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SOME NOTES ON THE CENSUS OF OCCUPATIONS FOR ENGLAND AND WALES.

By D. CARADOG JONES, M.A.

[Read before the Royal Statistical Society, December 15, 1914,
Professor F. Y. EDGEWORTH, M.A., F.B.A., in the Chair.]

IN the June number of the *Journal of the Royal Statistical Society*, 1886, a paper was published by the Right Hon. Charles Booth, "On Occupations of the People of the United Kingdom, 1801-81," which recorded the numbers of persons employed in the great branches of industry as enumerated at each Census between 1841 and 1881 inclusive. It showed broadly the movement of the entire occupied population from trade to trade from Census to Census. Another paper, read by Mr. T. A. Welton before the Manchester Statistical Society (March 9, 1898), "On Forty Years' Industrial Changes in England and Wales," discussed the Census figures as to occupation in 1851 and 1891. Mr. Welton has made a critical study of certain branches of the Census, and has contributed other important papers to the Royal Statistical Society and to the Manchester Statistical Society.

The present notes represent only an attempt to recast some of the official Census returns from 1881 to 1911, to see if they may be made to yield any fresh information. The best comparative figures for this period are found in Vol. X, Part I, of the Census of England and Wales, 1911 (Cd. 7018), on Occupations and Industries, Tables 26 and 27. The first of these tables gives the total numbers employed, males and females separately, under 15 and over 15 years of age, in all occupations for each Census year from 1881, these occupations being divided into 23 large groups or "orders," and the orders being divided again into smaller groups or "sub-orders." Table 27 gives the total numbers employed, for males and females separately and combined, aged 10 years and upwards, in all occupations as before; the sub-orders are not set out in such detail as in Table 26, but the numbers are also calculated per 1,000,000 of the population at each Census. This further calculation is extremely useful, because it allows for the natural increase of the population, which would otherwise disguise to some extent the amount of rise or fall of the numbers in each industry. It shows, for example, that out of every 1,000,000 males aged 10 years and upwards, in 1901 there were 95,510 engaged in agriculture, while in 1911 there

TABLE I.—*Proportion per million of the population of all persons aged 10 years and upwards engaged in the several occupations, and written only to the nearest 100.*

Occupation.	1881.	1891.	1901.	1911.
I. General or Local Government	54	65	78	101
II. Defence	55	57	66	72
III. Professional and Sub-ordinate	217	230	239	251
I, II, III	326	352	383	424
IV. Domestic*	825	821	717	665
XX. Food, Tobacco, Drink, and Lodging	368	416	424	487
IV, XX	1,193	1,237	1,141	1,152
V. Commercial	164	189	233	277
VI. Conveyance	411	454	500	507
XXII. General and Undefined Workers and Dealers	446	442	307	264
V, VI, XXII....	1,021	1,085	1,040	1,048
VII. Agriculture	701	583	473	455
VIII. Fishing†	15	11	9	9
IX. Mines and Quarries	274	296	318	366
VII, VIII, IX	990	890	800	830
X. Metals, Machines, Implements, and Conveyances	421	432	485	515
XII. Building and Works of Construction	396	363	446	364
XXI. Gas, Water, and Sanitary	13	19	27	31
X, XII, XXI	830	814	958	910
XVIII. Textiles	567	534	456	461
XIX. Dress	494	488	445	419
XVIII, XIX	1,061	1,022	901	880
XI. Watches, Instruments, &c.	40	43	60	82
XIII. Wood, Furniture, &c....	93	92	102	100
XIV. Brick, Cement, Pottery, &c.	66	63	69	61
XV. Chemicals, Oil, Soap, &c.	36	41	51	62
XVI. Skins, Leather, Hair, &c.	42	42	42	40
XVII. Paper, Prints, Books, &c.	82	100	110	122
XI, XIII to XVII	359	381	434	467
XXIII. Retired or Unoccupied	4,219	4,218	4,342	4,289
Total Occupied or Unoccupied	10,000	10,000	10,000	10,000

* The numbers under this heading are not comparable from Census to Census.

† The numbers under this heading are not comparable for 1881.

were only 92,171 so engaged. This, for comparative purposes, is of more value than to be told that in 1901 there were altogether 1,158,940 males engaged in agriculture and 1,259,254 in 1911, because the apparent growth, when looked at in the light of the increasing population, shows up as a decline relative to other occupations.

Table I merely reproduces the proportions per 1,000,000 of the population of all persons, aged 10 years and upwards, engaged in the 23 main orders of occupation, but written only to the nearest 100, and in such a way that certain orders are grouped together. It is convenient to regard the "retired and unoccupied" as one of the orders of occupation, and to observe how the numbers in it vary along with the others. Thus the total number of persons occupied and unoccupied is taken as 1,000,000 in each year (or 10,000, written to the nearest 100).

Throughout we have assumed the numbers given in the official reports to be reasonably comparable, unless they are definitely stated not to be so, in which case a note has been added to that effect; but it is important to remark that the length of this paper would have been unduly increased if all the other notes of importance which appear in the Census reports themselves had been inserted here. They should certainly be read, however, by anyone who wishes to make a careful study of the question, as they often help to explain figures which otherwise might appear unreasonable.

