136,887	114,139	35,165	51,705	2,006,983
VIII. Books, paper, printing, and engraving . . .	1,326,907	1,026,839	339,836	205,762	161,598	63,617	3,124,559
IX. Musical instruments, etc. . . .	18,412	7,895	..	520	..	..	26,827
X. Arms and explosives . . .	142,148	180,525	..	400	..	..	323,073
XI. Vehicles and fittings, saddlery and harness, etc. . . .	193,994	145,450	41,491	59,907	21,249	15,381	477,472
XII. Ship and boat building, and repairing . . .	1,354,372	101,155	9,815	9,260	1,450	1,195	1,477,247
XIII. Furniture, bedding, and upholstery . . .	94,506	85,043	43,234	31,431	17,657	9,358	281,229
XIV. Drugs, chemicals, and by-products . . .	369,914	331,750	7,191	230,263	115,384	760	1,055,262
XV. Surgical and other scientific instruments . . .	7,701	6,030	2,097	2,831	1,154	..	19,813
XVI. Jewellery, timepieces, and plated ware . . .	27,962	32,800	4,304	6,241	2,380	1,750	75,437
XVII. Heat, light, and power . . .	4,190,696	3,391,180	1,194,653	928,034	593,104	976,825	11,274,492
XVIII. Leatherware, n.e.l. . . .	15,105	18,725	1,577	586	1,110	..	37,103
XIX. Minor wares, n.e.l. . . .	101,259	269,075	2,068	9,868	4,421	565	387,256
Total . . .	21,739,739	12,612,797	8,391,480	3,389,719	2,742,386	1,916,184	50,792,305

a Includes Class II. b Included in Class I.

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £13,026,771, or 25.64 per cent. on the total for all classes. The next in order of importance is Class XVII., "Heat, Light, and Power," which amounts to £11,274,492, or 22.20 per cent. on the total; followed by Class V., "Metal Works, Machinery, etc.," amounting to £10,259,558, or 20.20 per cent. on the total value. The total for these three classes amounts to £34,560,821, or 68.04 per cent. on the total value for all classes.

§ 10. Individual Industries.

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

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

TANNERIES, 1918.

Item.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S.A. 1917-18.	W.A. 1918. ^a	Tas. 1918.	C'wth.
Number of factories	74	45	17	10	3	4	153
Number of employees	1,073	1,760	241	193	65	64	3,396
Actual horse-power of engines employed ..	1,538	2,476	335	301	116	118	4,884
Approx. value of land and buildings £	172,495	201,270	19,090	25,304	15,540	8,038	441,737
Approx. value of plant and machinery £	106,971	161,635	23,957	14,850	12,650	8,864	383,927
Total amount of wages paid during year £	154,879	256,727	34,731	29,776	9,065	8,702	499,880
Value of fuel used	£ 11,946	22,454	2,473	2,514	818	353	40,558
Value of raw material worked up	£ 1,403,384	1,803,470	309,287	174,455	72,739	67,815	3,831,180
Total value of output	£ 1,779,832	2,385,512	418,652	226,507	90,234	89,675	4,990,412
Value added in process of manufacture £	376,448	582,042	109,365	52,022	17,495	21,860	1,159,232

(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, 1918.

Particulars.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Hides and calf skins .. No.	542,734	819,555	110,626	71,739	24,180	21,552	1,590,386
Sheep pelts	3,479,395	898,470	66,059	93,584	17,369	24,432	5,477,257
Other skins	281,439	520,125	80,960	13,264			
Bark Tons	12,053	11,145	2,566	1,403	650	422	28,239

(iii) *Progress of Tanning Industries, 1913 to 1918.* The development of the tanning industry during the period 1913 to 1918 is shewn in the following table :—

DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1913 TO 1918.

Items.	1913.	1914. ^a	1915.	1916.	1917. ^b	1918.
Number of factories	184	166	165	163	156	153
Number of employees	2,892	3,091	3,376	3,303	3,437	3,396
Actual horse-power of engines used ..	3,748	3,803	3,899	4,145	4,449	4,884
Approx. value of land and buildings £	366,696	392,420	389,924	387,706	412,311	441,737
Approx. value of plant and machinery £	276,610	283,499	287,856	285,956	307,483	328,927
Total amount of wages paid	£ 322,747	366,484	418,363	422,014	466,071	499,880
Value of fuel used	£ 19,642	22,573	26,140	27,292	34,102	40,558
Value of raw materials worked up	£ 2,428,003	2,732,525	3,188,817	3,283,787	3,951,266	3,831,180
Value of final output	£ 3,030,785	3,468,475	4,088,140	4,233,427	4,979,988	4,990,412
Value added in process of manufacture £	602,782	735,950	899,323	949,640	1,028,722	1,159,232

^a Including three bone-milling establishments in Western Australia. ^b 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 7 per cent., while the number of hands employed has increased by about 17 per cent. The approximate amount of permanently invested capital shews a substantial increase, amounting to 20.46 per cent. in the value of land and buildings, and 18.91 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 53.03, 57.79, and 64.66 per cent. respectively during the same period, while the value added in process

of manufacture increased by 92.31 per cent. The relatively high increases which have taken place in the values of raw materials, added value, and final output in tanneries during the last five years, are not a reflection of any correspondingly large increase in the volume of business, but rather serve as an indication of the enhanced value of commodities since 1913.

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

FELLMONGERING AND WOOL-SCOURING, 1918.

Items.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	50	31	17	3	1	..	102
Number of employees	1,896	725	460	86	14	..	3,191
Actual horse-power of engines used	3,239	1,000	508	209	35	..	4,991
Approx. value of land and buildings £ ..	170,302	116,905	48,073	7,890	5,000	..	348,170
Approx. value of plant and machinery £ ..	278,656	109,485	90,900	4,750	4,500	..	488,301
Total amount of wages paid	232,833	91,026	65,402	11,914	2,904	..	404,079
Value of fuel used	35,599	17,153	10,246	2,214	901	..	66,113
Value of raw material worked up	5,486,004	2,228,217	2,154,448	351,827	69,635	..	10,290,131
Value of final output	6,396,000	2,675,724	2,588,712	372,325	73,108	..	12,105,929
Value added in process of manufacture £ ..	910,056	447,507	434,264	20,498	3,473	..	1,815,798

(ii) *Development of Fellmongering and Wool-scouring, 1913 to 1918.* 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, 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917. ^a	1918.
Number of factories	119	108	106	100	98	102
Number of employees	2,375	2,298	2,337	2,379	2,599	3,191
Actual horse-power of engines used	3,966	3,772	3,754	4,463	4,157	4,991
Approx. value of land and buildings £ ..	269,895	256,330	266,440	263,530	276,162	348,170
Approx. value of plant and machinery £ ..	348,381	330,047	329,780	334,131	369,728	488,301
Total amount of wages paid	230,445	226,509	245,362	279,128	332,583	404,079
Value of fuel used	33,404	38,658	40,834	44,914	53,667	66,113
Value of raw materials worked up	4,365,413	4,238,705	5,223,231	5,903,149	7,341,638	10,290,131
Value of final output	4,940,410	4,742,531	5,919,690	6,989,122	8,572,579	12,105,929
Value added in process of manufacture £ ..	574,997	503,826	696,459	1,085,973	1,230,941	1,815,798

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

Despite a decline in the number of establishments to the extent of about 14 per cent., this industry has been considerably extended during the last five years. The number of hands employed has risen from 2,375 to 3,191, and the amount of salaries and wages paid from £230,445 to £404,079, or more than 75 per cent. Though an augmentation of values has materially assisted, the progress of this industry may be gauged from the fact that the values of raw materials used and of final output have been more than doubled, while the added value has increased by no less than 215.79 per cent.

4. *Soap and Candle Factories.*—(i) *Details for each State.* In Class II. (see § 1, 3 hereof) soap and candle factories are the most important establishments. The manufacture of these two products is frequently carried on in the same factory, so that separate

returns cannot be obtained; it may, however, be said generally that the manufacture of soap is the more important of the two. The following table gives particulars of soap and candle factories in each State during the year 1918:—

SOAP AND CANDLE FACTORIES, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W.A. 1918. ^a	Tas. 1918. ^a	C'wealth.
Number of factories	26	17	13	6	..	..	62
Number of employees	962	769	173	224	..	..	2,128
Actual horse-power of engines employed	308	463	135	177	..	..	1,083
Approx. value of land and buildings £	201,211	119,395	31,989	47,922	..	..	400,517
Approx. value of plant and machinery £	226,927	130,795	51,188	35,309	..	..	444,219
Total amount of wages paid during year £	95,296	91,604	25,153	30,907	..	..	242,960
Value of fuel used	£ 31,126	24,315	4,245	7,953	..	..	67,639
Value of raw material worked up	£ 776,608	637,006	142,051	206,743	..	..	1,762,408
Total value of output	£ 1,074,952	951,114	238,558	285,938	..	..	2,550,562
Value added in process of manufacture £	298,344	314,108	96,507	79,195	..	..	788,154

^a 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, 1913 to 1918.* 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, 1913 TO 1918.

