

## SECTION XIII.

## MANUFACTURING INDUSTRIES.

## § 1. Introduction.

1. **Defects in Industrial Statistics.**—A complete statistical account of the growth of the manufacturing industries in Australia unfortunately cannot be given, owing to the fact that the necessary statistics have not been collected by the several States upon a definite and identical basis. Even in respect of either the definition of a "factory," or (so far as they might be included in related returns) the statistics of persons employed therein, there was no common agreement. The relatively minor place that manufacturing industry held in relation to the total activity of Australia is, perhaps, responsible for the fact that the necessity for uniform method was not earlier recognised. Combinations of the figures published prior to 1903 would be very misleading. Even at the present time satisfactory statistics of manufacturing production are available only to a very limited extent, and definite evidence of the progress of manufacturing industry can be obtained rather from returns furnished in connection with oversea export and interstate trade in Australia than from any adequate source of information as to Australian production.

2. **Classification of Factories.**—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," and this agreement was adopted for the States generally at the Conference of State Statisticians in 1902. It was decided also that the term should include "all establishments, whether making for the trade, wholesale or retail, or for export."

Each person employed in and about a factory, in whatever capacity, is now included as a factory employé, consequently every proprietor who works in his business is also included. For the purpose of accurate definition factories themselves have been placed under nineteen different categories, according to the industry carried on therein; most of these categories have also been subdivided.

3. **History.**—Excepting in the preparation of foodstuffs and in the production of such cheap and bulky articles as must, almost simultaneously with the establishment of a colony, practically be locally manufactured therein, little was done in regard to ordinary factory industries till after the development of the Victorian goldfields. A marked decline in the activity of these goldfields threw many immigrants, whose early life had been passed in English cities, out of employment. This no doubt intensified the early impulses towards industrial employment. In the State of Victoria, in particular, it was sought to encourage the investment of capital in manufacturing enterprises by the establishment of protective Customs duties. Some concentration of population in the metropolitan centres also helped to promote industrial activity. The throwing open, through Federation, of the whole of the Australian markets to the industrial products of each Australian State, has facilitated the internal distribution of the products of Australian industry.



PERCENTAGE OF FACTORIES IN EACH STATE TO TOTAL IN COMMONWEALTH  
IN 1906.

—	N.S.W.	Victoria.	Queensland.	South Aust.	West Aust.	Tasmania.	C'wealth.
1906 ...	33.34	37.64	11.26	8.79	5.74	3.23	100.00
TOTAL FACTORIES EMPLOYING MECHANICAL POWER IN 1906.							
1906 ...	2,496	2,676	916	692	435	232	7,447

3. **Use of Mechanical Power.**—The principal motive power is steam, but the metropolitan cities possess electric generating plants, owned variously by the Government, public bodies or private companies. From these many manufactories find it convenient to derive their power. The distinction between factories employing steam, gas, oil, or electric machinery, and those employing either other power or none at all, affords an opportunity of ascertaining how many factories there are in the ordinary sense of the word, that is, establishments which are not merely workshops. For instance, in the Victorian clothing and textile trade, out of 1173 factories only 252 employ mechanical power, the balance may consequently be regarded merely as workshops.

As a source of power electricity is coming into increased use, the number of Victorian manufactories employing it having advanced from 159 in 1902 to 438 in 1906. The following table shews the distribution of the source of power for the latter year, the actual horse-power being in all cases indicated.

DISTRIBUTION OF POWER IN THE MANUFACTORIES OF THE  
COMMONWEALTH, 1903 AND 1906.

Source of Power.		Steam.	Gas.	Oil.	Electricity.	Total.
		H.P.	H.P.	H.P.	H.P.	H.P.
New South Wales ...	{ 1903	56,121	2,538	13,536	205	72,400
	{ 1906	70,192	4,212	277	8,989	83,670
Victoria ...	{ 1903	36,727	3,600	764	1,659	42,750
	{ 1906	40,807	3,706	966	3,286	48,765
Queensland ...	{ 1903	...	...	...	...	27,027
	{ 1906	26,233	896	184	260	27,573
South Australia ...	{ 1904	...	...	...	...	13,945
	{ 1906	12,107	1,858	1,157	2,530	17,652
Western Australia ...	{ 1903	13,687	157	541	2,036	16,421
	{ 1906	19,928	219	634	3,722	24,503
Tasmania ...	{ 1903	5,839	61	*1,110	1,353	8,363
	{ 1906	8,002	64	114	1,657	9,837
Total Commonwealth	{ 1903	112,374	6,356	15,951 *	5,253	180,906
	{ 1906	177,269	10,955	3,332	20,444	212,000

\* Includes water-power, which is not included in 1906.

### § 3. Numbers Employed in Australian Factories.

1. **Total Number Employed.**—In the following return, shewing the total number of persons employed, both sexes and all ages are included. The individuals embraced may be classed under the following heads, viz. :—(i.) Working proprietors; (ii.) managers and overseers; (iii.) accountants and clerks; (iv.) enginedrivers and firemen; (v.) skilled and unskilled workers in the factories, mills, or workshops; (vi.) carters and messengers; and (vii.) others.

The number of factory employes per hundred thousand of the total population of the Commonwealth has increased steadily from 5022 in 1903 to 5599 in 1906.

The following table shews the distribution of factory employes for the States, with the totals for the Commonwealth, for the years 1903 to 1906:—

TOTAL NUMBER EMPLOYED IN FACTORIES AND PERCENTAGE OF INCREASE, 1903 TO 1906.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1903	65,633	73,229	19,286	18,182*	11,828	7,785	195,943
	3.66	4.18	4.15	0.00	7.24	5.64	3.84
1904	68,036	76,287	20,058	18,182	12,685	8,224	203,472
	6.08	5.18	8.21	6.67	6.93	3.61	5.52
1905	72,175	80,235	21,705	19,394	12,733	8,468	214,710
	7.82	6.22	10.38	4.70	1.29	—7.32	6.05
1906	77,822	85,229	23,961	20,306	12,897	8,506†	228,721

\* Figures for 1904.

† Includes 650 working proprietors; this class is included for the first time.

The percentages of annual increase in the number of employes, calculated in all cases on the figures immediately above, is shewn by the small figures.

This distribution according to the percentage on the total for the Commonwealth for each year is as follows:—

PERCENTAGE OF EMPLOYES IN EACH STATE ON TOTAL FOR COMMONWEALTH.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	%	%	%	%	%	%	%
1903	33.50	37.37	9.84	9.28*	6.04	3.97	100.00
1904	33.44	37.49	9.86	8.94	6.23	4.04	100.00
1905	33.62	37.37	10.11	9.03	5.93	3.94	100.00
1906	34.03	37.26	10.47	8.88	5.64	3.72†	100.00

\* † See notes above.

The number of persons employed in factories in each State per ten thousand of the estimated mean population of such State, and of the Commonwealth as a whole, is as follows:—

NUMBER OF FACTORY EMPLOYES PER 10,000 OF MEAN POPULATION, 1903 TO 1906.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1903	463	606	376*	...	534	439†	502
1904	472	632	386*	492	536	460†	515
1905	489	662	413*	518	509	472†	534
1906	515	696	450	534	496	475	560

\* Inclusive of factories with two persons.

† Not including proprietors.

2. Number of Actual Operatives.—The total number employed in factories is, of course, appreciably greater than the number of actual operatives. The latter can be

given for four States only, since full information for Queensland and South Australia is lacking:—

NUMBER OF ACTUAL OPERATIVES IN FACTORIES, 1903 TO 1906.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.*
1903	53,420	57,721	Information		9,300	5,696	126,137
1904	53,947	61,120	not		9,755	6,669	131,491
1905	58,842	64,514	available.		9,982	6,719	139,959
1906	64,416	68,784			10,204	6,876	150,168

\* Excluding Queensland and South Australia.

3. **Outworkers.**—The number of "outworkers" connected with factories is available for only three of the States for 1903 to 1905, and for 1906 for five of the States only:—

NUMBER OF OUTWORKERS CONNECTED WITH FACTORIES,  
1903 TO 1906.

Year.	N.S.W.	Victoria.	Q'sland.	Sth. Aus.	West Aus.	Tas.
1903 ...	308	955	...	...	...	71
1904 ...	439	991	...	...	Information	42
1905 ...	374	1,186	...	...	tion not	86
1906 ...	501	1,431	1,533	1,372	available.	57

For the last year mentioned, the results for Queensland and South Australia represent the outworkers registered under the Factory Acts, practically the whole of them being connected with the clothing and textile trades. Legislation in Victoria for the protection of workers against sweating, requires that outworkers or homeworkers shall be registered in the Department of the "Chief Inspector of Factories, Workrooms, and Shops," and requires also that payment to employes doing piece-work shall be made at rates so fixed as to enable the piece-worker to earn as much as the time-worker. Although the figures from 1903 to 1906 shew a steady and rapidly increasing progress in the number of outworkers, they cannot compare with the figures for early years. For example, in 1897 there were 2382 outworkers registered in Victoria in the clothing trades, while the number of employes in factories for those trades was 14,293. The corresponding figures for the same year in New South Wales were 546 outworkers and 8602 factory employes. Thus it will be seen that the number of employes in factories has largely increased, while the increase in the number of outworkers has been relatively small.

According to official reports, the hygienic condition of factories is advancing satisfactorily, so that not only is the condition of the employe improved, but general public hygiene has also advanced.

In the above figures, individuals working for themselves are not included, the term "outworker" or "homeworker" having acquired a special meaning in connection with factory affairs. It technically embraces only those to whom work is given out by factory owners to be wrought upon in their own homes.

4. **Numbers in Factories of Various Sizes.**—The distribution of persons employed in connection with factories of various sizes is shewn in the following table for the year 1906:—

## NUMBERS OF EMPLOYEES IN FACTORIES OF VARIOUS SIZES.

No. of Persons in Factory.	No. of Factories and Persons.	N.S.W.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
Under 4 ...	Factories	592	632	225	183	77	50	1,759
	Persons	1,400	1,753	506	434	175	122	4,390
4 ...	Factories	383	501	189	128	66	23	1,290
	Persons	1,532	2,004	956	512	264	103	5,371
5 to 10 ...	Factories	1,383	1,626	416	348	258	147	4,178
	Persons	9,636	11,373	3,347	2,489	1,822	1,067	29,734
11 to 20 ...	Factories	739	776	199	169	139	70	2,092
	Persons	10,661	11,353	2,871	2,486	2,016	1,028	30,415
21 to 50 ...	Factories	451	517	170	119	78	56	1,301
	Persons	14,264	16,038	5,412	3,890	2,340	1,958	43,996
51 to 100 ...	Factories	160	164	70	43	30	12	479
	Persons	11,161	11,197	4,780	2,979	1,955	1,603	33,675
Over 100 ...	Factories	153	144	35	28	17	15	392
	Persons	29,168	31,511	6,089	7,512	4,325	2,625	81,230
Total No. of Factories...		3,861	4,360	1,344	1,018	665	373	11,581
„ „ Persons ...		77,822	85,229	23,961	20,306	12,897	8,506	228,721

## § 4. Sex Distribution in Factories.

1. **Distribution of Employes as Regards Sex.**—The total male and total female employes in factories in each State of the Commonwealth, excepting Queensland, is as follows, absolute numbers being shewn by the larger figures, and percentages by the smaller:—

PERSONS CONNECTED WITH FACTORIES, ACCORDING TO SEX,  
1903 TO 1906.

State.	1903.	1904.	1905.	1906.	Actual Operatives only, 1906.
New South Wales ... Male	52,453 7.04	53,457 7.01	56,111 <sup>c</sup> 7.17	59,979 7.46	47,814
„ ... Female	13,180 1.97	14,579 2.14	16,064 2.32	17,843 2.53	16,602
Victoria ... Male	49,434 8.14	50,554 8.35	52,925 8.71	56,339 9.19	42,654
„ ... Female	23,795 3.94	25,733 4.26	27,310 4.50	28,890 4.71	26,130
Queensland* ...	...	...	...	...	...
South Australia ... Male	14,421 <sup>†</sup> 7.62	14,421 7.62	15,850 8.15	16,467 8.21	...
„ ... Female	3,761 <sup>†</sup> 2.07	3,761 2.07	3,544 1.21	3,839 2.13	...
Western Australia ... Male	10,420 7.72	11,078 7.89	11,091 7.52	11,015 7.24	8,422
„ ... Female	1,408 1.71	1,607 1.61	1,642 1.62	1,882 1.77	1,782
Tasmania ... Male	6,445 6.96	6,880 7.39	7,105 7.62	7,228 7.75	5,681
„ ... Female	1,340 1.56	1,344 1.55	1,363 1.58	1,278 1.46	1,187
Commonwealth <sup>†</sup> ... Male	133,173 7.55	136,390 7.62	143,082 7.84	151,028 7.98	104,581 <sup>§</sup>
„ ... Female	43,484 2.68	47,024 2.84	49,923 3.00	53,732 3.17	45,701 <sup>§</sup>

\* Numbers according to sex not available. † Exclusive of Queensland.  
‡ 1904 figures adopted. § Excluding Queensland and South Australia.

For Queensland the information as to the numbers of each sex is not available. The above numbers, reckoned as percentages of the total male and total female population, are shewn by the small figures written under each of them.

2. **Rate of Increase for Each Sex.**—The percentage of annual increase, based upon the figures for the preceding year, for the years from 1903 to 1906, is as in the following table. This shews that in South Australia for 1904-5 there was a falling-off of female employment; for 1905-6 also a slight falling-off in Tasmania for females, as well as a slight falling-off in Western Australia for males, took place:—

PERCENTAGES OF ANNUAL INCREASE OF PERSONS CONNECTED WITH FACTORIES, 1903 TO 1906.

Year.	N.S.W.		Victoria.		Queensland.		S. Aust.		W. Aust.		Tasmania.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1903-4	...	1.91	10.61	2.26	8.14	Not available.	...	...	6.31	14.13	6.90	0.34
1904-5	...	4.96	10.18	4.69	6.13		9.90	-3.11	0.12	2.18	3.27	2.90
1905-6	...	6.89	11.07	6.45	5.78		3.74	8.32	-0.68	1.46	1.74	-0.34

The minus sign (-) denotes a decrease.

3. **Increasing Ratio of Female Employment in Factories.**—The increasing extent to which females are employed in the factories of the Commonwealth will perhaps be best shewn by giving the number of females to every 100 male employes for each year and for each State for which the figures are available:—

NUMBER OF FEMALES PER 100 MALES IN AUSTRALIAN FACTORIES, 1903 TO 1906.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tas.	C'wealth.*
1903	25.13	48.14	Not available.	...	13.51	20.79	32.65
1904	27.27	50.90		26.07	14.51	19.53	34.48
1905	28.63	51.60		22.35	14.80	19.46	34.89
1906	29.75	51.28		23.31	17.09	17.68	35.58

\* Omitting Queensland.

4. **General Circumstances of Female Employment in Factories.**—Special legislation regarding the employment of women in manufactories dates back in Victoria as far as 1874. Twelve years later (1886) the proportion in factories of women to men had advanced to about one to five. In 1891 it was somewhat less, but in 1896 had grown to about one woman to three men, and at present is about one to two. The employment of women is, however, largely confined to a few trades.

In New South Wales the male workers were about seven times the number of females in 1886; in 1891 the proportion had become six to one, and in 1905 about five to one. The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Large numbers are occupied in tailoring and dress-making, in wholesale manufactories, in tobacco factories and preserving works. Certain trades are specifically known as women's trades, such for example as clothing and textile trades, preparation of food, printing and book-binding, lighter work connected with the drug trade, such for example as wrapping. In common with commercial establishments, a considerable number of women are also employed as clerks and typewriters in factories. The earnings of women, and also the protection afforded them by legislation, will be referred to in connection with wages hereinafter.

The proportion of women employed in Classes VI., VII., and VIII., viz., in connection with food, drink, etc., clothing and textiles, books, and printing, to the total

## SEX DISTRIBUTION IN FACTORIES.

441

number of women employed in factories, as well as the absolute numbers, are shown in the following table:—

## NUMBER AND PROPORTION TO TOTAL OF FEMALE EMPLOYEES IN SPECIAL CLASSES OF TRADES, 1906.

Class.	N.S.W.		Victoria.		Q'sland.	Sth. Aust.		West. Aust.		Tasmania.		C'wealth.*	
	...	%	...	%		...	...	%	...	%	...	%	...
VI. ....	2,048	11.48	2,739	9.48	Not available.	424	11.04	121	6.43	170	13.30	5,502	10.24
VII. ....	13,120	73.53	23,977	79.52		2,774	72.26	1,531	81.35	1,009	78.95	41,409	77.07
VIII. ....	1,422	7.97	1,889	6.54		397	10.34	166	8.82	67	5.24	3,941	7.33
	16,590	92.98	27,603	95.54	...	3,595	93.64	1,818	96.60	1,246	97.49	50,852	94.64

\* Exclusive of Queensland.

NOTE.—Class VI. is food, drinks, etc.; Class VII., clothing, textiles, etc.; Class VIII., books, printing, etc.

The classification of the employment of women in Class VII. in the two States of largest population is of interest. The following table shows, also, for the sake of comparison, the number of males employed:—

## EMPLOYMENT IN CLASS VII., 1906.

Class VII.	New South Wales.		Victoria.	
	Males.	Females.	Males.	Females.
Woolen and tweed mills ... ..	160	178	724	710
Boots and shoes ... ..	3,178	1,589	3,838	1,917
Slop clothing ... ..	2,337	5,744	1,827	5,840
Clothing (tailoring) ... ..				
Dressmaking and millinery ... ..	53	3,602	148	8,321
Dyeworks and cleaning ... ..	27	22	44	134
Furriers ... ..	14	11	23	49
Hats and caps ... ..	342	694	529	825
Waterproof and oilskin ... ..	32	129	49	182
Shirts, ties, and scarves ... ..	91	1,028	192	4,160
Rope and cordage ... ..	183	4	368	266
Tents and tarpaulins ... ..	113	119	56	16
Total ... ..	6,530	13,120	7,798	22,420

Beside the above, 2 males and 39 females were engaged in corset manufacture in Victoria, and in the umbrella factories 72 males and 161 females, while in New South Wales the number in the last-mentioned trade was 59 males and 90 females.

The general conditions of female labour in factories have been increasingly favourable, and women have shared in the advantages of the settlement of wage questions by the authorities.

The Victorian Factories Acts are practically the bases of similar Acts in other States, and their main provisions may thus be summarised:—

- (i.) The hours of labour are limited to forty-eight hours per week and ten per day.
- (ii.) Women are prohibited from cleaning mill-gearing in motion, or working between the fixed and traversing parts of any self-acting machine in motion.
- (iii.) Women share in the general advantages of the Acts.