From Table I, as it stands, it is impossible without further calculation to see the extent of the rise or fall in one order of occupations as compared with another, because of the greatly varying numbers employed. This may be allowed for in various ways. Index numbers were chosen because the principle on which they are based is readily grasped by the non-statistical reader, and they enable the desired comparison between one year and another to be made at a glance.

The next point to settle was which, if any, of the four Census years, 1881, 1891, 1901, 1911, should be taken as the standard year. Had the returns for each year been equally satisfactory 1881 might have been taken, but there seems little doubt that as experience accumulates each new Census is an improvement upon the last. In order to show the most recent change as an ordinary percentage, and to make the best use of the last three and presumably most accurate years, 1901 was selected as standard. The proportion employed in each occupation was, therefore, denoted by 100 for this year, and the corresponding proportions for the other years were altered accordingly.

Table II gives the index numbers corresponding to the figures for each occupation order in Table I, excepting the Domestic order, in which the figures were not comparable. It is surprising that there should be only 5 cases out of 22 in which the change from Census to Census has not been consistent in direction, and in one of these—Textiles—the inconsistent change is very slight.

TABLE II.—*Index numbers showing proportion from Census to Census of all persons engaged in the several occupations.*

Occupation.	1881.	1891.	1901.	1911.
I. General or Local Government	69	83	100	130
II. Defence	83	86	100	109
III. Professional and Subordinate	91	96	100	105
V. Commercial	70	81	100	119
VI. Conveyance	82	91	100	101
VII. Agriculture	148	123	100	96
VIII. Fishing	—	121	100	94
IX. Mines and Quarries	86	93	100	115
X. Metals, Machines, &c.	87	89	100	106
XI. Watches, Instruments, &c.	67	72	100	135
XII. Building and Works of Construc- tion	89	81	100	82
XIII. Wood, Furniture, &c.	92	90	100	98
XIV. Brick, Cement, Pottery, &c.	96	91	100	88
XV. Chemicals, Oil, Soap, &c.	71	81	100	123
XVI. Skins, Leather, Hair, &c.	102	100	100	96
XVII. Paper, Prints, Books, &c.	74	90	100	111
XVIII. Textiles	124	117	100	101
XIX. Dress	111	110	100	94
XX. Food, Tobacco, Drink, and Lodging	87	98	100	115
XXI. Gas, Water, and Sanitary	48	69	100	113
XXII. General and Undefined Workers and Dealers	145	144	100	86
XXIII. Retired or Unoccupied	97	97	100	99

So as to enable a fairer estimate to be made of the growth or decline in successive decades, the percentage changes from one Census to the next have also been compiled, and the expanding and declining occupations separated in Table III. Since the growth of population has been allowed for, and we have considered simply in what proportions 1,000,000 persons have at each Census been divided between the various large orders of occupations, we may conceive these orders as so many channels, and we may say that during the thirty years' interval there has been an increasing flow of the constant stream of new labour into the 12 channels of "expanding occupations" at the expense of the 6 channels of "declining occupations" (including Textiles with the latter) which have been gradually drying up, while 3 of the remaining 4

TABLE III.

Expanding occupations.	Percentage increase.			Declining occupations.	Percentage decrease.		
	1881-91.	1891-1901.	1901-11.		1881-91.	1891-1901.	1901-11.
Gas, Water, and Sanitary Watches, Instruments, &c. General or Local Government Chemicals, Oil, Soap, &c.... Commercial Paper, Prints, Books, &c. Mines and Quarries Food, Tobacco, Drink, &c. Defence Metals, Machines, &c. Conveyance Professional and Subordinate	42 8 21 14 15 22 8 13 3 3 10 6	46 39 20 23 24 11 7 2 16 12 10 4	13 35 30 23 19 11 15 15 9 6 1 5	General and Undefined Agriculture... Fishing Dress Skins, Leather, &c. ...	1 17 — 1 1	31 19 18 9 1	14 4 6 6 4
Building, &c. Wood, Furniture, &c. Brick, Cement, &c. Textiles Retired or Unoccupied	— — — — —	23 11 10 — 3	— — 1 —	Building, &c. Wood, Furniture, &c. Brick, Cement, &c. Textiles Retired or Unoccupied	8 2 5 6 0	— — 15 —	18 2 12 — 1

channels were not wholly unconnected, and they showed first a fall, then a rise, and then a fall again. It should be borne in mind that the depth of each channel has only been gauged four times during the period concerned, and there have been changes possibly in the method of measurement for some of them which may have affected the results obtained. For instance, the Domestic class has had to be omitted altogether because of such changes, and the "General and Undefined" class shows a constant decline as the returns become more and more definite.

It is interesting to note the large influx under the heads of "General or Local Government" and "Gas, Water and Sanitary Service," and somewhat smaller ones under "Mines and Quarries" and "Conveyance." These imply a greatly increasing number of workers under the direction of public authorities and large companies. There is a welcome increase in Engineering, also in the main groups of secondary industries taken as a whole, and there is a corresponding increase in the commercial order.

That agriculture has been declining is well known, but the rate of decline has been much slower during the last ten-year period than before; the same may be said of Fishing. In Textiles the tide seems to have turned. The continued decline of this important industry would be a serious blow to the country and to Lancashire in particular; with it is closely associated certain branches of the Dress trade, which unfortunately continues to shrink. It is to be hoped that something may be done to arrest the recent sudden contraction in the Building and allied industries.