Items.	1913.	1914. ^a	1915. ^a	1916.	1917. ^b	1918. ^b
Number of factories	74	75	75	72	65	62
Number of employees	1,755	1,801	2,141	2,009	2,049	2,128
Actual horse-power of engines used ..	1,314	1,434	1,420	1,477	1,165	1,083
Approx. value of land and buildings ..£	360,783	374,418	374,886	391,619	373,377	400,517
Approx. value of plant and machinery £	364,357	385,744	460,519	447,005	424,942	444,219
Total amount of wages paid	£ 172,247	190,349	219,865	219,398	228,384	242,960
Value of fuel used	£ 31,692	33,949	36,101	38,548	52,085	67,639
Value of raw material worked up	£ 1,067,001	1,117,140	1,285,950	1,318,105	1,407,431	1,762,408
Value of final output	£ 1,644,188	1,756,938	1,971,513	1,965,881	2,036,978	2,550,562
Value added in process of manufacture £	577,187	639,798	685,563	647,776	629,547	788,154

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

(iii) *Production of Soap and Candles, 1913 to 1918.* 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, 1913 TO 1918.

Particulars.	1913.	1914. ^a	1915. ^a	1916. ^a	1917. ^a	1918.
Soap cwt.	700,878	697,807	729,984	727,349	671,326	737,966 ^b
Candles "	129,877	110,734	104,986	102,775	100,497	101,098 ^b

^a Exclusive of Western Australia.

^b Exclusive of Western Australia and Tasmania.

(iv) *Raw Materials Used, 1913 to 1918.* The following statement shows the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1913 to 1918 :—

RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1913 TO 1918.

Particulars.	1913.	1914. <i>a</i>	1915. <i>a</i>	1916. <i>a</i>	1917. <i>a</i>	1918. <i>b</i>
Tallow cwt.	391,133	410,235	439,402	416,649	382,188	418,571
Alkali "	135,231	158,624	159,344	154,348	143,683	143,875
Cocoonut oil gal.	457,693	460,561	485,851	630,298	524,918	532,485

a Exclusive of Western Australia.

b Exclusive of Western Australia and Tasmania.

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

SAW MILLS, FOREST AND OTHER, JOINERY, ETC., 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	606	406	281	78	68	136	1,575
Number of employees	6,872	6,392	4,227	1,148	2,544	1,573	22,756
Actual horse-power of engines employed	16,685	10,368	8,682	1,726	6,377	1,918	45,756
Approximate value of land and buildings £	971,315	382,160	223,660	(<i>a</i>)	260,920	(<i>a</i>)	<i>b</i> 2,086,166
Approximate value of plant and machinery £	849,715	526,510	456,311	(<i>a</i>)	691,303	(<i>a</i>)	<i>b</i> 2,784,355
Total amount of wages paid during year £	870,772	769,269	536,132	(<i>a</i>)	372,433	(<i>a</i>)	<i>b</i> 2,870,214
Value of fuel used £	29,210	19,962	10,629	5,116	2,787	1,802	69,506
Value of raw mater ^l worked up ..	2,371,562	1,163,321	825,143	579,530	117,957	102,178	5,159,691
Total value of output £	3,791,294	2,404,877	1,786,190	855,217	634,418	357,876	9,829,872
Value added in process of manufacture £	1,419,732	1,241,556	961,047	275,687	516,461	255,698	4,670,181

a Information not available for publication.

b Including South Australia and Tasmania.

The development of forest and other saw mills, etc., since 1913 is shown in the following table :—

DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, JOINERY, ETC., IN THE COMMONWEALTH FROM 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917.	1918.
Number of establishments	1,670	1,623	1,567	1,526	1,517	1,575
Number of employees	30,371	28,864	24,847	22,173	20,902	22,756
Actual horse-power of engines used	45,684	47,341	46,479	44,456	43,833	45,756
Approx. value of land and buildings £	2,008,035	2,063,437	1,969,758	1,845,812	1,901,505	2,086,166
Approx. value of plant and machinery £	2,571,701	2,632,465	2,502,325	2,693,132	2,662,625	2,784,355
Total amount of wages paid £	3,383,907	3,401,045	2,780,990	2,552,197	2,558,412	2,870,214
Value of fuel used £	51,436	50,650	51,276	52,273	60,567	69,506
Value of raw material worked up £	5,273,688	5,012,211	4,602,863	4,487,201	4,463,996	5,159,691
Value of final output £	10,411,923	10,100,689	8,892,082	8,297,110	8,443,255	9,829,872
Value added in process of manufacture £	5,168,235	5,088,475	4,289,219	3,809,909	3,979,259	4,670,181

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. During the war period, 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 1918:—

AGRICULTURAL IMPLEMENT WORKS, 1918.

Items.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S.A. 1917-18.	W.A. 1918. ^a	Tas. 1918.	C'wealth. c
Number of factories	23	62	6	50	..	1	142
Number of employes	445	1,967	63	853	..	3	3,336
Actual horse-power of engines employed	273	1,271	103	915	..	4	2,566
Approx. value of land and buildings £	114,737	164,550	(b)	65,486	..	(b)	355,830
Approx. value of plant and machinery £	42,538	229,790	(b)	77,490	..	(b)	360,621
Total amount of wages paid during year £	62,024	261,045	(b)	98,768	..	(b)	428,522
Value of fuel used	£ 2,566	20,911	(b)	6,264	..	(b)	30,011
Value of raw material worked up	£ 193,720	435,665	(b)	125,282	..	(b)	762,969
Total value of output	£ 295,789	830,876	(b)	268,600	..	(b)	1,415,375
Value added in process of manufacture £	102,069	395,211	(b)	143,318	..	(b)	652,406

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

A glance at the following table will shew that the Agricultural Implement industry has failed to progress during the last five years. There are fewer factories, fewer hands, less power used, and the total output is smaller than it was in 1913:—

DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE COMMONWEALTH, FROM 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917. ^a	1918. ^b
Number of factories	154	154	153	151	142	142
Number of employes	4,444	3,865	3,606	3,538	3,313	3,336
Actual horse-power of engines used	2,698	2,665	2,905	2,811	2,613	2,566
Approx. value of land and buildings £	348,666	360,916	363,166	355,108	340,521	355,830
Approx. value of plant and machinery £	309,015	324,292	337,459	336,397	339,244	360,621
Total amount of wages paid	£ 502,244	466,686	428,370	425,866	427,102	428,522
Value of fuel used	£ 30,408	29,892	29,167	29,067	27,659	30,011
Value of raw material worked up	£ 824,556	749,153	664,412	757,231	798,110	762,969
Value of final output	£ 1,536,378	1,413,789	1,299,308	1,457,645	1,465,955	1,415,375
Value added in process of manufacture £	711,822	664,636	634,896	700,414	667,845	652,406

^a Excluding three establishments in Western Australia and one in Tasmania.

^b Excluding three establishments in Western Australia.

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

ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918. ^a	Tas. 1918.	C'wealth.
Number of factories	347	420	95	84	67	19	1,012
Number of employees	11,214	7,717	1,989	1,419	1,080	364	23,783
Actual horse-power of engines employed	30,207	8,894	1,942	1,212	1,741	321	44,317
Approximate value of land and buildings	£ 1,659,153	734,965	204,375	120,349	165,398	26,641	2,910,881
Approximate value of plant and machinery	£ 3,268,378	919,940	207,924	143,804	163,629	41,075	4,744,750
Total amount of wages paid during year	£ 1,662,246	1,057,705	250,544	176,002	168,207	50,341	3,365,045
Value of fuel used	£ 325,853	115,238	14,571	17,846	16,249	3,359	493,116
Value of raw materials worked up	£ 5,170,294	1,579,485	248,148	192,272	292,196	38,535	7,520,930
Total value of output	£ 8,168,810	3,363,576	645,115	469,576	562,762	112,956	13,322,795
Value added in process of manufacture	£ 2,998,516	1,784,091	396,967	277,304	270,566	74,421	5,801,865

^a Including three agricultural implement establishments.