5. **Factory Proprietorship by Women.**—The extent to which women engage in manufacturing business on their own account is indicated in the following table, which gives the totals of female proprietors as well as the number of those engaged in clothing industries:—

## NUMBER OF FEMALE PROPRIETORS OF FACTORIES, 1906.

Females.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	C'wth.*
Engaged in clothing industries	410	566	...	...	23	36	1,035
Total female proprietors ...	492	611	...	...	27	39	1,169

\* Exclusive of Queensland and South Australia.

## § 5. Child Labour in Factories.

1. **Number of Children in Factories.**—Speaking generally, children are not allowed to work in factories in Australia until they reach the age of thirteen, and in the statistical compilations of the various States the term "child" may be taken to denote any person under sixteen years of age, excepting in New South Wales, where it denotes any person under fifteen. In the latter State also, if the child be under fourteen the special permission of the Factories Department must be obtained before he may enter upon employment.

## NUMBER OF CHILDREN IN FACTORIES, 1903 TO 1906.

State.		1903.	1904.	1905.	1906.
New South Wales	... Male	774	748	668	881
	... Female	420	452	473	579
Victoria	... Male	2,696	3,058	3,261	3,213
"	... Female	2,332	2,952	3,034	2,997
Queensland*	... ..	...	...	...	...
South Australia	... Male	1,245†	1,245	1,362	1,166
"	... Female	395†	395	324	400
Western Australia	... Male	179	217	197	203
"	... Female	47	94	81	126
Tasmania	... Male	125	168	284	251
"	... Female	47	75	128	99
Commonwealth†	... Male	5,019	5,436	5,772	5,803
"	... Female	3,241	3,968	4,040	4,201

\* Not available.

† Omitting Queensland.

‡ 1904 figures.

The apparently small number in New South Wales is partly due to the fact that workers between fifteen and sixteen are included among adults.

2. **Industries Employing Child Labour.**—The industries employing child labour are as shewn hereunder:—

## NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1906.

Class.	Industry.	N.S.W.		Victoria.		Q'ld.	S. Aust.		W. Aust.		Tas.		C'wealth.*		
		M	F	M	F		M	F	M	F	M	F	M	F	
I.	Treating raw material, product of pastoral, &c., pursuits	17	...	114	...	Information not available.	33	1	...	...	...	...	164	1	
III.	Processes in stone, clay, glass, etc. ...	59	4	165	2		43	...	5	...	17	...	...	289	6
V.	Metals & machinery	110	...	567	...		316	...	36	...	6	...	...	1,035	...
VI.	Food & drinks	174	62	432	232		277	63	43	10	67	30	993	397	
VII.	Clothing & textiles	135	401	703	2,397		142	257	20	105	30	60	1,030	3,220	
VIII.	Books, paper, &c. ...	202	82	633	273		128	72	49	10	45	6	1,057	442	
XI.	Vehicles, &c. ...	27	...	154	6		58	...	17	...	22	...	...	278	6
XIII.	Furniture, &c. ...	37	1	104	9		29	...	9	...	7	3	186	13	
Totals	...	761	550	2,872	2,919		...	1,026	392	179	125	194	99	5,032	4,085

\* Excluding Queensland.

3. **Apprenticeship.**—The apprenticeship systems of the several States may be summarised as follows :—

In New South Wales, no child may be apprenticed until the attainment of the age of fourteen years, in Victoria and Queensland, twelve years. There is no limitation in the case of the other States, nor any regulating Acts except as applying to charity apprentices. The statutes limiting the age at which children may begin to work may be regarded as applicable by way of preventing too early apprenticeship, so also may 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 become inoperative at twenty-one years of age, or in the case of women, on marriage.

The Arbitration Courts and Wages Boards have power to limit the number of apprentices which may be taken into a factory. No general statistics of the number of apprentices in Australia have been collected up to the present time. Other enactments relating to child labour are referred to elsewhere.

4. **Conditions of Child Labour.**—Child labour is afforded a protection in respect of hours of toil similar to that afforded to women. On the whole the conditions of labour are satisfactory, and opportunity is assured that a proper period shall be devoted to elementary education, and that the early years of toil shall not exhaust the worker before the attainment of full growth.

## § 6. Investment of Capital in Manufactories.

1. **Land and Buildings.**—The approximate values of the land and buildings occupied as manufactories in the several States from the years 1903 to 1906, so far as particulars are available, are :—

VALUES OF FACTORY LAND AND BUILDINGS, 1903-6.

Year.	N.S.W.*	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth. †
	£	£	£	Information not available.	£	£	£
1903	8,029,890	7,967,945	2,631,039	Information not available.	1,291,115	995,894	20,915,883
1904	8,029,890	7,641,051	2,699,191		1,731,233	1,000,481	21,101,846
1905	8,029,890	7,771,238	2,709,951		1,685,597	963,517	21,160,193
1906	8,029,890	8,062,110	2,405,559		1,775,279	668,837	20,939,675

\* According to Census 1901, no later figures available.

† Excluding South Australia.

2. **Plant and Machinery.**—The approximate value of the plant and machinery used in manufactories of the several States during the years 1903-6, so far as particulars are available, is as follows :—

VALUE OF PLANT AND MACHINERY IN FACTORIES, WITH PERCENTAGE OF INCREASE, 1903 TO 1906.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.*
	£	£	£	Information not available.	£	£	£
1903	7,009,806	5,010,896	4,052,584	Information not available.	1,644,331	922,161	18,639,778
	7.52	20.28	3.64		8.04	—18.24	8.88
1904	7,536,903	6,027,134	4,200,303		1,776,431	753,967	20,294,788
	5.08	2.66	—5.05		3.24	0.00	1.92
1905	7,919,948	6,187,919	3,988,056	1,834,098	753,924	20,683,945	
	4.74	4.25	7.38	1.49	11.67	5.07	
1906	8,295,337	6,450,355	4,282,502	1,861,477	841,883	21,731,554	

\* Excluding South Australia. The sign (—) denotes decrease.

The small figures denote the percentages of annual increase or diminution, that is, the difference between any two years calculated on the figures for the earlier one.

3. **Wages.**—The total amount of salaries and wages during the years 1903-6 paid in factories in each State of the Commonwealth returning such information, excluding all sums drawn by working proprietors, is as follows:—

SALARIES AND WAGES IN FACTORIES AND PERCENTAGE OF INCREASE,  
1903 TO 1906.

Year.	N.S.W.	Victoria.	Queensland.	South Aust.	West. Aust.	Tas.	C'wealth.
	£	£			£	£	£
1903 ...	4,839,557 3.58	4,573,795 4.82	Not collected.	Not collected.	1,415,674 7.46	*	* 10,829,026 10.50
1904 ...	5,012,758 3.56	4,794,365 5.10			1,521,263 -3.06	637,749 1.72	† 11,966,135 3.24
1905 ...	5,191,350 7.71	5,089,115 8.52	Not collected.	Not collected.	1,474,650 3.83	648,725 -5.09	12,353,840 6.96
1906 ...	5,591,888	5,468,470			1,531,117	621,992	13,213,467

\* For three States. † For four States. ‡ Not collected.

The annual increase on any year's figures is shewn as a percentage thereof in small figures.

### § 7. General Summary regarding Manufacturing Industries.

The preceding results shew that the manufacturing industries of Australia have developed considerably during the period under review. Between 1903 and 1906 the development may be summarised in the following table:—

PERCENTAGE OF INCREASE IN NUMBER OF FACTORIES, EMPLOYEES,  
AND INVESTED CAPITAL, 1903-1906.

Item.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aus.	Tas.	C'wth.
Number of factories ...	11.08	5.03	0.39	11.37	13.48	-13.46	6.15
Average number employed ...	18.57	16.38	31.74	11.68	9.04	0.91	17.11
Horse-power used ...	15.57	14.07	2.02	26.58	49.22	17.63	17.18
Value land and buildings ...	...	1.18	8.57	...	37.49	-33.00	0.12*
Value plant and machinery ...	18.34	28.72	5.67	...	13.24	-8.70	16.58*
Total payment salaries and wages	15.54	19.56	...	...	8.15	-2.47	10.42†

\* Omitting South Australia. † Omitting Queensland and South Australia.

In connection with the above table it should be noted that, in order to make the comparison with the 1903 figures just, 689 factories without mechanical power, employing less than four but not less than two persons, with 1447 persons employed therein, have been added to the figures for 1906. The comparative result will, however, be probably substantially correct and sensibly identical with what would have been, had it been possible to get the data according to the present statistical classification.

The apparent decrease in the value of the lands and buildings occupied by factories in Tasmania is due to the inclusion in 1903, in lands and buildings occupied by breweries, of a large amount of real estate belonging to their proprietors, such as hotels, bush lands, etc. In 1903 the value of brewery lands and buildings was given as £417,243, in 1906 as £86,518, a decrease of £330,725. The decrease of the total was £329,057, so that on the whole there is an increase in value.

The results above indicated may justly be regarded as very satisfactory, especially when the fact is kept in mind that in the last two decades of the century just closed there were considerable economic disturbances, partly through drought conditions and

partly through the occurrence of financial crises. It is also to be remembered that the advent of Federation, with consequent unification of the fiscal policy for Australia, involved considerable adjustment of the industrial and commercial affairs of the various States.

The greater part of the more complex manufacturing industries is carried on in the States of greater concentration of population, namely, New South Wales and Victoria. The developments for the two last quinquennia are as follows:—

## GROWTH IN FACTORIES, 1896 TO 1906.

Particulars.	New South Wales.			Victoria.		
	1896.	1901.	1906.	1896.	1901.	1906.
No. of Factories ...	3,106	3,367	3,861	2,810	3,249	4,360
Average No. Employed ...	57,747	66,135	77,822§	50,448¶	66,529¶	85,229
Horse-power Employed ...	33,253	40,824	83,670	28,996	34,548	48,765
Value of Land and Buildings* £	†	8,029,890‡	...	7,297,010	7,451,370	8,062,110
Value of Plant and Machinery* £	5,535,905	5,770,725	8,295,337	4,982,640	4,847,130	6,450,355
Total Salaries and Wages Paid* £	...	4,945,079	5,591,888	...	...	5,468,470

\* Approximate only. † Not available. ‡ Census of 1901; no later information available.

§ Includes 5644 working proprietors; this class was not included in the other figures.

¶ Includes working proprietors, but these are not separable from the number of managers and overseers.

## § 8. Particular Industries.

1. **General.**—The preceding remarks and tables give a general view of the recent development of the manufacturing industries in Australia treated as a whole, but to make the information complete it must necessarily be supplemented by details exhibiting the development of different classes of industry. This alone will furnish adequate information as to the individual channels in which flow the main efforts of Australian manufacture.

Industries have been classified under nineteen categories according to their connection with the following matters, viz.:—(i.) Raw material, the product of pastoral pursuits, or vegetable products not otherwise classed; (ii.) Oils and fats, animal and vegetable; (iii.) Processes relating to stone, clay, glass, etc.; (iv.) Working in wood; (v.) Metal working, machinery; (vi.) Food and drink, or the preparation thereof; (vii.) Clothing and textile fabrics and fibrous materials; (viii.) Books, paper, printing, engraving; (ix.) Musical instruments; (x.) Arms and explosives; (xi.) Vehicles and fittings, saddlery and harness, etc.; (xii.) Shipbuilding, fittings, etc.; (xiii.) Furniture, bedding, etc.; (xiv.) Drugs, chemicals, and by-products; (xv.) Surgical and scientific appliances; (xvi.) Time-pieces, jewellery, and plated ware; (xvii.) Heat, light, and energy; (xviii.) Leatherware (excepting harness and saddlery); (xix.) Minor wares not elsewhere included. It will be necessary to deal with these in detail.

2. **Industries of Class I.**—(i.) *General.* This class comprises the following:—Boiling-down and refining works; tanneries; wool-scouring and fellmongering works; chaff-cutting and corn-crushing mills. In Western Australia, however, bone mills are substituted for the first and bark mills for the third. These industries can be hardly described as factories in the ordinary sense. In the following particulars for 1906, "State total" denotes the total number of factories in the State, while "class-total" means total number of the same class in the Commonwealth:—

The total number of factories and average total number of persons employed therein in this class, form respectively 6.41 and 3.41 per cent. of the totals for the Commonwealth. The lack of particulars in respect of other matters renders it impossible to give a complete statement of proportions for the Commonwealth.

## FACTORS OF PRODUCTION, INDUSTRIES OF CLASS I., TANNING, ETC., 1906.

Items.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ...	256	305	48	111	14	8	742
Percentage on State total* ...	6.63	6.99	3.68	10.90	2.11	2.14	...
.. .. class total*	34.50	41.10	6.47	14.96	1.89	1.08	...
Average number employes ...	3,209	2,841	538	972	159	90	7,809
Percentage on State total* ...	4.12	3.33	2.24	4.79	1.23	1.06	...
.. .. class total*	41.10	36.38	6.89	12.45	2.03	1.15	...
Value of land and buildings†	£ 314,318	302,622	57,677	...	20,590	11,700	706,937
.. .. plant and machinery	£ 245,696	211,451	92,550	...	10,630	9,800	570,127
Percentage on State total ...	2.96	3.27	2.16	...	1.57	1.16	...
Total salaries and wages ...	£ 194,407	180,559	...	...	15,006	8,217	398,189
Percentage on State total ...	3.47	3.30	...	...	9.80	1.32	...

\* See above. † Approximate.

Comparable figures exist only between 1903 and 1906. The developments for this period are indicated in the following table:—

## DEVELOPMENT OF FACTORIES, CLASS I., TANNING, ETC., 1903 TO 1906.

State.	Number of Factories.				Number of Employés.				Approximate Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
New South Wales	237	240	254	256	2,787	2,696	2,917	3,209	£ 185,006	£ 204,326	£ 217,957	£ 245,696
Victoria ...	324	317	317	305	2,976	2,664	2,839	2,841	196,627	204,921	211,059	211,451
Queensland ...	66	59	59	48	532	497	525	538	74,680	78,021	79,762	92,550
South Australia ...	(86)	86	96	111	863	863	853	972	*	*	*	*
Western Australia ...	10	16	15	14	106	186	223	159	8,330	14,113	13,240	10,630
Tasmania ...	33	33	10	8	283	276	100	90	21,377	18,331	7,600	9,800
Commonwealth ...	756	751	751	742	7,547	7,182	7,460	7,809	486,020	519,712	529,618	570,127

\* Information not available. Totals exclusive.

(ii.) *Tanning, Fellmongery, etc.* (a) Tanning and fellmongering are the most important industries in Class I. Until quite recently the former has confined itself to the production of the coarser class of leathers, but lately the tanning of the finer leathers has been undertaken with very satisfactory results. The position of the industry in the several States in 1906 was as follows;—

## TANNING, FELLMONGERY, AND WOOL-SCOURING, 1906.

Item.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ...	154	84	40	14	2	3	297
.. .. employes ...	2,427	1,657	513	344	61	56	5,058
.. .. male employes ...	2,418	1,655	*	344	61	56	4,534
.. .. female ...	9	2	*	nil	nil	nil	11
Actual horse-power of engines employed ...	2,012	1,152	499	246	59	40	4,008
Average time in operation during year mths	10.13	10.40	*	*	12.00	12.00	...
Approx. value of lands and buildings	£ ...	157,294	52,377	*	11,000	7,900	228,571
Approx. value of plant and machinery	£ 172,553	114,951	84,750	*	5,500	6,600	384,354
Total amount of wages paid during year	£ 155,244	123,677	*	*	7,172	5,790	291,883

\* Information not obtainable. Totals are exclusive of these States.

(b) The development of tanning, fellmongering, and woolscouring industries during the period 1903-6 is shewn in the table on the next page, from which it will be seen that the decrease in the number of factories, due to the closing of a number of small establishments, was not accompanied by a corresponding decrease in the number of employes:—

NUMBER AND VALUE OF FACTORIES AND PERSONS EMPLOYED,  
AUSTRALIA, 1903 TO 1906.

State.	Number of Factories.				Number of Employés.				Value of Plant and Machinery (Approximate).			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
									£	£	£	£
New South Wales	173	160	166	154	2,365	2,187	2,228	2,427	146,618	152,673	156,830	172,553
Victoria ...	94	88	88	84	1,640	1,439	1,614	1,657	110,796	109,065	114,863	114,951
Queensland ...	54	50	48	40	480	459	477	513	66,170	70,738	70,246	84,750
South Australia ...	(14)	14	14	14	355	355	335	344	*	*	*	*
Western Australia	3	3	2	2	58	65	55	61	3,300	4,000	4,500	5,500
Tasmania ...	8	8	3	3	102	96	56	56	9,420	8,715	4,550	6,600
Commonwealth ...	346	321	321	297	5,000	4,601	4,765	5,058	336,304	345,221	350,989	384,354

\* No information available. Totals exclusive.

(c) The production of leather in Australia for the years 1903 to 1906 has not been fully ascertained, hence the defects in the following table:—

## NO. OF HIDES, SKINS, ETC., TANNED, AUSTRALIA, 1903 TO 1906.

State.	1903.	1904.	1905.	1906.
New South Wales ...	*	*	*	2,708,346
Victoria ...	1,206,257	1,189,581	1,077,346	1,135,969
Queensland ...	150,896†	127,519†	118,943†	222,916†
South Australia ...	*	*	*	*
Western Australia ...	55,060	27,903	25,956	30,416
Tasmania ...	91,212	147,444	291,600	42,117

\* No information available.

† Also the following amount of Leather, in cwts.:—

Queensland ...	21,066	19,484	25,430	27,166
----------------	--------	--------	--------	--------

(d) The value of the annual export of Australian leather has increased from £520,211 in 1903 to £547,357 in 1906, though in 1904 a sharp fall occurred, due to the shortage through drought of skins and pelts. Of the total Great Britain takes £438,654; Belgium, £23,120; Cape Colony, £50,698; and New Zealand, £13,731. Of the total export New South Wales sends away a value of £303,277. Such leather as is produced in the other States is practically all consumed locally or exported to other parts of the Commonwealth.

It is not possible to ascertain from existing statistical records in what particular Australian State exported goods are produced, since all exports of Australian production are classed only as such, without reference to the producing State. In most cases, however, the State of production is also the exporting State.

The following table shews the totals of the Interstate exports and imports of each State of the Commonwealth for 1906:—

## INTERSTATE EXPORTS AND IMPORTS OF LEATHER, 1906.

Item.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.
	£	£	£	£	£	£
Export from State ...	80,917	123,072	32,110	24,291	5,823	13,549
Import into State ...	101,816	62,414	32,467	32,202	29,789	21,074
Balance of Trade ...	— 20,899	+ 60,658	— 357	— 7,911	— 23,966	— 7,525

The total value of Interstate trade in Australian leather in 1906 was £279,762.

(e) The value of the imports of leather into Australia in the years 1903-6 was as follows :—

	1903.	1904.	1905.	1906.
Dutiable ...	£193,624	£294,962	£236,506	£359,017
Free ...	8,430	11,806	15,865	21,776

(f) For convenience of comparison, the values of the imports of boots and other manufactures of leather in the years 1903-6 are here stated :—

VALUES OF IMPORTS, LEATHER MANUFACTURES, 1903 TO 1906.