Many factors influence this generational variation in the passage of the stream of labour. Among them may be mentioned:—

1. Natural growth or decline of industries.
2. Invention of machinery affecting some industries in particular.
3. Home competition between one class of goods and another.
4. Foreign competition in the goods market.
5. Competition between male and female labour.
6. Competition between adult and juvenile labour.
7. Wages offered.

It is very difficult, if not impossible, to disentangle completely the effect due to one of these factors from the effects due to the others, but one thing is clear: each of the other factors will, sooner or later, have an influence upon the last.

The first natural step in any analysis of the numbers occupied is to separate males from females, and Table IV gives in parallel columns—(1) index numbers for males alone, 10 years of age and upwards, from 1881 to 1911, engaged in the twenty-three large orders

of occupations and their more detailed sub-orders; and (2) the proportions of males to females in those occupations in which females are now employed to an appreciable extent. The index numbers are calculated as before, per 1,000,000 males, so as to be independent of the increase in population; the ratios of the sexes, on the other hand, are based on the total numbers employed.

This table enables us to form some idea of the state of each industry in certain respects. For example, when, in any industry, the index number for males rises from Census to Census, and simultaneously the proportion of females to males increases, as in "National Government," that industry or occupation must be expanding. When the index number for males falls and the proportion of females to males increases, as in "Skins, Leather, &c.," the inference is that females are in some degree displacing males or the industry itself is shrinking (compare Table III).

It should be remembered throughout that the numbers at each Census under indefinite headings, such as "General Labourers," "Merchants, Salesmen, Buyers, &c.," tend to be reduced by transfers to definite headings, such as "Agricultural Labourers," &c.

Notes to Table IV on following pages.

(a) The numbers recorded as employed under this head do not by any means represent all who are in the service of the State and of Local Authorities, as many such persons will be included more naturally under their occupational headings.

(b) The absence of an abnormally large number of men in South Africa in 1901, although not noticed in the index numbers for the Home Army, would lead to the under-statement in that year of the numbers engaged in certain other occupations, such as Agricultural Labour, from which men would be withdrawn.

(c) Medical Students were included in 1881, but were subsequently transferred to Order XXIII.

(d) Formerly, a large proportion of pupil-teachers and probationers were part-time or whole-time teachers and were classified as teachers; since 1901, however, intending teachers are mainly whole-time students and are classed to Order XXIII.

(e) Owing to changes in classification the actual numbers are not strictly comparable, but Domestic Indoor Servants are stated to have increased since 1881 at a much lower rate than the general population, and this applies more particularly to females at the earlier ages, suggesting a preference on the part of girls for other employment.

(f) The numbers for 1881 are not comparable.

(g) Agents and Managers were excluded in 1911.

(h) The retired class was increased between 1901 and 1911 as the result of granting old age pensions; see also (c) and (d).

TABLE IV.

Occupation.	Index numbers showing proportion of males engaged in the several occupations.				Proportion of males to females, or females to males (<i>italicised</i>), so occupied.			
	1881.	1891.	1901.	1911.	1881.	1891.	1901.	1911.
I. General or Local Government. (a)	73	86	100	126	13	8·6	6·5	5·4
1. National Government	60	79	100	121	11	7·1	6·2	5·4
2. Police....	94	102	100	105	—	—	—	—
Poor Law, other Local Officers	89	86	100	184	6·0	3·8	2·5	2·8
II. Defence	83	86	100	109	—	—	—	—
1. Army (at Home) (b)....	91	93	100	95	—	—	—	—
2. Navy and Marines	67	72	100	137	—	—	—	—
III. Professional and Sub-ordinate	96	97	100	105	1·2	1·1	1·1	1·1
Clergy, Ministers, &c.	109	105	100	90	—	—	—	—
Barristers, Solicitors	108	109	100	90	—	—	—	—
Law Clerks	94	92	100	89	245	165	93	16
Physicians, Surgeons, &c.	87	96	100	97	—	—	—	—
Sick Nurses, &c. (c)	—	105	100	105	—	13	15	16
Teachers, Lecturers, &c. (d)	102	99	100	104	2·7	2·9	2·9	2·7
Art, Music, Drama, Exhibitions, Games, &c.	73	87	100	124	2·4	2·0	2·0	2·1
Others	103	103	100	112	—	—	—	—
IV. Domestic (e)	78	87	100	115	20	18	14	11
Indoor Service	—	—	—	—	—	—	—	—
Hospital, Institution, &c., Service	52	75	100	145	2·7	2·2	2·5	2·4
Charwomen	—	—	—	—	—	—	—	—
Laundry Workers	50	89	100	125	52	27	22	13
Others	35	62	100	169	—	—	—	—
V. Commercial	76	85	100	111	36	19	8·9	5·2
1. Merchants, Salesmen, Buyers (commodity undefined)	249	199	100	84	9·0	12	12	28
Agents, Commercial Travellers, Accountants, Auctioneers, &c.	89	90	100	108	134	82	67	39
2. Commercial or Business Clerks	74	85	100	104	29	13	5·5	3·1
3. Dealers in Money	70	80	100	123	—	—	—	—
4. Insurance	35	64	100	154	60	53	40	21
VI. Conveyance	82	91	100	101	71	68	66	46
1. On Railways (excluding Gangers, Labourers, &c.)	66	77	100	103	—	—	—	—