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

The development of engineering works, ironworks, and foundries in the Commonwealth since 1913 is shewn in the following table:—

DEVELOPMENT OF ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, FROM 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917. ^a	1918. ^a
Number of factories	919	950	950	956	962	1,012
Number of employees	26,014	25,766	25,219	25,718	23,543	23,783
Actual horse-power of engines used	20,630	33,630	34,049	39,658	42,502	44,317
Approx. value of land and buildings	£ 1,980,453	2,264,889	2,315,944	2,424,759	2,581,605	2,910,881
Approx. value of plant and machinery	£ 2,153,935	2,946,347	2,989,850	3,555,662	4,274,067	4,744,750
Total amount of wages paid	£ 3,344,263	3,143,920	3,134,873	3,468,260	3,265,738	3,365,045
Value of fuel used	£ 217,173	357,071	360,170	429,139	431,448	493,116
Value of raw material worked up	£ 2,719,643	3,980,252	4,005,914	4,718,516	5,932,214	7,520,930
Value of final output	£ 8,315,320	8,881,777	8,944,801	10,205,424	11,086,711	13,322,795
Value added in process of manufacture	£ 4,595,677	4,921,525	4,938,687	5,486,908	5,164,527	5,801,865

^a Including three agricultural implement establishments in Western Australia.

The progress in these industries during late years has been very marked. Since 1913 the number of establishments has increased over 10 per cent., the amount of wages paid 10.54 per cent., the amount of capital invested in land, buildings, plant and machinery, 83.62 per cent., and the output over 60 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, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	39	19	12	10	8	7	95
Number of employees	7,724.	3,619	2,522	2,468	1,410	328	18,071
Actual horse-power of engines employed	5,384	1,543	2,866	453	2,446	182	12,874
Approximate value of land and buildings	£ 1,163,701	£ 656,360	£ 357,464	a	£ 442,517	a	£ 2,904,419
Approximate value of plant and machinery	£ 1,164,678	£ 485,260	£ 256,051	a	£ 408,268	a	£ 2,614,127
Total amount of wages paid during year	£ 1,179,971	£ 557,829	£ 430,089	a	£ 237,291	a	£ 2,839,827
Value of fuel used	£ 27,347	£ 25,270	£ 7,632	£ 8,445	£ 10,929	£ 1,864	£ 81,487
Value of raw material worked up	£ 791,612	£ 594,756	£ 194,250	£ 193,951	£ 138,119	£ 21,937	£ 1,934,645
Total value of output	£ 2,065,897	£ 1,295,640	£ 556,565	£ 653,628	£ 391,635	£ 73,890	£ 5,037,255
Value added in process of manufacture	£ 1,274,285	£ 700,884	£ 362,315	£ 459,677	£ 253,516	£ 51,933	£ 3,102,610

(a) Information not available for publication.

(b) Including South Australia and Tasmania.

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

(iii) *Development of Railway and Tramway Workshops, 1913 to 1918.* The following table shows the development of railway and tramway workshops in the Commonwealth since 1913 :—

DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, ETC., FROM 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917.	1918.
Number of factories	73	75	77	92	94	95
Number of employees	26,014	21,745	22,224	22,995	20,566	18,071
Actual horse-power of engines used	9,581	11,025	12,571	14,350	13,363	12,874
Approximate value of land and buildings	£ 2,213,697	£ 2,378,764	£ 2,471,731	£ 2,548,223	£ 2,609,432	£ 2,904,419
Approximate value of plant and machinery	£ 1,685,050	£ 2,141,654	£ 2,236,578	£ 2,389,065	£ 2,480,239	£ 2,614,127
Total amount of wages paid	£ 3,018,988	£ 3,096,734	£ 3,174,946	£ 3,409,265	£ 3,270,817	£ 2,839,827
Value of fuel used	£ 77,155	£ 90,332	£ 90,490	£ 92,200	£ 87,701	£ 81,487
Value of raw material worked up	£ 2,874,535	£ 2,492,217	£ 2,363,785	£ 2,234,063	£ 2,010,288	£ 1,934,645
Value of final output	£ 6,435,823	£ 6,134,588	£ 6,046,521	£ 6,298,338	£ 5,566,940	£ 5,037,255
Value added in process of manufacture	£ 3,561,288	£ 3,642,371	£ 3,682,736	£ 3,974,275	£ 3,556,652	£ 3,102,610

The growth of the railway and tramway systems, conjointly with heavy increases in passenger and goods traffic throughout the Commonwealth, has resulted in corresponding activity in workshops engaged in the manufacture or repair of rolling stock, etc. During the war period, however, the operations of these establishments were restricted, on the score of economy, to necessary works, and consequently the value of output decreased from £6,435,823 in 1913, to £5,037,255 in 1918.

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

SMELTING, CYANIDE, PYRITES, ETC., WORKS, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W.A. ^a 1918.	Tasmania. 1918.	C'wealth.
Number of factories	28	20	10	2	..	3	63
Number of employees	3,407	184	174	2,642	..	678	7,085
Actual horse-power of engines employed	15,249	331	978	7,237	..	5,420	29,215
Approximate value of land and buildings	£ 399,670	10,580	16,630	268,310	..	44,805	739,995
Approximate value of plant and machinery	£ 1,204,263	30,010	86,680	253,077	..	251,031	1,825,061
Total amount of wages paid during year	£ 672,091	18,725	29,630	627,953	..	108,654	1,457,053
Value of fuel used	£ 253,850	4,966	8,497	347,036	..	49,884	664,233
Value of raw material worked up	£ 7,368,851	72,446	124,236	4,082,209	..	1,022,769	12,670,511
Total value of output	£ 10,550,973	113,530	173,744	5,797,020	..	1,773,760	18,409,027
Value added in process of manufacture	£ 3,182,122	41,084	49,508	1,714,811	..	750,991	5,738,516

^a See third paragraph below.

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

The greatest output was in New South Wales, viz., £10,550,973, or 57.31 per cent. on the total output for the Commonwealth. South Australia came next with £5,797,020, or 31.49 per cent. For Tasmania the output was £1,773,760, while the figures for Queensland and Victoria were comparatively small, amounting only to £173,744 and £113,530 respectively.

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, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	22	21	7	12	7	5	74
Number of employees	276	455	459	134	48	22	1,394
Actual horse-power of engines employed	443	1,066	792	136	114	65	2,616
Approx. value of land and buildings	£ 87,454	99,650	105,226	14,219	16,725	5,275	328,549
Approx. value of plant and machinery	£ 34,659	58,060	58,299	7,723	6,322	1,160	166,223
Total amount of salaries and wages paid	£ 51,556	65,870	79,072	17,404	6,083	2,678	222,663
Value of fuel used	£ 9,882	8,880	8,251	1,763	764	397	29,937
Value of raw material worked up	£ 763,301	889,200	705,851	206,537	93,512	47,444	2,705,845
Total value of output	£ 878,711	1,084,440	1,172,207	245,318	104,831	53,105	3,538,612
Value added in process of manufacture	£ 115,410	195,240	466,356	38,781	11,319	5,661	832,767

(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, 1918.

Particulars.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918. ^a	Tasmania. 1918.	C'wealth.
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QUANTITY (,000 OMITTED).

Bacon and ham .. lbs.	15,603	17,908	15,703	5,013	2,335	910	57,472
Lard .. lbs.	811	889	854	207	35	51	2,847

VALUE.

Bacon and ham .. £	767,845	976,345	897,683	217,302	103,371	46,996	3,009,542
Lard .. £	28,464	33,345	33,392	6,913	1,226	1,757	105,097
Other products .. £	52,274	74,750	241,132	21,103	1,154	4,352	394,765

PIGS KILLED.

Number	183,850	197,880	190,623	59,653	<i>b</i>	10,577	642,583
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a In Western Australia, a portion of the bacon and ham treated in factories is imported and subsequently smoked in that State. *b* Not available.

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

11. Butter, Cheese, and Condensed Milk Factories.—(i) *Details for each State.* The subjoined table gives particulars of butter, cheese, and condensed milk factories in each State during the year 1918:—

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18. ^a	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
Number of factories ..	159	181	137	44	5	31	557
Number of employees ..	1,128	1,677	919	205	27	119	4,075
Actual horse-power of engines employed ..	3,306	3,252	1,959	452	71	239	9,279
Approximate value of land and buildings .. £	271,689	326,550	147,688	43,249	8,587	25,413	823,176
Approximate value of plant and machinery .. £	351,430	356,590	231,075	30,880	6,373	22,493	998,841
Total amount of wages paid £	179,074	226,050	133,007	22,054	3,691	12,672	576,548
Value of fuel used .. £	41,870	48,519	19,571	4,349	461	1,458	116,228
Value of raw material worked up £	5,170,990	4,497,581	2,207,597	483,144	61,179	221,580	12,642,071
Total value of output .. £	5,623,826	5,086,238	2,737,602	543,830	87,718	263,011	14,322,025
Value added in process of manufacture .. £	452,836	588,657	530,005	60,486	6,539	41,431	1,679,954

a Includes one margarine establishment.