Year.	Boots and Shoes.			Leather.
	Men's, etc., of leather.	N.E.I.	Infants'.	Manufactures N.E.I.
	£	£	£	£
1903 ...	162,580	56,485	52,637	42,459
1904 ...	156,339	57,725	58,323	56,378
1905 ...	113,755	59,265	48,042	53,876
1906 ...	118,954	58,604	54,965	60,908

A comparison of the two foregoing tables shews that a considerable increase in the importation of leather was accompanied by a corresponding decrease in the importation of boots, due to the extension of the local boot-manufacturing industry.

3. **Industries of Class II.**—(i.) *General.* This class comprises (1) Oil and grease. (2) Soap and candles. Following are the chief particulars for 1906 :—

FACTORS OF PRODUCTION, INDUSTRIES OF CLASS II., OILS, ETC., 1906.

Items.	N. S. W.	Vic.	Qld.	S. A.	W. A.	Tas.	C'with.
Number of factories ...	48	20	14	12	3	2	99.
Percentage on State total ...	1.24	0.46	1.07	1.18	0.45	0.54	...
.. .. class total ...	48.48	20.20	14.14	12.12	3.03	2.03	...
Average number of employes ...	681	572	142	269	61	35	1,760
Percentage on State total ...	0.88	0.67	0.59	1.32	0.47	0.41	...
.. .. class total ...	38.69	32.50	8.07	15.28	3.47	1.99	...
Approx. value of land and buildings	£ 172,698*	106,080	24,529	...	4,782	4,000	312,089
Approx. value of plant and machinery	£ 158,157	109,816	33,599	†	8,216	4,300	314,088
Percentage on State total ...	1.91	1.70	0.78	...	0.44	0.51	1.45
Total amount of salaries and wages	42,366	44,773	†	†	6,418	3,600	97,157.
Percentage on State total ...	0.75	0.82	...	...	0.42	0.58	...

\* 1901.

† Information not obtainable. Totals are exclusive of these States.

The factories of this class constitute 0.85 per cent. of the factories of the Commonwealth, and the average number of persons employed forms 0.77 per cent. of the total in all factories.

The changes in the industries of Class II. for the period 1903 to 1906 are set forth in the table hereunder :—

DEVELOPMENT OF FACTORIES, CLASS II., OILS, ETC., 1903 TO 1906.

State.	Number of Factories.				Average Number of Employés.				Value of Plant and Machinery : Approximate.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
New South Wales	52	54	47	48	625	595	660	681	£ 132,901	£ 139,057	£ 153,033	£ 158,157
Victoria ...	24	23	24	20	528	532	558	572	107,761	105,936	110,079	109,876
Queensland ...	22	25	21	14	159	151	142	142	33,013	34,929	34,303	33,599
South Australia ...	(11)	11	13	12	(202)	202	250	269	*	*	*	*
Western Australia	5	4	4	3	67	74	68	61	11,474	10,021	9,771	8,216
Tasmania ...	5	4	3	2	68	47	39	35	7,400	8,200	5,600	4,300
Commonwealth	119	121	112	99	1,649	1,601	1,717	1,760	292,549	298,143	312,786	314,088

\* Information not obtainable. Totals exclusive.

(ii.) *Soap and Candle Factories.* The manufactures of soap and candles are the most important industries of Class II. The two are often carried on in the same establishment, so that it is impossible to separate them; it may, however, be said that the manufacture of soap greatly preponderates.

(a) The following table shews the position of the industry in 1906:—

## SOAP AND CANDLE FACTORIES, 1906.

Item.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	41	15	14	8	3	2	83
" " employés ... ..	602	523	142	207	61	35	1,570
" " male employés ... ..	471	508	*	207	61	32	1,279
" " female " ... ..	131	15	*	*	*	3	149
Actual horse-power of engines employed	501	215	119	548	55	20	1,458
Average No. of months in operation during year	11.71	12.00	*	*	12.00	12.00	
Approximate value of land and buildings £	*	96,000	24,529	*	4,782	4,000	129,311
" " plant and machinery £	121,313	104,244	33,599	*	8,216	4,300	271,672
Total amount of wages paid during year £	34,618	41,635	*	*	6,418	3,600	86,271

\* Information not available. Totals exclusive of these States.

## (b) DEVELOPMENT OF SOAP AND CANDLE FACTORIES, 1903 TO 1906.

State.	Number of Factories.				Average Number of Employés.				Approximate Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
New South Wales	47	46	40	41	520	508	574	602	£ 108,277	£ 114,755	£ 119,717	£ 121,313
Victoria ... ..	20	19	20	15	485	492	500	523	103,411	101,486	105,529	104,244
Queensland ... ..	22	25	21	14	159	151	142	142	33,013	34,929	34,303	33,599
South Australia ...	(7)	7	9	8	(180)	180	222	207	*	*	*	*
Western Australia ...	5	4	4	3	67	74	68	61	11,474	10,021	9,771	8,216
Tasmania ... ..	5	4	3	2	68	47	39	35	7,400	8,200	5,600	4,300
Commonwealth	106	105	97	83	1,479	1,452	1,545	1,570	263,575	269,391	274,920	277,672

\* Information not available. Totals exclusive.

(c) Owing to shortage of material, caused through drought, these industries reached their lowest point for any recent period in 1903. The production for the years 1903 to 1906 was as follows:—

## PRODUCTION OF SOAP AND CANDLES IN AUSTRALIA, 1903 TO 1906.

State.	Soap.				Candles.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
New South Wales	cwt. 199,807	cwt. 208,677	cwt. 212,658	cwt. 221,834	lbs. 3,231,842	lbs. 3,984,035	lbs. 4,226,062	lbs. 4,799,898
Victoria ... ..	138,045	162,126	150,261	154,570	5,085,424	4,650,352	4,709,488	4,825,528
Queensland ... ..	54,684	58,033	55,167	64,130	*	*	*	*
South Australia ...	27,232	27,584	28,075	26,960	1,789,106	1,989,610	1,626,000	1,567,768
Western Australia ...	14,320	11,760	8,360	7,360	925,120	620,480	479,360	703,360
Tasmania ... ..								
Commonwealth	434,088	468,180	454,451	474,854	11,031,492	11,244,477	11,040,930	11,897,554

\* Not available. Totals exclusive of these States.

From the following table, shewing the export of Australian-made soap and candles in the years 1903 to 1906, it will be seen that apart from the exports of soap "n.e.i.," chiefly on account of one large firm, the volume of trade is very small:—

EXPORT OF AUSTRALIAN-MANUFACTURED SOAP AND CANDLES.  
1903 TO 1906.

Item.		1903.	1904.	1905.	1906.
Soap—Perfumed, Toilet, etc.	£	697	411	717	1,674
Soap, n.e.i. ... ..	£	41,513	30,749	37,647	44,055
Candles ... ..	£	83	141	209	243

(d) The values of interstate transfers in 1906 of Australian-made soap and candles are as follows:—

SOAP AND CANDLES OF AUSTRALIAN MANUFACTURE.—INTERSTATE  
TRANSFERS, 1906.

SOAP.

Exports or Imports.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tasmania.
Export from State ... £	53,789	35,130	538	22,958	12	566
Import into State ... £	35,904	21,368	14,713	8,321	16,490	16,197
Balance of trade ... £	+ 17,885	+ 13,762	— 14,175	+ 14,637	— 16,478	— 15,631

CANDLES.

Export from State ... £	15,288	19,804	75	12,840	...	...
Import into State ... £	17,284	11,016	4,999	560	2,542	11,606
Balance of trade ... £	— 1,996	+ 8,788	— 4,924	+ 12,280	— 2,542	— 11,606

The total interstate trade in soap of Australian manufacture in 1906 was valued at £112,993, and in candles of Australian manufacture at £48,007.

The value of imports of soap and candles into Australia in the years 1903-6 was as shewn hereunder:—

IMPORTS OF SOAP AND CANDLES, 1903-6.

Item.		1903.	1904.	1905.	1906.
Soap ... ..	£	59,632	80,481	78,168	79,482
Candles ... ..	£	66,505	71,153	55,140	36,997

The soap imported is chiefly toilet soap of finer grades than are extensively made in the Commonwealth. The importation of candles during the four years under review has shewn a considerable falling-off.

4. **Industries of Class III.**—(i.) *General.* This class comprises the following items, viz.:—Bricks and tiles; glass, including bottles; glass, ornamental; lime, plaster, cement, etc.; marble, slate, etc.; modelling, etc.; pottery and earthenware.

(a) The following table gives the particulars of the class for the year 1906:—

FACTORS OF PRODUCTION, INDUSTRIES OF CLASS III., STONE,  
GLASS, ETC., 1906.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	252	208	32	59	36	23	610
Percentage on State total ... ..	5.53	4.77	1.68	5.80	5.90	3.77	...
„ class total ... ..	41.30	34.10	5.25	9.67	5.90	3.77	...
Average number of employes ... ..	3,877	3,209	385	543	550	215	8,779
Percentage on State total ... ..	4.98	3.77	1.61	2.67	4.26	2.47	...
„ class total ... ..	44.16	36.55	4.39	6.19	6.26	2.45	...
Approximate value of land and buildings	£ 308,189*	268,611	38,966	†	45,425	19,708	680,919
Approximate value of plant and machinery	£ 426,543	183,301	38,988	†	55,194	14,580	718,606
Percentage on State total ... ..	5.14	2.84	0.91	†	2.96	1.73	...
Total amount of wages paid during year	£ 300,212	265,508	†	†	62,127	17,391	645,238
Percentage on State total ... ..	5.37	4.86	...	†	4.06	2.80	...

\* 1901.

† Information not available. Totals are exclusive of these States.

(b) The total number of factories in this class forms 5.27 per cent. of the total number of factories in the Commonwealth, and the corresponding percentage of employes is 3.84. Glass bottles of Australian manufacture to the value of £7343 were exported in 1903 and £16,409 in 1906. There is also a small export trade in pottery and earthenware of local manufacture. Of the 193,267 dozen glass bottles exported, New Zealand took 180,817 dozen, valued at £15,861, and Cape Colony 8370 dozen, valued at £303; the balance went to Japan and the South Seas. New South Wales exported 59,005 dozen bottles, valued at £3986, Victoria and the other States of the Commonwealth 134,262 dozen, valued at £12,423. Decorative pottery of artistic design and good quality is being produced experimentally in Australia, and gypsum works exist in Victoria and South Australia, but particulars of output or export are not available. There is also a growing manufacture of stained glass, but the manufacture of bricks and cement are the most important branches. The preponderance of New South Wales in the value of plant and machinery division is due to the existence of large cement works in that State. 239,260 cwt. of cement, gypsum, etc., valued at £33,856, were transferred by New South Wales to other States in 1906, out of total interstate transfers amounting to 317,392 cwt., valued at £42,544. 793,928 cwt. of cement, gypsum, etc., valued at £71,765, were imported into Australia in 1906, so that there is considerable room for expansion of the Australian manufacture of the article.

(c) DEVELOPMENT OF FACTORIES IN CLASS III., 1903 TO 1906.

State.	Number of Establishments.				Number of Employes.				Value of Plant and Machinery. Approximate.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
New South Wales	226	231	238	252	3,073	3,191	3,413	3,877	£ 354,488	£ 377,895	£ 398,957	£ 426,543
Victoria ... ..	191	193	204	208	3,076	2,906	3,011	3,209	160,052	167,577	162,215	183,301
Queensland ... ..	79	68	65	32	422	389	425	385	59,574	42,291	47,340	38,988
South Australia... ..	(46)	46	49	59	(419)	419	498	543				
Western Australia	49	48	45	36	700	727	683	550	54,842	60,950	82,398	55,194
Tasmania ... ..	26	29	24	23	210	275	255	215	14,790	16,270	16,477	14,580
Commonwealth	617	615	625	610	7,900	7,907	8,285	8,799	643,746	664,983	707,387	718,606

\* Information not obtainable. Totals exclusive.

5. **Industries of Class IV.**—(i.) *General.* The industries included in this class are:—  
(a) Box and case-making, (b) cooperage, (c) joinery, (d) sawmills, (e) wood-turning, etc.

(a) The following table gives particulars of the several points of interest :—

FACTORS OF PRODUCTION, INDUSTRIES OF CLASS IV., WORKING IN  
WOOD, ETC., 1906.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	457	270	197	60	68	67	1,119
Percentage on State total ... ..	11.85	6.19	15.11	5.89	10.23	17.96	...
.. .. class total ... ..	40.84	24.13	17.61	5.36	6.08	5.98	...
Average number of employes ... ..	5.205	4.217	2.626	839	3,540	1,920	18,347
Percentage on State total ... ..	6.69	4.95	10.96	4.13	27.45	22.59	...
.. .. class total ... ..	28.37	22.98	14.32	4.57	19.30	10.46	...
Approx. value of land and buildings	£ 432,837*	223,296	175,651	†	197,539	103,435	1,182,758
.. .. plant and machinery	£ 365,780	211,487	268,985	†	436,546	102,061	1,384,859
Percentage on State total ... ..	4.41	3.28	6.27	...	23.45	12.12	...
Total amount of salaries and wages	£ 376,912	313,074	†	...	444,847	143,894	1,278,727
Percentage on State total ... ..	6.74	5.73	...	...	29.05	23.13	...

\* 1901. † Information not available. Totals exclusive of these States.

The factories of this class constitute 9.66 per cent. of the total for the Commonwealth, and the average number of persons employed 8.02 per cent. of the total in all factories.

(b) The following table shows the progress of this class of industry in Australia during the years 1903-6:—

DEVELOPMENT OF FACTORIES IN CLASS IV., WOODWORKING, ETC.,  
1903 TO 1906.

State.	Number of Factories.				Number of Employés.				Value of Plant and Machinery (Approximate).			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
N.S.W. ...	430	438	449	457	5,167	4,923	5,244	5,205	£ 368,512	£ 371,605	£ 376,665	£ 365,780
Victoria ...	268	268	271	270	3,713	3,747	4,016	4,217	182,902	189,163	195,754	211,487
Q'land ...	236	225	215	197	2,272	2,376	2,300	2,626	277,410	275,384	259,398	268,985
S. Aust. ...	(38)	38	44	60	(677)	677	653	839	...	...	...	...
W. Aust. ...	59	73	68	68	3,566	3,340	3,478	3,540	625,053	528,787	537,008	436,546
Tasmania	79	80	79	67	1,103	1,222	1,247	1,920	92,332	88,570	83,891	102,061
C'wealth	1,110	1,123	1,126	1,119	16,498	16,285	16,938	18,347	1,546,209	1,453,509	1,452,716	1,384,859

(ii.) *Sawmills.*—(a) The most important industry in this class is the sawmilling industry, of which particulars are given below. To compare this class of industry in the several States all saw mills, including forest mills and joinery works, are combined, this being rendered necessary by a different arrangement of these industries in the statistics of different States.

SAW MILLS, FOREST AND OTHER, AND JOINERY WORKS, 1906.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	402	213	179	45	68	67	974
.. .. employes ... ..	4,555	3,628	2,527	717	3,540	1,907	16,874
.. .. male employes ... ..	4,538	3,619	*	717	3,537	1,898	14,309
.. .. female ... ..	17	9	*	nil	3	9	38
Actual horse-power of engines employed...	6,159	3,830	4,253	524	2,773	1,813	19,352
Average No. of mths. in operation during yr.	10.96	8.8	*	*	11.81	11.00	...
Approx. value of land and buildings	£	172,938	150,601	*	197,539	103,435	624,513
Approx. value of plant and machinery	£ 317,433	192,794	258,821	*	436,546	102,061	1,307,655
Total amount of wages paid during year	£ 326,856	274,022	*	*	444,847	143,894	1,189,619

\* Information not available. Totals are exclusive of these States.

The foregoing table discloses the importance of the forest saw-milling industry in Western Australia and Tasmania, especially in the former State.

(b) The condition of the sawmilling industry is best shewn by particulars of output, where such are available, and of export. Australian undressed timber was in 1906 exported to fifty-two separate countries, the largest customer being India. A considerable quantity was sent to England, South America, the East, and New Zealand. Small quantities of dressed timber, mouldings and doors of Australian manufacture, were also exported. The exported timber was principally for use as railway sleepers, wood and block paving, piles, and works where a durable, damp-resisting wood is required.

(c) The following table shews the production of the sawmilling industry from 1901 to 1906:—

QUANTITY OF LOCAL TIMBER SAWN OR HEWN, 1901 TO 1906.

State.	1901.	1902.	1903.	1904.	1905.	1906.
	Sup. feet.					
N.S.W. ...	96,907,000	90,308,834	100,408,000	117,029,000	112,580,000	119,337,000
Victoria ...	46,405,885	40,494,660	38,841,322	49,250,000	47,635,358	51,103,000
Queensland	140,443,099	72,478,951	69,508,800	71,293,811	73,930,279	82,801,846
South Aust.	*	*	*	*	*	*
West Aust.	122,413,865	124,005,005	126,729,833	143,594,953	137,250,340	136,294,697
Tasmania ...	46,907,592†	24,531,922	35,196,700	34,760,628	40,273,429	39,498,697
C'wealth. ‡...	453,167,441	351,819,372	370,684,655	415,928,392	411,669,406	429,035,240

\* Figures not available. † Estimated on basis of value of timber sawn in 1902. ‡ Exclusive of South Australia.

(d) The following table shews the quantity and value of Australian timber exported from each State oversea and also transferred between the States during the year 1906. The timber may probably be taken to have been produced in the exporting State:—

EXPORT OF AUSTRALIAN TIMBER, 1906.

Exports.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Sawn, super. ft. ...	48,235,648	145,812	5,163,908	...	85,418,927	13,703,450	152,161,083
Value ...	£ 318,745	1,745	27,652	...	567,519	47,673	962,211
Logs, super. ft. ...	1,456,972	2,298	41,764	...	140,349	96,324	1,737,707
Value ...	£ 10,500	32	490	...	929	685	12,636
Interstate transfers, value £	33,630	5,041	58,015	4,803	184,096	38,104	283,694

Reference to wood by-products will be made under another heading.

6. Industries of Class V.—(i.) *General.* This class comprises the following items:—Agricultural implements; brass and copper; cutlery; engineering; galvanised ironworking; ironworks and foundries; lead mills; railway carriages, rolling stock, etc.; railway and tramway workshops; smelting and chlorinating works; stoves and ovens; tinsmithing; wireworking; other metal works.