TABLE IV—*contd.*

Occupation.	Index numbers showing proportion of males engaged in the several occupations.				Proportion of males to females, or females to males (<i>italicised</i>), so occupied.			
	1881.	1891.	1901.	1911.	1881.	1891.	1901.	1911.
VI. Conveyance—<i>contd.</i>								
2. Coach, Cab, Omnibus Men, &c.	94	101	100	68	—	—	—	—
Carriers, Carters, Van Guards, &c., Motor Drivers, Garage Workers, &c.	60	71	100	100	—	—	—	—
Tramway Service	19	43	100	203	—	—	—	—
Others	97	104	100	80	—	—	—	—
3. On Seas, Rivers, and Canals	139	125	100	89	—	—	—	—
4. In Docks, Harbours, &c.	55	73	100	109	—	—	—	—
5. Messengers, Porters, Watchmen (not Railway or Government)	94	111	100	110	80	50	36	26
Others	116	113	100	90	—	—	—	—
VII. Agriculture	145	122	100	97	20	24	30	33
1. Farmers, Graziers	130	114	100	91	9·9	9·3	9·4	10
Farmers', Graziers' Sons or other Male Relatives	110	86	100	97	—	—	—	—
Bailiffs, &c.	112	92	100	87	—	—	—	—
Shepherds	117	98	100	73	—	—	—	—
Labourers, Farm Servants	180	144	100	95	20	30	49	47
Gardeners, Nurserymen, Seedsmen, Florists	90	95	100	109	46	35	41	60
Others	80	75	100	105	—	—	—	—
VIII. Fishing (f)	—	120	100	94	—	—	—	—
IX. Mines and Quarries	85	93	100	115	69	102	160	188
Coal and Shale Mine Workers (excluding Owners, Agents, Managers and Mine Service)	77	92	100	121	—	—	—	—
Ironstone Miners	198	122	100	116	—	—	—	—
Stone, Slate Quarries, &c. (g)	94	81	100	—	—	—	—	—
Others	119	105	100	104	—	—	—	—
X. Metals, Machines, &c.	87	89	100	105	20	20	19	16
1-3 & 5-8. Metals, Machines, Implements (excluding Lock, Key, Gas)	90	91	100	101	18	18	17	14
9. Ships and Boats	81	92	100	107	—	—	—	—
10. Cycle and Motor Manufacturers	—	44	100	254	81	20	9·7	12
Coach, Carriage, Wagon Makers, &c.	93	92	100	95	—	—	—	—
11. Dealers	63	77	100	121	17	14	9·8	7·2

TABLE IV—*contd.*

Occupation.	Index numbers showing proportion of males engaged in the several occupations.				Proportion of males to females, or females to males (<i>italicised</i>), so occupied.			
	1881.	1891.	1901.	1911.	1881.	1891.	1901.	1911.
XI. <i>Precious Metals, Watches, Games, Instruments, Electrical Apparatus and Supply</i>	66	71	100	133	7·0	7·0	7·1	6·1
Workers and Dealers in Watches, &c.	120	105	100	86	6·8	6·7	5·3	4·1
Electrical Apparatus, Supply, &c.	—	28	100	177	96	26	20	11
Others	74	87	100	136	—	—	—	—
XII. <i>Building and Works of Construction.</i>	88	81	100	82	—	—	—	—
1. Carpenters, Joiners and Labourers	113	93	100	70	—	—	—	—
Bricklayers and Labourers	76	70	100	72	—	—	—	—
Masons and Labourers	132	101	100	63	—	—	—	—
Plasterers and Labourers, Painters, Glaziers, &c.	84	85	100	96	—	—	—	—
Others	74	76	100	110	—	—	—	—
2. Platelayers, Gangers, Packers; Railway and Railway Contractors' Labourers; Navvies	65	70	100	76	—	—	—	—
Others	44	53	100	79	—	—	—	—
XIII. <i>Wood, Furniture, &c.</i>	90	89	100	97	8·9	8·7	9·5	8·4
1. Furniture, Fittings, &c.	85	89	100	95	6·3	6·4	6·9	6·0
2. Wood and Bark	99	88	100	99	18	19	21	19
XIV. <i>Brick, Cement, Pottery, &c.</i>	95	88	100	84	4·3	3·8	4·3	3·4
Brick, Plain Tile, Terra-cotta Makers; Earthenware, China, &c., Manufacturers	100	88	100	81	3·7	3·1	3·6	2·8
Glass Manufacturers	94	99	100	91	12	11	12	10
Others	65	74	100	95	—	—	—	—
XV. <i>Chemicals, Oil, Soap, &c.</i>	80	87	100	120	8·1	5·4	3·8	3·4
XVI. <i>Skins, Leather, &c.</i>	108	105	100	93	4·3	3·8	3·2	2·8
XVII. <i>Paper, Prints, Books, &c.</i>	81	95	100	107	2·8	2·5	2·1	1·9
Paper Manufacturers and Stainers	91	93	100	104	1·4	1·7	1·9	2·5
Stationers; Paper Box, Bag, and Stationery Manufacturers; Bookbinders	87	98	100	103	1·2	1·5	1·9	1·9
Printers, Lithographers	80	98	100	106	26	18	10	5·2
Others	72	87	100	116	—	—	—	—