(ii) *Development of Factories, 1913 to 1918.* The following table shows the progress of the factories in this industry during the past five years:—

DEVELOPMENT OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES IN THE COMMONWEALTH, 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917. ^a	1918.
Number of factories	531	528	536	559	560	557
Number of employees	3,507	3,568	3,300	3,287	3,801	4,075
Actual horse-power of engines used ..	7,728	7,895	7,948	8,329	8,061	9,279
Approx. value of land and buildings £	684,735	664,090	683,413	734,686	756,454	823,176
Approx. value of plant and machinery £	828,936	850,770	852,260	881,267	933,086	908,841
Total amount of wages paid	£ 411,491	£ 439,121	£ 408,181	£ 403,136	£ 510,832	£ 576,548
Value of fuel used	£ 72,214	£ 81,800	£ 71,796	£ 70,053	£ 101,496	£ 116,228
Value of raw material worked up ..	£ 3,146,178	£ 3,709,272	£ 3,040,316	£ 7,763,596	£ 12,128,520	£ 12,842,071
Value of final output	£ 9,284,747	£ 9,898,398	£ 3,203,041	£ 3,974,067	£ 14,151,299	£ 14,322,025
Value added in process of manufacture £	1,138,569	1,189,126	1,162,725	1,210,471	2,022,779	1,679,954

^a Including one margarine establishment in South Australia.

(iii) *Quantity and Value of Production.* The following table shows 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, 1918.

Particulars.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
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QUANTITY (,000 OMITTED).

Butter lbs.	75,867	59,702	30,669	6,916	889	3,740	177,783
Cheese "	6,089	3,973	8,573	2,446	..	426	21,507
Condensed and concentrated milk	8,974	37,805	6,846	..	..	..	53,625

VALUE (,000 OMITTED).

Butter £	5,156	3,920	2,198	461	66	248	12,049
Cheese £	235	149	345	83	..	15	827
Condensed and concentrated milk £	206	973	195	..	..	..	1,374

MILK USED (,000 OMITTED).

Butter factories gals.	170,611	137,398	64,206	14,043	1,951	8,300	396,509
Cheese "	6,295	3,940	8,482	2,398	..	446	21,561
Condensed milk factories	2,366	12,023	1,223	..	..	..	15,612

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 327 and 330 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, 1918.

Items.	N.S.W. 1917-18	Vic. 1917-18.	Q'land. 1918.	S.A. 1917-18.	W.A. 1918.	Tas. 1918.	C'wealth. (b)
Number of factories	143	40	62	16	20	5	286
Number of employees	2,882	1,421	4,899	352	131	27	9,712
Actual horse-power of engines employed ..	7,941	6,907	11,314	1,125	1,144	72	28,503
Approx. value of land and buildings £	956,315	581,660	1,565,372	a	57,589	a	3,358,673
Approx. value of plant and machinery £	741,549	343,300	908,077	a	59,240	a	2,155,410
Total amount of wages paid during year	£ 342,155	183,846	844,477	a	22,699	a	1,440,094
Value of fuel used	£ 73,694	46,196	99,196	a	10,327	a	247,749
Value of raw material worked up	£ 5,654,573	953,694	4,871,643	a	36,236	a	11,651,156
Total value of output	£ 6,538,744	1,304,960	6,146,350	a	82,149	a	14,318,244
Value added in process of manufacture £	884,171	351,266	1,274,701	a	45,913	a	2,667,088

(a) Information not available for publication.

(b) Including South Australia and Tasmania.

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

MEAT PRESERVING WORKS—OUTPUT, 1918.

Output.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Tinned meat .. cwt.	171,792 ^a	61,450 ^b	308,730 ^c	4,717 ^d	..	..	546,689

^a Also 18,360 cwt. tinned rabbits. ^b Also 9,530 cwt. tinned rabbits. ^c Also 1,940 cwt. salted meat. ^d Large quantities of rabbits are tinned in South Australia, but particulars 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. Exclusive of Victoria, for which State particulars are not available, the returns shew that 90,714 tons of ice, valued at £191,917, were manufactured in the Commonwealth in 1918.

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 1918 :—

BISCUIT, ETC., FACTORIES, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918. ^c	Tas. 1918.	C'wealth.
Number of factories	9	7	22	3	6	3	50
Number of employees	1,658	1,424	547	159	190	124	4,102
Actual horse-power of engines employed	712	399	332	99	355	63	1,960
Approximate value of land and buildings £	126,672	74,080	71,571	<i>a</i>	10,740	<i>a</i>	623,719
Approximate value of plant and machinery £	101,900	61,540	46,820	<i>a</i>	12,452	<i>a</i>	624,265
Total amount of wages paid during year £	147,821	130,790	65,767	<i>a</i>	13,766	<i>a</i>	637,973
Value of fuel used £	13,210	15,214	3,333	2,055	1,801	821	36,434
Value of raw material worked up £	689,222	527,759	168,145	40,401	51,795	28,490	1,505,812
Total value of output £	1,057,402	800,626	292,777	64,979	81,913	50,606	2,348,303
Value added in process of manufacture £	368,180	272,867	124,632	24,578	30,118	22,116	842,491

a Information not available for publication.

b Including South Australia and Tasmania.

c Including one butterine and margarine, and one macaroni establishment.

14. **Jam and Fruit Preserving, Pickles, Sauces, and Vinegar.**—(i) *Details for each State.* The jam and fruit preserving industry has increased in importance of late years, consequent on the extension of fruit-growing. As an exporting industry it is comparatively recent, but is of increasing value, and has shewn considerable expansion during the past four years. During the year ended 30th June, 1919, 79,277,560 lbs. of jams and jellies, valued at £1,847,970, 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, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	43	37	20	22	7	17	146
Number of employees	1,380	2,644	357	348	93	1,202	6,024
Actual horse-power of engines employed	540	699	87	95	72	498	1,991
Approximate value of land and buildings £	221,524	151,460	20,319	31,408	6,715	84,687	516,113
Approximate value of plant and machinery £	125,332	76,770	15,605	14,919	3,171	38,758	274,555
Total amount of wages paid during year £	129,880	229,795	28,896	23,562	6,823	114,388	538,344
Value of fuel used £	7,954	16,167	1,657	2,685	486	8,046	36,995
Value of raw material worked up £	833,591	1,111,712	117,980	165,949	17,098	684,073	2,930,403
Total value of output £	1,051,858	1,614,707	172,522	230,237	26,214	952,374	4,047,912
Value added in process of manufacture £	218,267	502,995	54,542	64,288	9,116	268,301	1,117,509

(ii) *Production of Factories, 1918.* 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, 1918.

Particulars.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
QUANTITY (,000 OMITTED).							
Jams lbs.	30,504	44,632	2,783	7,904	b	40,987	c126,810
Fruit, preserved .. lbs.	5,542	12,945	3,934	2,209	b	7,571	c32,201
Pickles pints	2,120	3,412	a	1,248	1,666	20	5,866
Sauces pints	3,614	7,065	428	1,060	361	90	12,618
VALUE.							
Jams £	637,130	932,224	64,253	143,159	b	780,616	c2,557,382
Fruit, preserved .. £	124,084	289,852	57,411	35,759	b	162,002	c669,108
Pickles £	59,691	96,092	14,312	10,060	2,330	729	183,214
Sauces £	109,577	214,205	8,916	26,176	9,336	2,171	370,381

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

(iii) *Development of Factories, 1913 to 1918.* The following table furnishes particulars of jam and fruit preserving establishments in the Commonwealth for the last six years:—

DEVELOPMENT OF JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917. *	1918.
Number of factories	130	136	128	139	150	146
Number of employees	4,525	4,530	4,393	4,669	5,323	6,024
Actual horse-power of engines employed	1,280	1,561	1,567	1,714	2,059	1,991
Approx. value of land and buildings £	333,389	349,438	358,144	367,277	426,919	516,113
Approx. value of plant and machinery £	145,478	168,578	178,182	185,529	209,548	274,555
Total amount of wages paid	£ 308,909	£ 318,532	£ 326,442	£ 365,928	£ 443,793	£ 538,344
Value of fuel used	£ 19,216	£ 21,886	£ 21,965	£ 24,941	£ 32,726	£ 36,995
Value of raw material worked up ..	£ 1,358,917	£ 1,444,242	£ 1,602,465	£ 1,919,102	£ 2,271,966	£ 2,930,403
Total value of output	£ 2,026,941	£ 2,110,187	£ 2,417,111	£ 2,775,635	£ 3,284,844	£ 4,047,912
Value added in process of manufacture £	668,024	665,945	614,646	656,533	1,012,878	1,117,509

The progression of the jam and fruit preserving industry has been very marked during the past five years. Since 1913, the number of factories has increased by 16, and the number of employees by 1,499, while the power used, the amount of salaries and wages paid, and the value of the output have been nearly doubled.