(a) The following table shews the position of this class in 1906. These factories form 12.04 per cent. of the factories of the Commonwealth, and employ 18.99 per cent. of the average number of persons employed therein:—

## FACTORS OF PRODUCTION, INDUSTRIES OF CLASS V., METAL-WORKING, ETC., 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ...	376	600	183	192	75	28	1,394
Percentage on State total ...	9.74	13.76	14.03	12.97	11.28	7.51	...
.. class total ...	26.97	43.04	13.13	9.47	5.38	2.01	...
Average number of employes ...	15,339	13,058	3,819	6,793	2,516	1,906	43,431
Percentage on State total ...	19.71	15.32	15.94	33.45	19.51	22.43	...
.. class total ...	35.32	30.07	8.79	15.64	5.79	4.39	...
Approx. value of land and buildings ...	£2,309,354*	2,191,925	913,024	†	410,907	202,249	6,027,459
Approx. value of plant and machinery ...	£1,511,896	879,715	385,228	†	294,866	282,302	3,354,007
Percentage on State total ...	18.23	13.64	8.99	...	15.84	33.53	...
Total amount of salaries, etc. ...	£1,502,331	1,129,102	†	†	350,614	106,240	3,178,287
Percentage on State total ...	26.87	20.65	...	...	22.90	31.55	...

\* 1901. † Information not available, Totals exclusive of these States.

NOTE.—This table is exclusive of Queensland railway workshops, particulars whereof are not available.

(b) A distribution of the various branches of industries included in Class V. in the six States is of interest and is given hereunder :—

## INDUSTRIES IN CLASS V., 1906.

Industry.	N.S.W.		Victoria.		Queensland.		South Aust.		West Aust.		Tasmania.	
	Fac.	H'nds	Fac.	H'nds	Fac.	H'nds	Fac.	H'nds	Fac.	H'nds	Fac.	H'nds
1. Agric. implements	17	440	53	1,747	8	117	49	874	6	56	...	...
2. Brass and copper	11	233	47	611	3	16	8	96	...	...	...	...
3. Cutlery	5	25	13	48	...	...	...	...	...	...	...	...
4. Engineering	118	3,229	251	5,643	45	1,270	39	1,425	60	1,088	15	331
5. Galv. ironworking	37	587	†	...	40	417	18	341	...	...	...	...
6. Ironw'ks & f'dries	50	1,579	*	...	*	*	*	*	...	...	...	...
7. Lead mills	2	21	4	57	...	...	...	...	...	...	...	...
8. Rly. carriages, etc.	4	556	...	...	...	...	...	...	...	...	...	...
9. R'lway, etc., shops	21	3,628	15	2,290	81	35	8	1,862	6	1,224	3	427
10. Smelting, etc.	41	3,563	110	805	13	1,357	7	1,886	61	6	5	1,060
11. Stoves and ovens	12	302	10	195	6	159	3	309	...	...	...	...
12. Tinsmithing	38	462	60	1,052	20	214	†	†	2	...	5	85
13. Wireworking	8	411	14	231	1	9	...	...	...	...	...	...
14. Others	12	303	23	379	46	225	...	...	...	...	...	...

\* Included in Engineering. † Included in Galvanised ironworking. ‡ Included in Tinsmithing.  
§ Does not include repairing shops.

(c) The following table shows the progress of this class of industry during the years 1903-6 :—

## DEVELOPMENT OF WORKS IN CLASS V., 1903 TO 1906.

State.	Number of Factories.				Average Number of Employes.				Approximate Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
N.S.W. ...	315	338	352	376	12,851	13,339	13,831	15,339	£1,356,969	£1,483,034	£1,529,901	£1,511,896
Victoria ...	545	568	574	600	10,350	11,027	11,638	13,058	858,943	850,196	880,862	879,915
Q'land ...	370	389	385	*183	3,215	2,889	3,597	*3,819	399,976	387,635	385,969	*385,228
Sth. Aust. (93)	93	93	119	132	(5,342)	5,342	6,333	6,793	...	...	...	...
Wst. Aust. 53	64	63	75	2,065	2,496	2,480	2,516	131,962	313,242	287,032	294,866	
Tasmania 38	32	35	28	1,763	2,071	2,182	1,906	267,038	150,533	178,398	282,302	
C'wealth	1,414	1,484	1,528	1,394	35,586	37,164	40,061	43,431	3,014,888	3,184,660	3,262,162	3,354,007

\* Exclusive of small shops employing less than four persons.

The condition of these industries is discussed under their respective heads. The general growth of the metal industry is satisfactory.

(ii.) *Agricultural Implement Factories.* (a) The following table shews the progress of this industry during the years 1903 to 1906:—

## AGRICULTURAL IMPLEMENT WORKS, 1903 TO 1906.

State.	Number of Factories.				Number of Employés.				Approximate value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
									£	£	£	£
New South Wales	8	11	17	17	56	114	386	440	3,085	4,670	11,524	12,850
Victoria ...	52	50	53	53	1,107	1,496	1,624	1,747	62,791	62,163	65,203	62,808
Queensland ...	...	...	...	8	...	...	...	117	...	...	...	11,470
South Australia ...	(30)	30	45	49	565	504	750	874	...	...	...	...
Western Australia ...	3	4	4	6	41	39	37	56	1,650	2,150	2,710	2,470
Tasmania ...	...	...	...	...	...	...	...	...	...	...	...	...
Commonwealth	93	95	119	133	1,769	2,153	2,797	3,234	67,526	68,983	79,437	89,598

(b) The value of imports and exports of agricultural machinery and implements in the years 1903 to 1906 was as follows:—

## AGRICULTURAL MACHINERY, VALUE OF IMPORTS AND EXPORTS, 1903 TO 1906.

Year.	Imports.			Exports.			
	Reapers & Binders.	Harvesters.	N.E.I. and Free.	Australian Produce.		Other Produce.	
				N.E.I. and Free.	Harvesters.	N.E.I. and Free.	Harvesters.
	£	£	£	£	£	£	£
1903 ...	132,588	...	322,539	51,253	...	6,745	...
1904 ...	148,746	...	429,615	23,103	...	6,453	...
1905 ...	14,549	114,395	232,495	5,272	30,110	11,910	82
1906 ...	16,254	58,024	208,246	16,692	32,632	13,059	56

No information is available concerning the actual production or the number and value of the machines and implements of local production used in Australia.

The extraordinary fall in the importation of reapers and binders from 1904 to 1905 was accompanied by a corresponding rise in the importation of the stripper harvester, which seems for the present to have supplanted the reaper and binder in the estimation of the farming population.

(c) The following table gives particulars of the agricultural implement works of Australia:—

## AGRICULTURAL IMPLEMENT WORKS, 1906.

Items.	N.S.W.	Victoria	Q'land.	S.Aust.	W.A.	Tas.	C'with.
Number of factories ...	17	53	8	49	6		133
Number of employés ...	440	1,747	117	874	56		3,234
Number of male employés ...	434	1,743	*	874	56		3,107
Number of female ...	6	4	*	nil	nil		10
Actual horse-power of engines employed	121	683	92	480	40		1,416
Average number of months in operation during year	11.99	11.7	*	*	12.00	Nil	...
Approx. value of land and buildings £	*	70,600	7,244	*	3,100		80,944
Approx. value of plant and machinery £	12,850	62,808	11,470	*	2,470		89,598
Total amount of wages paid during year £	37,014	148,610	*	*	6,309		191,933

\* No information available. Totals are exclusive of these States.

(d) The manufacture of agricultural implements is one of the few specialised Australian industries, and is of particular interest owing to the fact that it is one of the first industries to which what has been called the "New Protection" system is sought

to be applied. The nature of the machines manufactured may be gathered from the machines scheduled in the Customs tariff, 1906-7, which includes stripper harvesters, strippers, stump-jump ploughs, disc 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 now in use all over the world.

The principal States of destination of exports of Australian-made machinery were:— New Zealand, Cape Colony, the Argentine and Uruguay; £29,652 worth of harvesters being sent to the Argentine. The whole of the harvester export, and a considerable portion of the balance of the implements, were shipped in Victoria, which is the country of production.

(e) The value of interstate exports of agricultural machinery in 1906 is shown in the following table:—

INTERSTATE EXPORTS OF AGRICULTURAL IMPLEMENTS OF  
AUSTRALIAN PRODUCTION IN 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Implements, etc., n.e.i. exported	£ 4,713	71,500	468	38,043	25	59	114,808
Harvesters, exported	£ 424	99,525	120	13,147	...	...	113,116
Free, exported	£ 425	5,404	...	2,045	...	120	7,874

(f) By the Customs Tariff Act 1906, certain duties were imposed upon importations of stripper harvesters and other agricultural machinery, in order to encourage and assist the manufacture of these articles in Australia. By the same Act were fixed the maximum cash prices at which such machinery, when manufactured in Australia, might be sold, and the Executive received authority to reduce the Customs duties by so much as one-half the amount fixed by the Act, if the fixed cash prices were exceeded. By the Excise Tariff Act 1906 duties of excise were imposed upon the same machinery, unless it be manufactured in the Commonwealth under conditions as to the remuneration of labour which were in one way or another declared to be fair and reasonable. These statutes were the first application of the principles of the "New Protection," a description of which will be found elsewhere in this Year Book.

(iii.) *Engineering, Ironfoundry Works and Metal Trades.* (a) Included under this head are all the metal trades, except agricultural implements, railway shops and smelting and chlorination works. This combination is rendered necessary by the limited classification adopted by some of the States. The following are the particulars of the trades:—

ENGINEERING, IRONFOUNDRY WORKS AND METAL TRADES, 1906.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wlth.
Number of factories	293	422	161	68	62	20	866
.. employés	7,152	8,225	2,310	2,171	1,088	419	21,365
.. male employés	7,152	8,156	*	2,171	1,082	414	18,975
.. female	...	69	*	...	6	5	80
Actual horse-power of engines employed	3,605	3,610	887	894	617	213	10,276
Average number of months in operation during year	11.9	11.9	*	*	11.83	12	...
Approx. value of land and buildings	£ 572,548	589,975	190,819	*	94,539	22,565	874,921
.. plant and machinery	£ 502,604	589,975	177,600	*	97,019	36,114	1,402,562
Total amount of wages paid during year	£ 576,642	646,160	*	*	136,010	37,591	1,390,036

\* Information not available. Totals are exclusive of these States.

Besides small trades, which supply local domestic requirements, there are now a number of large and important establishments which engage in the manufacture of limited classes of machinery and implements. Pig iron is at present imported for use or scrap is worked up. Notwithstanding the drawbacks caused by the necessity of

importing raw material (soon, it is hoped, to be remedied), manufactures of iron are successfully carried on in Australia. The manufacture of mining and smelting machinery forms an important section of this industry, and many Australian mines have been locally equipped.

(b) The table hereunder shews the number of engineering works, the hands employed therein, and the value of plant and machinery during the years 1903-6:—

## DEVELOPMENT OF ENGINEERING WORKS, ETC., 1903 TO 1906.

State.	Number of Factories.				Number of Employés.				Value of Plant and Machinery (Approximate).			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
N.S.W. ...	253	273	271	293	6,146	6,057	6,410	7,152	482,654	495,744	491,938	502,604
Victoria ...	377	385	395	422	6,690	6,880	7,358	8,225	579,445	569,935	588,490	589,975
Q'land ...	*	*	*	161	*	*	*	2,310	*	*	*	177,600
S. Aust. ...	160	160	59	68	12,968	12,968	2,083	2,171	*	*	*	*
W. Aust. ...	28	34	31	62	956	1,089	1,002	1,068	89,875	100,338	88,850	97,019
Tasmania	28	20	23	20	486	502	463	419	30,038	36,073	44,118	36,114
C'wealth	746	773	779	866	17,246	17,496	17,316	21,365	1,182,012	1,202,090	1,213,396	1,403,312

\* Not obtainable. † Includes railway workshops. Figures for 1903 are unobtainable; those given are for 1904.

(c) The following table shews the value of the exports of Australian metal manufactures for the years 1903-6, excluding agricultural implements and machinery, which are dealt with above:—

## AUSTRALIAN METAL MANUFACTURES.—VALUE OF EXPORTS, 1903 TO 1906.

Item.	1903.	1904.	1905.	1906.
Machines and machinery—	£	£	£	£
Mining machinery ...	204	1,990	3,828	9,440
Other machinery ...	22,877	20,800	21,122	19,326
Total ...	23,081	22,790	24,950	28,766
Other metal manufactures—				
Bolts and nuts ...	393	420	319	466
Nails, all kinds ...	703	791	899	908
Pipes and tubes, iron and steel ...	1,499	4,017	2,792	508
Wire-netting ...	5,602	6,122	2,852	1,747
Other manufactures ...	19,713	27,587	37,228	39,882
Total other metal manufactures ...	27,910	38,937	44,090	43,511
Total ...	50,991	51,727	69,040	72,277

The principal customer for these articles is New Zealand. A small trade is also done with the Philippine Islands and the South Seas. The greater part of the mining machinery, chiefly dredging plant, was sent to the Straits Settlements.

(d) The value of interstate trade in mining machinery of Australian manufacture in 1906 was as follows:—

MINING MACHINERY OF AUSTRALIAN MANUFACTURE—INTERSTATE  
TRANSFERS, 1906.

Items.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.
Export from State	£ 5,605	53,559	50	30,213	55	29
Import into State	£ 36,909	2,145	25,239	6,160	8,176	10,882
Balance of trade	£ - 31,304	+ 51,414	- 25,189	+ 24,053	- 8,121	- 10,853

The total value of mining machinery of Australian manufacture transferred from State to State was £89,511.

(e) The following table of imports for 1906 is interesting as indicating the market available for Australian factories. Compared with the £5,000,000 of imports the £72,000 of Australian exports seem a very small sum.

VALUE OF IMPORTS INTO AUSTRALIA OF MACHINES AND MANUFACTURES OF METAL, 1906.

Machines.	Value.	Metal Manufactures.	Value.
	£		£
Cash registers, computing machines ... ..	15,118	Axles and springs ... ..	89,412
Cream separators, testers, and pasteurisers ... ..	144,032	Bolts and nuts ... ..	44,746
Engines—Fire ... ..	3,847	Cutlery (not plated) ... ..	140,271
Gas and oil ... ..	129,955	Mixed ... ..	20,609
High-speed and turbine ... ..	1,256	Nails—Horseshoe ... ..	12,397
Portable and traction ... ..	108,815	Wire and others ... ..	62,025
Other ... ..	66,574	Pipes and tubes ... ..	358,821
Mangles, clothes wringers, etc., and parts ... ..	9,144	Plated-ware and plated cutlery	171,007
Electrical ... ..	212,070	Wire—Iron and steel ... ..	520,166
Mining ... ..	75,106	Barbed ... ..	73,177
Printing ... ..	112,674	Netting ... ..	521,788
Sewing, stitching, and knitting	140,877	Other ... ..	47,192
Typewriters ... ..	50,525	Metal manufactures indefinitely described ... ..	969,333
Weighing machines ... ..	23,834		
Machines indefinitely described and parts ... ..	798,556	Total metal manufactures	£ 3,030,944
Total machines ... ..	£ 1,892,383	Total machines and metal manufactures ... ..	4,923,327*

\* Exclusive of agricultural implements and machinery.

(iv.) *Railway Carriages and Rolling Stock, Railway and Tramway Workshops.* (a) 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 establishments manufacturing rolling stock :—

## RAILWAY CARRIAGES AND ROLLING STOCK, RAILWAY AND TRAMWAY WORKSHOPS, 1906.

Items.	N.S.W.	Victoria	Q'ld.†	S. Aust.	W. Aust.	Tas.	C'w'ltb.
Number of factories ... ..	25	15	1	8	6	3	58
Number of employes ... ..	4,184	2,290	35	1,862	1,224	427	10,022
Number of male employes ... ..	4,171	2,285	*	1,862	1,222	427	9,967
Number of female " ... ..	13	5	*	nil	2	nil	20
Actual h.p. of engines employed	1,629	511	25	665	3,446	*	6,276
Average number of months in operation during year ... ..	11.50	12.00	*	*	12.00	12.00	...
Approx. value of land and buildings £	259,414	259,414	*	*	391,909	112,500	763,823
Approx. value of plant and mach'ny £	288,384	164,802	1,130	*	142,807	62,360	659,483
Total amt. of wages paid during year £	478,937	281,597	*	*	180,198	47,947	988,679

\* Information not available. Totals of these items are exclusive of these States. † Does not include repairing shops.

(v.) *Smelting, Chlorination, and other Ore-reducing and Metal-recovery, Works.*

(a) The following are the particulars of this section of the metal industry :—

## SMELTING, CHLORINATION, AND OTHER ORE-REDUCING AND METAL-RECOVERY WORKS, 1906.

Items.	N. S. W.	Vic.	Qld.	S. A.	W. A.	Tas.	C'w'ltb.
Number of factories ... ..	41	110	13	7	3	5	179
Number of employes ... ..	3,563	805	1,357	1,886	148	1,090	8,849
Number of male employes ... ..	3,563	805	1,357	1,886	148	1,090	8,849
Number of female " ... ..	...	...	...	...	...	...	...
Actual horse-power of engines employed	7,070	363	1,818	2,680	350	2,967	15,248
Average No. of months in operation during year	11.35	10.12	...	...	12.00	12.00	...
Approximate value of land and buildings £	...	16,467	14,900	...	8,690	...	39,057
Approximate value of plant and machinery £	708,058	62,130	195,028	...	52,570	183,828	1,201,604
Total amount of wages paid during year £	409,738	52,735	...	...	28,037	110,702	601,272

Many mines in all the States now smelt a considerable portion of their own mineral production. General smelting works have been erected in New South Wales, South Australia and Tasmania. Great energy has been directed to the discovery of processes suitable to the reduction of Australian ores, and several new systems have in consequence been evolved. In New South Wales iron-smelting has been commenced several times, so far back in the first instance as fifty years ago, but has not been continuously carried on. Recently large iron-smelting works have been erected at Eskbank, near Lithgow. In this connection may be mentioned an Australian process, which proposes to produce steel direct from iron ore. A company has been formed to exploit the invention, and satisfactory experiments have apparently been made, and large iron and coal areas in New South Wales and Victoria have been acquired to supply the crude material. The large number of establishments, as compared with the number of hands employed, shewn for Victoria, is due to the inclusion of chlorination works in gold mines.

**7. Industries of Class VI.—(i.) General.** (a) This class includes Bacon-curing, butter factories, butter and margarine, cheese factories, condensed milk, meat and fish-preserving, biscuits, confectionery, cornflour, 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 and cigars, etc.

The total number of factories engaged in this class of industry is 18.80 per cent. of the total factories in the Commonwealth, and the average total number of employes in this class is 16.06 per cent. of the total number in the Commonwealth.