TABLE IV—*contd.*

Occupation.	Index number showing proportion of males engaged in the several occupations.				Proportion of males to females, or females to males (<i>italicised</i>), so occupied.			
	1881.	1891.	1901.	1911.	1881.	1891.	1901.	1911.
XVIII. Textiles	127	121	100	102	<i>1·3</i>	<i>1·3</i>	<i>1·3</i>	<i>1·3</i>
Cotton Manufacturers	123	124	100	105	<i>1·6</i>	<i>1·6</i>	<i>1·7</i>	<i>1·6</i>
Flax, Linen Manufacturers	481	258	100	85	<i>1·9</i>	<i>2·2</i>	<i>2·9</i>	<i>2·7</i>
Wool and Worsted Manufacturers	145	140	100	97	<i>1·3</i>	<i>1·3</i>	<i>1·4</i>	<i>1·3</i>
Silk Manufacturers	235	179	100	78	<i>2·2</i>	<i>2·0</i>	<i>2·4</i>	<i>2·3</i>
Hosiery Manufacturers	177	150	100	96	<i>1·1</i>	<i>1·7</i>	<i>2·5</i>	<i>2·8</i>
Lace Manufacturers	117	118	100	107	<i>2·9</i>	<i>1·7</i>	<i>1·9</i>	<i>1·7</i>
Hemp, Jute, Rope, Mat, Canvas, Sailcloth, &c., Manufacturers	148	123	100	90	<i>1·7</i>	<i>1·5</i>	<i>1·0</i>	<i>1·1</i>
Drapers, Mercers, &c.	104	103	100	88	—	—	—	—
Others and Dealers (including Bleaching, Printing, Dyeing, &c.)	113	95	100	120	—	—	—	—
XIX. Workers and Dealers in Dress	109	108	100	94	<i>1·8</i>	<i>1·8</i>	<i>1·7</i>	<i>1·7</i>
XX. Food, Tobacco, Drink, Lodging	93	98	100	105	<i>3·4</i>	<i>2·5</i>	<i>2·6</i>	<i>1·9</i>
Working and Dealing in Food	88	97	100	105	—	—	—	—
Tobacco	82	85	100	98	<i>1·3</i>	<i>1·2</i>	<i>1·5</i>	<i>1·5</i>
Makers of Spirituous Drinks; Inn, Hotel Keepers; Wine Merchants, &c.	118	102	100	92	<i>6·4</i>	<i>3·7</i>	<i>5·1</i>	<i>2·2</i>
Beer Bottlers; Cellar and Barmen; Waiters; Others in Hotels, &c., Service	88	103	100	127	<i>1·6</i>	<i>1·2</i>	<i>1·2</i>	<i>1·4</i>
Coffee, Eating, Lodging House, Boarding House Keepers	71	84	100	121	—	—	—	—
XXI. Gas, Water and Sanitary	48	68	100	114	—	—	—	—
XXII. General and Undefined	149	149	100	78	13	13	8·8	4·3
Shopkeepers, Dealers, Pawnbrokers	140	126	100	141	<i>1·4</i>	<i>1·4</i>	<i>1·2</i>	<i>1·1</i>
Costermongers, Street Sellers	82	103	100	133	<i>1·7</i>	<i>2·6</i>	<i>3·3</i>	<i>4·5</i>
General Labourers	177	166	100	64	—	—	—	—
Engine-Drivers, Stokers, Firemen (not Railway, Marine, Agricultural)	81	88	100	93	—	—	—	—
Others	144	171	100	70	—	—	—	—
XXIII. Retired or Unoccupied (h)	102	103	100	99	<i>4·2</i>	<i>4·2</i>	<i>4·6</i>	<i>4·5</i>
Total Occupied (Orders I to XXII).	100	99	100	100	<i>2·3</i>	<i>2·2</i>	<i>2·4</i>	<i>2·4</i>

Improved returns have contributed to a large increase under some heads, such as "Hospital and Institution Service," "Waiters (not Domestic) and Others in Inn, Hotel and Eating-House Service."

It has been noted in another part of the Paper that comparison between 1901 and 1911 is invalid for certain classes of married women, more especially: (a) female relatives of farmers; (b) boarding-house and lodging-house keepers; and (c) shop-keeping and other dealing businesses in which relatives assist.

Disregarding the cases classed as "Others" in each order (for which index numbers have been recorded only because they afford some guide to the precision of the other classes in the same Order), we have, in all, indices for 77 separate occupations; 45 of these showed changes which were consistent in direction from Census to Census, while 50 were consistent from 1891 to 1911. These 50 occupations have been further analysed in Table V into three groups according to the magnitude of the difference between 1891 and 1911, and the changes from Census to Census are there shown as percentages, so that one decade may be compared with another.

We conclude, so far as these figures may be trusted, that the incoming stream of labour has been diverted during this period in such a way as to fill the "expanding occupations" on the left and to empty the "declining occupations" on the right, the rise and fall being greatest in the first set of occupations, not quite so great in the second set, and comparatively small in the third set.