15. **Confectionery.**—(i) *Details for each State.* 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, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	63	56	8	11	5	4	147
Number of employees	1,954	2,734	542	371	230	25	5,856
Actual horse-power of engines employed	1,047	1,562	153	301	185	29	3,277
Approx. value of land and buildings £	246,938	183,990	34,973	39,078	37,530	11,590	554,099
Approx. value of plant and machinery £	145,428	191,260	21,584	36,660	22,179	2,875	419,986
Total amount of wages paid during year	£ 183,666	£ 231,897	£ 50,074	£ 27,916	£ 19,330	£ 2,891	£ 515,774
Value of fuel used	£ 17,717	£ 29,880	£ 1,822	£ 3,388	£ 10,632	£ 235	£ 63,674
Value of raw material worked up ..	£ 788,835	£ 838,059	£ 88,386	£ 112,267	£ 54,240	£ 12,400	£ 1,894,187
Total value of output	£ 1,165,590	£ 1,340,137	£ 183,808	£ 170,637	£ 91,301	£ 18,100	£ 2,969,573
Value added in process of manufacture	£ 376,755	£ 502,078	£ 95,422	£ 58,370	£ 37,061	£ 5,700	£ 1,075,386

(ii) *Development of Confectionery Factories, 1913 to 1918.* The progress of the confectionery industry during the past five years may be seen from the following table:—

DEVELOPMENT OF CONFECTIONERY FACTORIES, 1913 TO 1918.

Items.	1913.	1914. a	1915.	1916.	1917.	1918.
Number of factories	99	114	115	117	131	147
Number of employees	3,840	4,163	4,411	4,570	5,266	5,856
Actual horse-power of engines employed	1,525	2,056	2,268	2,181	2,802	3,277
Approx. value of land and buildings £	354,288	440,534	457,882	462,555	495,488	554,099
Approx. value of plant and machinery £	226,432	287,658	284,916	294,351	354,539	419,986
Total amount of wages paid during year	£ 290,133	£ 333,009	£ 345,938	£ 377,310	£ 463,067	£ 515,774
Value of fuel used	£ 19,331	£ 23,815	£ 26,543	£ 27,662	£ 45,304	£ 63,674
Value of raw material worked up	£ 1,057,902	£ 1,130,938	£ 1,224,464	£ 1,406,451	£ 1,586,353	£ 1,894,187
Total value of output	£ 1,657,045	£ 1,838,222	£ 1,963,299	£ 2,173,675	£ 2,504,732	£ 2,969,573
Value added in process of manufacture £	599,143	707,284	738,835	767,224	918,379	1,075,386

a Includes three biscuit factories.

The embargo placed on the importation of luxuries during the war period has resulted in a considerable expansion of the confectionery industry in Australia.

During the past five years the number of factories increased by 48 per cent., the number of employees by 52 per cent., and the actual horse-power of engines used by 115 per cent., while the values of the salaries and wages paid, and of the final output shewed increases amounting to 78 and 79 per cent. respectively.

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

FLOUR MILLS, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918. a	S. Aust. 1917-18. a	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	61	55	23	46	16	10	211
Number of employees	1,236	1,021	297	653	392	104	3,703
Actual horse-power of engines employed	5,090	4,469	1,006	3,071	2,135	498	16,269
Approx. value of land and buildings £	373,849	216,340	80,699	121,808	b	b	c952,217
Approx. value of plant and machinery	£ 371,852	£ 301,170	£ 84,713	£ 157,737	b	b	c1,054,645
Total amount of wages paid during year	£ 208,810	£ 155,330	£ 44,324	£ 92,122	b	b	c575,492
Value of fuel used	£ 43,770	£ 39,980	£ 5,378	£ 27,779	£ 13,143	£ 2,262	£ 132,312
Value of raw material worked up	£ 4,148,576	£ 3,489,300	£ 610,445	£ 1,527,047	£ 1,369,827	£ 278,151	£ 11,423,346
Total value of output	£ 4,665,301	£ 3,989,510	£ 734,227	£ 1,745,389	£ 1,546,261	£ 317,011	£ 12,997,699
Value added in process of manufacture	£ 516,725	£ 500,210	£ 123,782	£ 218,342	£ 176,434	£ 38,860	£ 1,574,353

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

b Information not available for publication.

c Including Western Australia and Tasmania.

The production of flour by the mills in each State of the Commonwealth in the years 1913 to 1918 was as follows:—

FLOUR MILLS—PRODUCTION, 1913 TO 1918.

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>
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
1918 <i>d</i> ..	355,843	311,450	45,589	135,882	119,876	17,121	985,761

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., 985,761 tons, was valued at £10,637,623; in addition 434,769 tons of bran and pollard, valued at £2,127,237, were made. The total quantity of wheat ground was 48,232,440 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, 1918.

Items.	N.S.W. 1917-18.	Queensland. 1918.	Total.
Number of factories	3	42	45
Number of employees	367	5,214	5,581
Actual horse-power of engines employed	1,213	15,146	16,359
Approximate value of land and buildings £	105,823	454,023	559,846
Approximate value of plant and machinery £	423,289	3,211,336	3,634,625
Total amount of wages paid during year .. £	54,090	623,736	677,826
Value of fuel used £	5,460	67,968	73,428
Value of raw material worked up £	285,274	2,733,268	3,018,542
Total value of output £	436,202	4,037,706	4,473,908
Value added in course of manufacture .. £	150,928	1,304,438	1,455,366

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 1918.

Items.	1870.	1877.	1886.	1896.	1901.	1911.	1914-15.	1915-16.	1916-17.	1917-18
No. of factories	27	50	64	23	12	4	3	3	3	3
No. of employees	..	1,065	2,259	1,475	695	469	437	463	427	367
Cane crushed tons	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	167,799	181,606	157,748	143,558	174,881
Sugar produced tons	677	7,537	13,750	28,557	19,519	17,299	20,029	19,144	16,064	19,875
Molasses produced gals.	..	345,543	507,000	2,520,880	1,300,909	796,440	1,104,000	1,099,000	781,870	975,770

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 1918.

Items.	1868.	1876.	1886.	1896.	1901.	1911.	1916.	1917.	1918.
No. of factories ..	10	70	118	63	52	49	42	47	42
No. of employees ..	..	<i>b</i>	<i>b</i>	3,796	<i>b</i>	4,295	4,528	5,500	5,214
Cane crushed tons ..	..	7,245 ^c	40,756 ^c	66,640 ^c	78,160 ^c	1,534,451	1,579,514	2,704,211	1,674,829
Sugar produced, tons	619	8,214	59,225	100,774	120,858	173,296	176,973	307,714	189,978
Molasses—									
Sold to distillers and others, gals.						2,393,669	818,812	1,558,407	1,662,454
Used as fodder gals.						789,564	1,439,108	1,464,084	1,602,962
Used as manure gals.	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	223,000	54,600	627,000	109,000
Run to waste or burnt gals.						1,847,333	3,232,835	6,986,813	3,501,668
In stock ..						1,197,626	797,084	878,332	923,307
Total molasses ^a gals.	68,622	416,415	1,784,266	2,195,470	3,679,952	6,451,192	6,342,439	11,514,636	7,799,391

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

Information regarding the cultivation of sugar-cane may be found in the section of this book dealing with *Agricultural Production*. (See pages 386 to 389.)

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 1918 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 1,676 hands was employed during the year. The approximate value of land and buildings was £425,551; of plant and machinery, £1,136,322; and the total amount of wages paid during the year was £250,438. The value of all materials used in sugar refineries was £6,235,703, while the total output reached £7,286,672. The amount of crude sugar used was 278,199 tons, and of refined sugar produced 266,494 tons, valued at £7,248,371.