The following are particulars of the class :—

## FACTORS OF PRODUCTION. INDUSTRIES OF CLASS VI. FOOD AND DRINKS, 1906.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'with.
Number of factories ... ..	707	646	353	242	155	74	2,177
Percentage on State total ... ..	18.31	14.82	27.07	23.77	23.31	19.84	...
.. class total ... ..	32.48	29.67	16.21	11.12	7.12	3.40	...
Average number of employés ... ..	11,607	12,069	7,549	2,780	1,544	1,171	36,720
Percentage on State total ... ..	14.91	14.16	31.51	13.69	11.97	13.78	...
.. class total ... ..	31.61	32.87	20.56	7.57	4.20	3.19	...
Approx. value of land and buildings ... ..	£ 2,309,354	2,191,925	913,024	†	410,907	202,249	6,027,459
Approx. value of plant and mach'nry ... ..	£ 2,537,270	1,482,626	2,498,379	†	290,854	120,176	6,929,305
Percentage on State total ... ..	30.59	22.99	58.34	...	15.62	14.27	...
Total amount of salaries and wages paid during year ... ..	£ 824,083	857,769	†	†	178,301	64,295	1,924,448
Percentage on State total ... ..	14.74	15.69	...	...	11.65	11.35	...

\* 1901. † Information not available. Totals of items are exclusive of these States.

(b) The progress in recent years of this class is shewn in the following table:—

## DEVELOPMENT OF MANUFACTORIES ENGAGED IN THE PREPARATION OF ARTICLES OF CLASS VI., FOOD AND DRINK, 1903 TO 1906.

State.	Number of Factories.				Number of Employés.				Approximate Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
N. S. W. ...	631	649	677	707	10,469	10,888	11,546	11,607	2,241,324	2,410,902	2,505,353	2,537,270
Victoria ...	621	638	629	646	10,602	10,660	11,272	12,069	1,345,488	1,354,769	1,391,222	1,482,626
Q'land ...	476	444	444	353	4,926	5,871	6,452	7,549	2,314,575	2,621,711	2,381,012	2,498,379
S. Aust. ...	251	251	260	242	2,951	2,951	2,910	2,780	*	*	*	*
W. Aust. ...	133	145	147	155	1,309	1,340	1,484	1,544	236,058	242,243	253,726	290,854
Tasmania ...	84	95	96	74	1,504	1,323	1,361	1,171	141,820	130,406	138,536	120,176
C'wealth	2,196	2,222	2,253	2,177	31,761	33,083	35,007	36,720	6,278,765	6,760,031	6,669,849	6,929,305

\* Information not available. Totals exclusive.

(ii) *Bacon Factories.* Particulars of the factories engaged in this industry are as follows:—

## BACON FACTORIES, 1906.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.*	Tas.	C'with.
Number of factories ... ..	19	28	4	12	5	2	70
.. persons employed ... ..	148	338	171	130	32	13	832
.. males ... ..	147	333	†	126	32	13	650
.. females ... ..	1	5	†	4	nil	nil	11
Actual horse-power of engines employed ... ..	164	196	84	155	51	41	691
Average No. of mths. in operation during yr. ... ..	10.84	10.50	†	†	7.56	12	...
Approximate value of land and buildings ... ..	†	35,171	8,174	†	16,980	1,800	62,105
Approx. value of plant and machinery ... ..	£ 14,161	23,217	46,851	†	5,650	1,700	96,579
Total amount of salaries and wages paid ... ..	£ 14,582	25,606	†	†	2,746	890	43,824

\* Particulars relating to two butter factories are included in figures for Western Australia.

† Information not available. Totals of items exclusive of these States.

Comment upon the bacon-curing industry will be found in Section IX., "Farmyard and Dairy Production."

(iii.) *Butter, Butterine, Margarine, and Cheese Factories.* (a) Particulars of this industry for 1906 are given in the following table:—

## BUTTER, ETC., FACTORIES, 1906.

Items.	N. S. W.	Vic.	Qld.	S. A.	W. A.*	Tas.	C'with
Number of factories ... ..	178	222	70	55	5	20	547
Number of employes ... ..	1,018	1,490	1,249	141	32	76	4,006
Number of males ... ..	1,010	1,455	†	137	32	70	2,704
Number of females ... ..	8	35	†	4	nil	6	53
Actual horse-power of engines employed ...	1,921	2,852	108	338	51	80	...
Average No. of months in operation during year ...	11.74	11.85	†	†	7.56	8.00	...
Approximate value of land and buildings ...	£ †	242,467	72,903	†	16,960	12,257	344,587
Approximate value of plant and machinery ...	£ 218,596	307,935	194,257	†	5,650	13,351	649,789
Total amount of wages paid ... ..	£ 144,151	116,639	†	†	2,746	3,433	266,969

\* The figures for Western Australia include particulars relative to bacon factories.

† Information not available. Totals of items exclusive of these States.

(b) The following table shows the progress of the factories in this industry from 1903 to 1906, and illustrates the recovery of the principal States from the effects of the drought.

## DEVELOPMENT OF BUTTER, ETC., FACTORIES, 1903 TO 1906.

State.	Number of Factories.				Number of Persons Employed.				Approximate Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
New South Wales	145	145	164	178	951	913	937	1,018	£ 189,642	£ 193,066	£ 210,772	£ 218,566
Victoria ... ..	207	214	215	222	1,319	1,400	1,381	1,490	312,265	301,423	306,559	307,635
Queensland ... ..	98	51	59	70	391	386	407	1,249	51,017	53,521	77,392	104,157
South Australia ...	50	50	53	55	155	155	158	141	†	†	†	†
Western Australia ...	1	1	2	2	*	8†	13†	32†	†	1,150†	2,600†	5,650†
Tasmania ... ..	15	17	26	20	119	102	123	76	13,917	10,722	13,686	13,351
Commonwealth	516	478	519	550	2,935	2,964	3,019	4,006	566,841	560,082	611,312	649,786

\* The figures for Western Australia are included in biscuit factories. † Includes particulars of one bacon factory. ‡ Includes particulars of two bacon factories.

§ Information not available. Totals exclusive.

(iv.) *Meat and Fish-preserving, Ice and Refrigerating Works.* (a) The following table gives particulars of these works. It is to be noted that they include ice-making works, it being impossible to obtain separate particulars for all the States.

## MEAT AND FISH-PRESERVING, ICE AND REFRIGERATING WORKS, 1906.

Items.	N. S. W.	Vic.	Q'land.	S. A.	W. A.*	Tas.	C'with.
Number of factories ... ..	58	54	28	3	9	4	156
Number of employes ... ..	1,434	622	954	40	...	19	3,069
Number of male employes ... ..	1,390	620	...	40	...	19	2,069
Number of female employes ... ..	44	2	...	...	...	...	46
Actual horse-power of engines employed ...	2,723	2,066	2,146	151	...	20	7,106
Average number of months in operation during year ... ..	9.57	9.20	†	†	...	9	...
Approx. value of land and buildings ...	£ †	222,325	240,215	†	...	16,600	379,140
Approx. value of plant and machinery ...	£ 403,369	116,256	229,231	†	...	30,120	778,976
Total amount of wages paid during year ...	£ 109,257	42,424	†	†	...	1,400	153,081

\* Particulars included with other industries and not separable. † Information not available.

Total of items is exclusive of these States.

The chilling of various kinds of meats for export has long been an established industry in the several States. Full advantage has been taken by the States of the refrigerating machinery installed in steamships to build up a large export trade, and special terms have been made by the Commonwealth Government in its new English mail contract for the provision by the contractors of increased cold-storage facilities on

their steamers. A system of Government inspection of meat exports exists in the States, and has resulted in the maintenance of a proper standard of commodity. In several of the States cool stores have been erected by Government in which meat is chilled prior to export. These stores are largely used by exporters, but sufficient particulars are not available to warrant publication.

(b) The following are the particulars of the export of chilled meats from Australia in 1906:—

## EXPORT OF CHILLED MEAT, 1906.

Items.		N.S.W.	Vic.	O'land.	S. Aust.	W. Aust.	Tas.	C'wth.
Beef ... ..	lbs.	3,679,418	1,242,388	36,639,446	...	...	...	41,561,252
" ... ..	£	40,285	14,954	378,676	...	...	...	434,455
Mutton and lamb ... ..	lbs.	50,972,771	27,405,451	3,683,991	8,614,360	15,812	...	90,692,385
" ... ..	£	538,771	383,705	39,356	132,996	292	...	1,095,120
Pork ... ..	lbs.	1,923,747	300,106	1,248,371	...	...	...	3,472,224
" ... ..	£	32,480	5,059	23,397	...	...	...	60,936
Poultry ... ..	pairs	12,138	19,344	1,675	...	...	676	33,833
" ... ..	£	3,751	5,013	401	...	...	126	9,291
Rabbits and hares ... ..	pairs	5,938,518	4,622,307	220	242,006	...	245,150	11,048,201
" ... ..	£	246,803	221,064	7	10,413	...	13,147	491,434

The largest quantity of beef was sent to the Philippines, the export being valued at £112,546; and Siberia, the export being valued at £98,082. The other principal places of destination were the United Kingdom, £15,896; Cape Colony, £63,185; Gibraltar, £12,204; Natal, £83,694; and Egypt, £22,027.

The largest quantity of mutton and lamb was sent to the United Kingdom, being valued at £839,360. Other customers were—Canada, £12,260; Cape Colony, £65,801; Natal, £142,031; and Egypt, £12,674.

The quantity of pork sent to the United Kingdom was valued at £29,206, that sent to Natal at £10,944, and that sent to the Philippines at £690.

The value of poultry exported to Natal was £5708, and to Cape Colony, £1631.

Practically the whole of the chilled rabbits and hares exported went to the United Kingdom, the value thus exported being £486,094 out of a total of £491,434.

In addition to the above 3,073,193 lbs. of chilled meat, valued at £39,801, were exported as ships' stores.

(c) *Preserved Meats and Fish.* Meat preserving and canning is carried on in several of the States with success. The following table shews the quantity of meat thus treated:—

## PRESERVED MEATS, 1906.

Items.	N.S.W.*	Vic.	Qld.	S.A.	W.A.	Tas.	C'wealth.
	qrs.	lbs.	lbs.				
Beef ... ..	39,818	673,232	10,293,794	No infor- mation	Nil	Nil	...
Mutton ... ..	†274,950	180,400	486,367				...
Rabbits ... ..	...	55,552	...				...

\* Weights not available. † Number of sheep.

The preserving trade suffered, like others, at the drought period, but is also rapidly increasing. Potted and concentrated meats to the value of £20,756 were exported in 1906, about three-fifths from New South Wales and two-fifths from Queensland. The bulk of the export went to the United Kingdom. The value of exported tinned meats was £177,843; the quantity was 9,060,903 lbs. This was distributed amongst the States of export as follows:—New South Wales, 4,173,156 lbs., valued at £84,374; Victoria,

284,157 lbs., valued as £5769; Queensland, 3,607,086 lbs., valued at £74,391, and South Australia, 996,504 lbs., valued at £13,309. The principal countries of destination were:—The United Kingdom, which took 5,799,599 lbs., valued at £107,843; India, which took 542,540 lbs., valued at £13,271; New Guinea, which took 221,634 lbs., valued at £4711; and Germany, which took 385,518 lbs., valued at £7627. The balance was distributed in small quantities to a great many countries.

The imports of potted and preserved meats in 1906 were of the value of £53,592. Fish preserving has been from time to time attempted in several of the States, but has not become a permanent industry. There were not, in 1906, any fish-canning works in the Commonwealth, but owing to the offering of a bonus by the Commonwealth Government it may be expected that the industry will be established in the near future.

(v.) *Biscuits.* (a) The following table shews the position of biscuit-baking in the Commonwealth in 1906:—

## BISCUIT MANUFACTORIES, 1906.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.*	C'wth.
Number of factories ... ..	5	4	7	2	2	5	25
.. employes ... ..	1,095	1,067	183	106	95	113	2,659
.. male employes ... ..	593	709	...	72	69	95	1,518
.. female " ... ..	522	358	...	34	26	18	958
Actual horse-power of engines employed	241	119	51	36	25	64	536
Average number of months in operation during year ... ..	11.89	12.00	...	...	12.00	12.00	...
Approx. value of land and buildings £ ... ..	46,704	47,530	14,250	...	4,950	10,650	77,380
.. .. of plant and machinery £ ... ..	46,704	42,946	12,470	...	5,000	4,730	111,850
Total amount of wages paid during year £	42,237	52,534	...	...	7,612	6,381	108,764

\* Includes confectionery. Figures for 1905 are given as the total amount paid for wages, figures for 1906 not being available, and the number of employes being the same as in 1905.

(b) The export trade in Australian-manufactured biscuits amounted in 1903 to 2,402,705 lbs., valued at £31,326. In 1906 the export amounted to 3,423,091 lbs., valued at £46,579, and was principally to Fiji and the South Seas. New South Wales exported 2,838,365 lbs., valued at £38,481, and Victoria 557,626 lbs. 1,798,863 lbs. of biscuits of Australian manufacture, valued at £51,576, were sent by the former State to other States, while the interstate export from Victoria of Australian production was 1,661,024 lbs., valued at £35,348.

(vi.) *Jam and Fruit Preserving, Pickles, Sauces, and Vinegar.* (a) The following are the particulars of this branch of industry for 1906:—

## JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	20	26	8	23	4	9	90
.. employes ... ..	906	1,288	175	567	23	621	3,585
.. male employes ... ..	630	848	...	275	23	481	2,257
.. female " ... ..	276	440	...	292	5	140	1,153
Actual horse-power of engines employed ...	138	281	67	108	73	273	940
Average number of months in operation during year ... ..	11.57	11.30	...	...	9.64	5.00	...
Approx. value of land and buildings £ ... ..	22,163	88,882	5,600	...	4,189	25,150	123,821
.. .. of plant and machinery £ ... ..	22,163	39,541	6,630	...	743	14,000	83,077
Total amount of wages paid during year £	38,686	63,702	...	...	2,617	24,258	129,262

\* Information not available. Total of these items is exclusive of these States.

(b) The jam and fruit-preserving industry has grown with the rise of orcharding and small-fruit growing, and is now an industry of importance. As a wholesale exporting industry it is comparatively young, but of fast growing value.

## PARTICULARS OF PRODUCTION FOR 1906.

State.	Jams and Jellies.		Fruit Preserved.		Fruit Pulped.	
	Weight.	Value.	Weight.	Value.	Weight.	Value.
New South Wales ... ..	cwt. †	£ 343,268*	cwt. †	£ †	cwt. †	£ †
Victoria ... ..	203,038	†	43,138	†	56,619	†
Queensland ... ..	21,130	30,719	†	†	†	†
South Australia ... ..	†	†	†	†	†	†
Western Australia ... ..	†	†	†	†	†	†
Tasmania ... ..	96,843	157,178	†	†	†	†

\* Includes pickles and sauces. † Not available.

(c) The export and interstate transfer of jams and jellies of Australian manufacture, and of preserved and pulped fruits in 1906 are shewn in the following tables:—

EXPORT OF JAMS AND JELLIES AND PRESERVED AND PULPED FRUIT.  
1906.

State.	Jams and Jellies.		Preserved Fruits.		Pulped Fruits.	
	Quantity.	Value.	Dozen Tins or Bottles.	Value.	Quantity.	Value.
	lbs.	£		£	gals.	£
New South Wales	533,407	7,670	4,920	1,474	319,468	4,073
Victoria ... ..	582,316	9,121	23,968	8,611	44,922	208
Queensland ... ..	24,273	303	882	322	...	...
South Australia ... ..	2,157	37	1,039	470	...	...
Western Australia ... ..	...	...	...	...	...	...
Tasmania ... ..	432,550	6,740	2,231	1,884	197,374	1,687
Commonwealth	1,574,703	23,871	33,044	12,771	561,764	5,968

## (d) INTERSTATE TRANSFER OF THE SAME COMMODITIES IN 1906.

State.	Jams and Jellies.		Preserved Fruits.		Preserved Fruits.		Pulped Fruits.	
	Quantity.	Value.	Doz. Tins or Bottles.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£		£	gals.	£	lbs.	£
N.S.W.	4,417,628	57,724	18,549	5,741	4,379	287	138,521	561
Victoria	5,978,960	79,435	121,846	35,011	23,997	3,424	223,032	1,876
Q'land...	326,106	5,207	124,135	21,420	9,029	1,206	37,652	225
S. Aust.	1,789,389	22,237	61,621	16,441	3,410	484	87,815	476
W. Aust.	2,518	36	362	93	9,667	1,381	...	...
Tas. ...	5,819,886	78,142	51,760	15,133	154,163	22,023	1,107,948	8,941
C'w'lth	18,334,487	242,781	378,273	93,839	204,645	28,805	1,594,968	12,079

(vii.) *Confectionery.* (a) The following table shews the position of the confectionery industry in 1906, and it will be seen how it has expanded in ten years when it is stated that in 1896 there were in New South Wales 17 establishments, with 475 employes; and in Victoria 13 establishments, employing 512 persons and using plant and machinery valued at £16,570:—

## CONFECTIONERY, 1906.

Items.	N.S.W.	Vic.*	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	27	23	11	9	6		76
" employés ... ..	1,003	1,095	264	184	132		2,678
" male employés ... ..	615	...	...	143	61		819
" female ... ..	388	...	...	41	71		500
Actual horse-power of engines employed ...	223	...	56	92	45		416
Average number of months in operation						Included in Biscuits.	
during year ... ..	11.89	11.80	†	†	12.00		
Approx. value of land and buildings ...	£ †	47,938	16,069	†	17,340		
Approx. value of plant and machinery ...	£ 46,875	34,272	12,773	†	10,938		104,918
Total amount of wages paid during year ...	£ 52,503	...	†	†	12,787		65,290

\* In the "Victorian Statistical Register" for 1906 sugar refineries are combined with confectioneries. In the "Victorian Year Book" for 1906 certain particulars of sugar refineries are given, and the above figures are such as are separable from the total of confectioneries and sugar refineries.  
† Information not available.

(b) The export and interstate transfers of Australian produce for 1906 are as shewn in the next table, viz. :—

## CONFECTIONERY, 1906.

State.	Export.		Interstate Transfers.	
	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£
New South Wales ... ..	91,441	2,239	692,411	17,450
Victoria ... ..	277,464	11,560	4,944,121	150,024
Queensland ... ..	2,157	70	56,532	1,620
South Australia ... ..	...	...	224,968	6,195
Western Australia ... ..	54	2	15,942	403
Tasmania ... ..	...	...	4,037	95
Commonwealth ... ..	371,116	13,871	5,938,011	175,787

Imports of confectionery for 1906 amounted to 3,184,134 lbs., valued at £116,305.

(viii.) *Flour Mills.* (a) The following table describes the position of the flour-milling industry in the year 1906 :—

## FLOUR MILLS, 1906.

Items.	N.S.W.	Vic.*	Q'ld.	S.A.	W.A.	Tas.	C'wth.*
Number of factories ... ..	78	64	17	62	18	16	255
" employés ... ..	873	788	187	537	157	130	2,672
" male employés ... ..	869	784	...	537	156	128	2,474
" female ... ..	4	4	...	...	1	2	11
Actual horse-power of engines employed ...	3,813	3,356	477	2,710	649	521	11,526
Average number of months in operation							
during year ... ..	10.44	10.1	...	...	9.80	9	...
Approx. value of land and buildings ...	£ ...	222,862	53,619	...	56,826	36,725	370,032
" plant and machinery ...	£ 297,859	243,149	61,760	...	44,494	34,035	681,297
Total amount of wages paid during year ...	84,178	80,261	...	...	18,641	12,200	195,280

\* Totals are only of those States supplying information.