The very large rise in one or two cases—tramways, cycles and motors, electrical supply—is easily understood; the universal application of electricity and use of the motor have practically come into existence during the last ten-year period. Attention has been previously called to the large increase of workers under national and local authorities. There is a similar advance under the heads of "Hospital and Institution Service" and "Banking." The passing of the Insurance Act will have added greatly to the already swelling numbers of insurance officials.

It is worthy of note that four out of the seven occupations showing the biggest decline belong to the textile group of industries. The large drop in general labourers is in all probability mainly due to the greater precision of the returns as already explained, and other more definite headings have profited to a corresponding extent.

It is unnecessary to call attention in detail, however, to all the figures, as the tables tell their own tale.

TABLE V.

	Expanding Occupations.		Percentage Increase.		Declining occupations.	Percentage decrease.	
	1881-91.	1891-1901.	1881-91.	1901-11.		1881-91.	1901-11.
Occupations in which the difference between the 1891 and 1911 index numbers is not less than 40.							
i. National Government...	...	26	33	21	v. Merchants, Salesmen, &c. (commodity undefined) ...	20	16
ii. Poor Law, Local Officers	...	17	-3	84	vii. Agricultural Labourers, &c. ...	50	5
iii. Navy and Marines	...	38	8	37	viii. Flax, Linen, Manufacture ...	31	15
iv. Hospital, &c., Service...	...	34	43	45	ix. Wool and Worsted Manufacture ...	46	3
v. Dealers in Money	...	24	16	23	x. Silk Manufacture ...	29	22
vi. Insurance	...	56	83	54	xi. Hosiery Manufacture ...	44	4
vii. Tramway Service	...	131	128	103	xii. General Labourers ...	33	36
viii. Cycle and Motor Manufacture...	...	128	—	154		15	
ix. Dealers in Metals, &c.	...	31	21	21		6	
x. Electrical Supply, &c.	...	259	—	77			
xi. Gas, Water, and Sanitary	...	46	43	14			
Occupations in which the difference between the 1891 and 1911 index numbers is less than 40 but not less than 20.							
iii. Art, Music, Games, &c.	...	15	19	24	vi. Coach, Cab Men, &c.	+7	32
iv. Laundry Workers	...	12	78	25	vii. On Seas, Rivers, &c. ...	10	11
vi. Railways (excluding Gangers, Labourers, &c.)	...	29	18	3	viii. Farmers, Graziers	13	9
vii. Carriers, Carters, &c.	...	40	19	0	ix. Fishing	—	6
viii. In Docks, Harbours, &c.	...	37	32	9	x. Masons and Labourers	24	37
ix. In Coal Mines	...	9	19	21	xviii. Hemp, Jute, Rope, Mat, Canvas, &c., Manufacture...	17	10
xv. Chemicals, Oil, &c.	...	15	9	20			
xx. Eating, Lodging House, &c.	...	19	18	21			
Occupations in which the difference between the 1891 and 1911 index numbers is less than 20.							
iii. Teachers, &c.	...	1	-3	4	iii. Clergy, Ministers, &c.	3	10
v. Agents, Travellers, Accountants, Auctioneers	...	12	1	8	iv. Barristers, Solicitors	+1	10
vi. Commercial Clerks	...	17	15	4	xi. Workers, &c., in Watches	13	14
vii. Gardeners, &c.	...	6	6	9	xvi. Skins, Leather, &c.	3	7
x. Metals, Machines, &c.	...	1	1	1	xviii. Drapers, &c.	0	12
xi. Ships and Boats	...	9	14	7	xix. Workers, &c., in Dress	1	6
xvii. Paper Manufacture, &c.	...	7	2	4	xx. Makers of Spirituous Drinks, Innkeepers, Wine Merchants, &c.	7	8
xviii. Stationers, Paper Bag Manufacture, &c.	...	2	13	3	xxiii. Retired or Unoccupied	14	1
xix. Printers, &c.	...	22	22	6		+1	3
xx. Working, &c., in Food	...	9	9	5			

Note.—A sign is inserted in the first decade columns only when the change is in the opposite direction to that in the two decades which follow.

A study of the other half of Table IV brings out some interesting points. We may note with satisfaction that the Census tables show a relative decrease in the numbers of women engaged in hawking and in connection with such work as mining. At the same time women are steadily gaining over men in many occupations for which they must be adapted to no small degree. Compare the relative numbers in successive years under the headings of General or Local Government, Commercial, Chemicals, &c., Skins, &c., Printing, and Watchmaking, &c. Evidence might be given also that their numbers are growing, though they are yet small, in some of the higher professions, such as Medicine.

The principal occupations in which women are employed are Domestic Indoor Service, Textiles and Dress. Each of the last two, as a whole, shows little variation in the proportion of males to females during the thirty years 1881–1911, while for Indoor Service no comparison is possible, because of changes in the method of return from Census to Census, but the women are greatly in excess of the men.

Out of 29 separate occupations in which males and females were employed together in numbers reasonably comparable, and where a comparison can be made with some accuracy, there are 11 in which the proportion of females consistently increased from Census to Census throughout the period 1881–1911, 10 in which it was fairly steady, 6 in which it was rather variable, and only 2 in which it consistently fell; this result is shown in Table VI.