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

BREWERIES, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918. ^a	Tas. 1918.	C'wealth.
Number of breweries ..	21	18	10	8	11	4	72
Number of employees ..	950	875	518	314	488	123	3,268
Actual horse-power of engines employed ..	2,577	3,734	1,042	925	1,173	151	9,602
Approximate value of land and buildings ..	£ 734,707	£ 471,980	<i>b</i>	90,567	<i>b</i>	61,950	£1,676,567
Approximate value of plant and machinery ..	£ 729,322	£ 435,960	<i>b</i>	81,820	<i>b</i>	4,236	£1,600,734
Total amount of wages paid during year ..	£ 188,703	£ 177,276	£ 62	59,811	<i>b</i>	20,213	£632,076
Value of fuel used ..	£ 43,501	£ 39,200	10,626	11,223	13,019	2,612	£ 120,381
Value of raw material worked up ..	£ 737,658	£ 660,090	£ 158,549	£ 147,582	£ 220,591	£ 34,762	£ 1,959,232
Total value of output ..	£ 1,535,669	£ 1,334,344	£ 862,773	£ 345,931	£ 519,283	£ 143,744	£ 4,741,744
Value added by processes of manufacture ..	£ 798,011	£ 674,254	£ 704,224	£ 198,349	£ 298,692	£ 108,982	£ 2,782,512

^a Includes malting. ^b Information not available for publication. ^c Including Queensland and Western Australia.

(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, 1918.

Particulars.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
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ALE AND STOUT BREWED.

Quantity	gallons	22,483,993	21,021,070	6,757,770	5,560,706	5,361,712	1,643,267	62,828,518
Value <i>a</i>	£	1,050,079	1,334,344	862,773	342,890	509,763	143,753	4,243,602

RAW MATERIALS USED.

Malt	.. bush.	687,702	650,500	206,992	139,551	163,929	68,933	1,917,607
Hops	.. lbs.	771,078	748,840	287,748	172,094	212,097	103,690	2,295,547
Sugar	.. cwt.	108,600	109,640	43,829	26,861	28,220	6,862	323,512

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

Malt	.. bush.	30.59	30.95	30.63	25.10	30.57	41.95	30.52
Hops	.. lbs.	34.29	35.62	42.58	30.95	39.56	63.10	36.54
Sugar	.. cwt.	4.83	5.22	6.49	4.83	5.26	3.87	5.15

a Exclusive of excise duty.

(iii) *Development of Breweries, 1913 to 1918.* The following table shews the progress of this industry during the past five years :—

DEVELOPMENT OF BREWERIES FROM 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917.	1918.
Number of breweries	101	95	90	86	77	72
Number of employees	3,551	3,535	3,295	3,179	3,191	3,268
Actual horse-power of engines used	6,930	8,313	8,430	8,882	8,955	9,602
Approx. value of land and buildings	£ 1,554,187	1,860,584	1,872,535	1,864,712	1,901,488	1,676,567
Approx. value of plant and machinery	£ 1,171,595	1,433,616	1,452,639	1,518,846	1,565,914	1,600,734
Total amount of wages paid	£ 552,843	575,446	548,632	560,004	594,687	632,076
Value of fuel used	£ 75,824	86,175	81,252	87,375	104,629	120,381
Value of raw material worked up	£ 1,568,620	1,534,656	1,494,974	1,548,615	1,637,568	1,959,232
Value of final output	£ 3,817,396	4,107,498	3,869,786	3,872,044	3,952,647	4,741,744
Value added in process of manufacture	£ 2,248,776	2,572,842	2,374,812	2,323,429	2,315,079	2,782,512

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 £3,817,396 in 1913 to £4,741,744 in 1918, while the quantity of ale and stout brewed during the same period decreased from 63,578,096 to 62,828,518 gallons. The average production per head of mean population likewise decreased from 13.24 gallons per head for 1913 to 12.7 gallons for 1918.

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

DISTILLERIES, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of distilleries	3	10	3	18	..	..	34
Number of employes	25	205	40	90	..	..	360
Actual horse-power of engines employed	135	332	93	296	..	..	856
Approx. value of land and buildings £	16,906	125,240	12,598	37,639	..	..	192,383
Approx. value of plant and machinery £	63,053	94,510	21,157	31,291	..	..	210,011
Total amount of wages paid during year £	5,756	31,906	7,021	10,642	..	..	55,325
Value of fuel used	£ 2,800	12,283	4,466	4,065	..	..	23,614
Value of raw materials worked up £	44,153	155,398	16,759	89,823	..	..	306,133
Total value of output	£ 70,271	287,579	112,885	139,064	..	..	609,799
Value added in process of manufacture £	26,118	132,181	96,126	49,241	..	..	303,660

The total quantity of rum distilled during the year was 177,361, of whisky 637,988, of brandy 195,097, and of other spirits, including rum distilled in Queensland, separate particulars for which are not available, 2,992,253 proof gallons. The materials used comprised 630,308 cwt. of molasses and sugar, and 3,081,601 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-seven 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, 1918.

Items.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S.A. 1917-18.	W.A. 1918.	Tas. 1918.	C'wealth. b
Number of factories	16	14	2	2	3	..	37
Number of employes	2,032	1,740	65	44	39	..	3 920
Actual horse-power of engines employed	524	383	26	..	1	..	934
Approx. value of land and buildings £	222,346	a	a	a	2,744	..	413,167
Approx. value of plant and machinery £	140,849	a	a	a	590	..	265,150
Total amount of wages paid during year £	237,484	a	a	a	2,573	..	466,520
Value of fuel used	£ 7,863	4,210	a	a	2	..	12,347
Value of raw material worked up £	1,600,387	949,302	a	a	4,645	..	2,578,758
Total value of output	£ 2,222,751	1,414,934	a	a	10,383	..	3,694,246
Value added in process of manufacture £	622,364	465,632	a	a	5,738	..	1,115,488

a Not available for publication.

b Including Victoria, Queensland, and South Australia.

(ii) *Quantity of Goods Produced, and Tobacco Leaf Used.* The following table shows 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, 1918.

Particulars.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth. b
QUANTITY (,000 OMITTED).							
Manufactured tobacco .. lbs.	5,529	5,479	a	..	3	..	11,011
Cigars	119	308	..	a	a	..	427
{ No.	10,534	27,920	..	a	a	..	38,454
Cigarettes	3,018	283	..	..	a	..	3,301
{ No.	1,368,869	126,884	..	..	a	..	1,495,753
TOBACCO LEAF USED (,000 OMITTED).							
Australian leaf lbs.	918	558	a	a	..	..	1,476
Imported leaf lbs.	6,865	4,598	..	a	18	..	11,481

a Not available for publication.

b Incomplete.

(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 1918-19 were—manufactured tobacco 1,125,160 lbs., cigars 115,470 lbs., and cigarettes 95,070 lbs., while the quantities manufactured in Australian factories were respectively 11,011,227 lbs., 426,621 lbs., and 3,301,400 lbs. The following tables shew the development of the tobacco manufacturing industry in the Commonwealth during recent years:—

DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE COMMONWEALTH, 1913 TO 1918.

Items.	1913.	1914.	1915. <i>a</i>	1916. <i>a</i>	1917. <i>b</i>	1918.
Number of factories	36	36	34	35	38	37
Number of employees	3,566	3,658	3,547	3,739	3,814	3,920
Actual horse-power of engines used ..	1,119	808	826	914	934	934
Approx. value of land and buildings £	353,447	402,462	404,593	412,068	424,252	413,167
Approx. value of plant and machinery £	231,547	248,532	241,591	253,953	260,372	265,150
Total amount of wages paid .. £	373,963	380,821	c370,227	c394,435	438,142	466,520
Value of fuel used £	4,053	7,365	c7,607	c9,720	13,523	12,347
Value of raw material worked up .. £	1,651,226	1,905,489	c1,969,525	c2,124,204	2,344,063	2,578,758
Value of final output £	2,713,363	3,006,482	c3,041,050	c3,223,433	3,543,704	3,694,246
Value added in process of manufacture £	1,062,137	1,100,993	c1,081,525	c1,099,229	1,199,641	1,115,488

PRODUCTION.