(b) The production of flour by the mills in each State of the Commonwealth in the years 1903 to 1906 was as follows :—

## FLOUR MILLS—PRODUCTION 1903 TO 1906.\*

Year.	N.S.W.	Victoria.	Q'nsland.	Sth. Aust.	West. Aust.	Tasmania.	C'wealth.†
	Tons.	Tons.	Tons.		Tons.	Tons.	Tons.
1903	121,074	115,368	23,839	No information available.	13,711	20,656	294,648
1904	210,137	202,314	34,211		20,185	19,822	486,669
1905	205,805	209,058	37,505		26,420	18,325	497,113
1906	225,995	219,166	24,219		26,977	17,692	514,049

\* Tons of 2000 lbs. † Total for five States only.

(c) The oversea export of flour from Australia during the years 1903 to 1906 appears in the following table:—

FLOUR, QUANTITY AND VALUE OF EXPORT, 1903 TO 1906.  
(IN TONS OF 2000 LBS.)

Items.	1903.	1904.	1905.	1906.
Quantity ... Tons	6,097	103,144	154,269	166,875
Value ... £	61,199	792,772	1,160,813	1,216,806

It is to be noted that an increasing quantity of flour is exported in lieu of the grain itself. Comment on the export of flour and wheat will be found in Section viii., "Agriculture." Other grain products are exported in but small quantities. The country which received the largest quantity in 1906 was the United Kingdom. Other large importers of Australian flour were Cape Colony, Hong Kong, Mauritius, Natal, Straits Settlements, Java, the Philippine Islands, and Portuguese East Africa.

(ix.) *Sugar Mills.* (a) The following table shews the position of the cane-crushing branch of the sugar-making industry in 1906. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which the sugarcane is grown. Reference to the other States is therefore omitted from the table:—

## SUGAR MILLS, 1906.

Items.	N.S.W.	Queensland.	Total.
Number of factories ... ..	5	55	60
Number of employes ... ..	622	2,876	3,498
Number of male employes ... ..	622	*	622
Number of female " ... ..	...	*	...
Actual horse-power of engines employed ... ..	3,110	9,386	12,496
Average No. of months in operation during year ... ..	4.74	*	...
Approximate value of land and buildings £ ... ..	*	206,092	206,092
Approximate value of plant and machinery £ ... ..	507,353	1,668,460	2,175,813
Total amount of wages paid during year £ ... ..	47,522	*	47,522

\* Information not available. Totals are exclusive.

(b) The first crushing of sugar for commercial use is said to have taken place in New South Wales about 1850 on the plantation of Mr. Thomas Scott; the planting-out of cane was not, however, taken up by settlers, notwithstanding Mr. Scott's earnest advocacy of the industry, until 1862, when a small growth resulted in the establishment of a mill in Queensland; the appliances were rude, but the result satisfactory. In April, 1864, a mill with a modern crushing and boiling plant was opened at Cleveland (Q.) by Hon. Lionel Hope, but his success was only partial, and he closed down his works till 1867. In 1866 the Pampania Company opened a small factory in Queensland, and in 1867 another small but satisfactory plant and a large and very fine mill started work.

Two factories were erected in the Maryborough district, and in 1868 others were working in the Mackay, Bowen and other districts. The industry was by the end of 1870 firmly established.

The method of work to be adopted was matter of controversy in the early days of sugar-milling. The large grower who could afford to erect a modern mill was able to work at a profit; the small grower often preferred the loss and waste consequent upon the use of a small and incomplete mill to the cost of carriage to a large central mill and the allowance of a half share of the produce demanded by the owner of a large central mill in payment for crushing and boiling. The necessity of the case and Government assistance have brought into being a number of central mills to which the cane is sent.'

The Sugar Works Guarantee Act of 1893 empowered the Queensland Government to guarantee the issue of debentures by companies intending to embark in this industry to raise money for the erection of mills and purchasing plant; and an amending Act of 1895 empowered the Government to take up such debentures, but provided that the total amount so expended should not exceed £500,000, and that when that amount was reached the power of guarantee should also cease. Thirteen mills and one tramway company have received advances, which now amount to £514,987. There have been some special temporary advances, which are outside the Acts. The indebtedness of the borrowers was reduced in 1906 by £34,164.

An unfortunate feature of the industry is that large quantities of molasses have been and still are allowed to run to waste. Part of the molasses produced is used in distillation, part is turned into food cake for cattle, and part is used for manuring land, but the greatest part produced is put to no use whatever.

(c) 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. The following tables shew the progress of this industry from the dates at which information is first obtainable :—

## SUGAR MILLS, NEW SOUTH WALES, 1870 TO 1906.

Items.	1870.	1877.	1886.	1891.	1896.	1901.	1906.
Number of factories ... ..	27	50	64	33	23	12	5
" employes ... ..	...	1,065	2,259	1,621	1,475	695	622
Sugar produced ... .. Tons	677	7,537	13,750	16,035	28,557	19,519	23,959
Molasses produced ... .. gals.	...	345,543	507,000	1,074,080	2,520,580	1,300,909	1,305,466

The reduction in the number of New South Wales sugar mills is due chiefly to a tendency, noticeable also in many other branches of industry, to concentrate the 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 pastures in connection with the dairying industry.

## (d) SUGAR MILLS, QUEENSLAND, 1868 TO 1906.

Items.	1868.	1876.	1886.	1891.	1896.	1901.	1906.
Number of factories ... ..	10	70	118	68	63	52	52
" employes ... ..	...	...	...	...	3,796	...	2,876
" acres crushed ... ..	...	7,245	40,756	36,821	66,640	78,160	98,194
Sugar produced ... .. Tons	...	8,214	59,225	51,219	100,774	120,858	184,377
Molasses produced ... .. gals.	68,622	416,415	1,784,266	1,640,662	2,195,470	3,679,952	8,373,518

1. 1890.

1. See "The Sugar Cane in Australia," J. H. Hinchcliffe (1868); also "Sugar-Growing in Queensland," edited by Angus Mackay (1870). Reprinted from the "Queenslander," of 1869.

(e) Notwithstanding the increase in the output of sugar in Australia the production is still insufficient to supply the needs of the Commonwealth. There has been a great fluctuation in imports, the totals from 1903 to 1906 being as follows:—

## IMPORTS OF SUGAR, 1903 TO 1906.

Year.	Quantity.	Value.	Average Value per Cwt.
	cwt.	£	s.
1903 ... ..	1,830,595	1,054,338	11.52
1904 ... ..	760,702	415,120	10.91
1905 ... ..	498,670	276,157	11.08
1906 ... ..	839,519	439,916	10.48

In 1906 practically all the imports came from Java, £359,838; Mauritius, £65,580; Fiji, £10,693; and China, £3626.

The fluctuation in value probably accounts for an increased import of raw sugar by the refineries, though a number of other matters, such as an increased tariff and the bounties offered to growers, affect the trade.

The export of Australian-made sugar amounted only to £7884 in 1906. The interstate transfer of raw sugar is not distinguished from refined sugar, and no statement of the relative proportion of raw and refined sugar produced in Queensland is furnished by that State.

(x.) *Sugar Refineries.* (a) The following table gives particulars of this industry in 1906:—

## SUGAR REFINERIES, 1906.

Items.	N.S.W.	Vic.+	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories ... ..	1	2	2	1			6
.. employés ... ..	454	409	345	103			1,311
.. male employés ... ..	454	409	°	103			966
.. female ... ..	nil	nil	°	nil			...
Actual horse-power of engines employed ...	1,220	776	780	1,600	nil	nil	4,376
Average number of months in operation during year ... ..	12.00	12.00	°	°			...
Approx. value of land and buildings ... ..	£	93,400	95,000	°			188,400
Approx. value of plant and machinery ... ..	£ 388,247	88,550	212,844	°			689,641
Total amount of wages paid during year ...	£ 51,143	°	°	°			51,143

\* Information not available. Totals exclusive of these States. + Also included in "Confectionery." See *ante*, p. 465.

(b) The sugar-refining industry is distinct from the sugar-milling industry. The latter provides the raw material which the former turns into a marketable commodity. The former can be carried on in any place, the latter must be near the canefields. The establishment of the industry at present under consideration considerably antedates the establishment of the sugar-milling industry, the raw material upon which it operated being chiefly brought from Mauritius and the East. As has already been shewn, a quantity of raw sugar is still imported for treatment in Australian refineries.

In 1906 1,433,491 cwt. of cane sugar was imported into Victoria, of which 960,971 cwt. were from Queensland and 410,861 cwt. were from Java; of this 1,317,172 cwt. were treated, producing 1,238,010 cwt. of refined sugar and 47,109 cwt. of treacle. The balance of raw sugar imported into Victoria was used in brewing and other trades.

In 1906 the New South Wales sugar refinery produced 1,406,000 cwt. of refined sugar, valued at £951,032.

(xi.) *Breweries.* (a) The following are the particulars of the brewing industry in Australia for 1906:—

## BREWERIES AND THEIR PRODUCTION, 1906.

Items.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	Tas.	C'wth.
<b>BREWERIES.</b>							
Number of factories ...	39	39	14	20	29	7	148
.. employés ...	881	1,030	392	297	540	132	3,272
.. male employés ...	880	1,028	•	297	540	132	2,877
.. female ...	1	2	•	nil	nil	nil	3
Actual horse-power of engines employed ...	727	1,012	253	265	694	78	3,029
Average No. of months in operation during year	11.95	11.70	•	•	11.18	12.00	...
Approx. value of land and buildings £	•	487,967	102,035	•	181,288	86,518	857,708
Approx. value of plant and machinery £	240,786	235,980	70,137	•	107,453	17,084	671,440
Total amount of wages paid during year £	100,150	126,352	•	•	79,273	17,107	323,882

\* Information not available. Total of these items exclusive of these States.

## MATERIALS USED AND PRODUCTION.

Sugar ... cwt.	68,110	101,692	...		31,384	...	...
Malt ... bush.	488,982	533,531	149,393	No information.	177,072	...	...
Hops ... lbs.	536,436	623,249	...		277,805	...	...
Beer and stout made gals.	14,032,390	16,409,465	4,608,598		5,099,616	1,970,066	...
Value ... £	790,606	...	299,594		...	109,187	...

(b) Established at an early date in Australia, the main feature of the history of the trade has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. A recent amalgamation in Melbourne has resulted in the closing of several large breweries, and production in that city will be concentrated in three establishments under one management. A workman's co-operative brewery has been opened in Sydney and a co-operative brewery has been opened in Melbourne by a number of "free" hotelkeepers.

The details of production in 1906 are as shewn in the preceding table.

(c) The export of Australian-brewed beer is very small, amounting in 1906 to only 5894 gallons, valued £886, in bottle, and 2762 gallons, valued at £228, otherwise; 23,315 gallons, valued at £1868, were exported as ships' stores. Interstate transfer was not great, amounting only to 154,625 gallons bottled ale, valued at £20,425; 14,861 gallons porter, valued at £2002; and 885,373 gallons ale in bulk, valued at £48,152. Victoria and Tasmania were the largest interstate exporters, sending out beer in bulk valued at £26,503 and £14,661 respectively.

(xii.) *Distilleries.* (a) The following are the particulars of this industry in the Commonwealth for the year 1906:—

## DISTILLERIES AND THEIR PRODUCTION, 1906.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wth.
<b>DISTILLERIES.</b>							
Number of factories ...	2	9	3	13			27
.. employés ...	17	81	19	62			179
.. male employés ...	17	81	•	62			160
.. female ...	Nil	Nil	•	Nil			...
Actual horse-power of engines employed ...	64	179	19	146	Nil	Nil	408
Average time in operation during yr. mths.	12.00	6.30	•	•			...
Approximate value of land and buildings £	•	81,928	3,100	•			85,028
Approx. value of plant and machinery £	32,531	62,871	8,480	•			103,882
Total amount of wages paid during year £	2,310	2,188	•	•			4,498

\* Information not obtainable. Total of items exclusive of these States.

## DISTILLERIES AND THEIR PRODUCTION—CONTINUED.

Items.	N.S.W.	Vic.	Q.	S.A.	W.A.	Tas.	C'wth.
(b) PRODUCTION.							
Spirits (in Proof Gallons).							
Brandy (from wine) ... ..	12,446	4,485	...	...	...	...	16,931
Whisky ... ..	...	6,521	...	...	...	...	18,967
Gin ... ..	...	784	...	...	...	...	784
Rum ... ..	...	14,600	331,768	Not obtainable	Nil	Nil	346,368
Rectified spirits ... ..	634,170	65,033	...	...	...	...	699,203
Methylated spirits... ..	...	2,955	...	...	...	...	2,955

(c) The following table shows the value of the imports and exports of spirits in the years 1903 to 1906 :—

Spirits.	1903.		1904.		1905.		1906.	
	Im-ports.	Ex-ports.	Im-ports.	Ex-ports.	Im-ports.	Ex-ports.	Im-ports.	Ex-ports.
	£	£	£	£	£	£	£	£
Brandy (bottled) ... ..	89,958	3,568	86,323	4,457	86,616	2,862	94,767	4,346
(bulk) ... ..	43,305	7,306	43,342	2,145	45,493	5,594	48,795	2,409
Gin (British) ... ..	12,739	39	16,117	...	18,030	...	17,589	...
(Holland and Geneva)	28,864	...	24,868	...	27,388	...	29,006	...
(Schnapps) ... ..	39,484	...	67,715	...	75,161	...	71,157	...
Rum (bottled) ... ..	3,688	16	2,511	...	2,813	6	2,427	21
(bulk) ... ..	17,805	121	17,136	161	22,486	2,592	25,939	2,224
Whisky (bottled) ... ..	152,466	94	122,772	31	146,895	...	119,416	5
(bulk) ... ..	291,657	...	300,005	154	366,618	...	370,543	...
Bitters ... ..	2,493	...	2,601	...	3,165	...	4,374	...
Cordials and liqueurs	9,267	13	10,848	22	12,524	94	15,223	66
Methylated	36	114	43	56	49	105	13	27
Perfumed and Bay rum	32,750	40	35,468	5	30,872	36	36,505	25
Essences and tinctures	33,282	149	34,451	529	41,374	210	48,463	167
Sarsaparilla ... ..	7,753	10	7,623	18	8,041	24	5,504	...
N.E.I. ... ..	13,431	3,628	13,611	4,856	6,386	5,516	6,676	5,789

(xiii.) *Tobacco, Cigars, and Cigarettes.* (a) The following are the particulars of manufactories engaged in this industry in Australia in 1906 :—

## TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	13	12	2	2	3	...	32
" employés ... ..	1,016	1,846	63	135	30	...	3,090
" male employés ... ..	626	803	*	98	16	...	1,543
" female ... ..	390	1,043	*	37	14	...	1,484
Actual horse-power of engines employed	314	256	12	44	...	Nil	626
Average number of months in operation during year ... ..	11.89	10.8	*	*	12.00	...	...
Approx. value of land and buildings	£	150,668	1,660	*	2,663	...	154,991
" plant and machinery	£	104,051	78,522	4,684	*	235	187,492
Total amount of wages paid during year	£	73,314	111,169	*	1,835	...	186,318

\* Information not available. Totals of items exclusive of these States.

(b) This industry was early established in Australia, and comparison of the following figures with those above given will shew its progress during recent years. In 1896 there were in New South Wales eight establishments employing 641 persons, of whom 471 were males and 170 females. The plant and machinery employed were valued at £55,700. In Victoria, in this same year, there were twelve establishments employing 650 persons, of whom 424 were males and 226 were females. The value of the plant and machinery employed was £42,410. The Australian market is now largely supplied with local manufactures.

DEVELOPMENT OF TOBACCO, CIGAR AND CIGARETTE FACTORIES,  
1903 TO 1906.

State.	Number of Factories.				Number of Persons Employed.				Approx. Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
									£	£	£	£
N.S. Wales ...	10	7	13	13	1,011	977	952	1,016	92,355	105,308	104,466	104,051
Victoria ...	12	9	10	12	1,268	1,324	1,638	1,846	62,026	82,386	72,772	78,622
Queensland ...	5	3	1	2	114	110	61	63	11,101	12,583	4,000	4,684
South Australia ...	(3)	3	3	2	(248)	248	171	135	...	...	...	...
West Australia ...	4	2	2	3	106	18	16	30	4,846	70	80	235
Tasmania ...	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
Commonwealth	34	24	29	32	2,659	2,677	2,838	3,090	170,328	200,347	181,318	187,492

(c) The quantity and sources of the raw material used in the tobacco industry, and the products of the industry may be set out as follows:—

## DEVELOPMENT OF TOBACCO INDUSTRY, 1903 TO 1906.

State.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
Leaf, Imported, Used.				Leaf, Australian Grown, Used.				
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ...	2,714,578	2,709,569	2,606,702	3,056,906	1,009,745	1,256,339	1,145,923	1,178,183
Victoria ...	2,052,100	2,768,873	3,597,887	4,172,065	304,049	266,053	265,219	431,941
Queensland ...	*	*	*	*	*	*	*	*
South Australia ...	*	*	*	*	*	*	*	*
Western Australia ...	75,851	10,880	19,159	23,322	nil	nil	nil	nil
Tasmania ...	nil	nil	nil	nil	nil	nil	nil	nil
Commonwealth...	4,842,529	5,489,312	6,223,748	7,252,293	1,313,794	1,512,392	1,411,142	1,610,124
Tobacco Made.				Snuff Made.				
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ...	3,329,938	3,404,201	3,318,719	4,057,965	...	...	...	...
Victoria ...	2,390,976	3,166,767	3,981,357	4,650,113	813	1,122	1,051	516
Queensland ...	*	*	*	*	*	*	*	*
South Australia ...	*	*	*	*	*	*	*	*
Western Australia ...	61,404	...	...	1,280	...	...	...	...
Tasmania ...	nil	nil	nil	nil	nil	nil	nil	nil
Commonwealth...	5,782,318	6,570,968	7,300,076	8,709,358	813	1,122	1,051	516
Cigars Made.				Cigarettes Made.				
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ...	45,297	47,756	48,850	50,326	790,697	829,851	818,400	837,835
Victoria ...	116,699	153,610	167,502	207,505	134,400	170,940	237,901	309,489
Queensland ...	*	*	*	*	*	*	*	*
South Australia ...	*	*	*	*	*	*	*	*
Western Australia ...	11,672	8,756	7,629	8,090	479	...	...	284
Tasmania ...	nil	nil	nil	nil	nil	nil	nil	nil
Commonwealth...	173,668	210,122	223,981	265,921	925,576	1,000,791	1,056,301	1,147,508

\* No information available.