It is probable that the increasing entry of women into many occupations would have been still more marked if the proportions of males to females at earlier ages only had been compared from Census to Census.

After separating males from females an attempt was made to analyse the males by dividing them into three age-groups: 10 and under 20, 20 and under 45, 45 and over 45 years of age.

This has only been done for the years 1901 and 1911, and the intention was to determine whether the change recorded, from 1901 to 1911, in the number of males as a whole, in any occupation, was spread over all males equally, or whether it was due to a marked change in one particular age-group.

The dividing lines were drawn at ages 20 and 45 in order to test at the same time the truth of two statements which are not infrequently made, namely:—

(1) Adult labour is not employed at the present time to the same extent as in the past. Cheap young labour is utilised instead. Lads will be kept on until they begin to expect a man's wage,

TABLE VI.—*Proportion of males to females, or females to males (italicised), in certain occupations in 1911.*

1881-1911. Occupations in which proportion of females rose.	1911. m/f or f/m.	1881-1911. Occupations in which proportion of females fell.	1911. m/f or f/m.	1881-1911. Occupations in which proportion was fairly steady.	1911. m/f or f/m.	1881-1911. Occupations in which proportion was rather variable.	1911. m/f or f/m.
I. National Government v. Commercial Clerks ...	5.4	xvii. Paper Manu- facture ...	2.5	iii. Teachers, &c. ...	2.7	i. Poor Law, other Local Officers ...	2.8
x. Dealers in Metals, &c. ...	3.1	xxii. Street Sellers, &c. ...	4.5	iv. Hospital, &c., Service ...	2.1	xiii. Furniture, &c. xiv. Brick, China, &c. ...	6.0
xi. Workers, &c., in Watches ...	7.2			xviii. Cotton Manu- facture ...	2.4	xviii. Flax Manu- facture ...	2.8
xv. Chemicals, &c. ...	4.1			Wool Manufac- ture ...	1.6	Lace Manu- facture ...	2.7
xvi. Skins, &c. ...	3.4			Silk Manufac- ture ...	1.3	xx. Inn Keepers, &c. ...	1.7
xvii. Stationery, &c. ...	2.8			xix. Workers, &c., in Dress ...	2.3		2.2
xviii. Printing, &c. ...	1.9			xx. Beer Bottlers, &c. ...	1.7		
xviii. Hosiery, &c. ...	5.2			xxii. General Dealers xxiii. Retired and Un- occupied ...	1.4		
xviii. Hemp, &c. ...	2.8				1.1		
xx. Tobacco ...	1.1				4.5		

Note.—Occupations in which the males out-numbered the females, or *vice versa*, by as much as 10 to 1 in 1911 are omitted from this table. The ratio between males and females has been regarded as “fairly steady,” if it did not vary by more than 0.5 throughout the period 1881-1911, judging by the measurement at each Census. Otherwise, assuming that it neither increased nor decreased consistently from Census to Census, it has been put down as “rather variable.”

probably when they near the age of 20. They are then replaced by younger lads, who are also dismissed in their turn.

(2) Employers refuse nowadays to take into their service men who have passed their prime. "Too old at 40" is the phrase used, and men who are getting on from 40 to 50 are often forced in one way or another to give up work.

Table VII shows the percentage of males employed, in 1901 and 1911, in these three age-groups for the 23 main orders of occupation, so that it is possible to see how the proportions at different ages have changed during the ten years.

TABLE VII.—*Percentages occupied at the ages specified.*

(Males.) Occupation.	1901.			1911.		
	10—	20—	45—	10—	20—	45—
I. General or Local Govern- ment	16	64	20	11	67	22
II. Defence	25	67	8	20	73	7
III. Professional, &c.	10	61	29	8	58	33
IV. Domestic	18	57	25	15	58	27
V. Commercial	19	62	20	17	62	22
VI. Conveyance	22	57	21	20	57	23
VII. Agriculture	19	45	36	18	46	36
VIII. Fishing	11	58	31	9	56	35
IX. Mines and Quarries	19	60	21	18	60	22
X. Metals, Machines, &c.	19	58	23	16	60	24
XI. Watches, Instruments, &c.	19	61	20	16	57	27
XII. Building and Works of Construction	14	57	29	7	58	35
XIII. Wood, Furniture, &c.	18	55	27	14	56	30
XIV. Brick, Cement, Pottery, &c.	23	56	20	20	56	24
XV. Chemicals, Oil, Soap, &c.	17	60	24	15	61	24
XVI. Skins, Leather, &c.	16	56	28	14	55	31
XVII. Paper, Prints, Books, &c.	22	58	19	20	58	22
XVIII. Textiles	25	54	20	25	53	22
XIX. Dress	16	57	27	17	56	28
XX. Food, Tobacco, Drink and Lodging	17	59	24	16	59	25
XXI. Gas, Water, and Sanitary	5	64	31	4	59	36
XXII. General and Undefined Workers and Dealers	14	56	30	12	54	35
XXIII. Retired or Unoccupied	73	6	21	71	5	24
Total Occupied, Orders I to XXII	18	57	25	16	57	27

Note.—The percentages have been written in each case to the nearest integer so that they do not add up always to 100 exactly.