Items	1,000 lbs.	1913.	1914.	1915.	1916.	1917.	1918.
Tobacco made	9,956	9,984	9,776	10,306	d11,107	d11,011	
Cigars	406	401	c365	d362	d398	d427	
Cigarettes	2,768	3,197	3,175	d3,351	d3,075	d3,301	
Leaf used	11,677	12,091	c11,858	12,541	d13,166	d12,957	

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

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

WOOLLEN, COTTON, AND TWEED MILLS, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W.A. 1918.	Tas. 1918.	C'wealth. <i>b</i>
Number of factories	6	11	2	2	..	4	25
Number of employees	1,045	2,072	225	209	..	266	3,817
Actual horse-power of engines employed ..	2,513	3,495	552	309	..	245	7,114
Approx. value of land and buildings £	137,297	156,210	<i>a</i>	<i>a</i>	..	24,700	355,931
Approx. value of plant and machinery .. £	188,437	276,950	<i>a</i>	<i>a</i>	..	40,281	573,902
Total amount of wages paid during year .. £	111,714	196,942	<i>a</i>	<i>a</i>	..	20,402	360,466
Value of fuel used £	13,843	30,222	<i>a</i>	<i>a</i>	..	1,949	49,339
Value of raw material worked up .. £	446,483	580,069	<i>a</i>	<i>a</i>	..	48,035	1,141,962
Total value of output £	731,185	1,036,031	<i>a</i>	<i>a</i>	..	113,805	2,024,343
Value added in process of manufacture .. £	284,702	456,012	<i>a</i>	<i>a</i>	..	65,770	882,381

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

(ii) *Progress of Industry, 1913 to 1918.* 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 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917.	1918.
Number of factories	22	22	22	23	24	25
Number of employees	3,090	3,290	3,620	3,927	3,746	3,817
Actual horse-power of engines used ..	4,358	5,072	5,364	5,538	6,840	7,114
Approx. value of land and buildings £	299,306	311,391	310,114	319,273	339,511	355,931
Approx. value of plant and machinery £	516,659	532,084	537,849	553,671	570,871	573,902
Total amount of wages paid £	231,018	257,590	313,326	357,137	351,043	360,466
Value of fuel used	21,778	27,306	36,275	40,283	43,732	49,339
Value of raw material worked up £	475,637	603,387	836,298	971,144	1,073,314	1,141,962
Value of final output	£ 925,602	1,152,657	1,615,223	1,888,115	1,940,304	2,024,343
Value added in process of manufacture £	449,965	549,270	778,925	916,971	866,990	882,381

(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 1918 was 4,367,787 yards. In New South Wales 2,044,745 yards of tweed and cloth, and in Victoria 1,429,050 yards were manufactured. The production of flannel in the Commonwealth amounted to 6,270,978 yards, while blankets, shawls, and rugs to the number of 728,319 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, 1918.

Items.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S.A. 1917-18	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	111	231	30	33	17	10	432
Number of employees	4,481	8,565	1,130	822	265	236	15,499
Actual horse-power of engines employed ..	1,285	1,793	315	227	67	55	3,742
Approx. value of land and buildings £	312,320	345,015	a	a	24,938	15,394	6790,573
Approx. value of plant and machinery £	160,490	232,110	a	a	10,469	6,980	6465,020
Total amount of wages paid during year £	498,674	858,874	a	a	27,362	22,302	61,613,728
Value of fuel used	£ 9,617	15,536	1,178	1,875	698	151	29,055
Value of raw material worked up £	1,249,137	2,093,803	258,106	181,433	79,017	52,397	3,913,893
Total value of output	£ 1,977,376	3,442,302	469,436	310,823	119,088	91,439	6,410,464
Value added in process of manufacture £	728,239	1,348,499	211,330	129,390	40,071	39,042	2,496,571

a Information not available for publication.

b Including Queensland and South Australia.

(ii) *Progress of Industry, 1913 to 1918.* 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, 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917.	1918.
Number of factories	346	357	358	352	399	432
Number of employees	13,456	13,192	13,175	13,322	15,286	15,499
Actual horse-power of engines used ..	2,823	3,091	3,029	3,249	3,590	3,742
Approx. value of land and buildings £	629,787	656,576	677,307	692,673	750,551	790,573
Approx. value of plant and machinery £	429,994	415,693	418,529	428,837	447,389	465,020
Total amount of wages paid	£ 1,154,658	1,193,900	1,220,987	1,244,700	1,574,623	1,613,728
Value of fuel used	£ 18,073	18,902	20,713	22,248	31,131	29,055
Value of raw material worked up	£ 2,308,194	2,437,169	2,673,016	2,793,391	3,784,338	3,913,893
Value of final output	£ 4,004,486	4,156,590	4,486,885	4,617,322	6,143,048	6,410,464
Value added in process of manufacture £	1,696,292	1,719,421	1,813,869	1,823,931	2,358,710	2,496,571

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 1913, the amount of wages paid increased from £1,154,658 to £1,613,728; the value of materials used from £2,308,194 to £3,913,893; and the final output from £4,004,486 to £6,410,464. During the same period the production of boots and shoes increased by 1,188,611 pairs, slippers by 111,004 pairs, and uppers by 14,495 pairs.

(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, 1918.

Particulars.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
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QUANTITY (,000 OMITTED).

Boots and shoes pairs	3,772	6,050	743	634	206	164	11,569
Slippers pairs	473	206	34	32	2	..	747
Uppers a pairs	51	9	59	10	..	6	135

VALUE.

Boots and shoes £	1,853,317	3,300,000	412,707	280,337	102,849	86,577	6,035,787
Slippers £	63,097	35,000	6,973	5,581	890	105	111,646
Uppers a £	18,081	3,500	23,918	2,970	..	1,587	50,056

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, 1918.

Items.	N.S.W. 1917-18.	Vic. 1917-18.	Q'land. 1918.	S.A. 1917-18.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	426	435	129	129	53	33	1,205
Number of employees	9,497	9,153	3,080	2,172	829	457	25,188
Actual horse-power of engines employed	492	454	251	107	63	12	1,379
Approx. value of land and buildings £	1,028,897	573,780	249,008	166,601	102,995	61,045	2,182,326
Approx. value of plant and machinery £	66,841	82,720	31,443	14,456	8,263	3,231	206,954
Total amount of wages paid during year £	788,941	657,997	236,615	159,474	75,703	35,626	1,954,356
Value of fuel used	11,239	13,708	4,261	3,959	1,722	..	34,889
Value of raw material worked up	1,340,324	1,533,075	461,805	250,483	125,474	47,991	3,759,152
Total value of output	2,563,571	2,648,371	867,986	492,323	235,587	116,982	6,924,820
Value added in process of manufacture £	1,223,247	1,115,296	406,181	241,840	110,113	68,991	3,165,668

The considerable increases which have taken place in the prices of raw materials, and the lessened demand due to the absence of so many soldiers from Australia, were mainly responsible for the consistent decline of the tailoring and slop branch of the clothing industry during the past five years.

As will be seen from the following table, the number of factories decreased by 137, and the number of employees by 5,777 since 1913. The total output shews an increase of £1,046,701, but this increase merely indicates the advance which has taken place in the price of clothing during recent years :—

DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH FROM 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917. ^a	1918.
Number of factories	1,342	1,340	1,297	1,274	1,246	1,205
Number of employees	30,965	29,774	28,616	28,232	26,799	25,188
Actual horse-power of engines used	1,201	1,257	1,323	1,647	1,426	1,379
Approx. value of land and buildings £	2,212,346	2,219,346	2,195,419	2,058,674	2,234,022	2,182,326
Approx. value of plant and machinery £	191,752	209,167	214,967	221,940	216,718	206,954
Total amount of wages paid	2,075,916	1,979,088	1,895,146	1,889,195	1,941,667	1,954,356
Value of fuel used	31,219	31,825	33,312	34,767	36,052	34,889
Value of raw material worked up	2,732,241	2,864,893	3,096,134	3,403,019	3,356,572	3,759,152
Value of final output	5,878,119	5,953,001	6,125,272	6,447,853	6,461,405	6,924,820
Value added in process of manufacture £	3,145,878	3,088,108	3,029,138	3,044,834	3,104,833	3,165,668

^a Including two dyeworks and cleaning establishments in Western Australia.

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

DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	300	459	52	45	49	15	920
Number of employees	6,121	9,049	1,621	793	684	307	18,575
Actual horse-power of engines employed	276	321	10	10	21	10	648
Approximate value of land and buildings	£ 457,797	500,930	43,582	32,418	45,305	7,535	1,087,567
Approximate value of plant and machinery	£ 36,420	60,445	7,117	2,500	4,425	715	111,622
Total amount of wages paid during year	£ 347,234	474,000	71,957	37,032	41,438	14,779	986,440
Value of fuel used	£ 3,754	8,905	540	455	573	..	14,227
Value of raw material worked up	£ 572,562	1,053,070	111,103	57,479	66,983	23,689	1,884,886
Total value of output	£ 1,095,627	1,821,393	216,053	114,925	114,363	42,708	3,405,574
Value added by process of manufacture	£ 523,065	768,828	104,950	57,446	47,380	19,019	1,520,688

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 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917.	1918.
Number of factories	995	991	892	890	932	920
Number of employees	18,217	17,318	15,616	16,383	18,211	18,575
Actual horse-power of engines used	376	410	423	509	602	648
Approx. value of land and buildings £	939,072	956,416	917,895	974,766	1,036,251	1,087,567
Approx. value of plant and machinery £	72,257	79,182	79,357	82,057	99,552	111,622
Total amount of wages paid £	772,748	759,221	714,131	749,377	873,269	986,440
Value of fuel used £	0.238	9.164	9.440	10.746	13.341	14.227
Value of raw material worked up £	1,287,050	1,272,420	1,224,687	1,266,755	1,595,495	1,884,886
Value of final output £	2,492,105	2,429,133	2,364,862	2,481,268	2,976,725	3,405,574
Value added in process of manufacture £	1,205,055	1,156,713	1,140,175	1,214,511	1,381,230	1,520,688

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

The number of employees, the actual horse-power of engines used, and the capital invested have all shewn increases since 1913, while the amount of salaries and wages paid advanced from £772,748 to £986,440, and the value of the final output from £2,492,105 to £3,405,574.