(d) Figures relating to the Australian trade in tobacco appear in the following tables:—

## TOBACCO IMPORTS AND EXPORTS, 1903 TO 1906.

Class.	Quantity.				Value.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
	lbs.	lbs.	lbs.	lbs.	£	£	£	£
Tobacco, manufactured ...	2,508,342	2,175,897	2,045,394	1,926,002	188,327	154,882	157,379	145,760
"    unmanufactured ...	5,156,793	6,629,793	5,371,534	7,538,329	232,884	235,187	203,111	285,106
Cigars ...	305,705	251,189	280,614	346,937	106,623	96,976	108,750	133,209
Cigarettes ...	131,816	168,933	202,778	160,511	41,828	54,089	64,384	55,549
Snuff ...	6,901	6,105	9,152	6,976	1,114	1,048	1,529	1,188

## (e) EXPORTS OF TOBACCO OF AUSTRALIAN MANUFACTURE.

Class.	Quantity.				Value.			
	1903.	1904.	1905.	1906.	£	£	£	£
	lbs.	lbs.	lbs.	lbs.	£ <td>£ <td>£ <td>£ </td></td></td>	£ <td>£ <td>£ </td></td>	£ <td>£ </td>	£
Tobacco, manufactured ...	139,150	312,519	469,810	475,117	10,597	26,019	39,270	39,805
Cigars ...	194	20	73	254	72	6	41	170
Cigarettes ...	1,768	1,931	1,873	1,209	458	549	600	349

Practically the whole of the Australian export is sent to New Zealand.

(f) While there has been a slight but steady decrease in the imports of manufactured tobacco the importation of leaf tobacco has increased by 50 per cent. during four years, while there is in addition a satisfactory increase shown in the use of locally-grown leaf. There was also an increase both in the local manufacture and in the importation of cigars and cigarettes. The figures taken as a whole shew the increased consuming power of the community as well as the prosperous state of the tobacco-manufacturing industry in the Commonwealth.

8. Industries of Class VII.—(i.) *General.* This class comprises the following industries, most of them of great importance, viz.:—Woollen and tweed mills, boots and shoes, slop clothing, clothing (tailoring), dressmaking and millinery, dyeworks and cleaning, furriers, hats and caps, waterproof and oilskin, shirts, ties, and scarves, rope and cordage, tents and tarpaulins.

Particulars of the state of the textile industries in the year 1906 are shown in the table hereunder:—

## FACTORS OF PRODUCTION, INDUSTRIES OF CLASS VII., CLOTHING AND TEXTILE FABRICS, 1906.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wealth.
Number of factories ...	724	1,173	103	131	127	77	2,335
Percentage on State total ...	18.75	26.89	7.90	12.87	19.10	20.26	...
Percentage on class total ...	31.00	50.14	4.41	5.61	5.44	3.30	...
Number of employes ...	19,650	30,881	4,318	4,048	2,078	1,619	62,594
Percentage on State total ...	25.25	36.23	18.02	19.93	16.11	19.05	...
Percentage on class total ...	31.39	49.34	6.90	6.47	3.32	2.58	...
Approx. value of land and buildings £	*947,332	1,249,424	168,479	†	169,345	69,950	2,604,530
Approx. val. of plant and machinery £	286,040	529,237	223,651	†	20,297	50,911	1,110,136
Percentage on State total ...	3.45	6.20	5.22	...	1.09	5.99	...
Total amount of salaries and wages £	907,542	1,278,886	†	†	143,736	55,443	2,385,607
Percentage on State total ...	16.22	23.39	...	...	9.39	8.91	...

\* (1901). † Information not available. Totals of these items are exclusive of these States.

The total number of factories in this class in 1906 was 20.16 per cent. of the total in the Commonwealth, and the average number of persons engaged in this class of industry in 1906 was 27.37 per cent. of the total in the Commonwealth.

(ii.) *Woollen and Tweed Mills.* (a) The following table describes the woollen and tweed mills of the several States in the Commonwealth in the year 1906 :—

## WOOLLEN AND TWEED MILLS, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories	5	9	1	2		4	21
„ employés	338	1,434	117	155		274	2,318
„ male employés	160	734	•	60		89	1,033
„ female	178	710	•	95		185	1,168
Actual horse-power of engines employed	272	2,137	50	106	nil	71	2,636
Average number of months in operation during year	11.20	12.00	•	•		19	•
Approx. value of land and buildings	£ 36,400	104,335	11,500	•		15,500	131,335
„ „ plant and machinery	£ 36,400	236,988	24,500	•		42,200	340,088
Total amount of wages paid during year	£ 14,231	76,501	•	•		11,326	102,458

\* Information not available. Totals of these items are exclusive of these States.

From the above table it will be seen that the manufacture of woollens and tweeds is now well established in Australia. It is also to be noted that this is one of the few trades in which the island State of Tasmania is prominent. The trade was established in Australia at an early period of its manufacturing history, the first record in Victoria dating back to 1867.

(b) The progress in recent years of this industry in each State of the Commonwealth where mills exist is shewn in the following tables. This industry is one in which machinery must be employed under modern conditions, and therefore the information obtainable for each State is practically comparable, upon the basis already stated, for a longer period than is the case with many other manufactures, and figures are therefore given for the years 1901 to 1906 :—

## DEVELOPMENT OF WOOLLEN MILLS IN AUSTRALIA, 1901 TO 1906.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	Tasmania.	C'wealth.						
NUMBER OF MILLS AND PERSONS EMPLOYED.												
1901	4	234	9	1,075	•	•	2	110	3	200	18	1,619
1902	4	276	10	1,022	1	129	2	142	3	210	20	1,779
1903	4	280	9	1,136	1	87	2	141	3	201	19	1,845
1904	3	245	10	1,231	1	122	2	142	3	223	19	1,963
1905	3	262	11	1,315	1	112	2	130	4	236	21	2,055
1906	5	338	9	1,434	1	117	2	155	4	274	21	2,318

## APPROXIMATE VALUE OF PLANT AND MACHINERY.

Year.	N.S.W.	Victoria.	Queensland.	South Aust.	Tasmania.	C'wealth.
	£	£	£		£	£
1901	16,100	197,930	•	*	•	214,030
1902	29,500	203,200	27,240	*	28,000	287,940
1903	33,450	204,036	23,174	*	28,000	288,660
1904	31,439	212,286	24,503	*	29,600	297,828
1905	31,540	234,532	23,231	*	29,940	319,243
1906	36,400	236,988	24,500	*	42,200	340,088

\* Not available.

Western Australia, which possesses no woollen mills, is omitted from the table.

(c) The following are the particulars of the production of woollen and tweed mills in New South Wales and Victoria in the years 1901 to 1906. No information is available for the other States :—

## PRODUCTION OF WOOLLEN AND TWEED MILLS, 1901 TO 1906.

Year.	Tweed and Cloth.			Flannel.			Blankets, Shawls, and Rugs.		
	N.S.W.	Victoria.	Total.	N.S.W.	Victoria.	Total.	N.S.W.	Victoria.	Total.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	No.	No.	No.
1901	525,020	818,975	1,343,995	3,428	2,229,617	2,233,045	10,900	103,204	114,104
1902	566,296	708,749	1,275,045	14,500	2,612,343	2,626,843	13,480	140,936	154,416
1903	458,302	662,381	1,120,683	17,208	3,201,275	3,218,483	14,580	167,232	181,812
1904	481,289	697,726	1,179,015	1,700	3,301,004	3,301,704	16,582	180,937	197,519
1905	459,590	738,924	1,198,514	4,549	3,355,013	3,359,562	16,367	238,723	315,095
1906	498,164	840,649	1,338,813	7,286	3,637,846	3,645,132	20,332	301,639	321,971

The production of all the States consists chiefly of tweed cloths, flannels and blankets, which have acquired a high reputation for purity and durability.

No cotton spinning or weaving or linen weaving is carried on in Australia. Cotton ginning has been carried on at periods far apart in the northern States, and a mill was lately reopened at Ipswich in Queensland.

It is noteworthy that the value of the imports of blankets into Australia has fallen from £114,503 in 1902 to £53,506 in 1906. The imports of apparel and textiles generally have increased in value from £9,354,417 in 1902 to £10,584,213 in 1906; this affords a measure of the community's needs in this direction.

(iii.) *Boots and Shoes.* (a) Boots and shoes and all kinds of foot-wear are now manufactured in considerable quantities in Australia, chiefly in New South Wales and Victoria. The particulars of the boot factories of the several States for the year 1906 are as follows:—

## BOOT AND SHOE FACTORIES, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories	102	134	29	17	12	15	309
" " employing power	58	77	11	12	5	8	171
" employés	4,767	5,703	1,015	1,212	236	323	13,256
" male employés	3,178	3,798	*	761	181	258	8,176
" female	1,589	1,905	*	451	55	65	4,065
Actual horse-power of engines employed	670	543	74	153	24	38	1,502
Average number of months in operation during year	11.87	11.10	*	*	11.49	12.00	...
Approx. value of land and buildings	£ 122,580	154,394	33,095	*	16,240	8,600	212,329
" " plant and machinery	£ 274,732	99,042	20,592	*	6,626	6,713	255,553
Total amount of wages paid during year	£ 274,732	332,538	*	*	20,554	20,311	648,135

\* Information not available. Totals of these items are exclusive of these States.

Among the specialised secondary industries of Australia the boot and shoe industry stands pre-eminent in respect of the size and equipment of the factories engaged in it, the employment afforded by it, and the range and excellence of its output.

(b) The progress of the industry in the last four years is shewn in the following table:—

## DEVELOPMENT OF BOOT AND SHOE FACTORIES, 1903 TO 1906.

State.	No. of Factories.				No. of Persons Employed.				Approximate Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
N.S.W.	93	92	98	102	4,288	4,317	4,465	4,767	£ 100,980	£ 105,931	£ 122,429	£ 122,580
Victoria	136	131	136	134	5,211	5,628	5,873	5,703	82,594	94,334	98,136	99,042
Q'land.	53	43	39	29	1,145	1,038	1,047	1,015	21,919	19,920	17,726	20,592
S. Aust.	(23)	23	19	17	(1,292)	1,292	1,270	1,212	*	*	*	*
W. Aust.	16	18	14	12	290	304	257	236	8,901	8,729	9,200	6,626
Tasmania	13	13	15	15	344	333	332	323	5,928	6,040	6,915	6,713
C'wealth	334	320	321	309	12,570	12,912	13,244	13,256	220,322	234,954	254,406	255,553

\* Information not available.

(c) The output (pairs) of boots and shoes and slippers produced in each State of the Commonwealth during the years 1903-1906, so far as the information is available, is as follows:—

## PRODUCTION OF BOOT FACTORIES, 1903 TO 1906.

State.	Boots and Shoes.				Slippers.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
	Pairs.	Pairs.	Pairs.	Pairs.	Pairs.	Pairs.	Pairs.	Pairs.
N.S.W. ....	3,166,475	3,291,087	3,250,243	3,567,555	397,531	477,302	435,912	378,599
Victoria ...	3,574,761	4,065,881	3,951,033	4,001,580	150,012	189,108	165,892	175,575
Queensland ...	682,762	707,580	595,784	710,089	*	*	*	34,293
South Australia†	...	...	...	...	...	...	...	...
West Australia	221,775	223,692	186,703	198,968	...	...	...	...
Tasmania ...	202,249	188,845	142,078	171,795	...	...	...	...
C'wealth ...	7,848,022	8,477,185	8,125,841	8,649,987	547,543	666,410	601,404	588,467

\* Included in boots and shoes. † No information available.

Statistics for a series of years of the value of the production of boots and shoes are unobtainable in the case of most of the States. In 1906 the value of the production of New South Wales was £981,997; of Queensland, £203,837; and of Tasmania, £53,880.

(d) Attention has already been called to the falling-off in the importation of boots into Australia under the section describing the leather trades. Imports decreased from £219,065 in 1903 to £177,558 in 1906. This fact, taken in conjunction with the statistics of production given above, illustrates the prosperity of this important industry. Exports of Australian boots have increased in value from £8161 in 1903 to £24,126 in 1906. In the latter year the value of the export from New South Wales was £10,778, and from Victoria, £12,896.

(iv.) *Hats and Caps.* (a) The manufacture of hats and caps is now well established in several of the States of the Commonwealth. The position of the industry in 1906 is shewn in the following table:—

## HAT AND CAP FACTORIES, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories ...	23	32	4	2			61
„ employes ...	1,036	1,319	122	50			2,527
„ male employes ...	342	526	0	30			898
„ female ...	694	793	0	20			1,507
Actual horse-power of engines employed ...	107	243	9	32			391
Average number of months in operation during year ...	11.77	11.1	•	•	nil	nil	...
Approx. value of land and buildings ...	£ 11,77	55,156	5,530	•			60,686
„ „ plant and machinery ...	£ 32,750	24,588	6,083	•			63,421
Total amount of wages paid during year ...	£ 43,926	77,386		•			121,312

\* Information not available. Totals of these items are exclusive of these States.

(b) As appears from the following table, which shews the progress of this industry in the States in which it was carried on during the years 1903 to 1906, there has been a considerable investment of capital in this industry in New South Wales and Victoria during recent years, and the industry is now in a flourishing condition in both these States. Information respecting production is unfortunately lacking. The export of Australian production in this industry has grown from £737 in 1903 to £1381 in 1906:—

## DEVELOPMENT OF HAT AND CAP FACTORIES, 1903 TO 1906.

State.	Number of Factories.				No. of Persons employed				Approximate Value of Plant and Machinery.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
									£	£	£	£
New South Wales	15	18	21	23	543	729	904	1,396	22,152	26,117	29,650	32,750
Victoria ...	33	29	32	32	1,113	1,165	1,208	1,319	20,588	20,045	21,903	24,588
Queensland ...	5	6	8	4	131	128	144	122	7,284	7,311	7,161	6,083
South Australia ...	(2)	2	2	2	(57)	57	56	50	†	†	†	†
Commonwealth	55	55	63	61	1,844	2,079	2,312	2,527	50,024	53,473	58,714	63,421

† No information available.

(c) New South Wales exported hats and caps of Australian manufacture to the value of £580, and Victoria to the value of £701. Some idea of the production of Australia may be gathered from the fact that in 1906 interstate transfers of Australian felt hats amounted to £65,250, of sewn hats and caps to £10,033, and of hats, caps and bonnets, and hat and bonnet shapes generally to £71,646. The greatest part of these amounts were transferred from Victoria, and were probably, for the most part, the produce of that State.

(d) No special interest is attached to the other industries in this class. A considerable manufacture of ropes, cordage, mats, bags and sacks is carried on in the three eastern States and in South Australia.

9. **Industries of Class VIII.**—In this class are included the following industries:—Electrotyping and stereotyping, paper-making, paper boxes, bags, etc., photo-engraving, printing and binding. The greatest proportion of capital invested in this class is in newspaper printing. There are a few small paper mills, but the bulk of the paper and cardboard used in Australia is imported. The following table gives a description of the industries included in Class VIII. for the year 1906:—

## INDUSTRIES OF CLASS VIII., BOOKS, PAPER, PRINTING, ETC., 1906.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ...	335	325	128	45	65	21	919
Percentage on State total ...	8.68	7.45	9.82	4.42	9.77	5.63	...
„ class total ...	36.45	35.36	13.93	4.90	7.07	2.29	...
Average number of employes ...	6,961	7,371	2,114	1,366	1,127	626	19,565
Percentage on State total ...	8.94	8.65	8.82	6.73	8.74	7.37	...
„ class total ...	35.58	37.67	10.80	6.98	5.76	3.21	...
Approx. value of land and buildings £	*573,686	763,209	370,617	†	197,642	23,900	1,929,354
„ „ plant and machinery £	671,321	675,446	207,420	†	148,921	43,148	1,746,256
Percentage on State total ...	8.09	10.47	4.84	...	8.00	5.13	...
Total amount of salaries and wages paid £	557,245	599,944	†	†	166,035	61,296	1,384,520
Percentage on State total ...	9.97	10.97	...	...	10.84	9.85	...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

The number of establishments in this class forms 7.94 per cent. of the total number of manufactories in the Commonwealth, and the number of persons engaged forms 8.55 of the total number of persons engaged in Commonwealth manufactories.

10. **Industries of Class IX.**—This class consists of musical instrument, sewing machine, etc., factories, and the work done in Australia therein consists chiefly of repairing work. There is in New South Wales one piano manufactory which has achieved great success. Information concerning the factories engaged in this industry is contained in the following table:—

## INDUSTRIES OF CLASS IX., MUSICAL INSTRUMENTS AND SEWING MACHINES, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	6	3		1			10
Percentage on State total ... ..	0.16	0.07		0.09			...
.. class total ... ..	60.00	30.00		10.00			...
Average number of employes ... ..	338	32		16			386
Percentage on State total ... ..	0.43	0.04		0.05			...
.. class total ... ..	87.56	8.29	Nil	4.15	Nil	Nil	...
Approx. value of land and buildings	£ 20,576*	5,440		†			26,016
Approx. value of plant and machinery	£ 4,815	1,312		†			6,127
Percentage on State total ... ..	0.06	0.02		...			...
Total amount of salaries and wages	£ 30,584	2,203		†			32,787
Percentage on State total ... ..	0.55	0.04		...			...

\* 1901. † Information not available. Totals of items exclusive of South Australia.

The number of factories in this class forms 0.09 per cent. of the total number of factories in the Commonwealth, and the number of persons engaged in the industry forms 0.16 per cent. of the total number of persons employed in Commonwealth manufactories.

11. **Industries of Class X.**—These industries, viz., the making of arms and explosives, at present afford but little employment in Australia. A proposal to establish a Commonwealth explosives factory is at present under discussion. Information for the year 1906 will be found in the following table, New South Wales and Victoria being the only States concerned therein:—

## INDUSTRIES OF CLASS X., ARMS AND EXPLOSIVES, 1906.

Items.	N.S.W.	Vic.	C'wth.	Items.	N.S.W.	Vic.	C'wth.
Number of factories ... ..	3	5	8	Approximate value of plant and machinery £	270	44,206	44,476
.. employes ... ..	17	330	347				
Approximate value of land and buildings	£ *2,032	28,282	30,314	Total amount of salaries and wages ... ..	£ 1,077	15,595	16,672

\* 1901.

The items given above concerning these industries form less than 1 per cent. of the total figures in each class of information for the respective States, and the number of factories and of employes forms less than 1 per cent. of the total in each case for the Commonwealth.

12. **Industries of Class XI.**—(i.) *General.* This class of industry, viz., the manufacture of vehicles, saddlery, harness, etc., includes coach and waggon building, cycles, perambulators, saddlery and harness, spokes, etc. In the following table is shewn its state for 1906:—

## INDUSTRIES OF CLASS XI., VEHICLES, SADDLERY, HARNESS, ETC., 1906.

Items.	N. S. W.	Vic.	Q'land.	S. A.	W. A.	Tas.	C'wth.
Number of factories ... ..	259	361	117	114	50	40	941
Percentage on State total ... ..	6.71	8.28	8.97	11.20	7.51	10.72	...
.. class total ... ..	27.52	38.36	12.43	12.12	5.32	4.25	...
Number of employes ... ..	2,667	3,519	961	1,079	486	315	9,027
Percentage on State total ... ..	3.43	4.13	4.01	5.31	3.77	3.71	...
.. class total ... ..	29.54	38.98	10.65	11.95	5.99	3.49	...
Approx. value of land and buildings	£ 280,128*	325,855	101,964	†	61,385	30,540	799,872
.. plant and machinery	£ 43,790	59,740	45,872	†	13,187	5,230	167,819
Percentage on State total ... ..	0.53	0.93	1.08	...	0.71	0.62	...
Total amount of salaries and wages paid	£ 179,990	212,965	†	†	52,693	20,670	466,318
Percentage on State total ... ..	3.22	3.89	...	...	3.44	3.32	...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

The number of factories in this class forms 8.13 per cent. of the total number of factories in the Commonwealth in 1906, and the average number of persons employed in this class forms 3.95 per cent. of the average number of persons employed in Commonwealth factories in 1906.

(ii.) *Coach and Wagon Building.* This industry forms the principal branch of manufacture in this class. The following table gives particulars of it for the year 1906:—

## COACH AND WAGON BUILDING, 1906.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	179	255	60	46	37	19	596
.. employés ... ..	1,718	2,573	507	464	304	152	5,718
.. male employés ... ..	1,705	2,561	*	464	303	152	5,485
.. female " ... ..	13	12		nil	1	nil	28
Actual horse-power of engines employed ...	131	278	52	110	56	16	649
Aver. time in operation during year (mths.)	11.89	11.90	*	*	10.82	12.00	...
Approx. value of land and buildings £	203,325	203,325	58,044	*	32,465	13,750	307,584
.. " plant and machinery £	23,472	44,651	9,550	*	10,852	2,240	95,765
Total amount of wages paid during year £	118,986	155,979	*	*	32,621	9,974	312,560

\* Information not available. Totals of these items are exclusive of these States.

The cycle industry consists of repairing and of the putting together of cycles from imported parts, and motor building has not so far been commenced in Australia, the shops in existence being only repairing shops.

**13. Industries of Class XII.**—This class includes the following industries, viz., docks and ships, sail-making, ship and boat building and repairing. The first industry is chiefly carried on in New South Wales, although a large dock also exists in Melbourne. The shipbuilding industry of the Commonwealth consists chiefly of the building of yachts and small vessels for coastal or South Sea Island trade. The principal work under this head consists of repairing work. The following table gives particulars for 1906:—

## INDUSTRIES OF CLASS XII., SHIP AND BOAT BUILDING AND REPAIRING, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	34	11	19	6	5	8	83
Percentage on State total ... ..	0.88	0.25	1.46	0.59	0.75	2.14	...
.. class total ... ..	40.96	13.25	22.89	7.24	6.02	9.64	...
Average number of employés ... ..	1,595	134	187	117	30	61	2,124
Percentage on State total ... ..	2.05	0.16	0.78	0.58	0.23	0.72	...
.. class total ... ..	75.09	6.31	8.81	5.51	1.41	2.89	...
Approx. value of land and buildings £	573,234	393,310	123,505	†	2,680	6,900	1,099,629
.. " plant and machinery £	161,269	54,805	12,907	†	4,160	2,980	236,121
Percentage on State total ... ..	1.94	0.85	0.31	*	0.22	0.35	...
Total amount of salaries and wages £	167,136	13,263	†	†	3,900	3,339	187,638
Percentage on State total ... ..	2.98	0.24	...	...	0.25	0.54	...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

The total number of establishments in this class formed 0.72 per cent. of the total number of factories in the Commonwealth in 1906, and the total number of persons employed in this class formed 0.93 per cent. of the total persons employed in Commonwealth factories in 1906.

**14. Industries of Class XIII.**—(i.) *General.* This class comprises the following industries, viz.:—Bedding, flock, and upholstery, billiard tables, furniture and cabinet-making, picture frames, window blinds. Particulars for 1906 are as follows:—

## INDUSTRIES OF CLASS XIII., FURNITURE, BEDDING, ETC., 1906.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.*	Tas.	C'wth.
Number of factories ... ..	119	183	50	30	24	12	418
Percentage on State total ... ..	3.08	4.20	3.83	2.95	3.61	3.22	...
" class total ... ..	23.47	43.78	11.96	7.13	5.74	2.87	...
Average number of employes ... ..	2,317	2,168	559	440	290	116	5,890
Percentage on State total ... ..	2.98	2.54	2.33	2.17	2.25	1.37	...
" class total ... ..	39.34	36.78	9.49	7.47	4.93	1.98	...
Approx. value of land and buildings	£ 213,016*	245,165	54,275	†	42,135	15,050	569,641
" " plant and machinery	£ 32,336	38,024	9,703	†	4,585	1,800	86,448
Percentage on State total ... ..	0.39	0.59	0.24	...	0.25	0.21	...
Total amount of salaries and wages	£ 157,383	150,161	†	†	34,361	9,175	351,580
Percentage on State total ... ..	2.81	2.75	...	...	2.23	1.48	...

\* 1901. † Information not obtainable. Totals of these items are exclusive of these States.

(ii.) *Furniture and Cabinet Making and Billiard Table Making.* (a) These industries constitute the principal manufactures in this class. The following table gives particulars for 1906:—

FACTORIES FOR FURNITURE AND CABINET MAKING AND BILLIARD  
TABLE MAKING, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	85	121	34	23	17	7	237
" employes ... ..	1,756	1,387	329	405	234	81	4,192
" male employes ... ..	1,734	1,353	...	402	232	64	4,114
" female " ... ..	22	34	...	3	2	17	78
Actual horse-power of engines employed ... ..	216	264	73	187	59	20	819
Average time in operation during year ... ..	11.57	11.50	...	...	11.70	12.00	...
Approx. value of land and buildings	£ ...	161,899	29,425	...	31,875	14,600	237,799*
" " plant and machinery	£ 21,479	18,504	5,893	...	4,065	915	50,856†
Total amount of wages paid during year	£ 117,330	104,514	...	...	28,203	7,303	237,350!

\* Exclusive of New South Wales and South Australia. † Exclusive of South Australia.  
! Exclusive of Queensland and South Australia.

(b) No information is available concerning the production of furniture in Australia. The export of Australian-manufactured furniture in 1906 was valued at £8931, of which about one-third was sent to New Zealand. Interstate transfers of Australian furniture in 1906 amounted to £65,970, of which a value of £37,280 was exported from Victoria. The imports of furniture into Australia in 1906 were valued at £212,526. It is evident that local manufactories supply the bulk of the furniture required in the Commonwealth.

15. **Industries of Class XIV.**—(i.) *General.* This class includes chemicals, drugs, and medicines, fertilisers, paints, varnishes, and by-products. Under the first head is to be noted the manufacture of a peculiarly Australian product, eucalyptus oil. The works are chiefly engaged in making up the ordinary articles of the chemist's trade. The most noteworthy feature of the fertiliser section is the recent establishment near Melbourne of large superphosphate works, operating upon material brought from the West Coast of Tasmania.

The total number of factories in this class forms 1.35 per cent. of the total factories in the Commonwealth, and the number of persons employed in this class forms 1.14 per cent. of the total number of persons employed in Commonwealth factories. The following table gives particulars of the class for 1906:—

## INDUSTRIES OF CLASS XIV., DRUGS AND CHEMICALS, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	48	61	4	36	7	...	156
Proportion per cent. to State total ... ..	1.24	1.40	0.31	3.54	1.05	...	...
" " class total ... ..	30.77	39.10	2.56	23.08	4.49	...	...
Average number of employés ... ..	1,012	1,148	50	333	57	...	2,600
Proportion per cent. to State total ... ..	1.30	1.35	0.21	1.64	0.44	...	...
" " class total... ..	38.92	44.15	1.92	12.82	2.19	...	...
Approx. value of land and buildings	£ 50,111*	214,247	3,760	†	12,660	...	281,678
" " plant and machinery	£ 107,276	114,671	8,270	†	10,970	...	241,187
Proportion per cent. to State total	1.29	1.78	0.19	...	0.59	...	...
Total amount of salaries and wages	£ 62,893	77,249	†	†	5,476	...	145,618
Proportion per cent. to State total	1.12	1.41	...	...	0.36	...	...

\* 1901. † Information not obtainable. Totals of these items are exclusive of these States.

(ii.) *Imports and Exports.* Statistics of production are not available. The exports of Australian drugs and chemicals have increased from £33,827 in 1903 to £38,260 in 1906; the exports of Australian manures from £46,997 in 1903 to £68,124 in 1906; and the exports of Australian medicines from £12,595 in 1903 to £32,768 in 1906. Importations of cream of tartar have increased from £94,082 in 1903 to £120,560 in 1906; importations of other drugs and chemicals from £134,402 in 1903 to £198,846 in 1903; and of medicines from £195,577 in 1903 to £217,633 in 1906.

**16. Industries of Class XV.**—This class refers to surgical, optical and other scientific instruments, and is a small but growing class of industry. The following are the particulars for 1906:—

## INDUSTRIES OF CLASS XV., SURGICAL, OPTICAL AND OTHER SCIENTIFIC INSTRUMENTS, 1906.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	8	11	5	1	1	...	26
Percentage on State total ... ..	0.21	0.25	0.38	0.09	0.15	...	...
" " class total ... ..	30.77	42.31	19.23	3.85	3.84	...	...
Average number of employés ... ..	86	48	30	16	8	...	178
Percentage on State total ... ..	0.11	0.06	0.13	0.03	0.06	...	...
" " class total ... ..	48.31	26.97	16.86	3.37	4.49	...	...
Approx. value of land and buildings	£ 18,586*	8,151	6,030	†	3,380	...	36,147
" " plant and machinery	£ 2,570	1,482	2,377	†	400	...	6,829
Percentage on State total ... ..	0.03	0.02	0.06	...	0.03	...	...
Total amount of salaries and wages	£ 5,589	2,699	†	†	844	...	9,132
Percentage on State total ... ..	0.10	0.05	...	...	0.05	...	...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

The total number of factories forms 0.22 per cent. of the total number of factories in the Commonwealth in 1906, and the total number of persons employed forms 0.08 per cent. of the total number of persons employed in Commonwealth factories in 1906.

**17. Industries of Class XVI.**—This class refers to timepieces, jewellery and plated ware. The manufacturing consists chiefly of repairing and the making of small articles of ornament. A small amount of electro-plated ware is turned out. No timepieces are manufactured in the Commonwealth, although some work has been done in the erection of tower clocks.

The number of factories of this class, and of persons employed therein, constitute respectively 1.04 and 0.61 per cent. of the total number of factories, and total number of persons employed in factories of the Commonwealth.

The following are the particulars of this industry in 1906:—

## INDUSTRIES OF CLASS XVI., TIMEPIECES, JEWELLERY AND PLATED WARE, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	33	55	15	10	3	5	121
Percentage on State total ... ..	0.85	1.26	1.15	0.98	0.45	1.34	...
„ class total ... ..	27.27	45.45	12.41	8.26	2.43	4.13	...
Average number of employes ... ..	457	651	107	113	26	43	1,397
Percentage on State total ... ..	0.59	0.76	0.71	0.56	0.20	0.51	...
„ class total ... ..	32.71	46.61	7.66	3.09	1.86	3.07	...
Approx. value of land and buildings £	*13,618	85,070	21,548	†	3,257	6,140	139,176
„ „ plant and machinery £	12,192	15,972	5,910	†	800	705	35,579
Percentage on State total ... ..	0.15	0.25	0.14	†	0.04	0.08	...
Total amount of salaries and wages £	33,990	54,171	†	†	3,402	3,548	95,111
Percentage on State total ... ..	0.62	0.99	...	...	0.22	0.57	...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

18. Industries of Class XVII.—(i.) *General.* The important class referring to heat, light, and power comprises the following industries:—Coke works, electric apparatus, electric-light power, gas works and kerosene, lamps and fittings, and hydraulic power. The following are the particulars for 1906:—

## INDUSTRIES OF CLASS XVII., HEAT, LIGHT, AND POWER, 1906.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	139	68	25	9	25	6	272
Percentage on State total ... ..	3.60	1.60	1.92	0.88	3.76	1.61	...
„ class total ... ..	51.10	25.00	9.19	3.31	9.19	2.21	...
Average number of employes ... ..	1,883	1,673	350	229	342	357	4,834
Percentage on State total ... ..	2.42	1.96	0.45	1.13	2.65	4.2	...
„ class total ... ..	38.95	34.61	7.24	4.74	7.07	7.39	...
Approx. value of land and buildings £	*567,815	649,699	118,501	†	98,031	36,350	1,470,396
„ „ plant and machinery £	1,705,857	1,780,398	446,632	†	561,441	203,870	4,693,198
Percentage on State total ... ..	20.56	27.00	10.43	...	30.16	24.30	...
Total amount of wages and salaries £	200,922	188,769	†	†	57,174	28,176	475,041
Percentage on State total ... ..	3.60	3.45	...	...	3.73	4.53	...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

The number of establishments in this class, and of persons employed therein, form 2.35 and 2.11 per cent. respectively of the totals for the Commonwealth. The value of plant and machinery of the five States furnishing returns forms 21.70 per cent. of the total value of the plant and machinery in those States.

(ii.) *Electric Light and Power.* Particulars of the electric light and power works of the Commonwealth in the year 1906 are as follows:—

## ESTABLISHMENTS FURNISHING ELECTRIC LIGHT AND POWER, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	66	9	6	2	18	3	104
employes ... ..	565	363	70	86	247	223	1,559
Actual horse-power of engines employed...	30,505	9,130	3,255	1,700	13,334	2,747	52,671
Average time in operation during year	11.94	12.00	*	*	12.00	12.00	...
Approx. value of land and buildings £	*	144,329	*	10,151	65,040	†	219,510
„ „ plant and machinery £	975,723	491,171	63,334	*	477,198	72,870	2,080,346
Total amount of wages paid during year £	65,892	38,398	*	*	43,271	11,616	159,177

\* Information not available. Totals of these items are exclusive of these States. † Crown land.

Several of the capitals and other principal towns of Australia are lit with electric light, the generating and other plant being in some cases owned by the municipality and in others by companies. Electric tram services also run in many of the cities. Further particulars on this subject will be found in the sections "Transport and Communication" and "Local Government."

Electricity is also largely in use for lighting and power in mines and is growing in favour as a motive power in manufactories.

A scheme of electrification of the Melbourne suburban railway system has been under discussion, and an expert engineer was brought out to report upon its desirability.

(iii.) *Gasworks.* Gasworks are also in operation all over Australia, and gas is still the principal illuminant in private houses. It is also used to a large extent as a factory motive power. Further information on gasworks will be found in the section "Local Government."

(iv.) *Hydraulic Power.* Hydraulic power is supplied by means of high-pressure mains in several of the Australian cities.

(v.) *Kerosene Shale.* A commencement of an oil industry has been made. There are in several parts of the Commonwealth, notably in New South Wales, valuable deposits of kerosene shale. These have been worked since 1865 in the State mentioned. Particulars on this subject will be found in section xii., Mineral Industry.

**19. Industries of Class XVIII.**—This class relates to the manufacture of leather belting, fancy leather, portmanteaux and bags. The industries are not extensive. The following are the particulars for 1906:—

INDUSTRIES OF CLASS XVIII., LEATHER BELTING, FANCY LEATHER,  
PORTMANTEAUX AND BAGS, 1906.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	12	22	3	3	1		41
Percentage on State total ... ..	0.31	0.50	0.23	0.29	0.15		...
"  class total ... ..	29.27	53.64	7.32	7.32	2.45		...
Average number of employes ... ..	240	389	65	22	15		731
Percentage on State total ... ..	0.31	0.46	1.46	0.11	0.12		...
"  class total ... ..	32.83	53.21	8.89	3.02	2.05	Nil	...
Approx. value of land and buildings	£ 24,154	25,091	4,600	†	780		54,625
"  "  plant and machinery	£ 6,085	8,835	394	†	30		15,344
Percentage on State total ... ..	0.07	0.14	...	...	...		...
Total amount of salaries and wages	£ 14,218	22,590	†	†	936		37,744
Percentage on State total ... ..	0.25	0.41	...	...	0.06		...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

In 1906 the number of factories in this class, and the persons employed therein, formed 0.35 and 0.96 per cent. respectively of the total factories in the Commonwealth and the total number of persons employed therein.

**20. Industries of Class XIX.**—In this class are comprised basket and wickerware, matting, etc., brooms and brushware, rubber goods, toys, umbrellas, other industries. These trades are engaged in the manufacture of articles of large and daily use, and are gradually growing in Australia.

For 1906 the number of factories in this class forms 0.95 per cent. of the total number of factories in the Commonwealth, and the number of persons employed therein forms 0.96 per cent. of the persons employed in Commonwealth factories.

The following are the particulars for 1906:—

## INDUSTRIES OF CLASS XIX., MINOR WARES.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories ... ..	45	33	8	16	6	2	110
Percentage on State total ... ..	1.16	0.76	0.62	1.57	0.90	0.54	...
"    class total ... ..	40.91	30.00	7.27	14.55	5.45	1.82	...
Average number of employes ... ..	681	919	161	341	68	24	2,194
Percentage on State total ... ..	0.88	0.78	0.67	1.68	0.53	0.28	...
"    class total ... ..	31.04	41.89	7.34	15.54	3.10	1.09	...
Approx. value of land and buildings	£ 41,055*	57,604	9,450	†	6,210	1,850	116,169
"    "    plant and machinery	£ 16,174	47,831	1,637	†	390	20	66,042
Percentage on State total ... ..	0.19	0.74	0.04	...	0.03	...	...
Total amount of salaries and wages	£ 33,008	59,190	†	†	4,747	400	97,345
Percentage on State total ... ..	0.59	1.08	...	...	0.31	0.07	...

\* 1901. † Information not available. Totals of these items are exclusive of these States.

## § 9. Conclusion.

The result of a survey of the individual industries and classes of industry in Australia is the same as of a survey of the general statistics, namely, that there are strong evidences of general prosperity and rapid development. In addition, it is to be noted that Australian manufacturing is now upon a firm basis with respect to many articles, and that there is an increasing export business in these commodities.

It is much to be regretted that the information available is defective for some of the States, but it is confidently expected that the particulars obtained for 1907 will everywhere be tabulated on the same plan, and that it will therefore be possible to present a more complete picture of the Australian manufacturing industries in the next issue of this work.

It may be mentioned that a Bonus Bill was introduced by the Commonwealth Government in Parliament during 1907, and became law towards the end of the year. It deals however almost exclusively with primary production, and its discussion in relation to manufacturing developments need not be here specially considered.