26. Electrotyping, Stereotyping, Printing, and Binding.—The printing industry ranks high in importance among the manufactories of the Commonwealth. It affords employment for some 20,000 employees, and pays nearly £3,000,000 in salaries and wages. During 1918 the total value of the output amounted to £8,537,815.

The following table gives particulars of these industries in each State for the year 1918 :—

ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	419	385	138	74	64	26	1,106
Number of employees	7,731	7,291	2,711	1,290	1,000	691	20,714
Actual horse-power of engines employed	4,182	3,738	1,220	1,011	699	236	11,086
Approximate value of land and buildings	£ 1,555,279	850,590	471,073	291,474	222,543	58,435	3,449,394
Approximate value of plant and machinery	£ 1,099,508	883,029	317,149	166,661	153,817	63,617	2,683,781
Total amount of wages paid during year	£ 1,003,910	923,169	380,578	156,232	154,229	94,354	2,712,472
Value of fuel used	£ 31,330	27,894	15,679	6,932	5,625	2,203	89,663
Value of raw materials worked up	£ 1,382,136	1,399,918	399,256	221,108	190,348	97,653	3,690,419
Total value of output	£ 3,106,394	3,119,982	1,120,380	494,299	460,853	235,907	8,537,815
Value added in process of manufacture	£ 1,724,258	1,720,064	721,124	273,191	270,505	138,254	4,847,396

The development of electrotyping, stereotyping, printing, and binding in the Commonwealth since 1913 is shewn in the following table :—

DEVELOPMENT OF ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS IN THE COMMONWEALTH FROM 1913 TO 1918.

Items.	1913.	1914.	1915.	1916.	1917.	1918.
Number of establishments	1,076	1,093	1,093	1,094	1,093	1,106
Number of employees	22,466	21,607	21,302	21,247	21,060	20,714
Actual horse-power of engines used	9,749	10,369	10,519	10,959	11,169	11,086
Approx. value of land and buildings £	2,936,422	3,055,120	3,081,872	3,346,985	3,387,008	3,449,394
Approx. value of plant and machinery £	2,496,490	2,592,391	2,607,317	2,666,977	2,664,637	2,683,781
Total amount of wages paid	£ 2,560,728	2,561,214	2,563,600	2,582,539	2,676,220	2,712,472
Value of fuel used	£ 77,128	93,296	79,443	84,637	87,301	89,663
Value of raw materials worked up	£ 2,073,843	2,235,159	2,152,096	2,394,703	3,112,140	3,690,419
Value of final output	£ 6,064,290	6,579,157	6,404,426	6,849,373	7,775,300	8,537,815
Value added in process of manufacture £	4,530,447	4,343,993	4,252,330	4,454,670	4,663,160	4,847,396

The latter table furnishes evidence of the activities of the printing establishments during the last five years. Since 1913 considerable increases have taken place in practically all of the items enumerated above, the value of the final output advancing from £6,604,290 to £8,537,815, or more than 29 per cent., and this despite the fact that more than 1,000 of the employees in this industry were withdrawn for military purposes.

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, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	228	308	71	86	34	22	749
Number of employees	2,078	2,441	620	719	209	169	6,236
Actual horse-power of engines employed	1,297	703	224	461	149	69	2,903
Approximate value of land and buildings £	321,285	257,990	69,294	92,750	50,660	25,217	817,196
Approximate value of plant and machinery £	93,628	65,805	20,583	29,825	9,524	4,387	223,752
Total amount of wages paid during year £	232,096	241,768	61,859	65,973	27,867	15,052	644,615
Value of fuel used £	10,645	9,857	1,262	3,517	2,066	506	27,853
Value of raw material worked up £	261,856	300,441	79,706	80,552	38,164	21,139	781,858
Total value of output £	603,961	681,372	186,736	186,714	83,226	46,570	1,788,579
Value added in process of manufacture £	342,105	380,931	107,030	106,162	45,062	25,431	1,006,721

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, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	182	197	68	30	31	9	517
Number of employees	2,557	1,956	1,129	742	376	248	7,008
Actual horse-power of engines employed	2,020	1,177	658	835	370	169	5,229
Approx. value of land and buildings £	322,314	225,860	99,782	66,801	66,715	19,235	800,707
Approx. value of plant and machinery £	69,914	53,660	37,742	28,677	15,869	6,549	212,411
Total amount of wages paid during year £	319,177	202,871	128,452	88,026	49,783	22,895	811,204
Value of fuel used £	9,333	4,901	2,943	2,281	1,520	531	21,509
Value of raw material used £	400,260	294,812	175,815	85,579	67,306	23,955	1,047,727
Total value of output £	842,732	614,586	378,960	205,743	134,850	62,777	2,239,648
Value added in process of manufacture £	442,472	319,774	203,145	120,164	67,544	38,822	1,191,921

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 1913 there were 209 establishments employing 3,046 hands, whose salaries and wages amounted to £447,299; in 1918 these had increased to 257 establishments, 3,533 hands, salaries and wages £605,817, while the value of output had increased during the five years from £2,292,719 to £3,030,491.

ELECTRIC LIGHT AND POWER WORKS, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories ..	125	75	14	7	21	15	257
Number of employees ..	1,249	1,167	359	337	229	192	3,533
Actual horse-power of engines employed ..	104,722	48,526	15,334	16,778	31,047	19,091	235,498
Approx. value of land and buildings ..	£ 1,049,201	£ 365,680	£ 40,365	£ 155,718	£ 183,210	£ 12,834	£ 1,807,008
Approx. value of plant and machinery ..	£ 2,160,568	£ 1,889,550	£ 232,667	£ 445,346	£ 523,559	£ 817,770	£ 6,069,460
Total amount of wages paid during year ..	£ 219,613	£ 183,948	£ 63,396	£ 57,156	£ 45,868	£ 35,836	£ 605,817
Value of fuel used ..	£ 425,033	£ 177,957	£ 41,626	£ 58,734	£ 83,206	£ 13,699	£ 800,255
Total value of output ..	£ 1,321,112	£ 760,117	£ 335,863	£ 228,881	£ 245,362	£ 139,156	£ 3,080,491

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, 1918.

Items.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth. b
Number of factories ..	58	47	18	5	4	2	134
Number of employees ..	1,971	2,089	593	459	60	151	5,323
Actual horse-power of engines employed ..	5,154	1,969	174	604	42	23	7,966
Approx. value of land and buildings ..	£ 1,024,368	£ 478,020	£ 192,238	£ 17,997	a	a	£ 1,773,112
Approx. value of plant and machinery ..	£ 1,956,425	£ 1,376,560	£ 961,986	£ 479,032	a	a	£ 5,000,607
Total amount of wages paid during year ..	£ 308,600	£ 375,181	£ 104,985	£ 73,571	a	a	£ 901,396
Value of fuel used ..	£ 86,341	£ 5,262	£ 10,900	£ 13,149	a	a	£ 122,846
Value of raw material used ..	£ 790,091	£ 454,549	£ 108,304	£ 82,065	a	a	£ 1,448,272
Total value of output ..	£ 1,969,280	£ 1,263,030	£ 367,336	£ 267,709	a	a	£ 4,005,876
Value added in process of manufacture ..	£ 1,179,189	£ 808,481	£ 259,032	£ 185,644	a	a	£ 2,521,004

a Information not available for publication.

b Including Western Australia and Tasmania.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1918 :—

PRODUCTION OF GAS AND COKE WORKS, 1918.

Particulars.	N.S.W. 1917-18.	Victoria. 1917-18.	Q'land. 1918.	S. Aust. 1917-18.	W. Aust. 1918.	Tas. 1918.	C'wealth.
QUANTITY.							
Gas made .. 1,000 cub. ft.	6,539,334	4,505,847	1,052,575	a	169,342	a	b13,193,834
Coke tons	648,714	200,660	c45,131	a	7,512	a	b947,330
VALUE.							
Gas £	1,127,188	1,000,000	291,886	a	47,798	a	b2,721,831
Coke £	587,568	175,000	c41,914	a	10,913	a	b866,254
COAL USED.							
Coal tons	1,002,170	318,500	c90,301	a	14,525	a	b1,494,102

a Not available for publication.

b Including South Australia and Tasmania.

c Exclusive of particulars for Coke Works.