Although the figures in Table VII may not all be of equal value for comparative purposes, owing to changes in the method of return which affect some occupations more than others, they nearly all point in the same direction. With the exception of the textiles

and dress groups of industry the percentage of young labour (age 10-20) is distinctly less in 1911 than in 1901, and there is but one instance in which the percentage of old labour (age 45 and over) has decreased, namely, that of defence.

These results are rather surprising, as they show, if anything, a tendency on the part of employers to maintain a smaller proportion of youthful labour and a greater proportion of older labour in comparison with adult labour at its best (age 20-45). The reason for this is partly suggested by an examination of the total male labour available in the different age-groups in 1911 as compared with 1901. We have :—

Percentage increase, 1901-11, in all males and in all occupied males at ages shown.

Class.	Age 10—	Age 20—	Age 45—	All ages, 10 and over.
All males....	4	13	21	13
All occupied males	0	14	20	13

Thus there was a large increase during the ten years in the available store of labour at ages 45—, not so large an increase in the store at ages 20-45, and a comparatively small increase in the store at ages 10-20. It is thus quite conceivable that room might not be found in 1911 for all the additional males, at ages 45—, in the labour market, although, *in proportion to those at ages 20-45*, more might be occupied than in 1901, and this lack of room might give rise to the mistaken impression that employers are less inclined than they used to be to consider men who are past their best.

The above table also indicates that the total number of males occupied, or the total number of “jobs,” increased at quite as fast a rate as the working male population, although there was actually a decrease in the numbers employed between the ages 10 and 20. This conclusion, if sound, is encouraging.

As a further test of the results just obtained the same analysis was carried out in the cases of : (1) the dress trades, the one group which apparently showed an increase in the number of youths employed; and (2) 25 occupations specially mentioned in the Census Report for 1911 as each showing a high proportion occupied at ages under 20 to the total occupied, aged 20 and upwards. In the first case the result will be merely quoted, but in the second a table will be shown, because, of all occupations, the 25 mentioned presumably had the strongest attraction for youths, and for this reason they deserve special examination.

The dress trades numbered 23 in all, and the proportional percentage of youths only rose to any marked extent in the following four trades: dressmaking, button making, glove making and artificial flower making. Moreover, these trades altogether did not employ a large number of youths; the total was 634 in 1901 and 1,254 in 1911. There were also four trades in which the proportional percentage of men over 45 fell markedly: millinery, dressmaking, glove making and artificial flower making, employing between them 1,387 men at these ages in 1901, and 1,913 in 1911. It is interesting to note that three of the trades in which older men appeared to be diminishing are also trades which youths appeared to be entering in increasing numbers, suggesting a transference from one class of employees to the other, since the proportion of men between the ages 20 and 45 in each of them remained fairly steady. Further, there were three trades in which the numbers employed far exceeded those in any of the remaining twenty, namely: boot and shoe making, tailoring, wig making and hair-dressing. The youths under 20 in these trades numbered 52,142 in 1901 and 53,136 in 1911; the men over 45 numbered 91,971 in 1901 and 94,040 in 1911. In each of these three trades the proportional percentage of youths remained steady, while that of older men showed a slight increase between 1901 and 1911.

Table VIII gives the result of the examination of the 25 occupations referred to in the 1911 Census Report. It should be mentioned that rather wider groups of occupations had to be taken in 7 cases out of the 25, because the 1901 Census tables did not split up classes to the same extent as the 1911 tables. The difference is here shown:—

Groups as recorded in 1911 Report.	Wider groups taken, common to 1901 and 1911.
Post Office Messengers, &c. Van, &c., Guards, Boys. Coal Mines: Workers below ground (not working at the face); Workers above ground. Cardboard Box Makers. Printers, "Others." Beer Bottlers. News-Boys, Vendors.	Civil Service (Messengers, &c.). Carmen, Carriers, Carters, Waggoners (not Farm). Coal and Shale Mine Workers: Hewers; other workers above and below ground. Paper Box, Paper Bag Makers. Printers. Cellarmen. Costermongers, Hawkers, Street Sellers.

The result of taking the wider group in each case was to disguise to some extent the highness of the proportion of youths employed in these 7 occupations. In all the 25 cases there were but 4, namely,

(1) Messengers, Porters, Watchmen; (2) Surgical and Dental Instrument Makers; (3) Wool and Worsted Manufacture; (4) Street Sellers, &c., in which the proportion of youths under 20 rose between 1901 and 1911. In three of these four cases the proportion of older men fell at the same time, suggesting a partial transference from one age of employees to the other, as in the dress trades before noticed. The relative proportion of older men went down in 6 cases altogether, but the decrease was only small in 4 of them.

It should be added that the partial draining of men from certain occupations in 1901 to go to the South African War may have had some influence on these results, but that alone would not be enough to account for them altogether.

TABLE VIII.—*Percentages occupied at the ages specified.*

(Males.) Occupation.	1901.			1911.		
	10—	20—	45—	10—	20—	45—
Soldiers and N.C.O.'s	29	69	2	26	74	1
Law Clerks	29	57	14	26	56	19
Domestic Servants in Hotels, &c.	31	58	11	31	62	7
Other Domestic Indoor Servants	37	50	13	26	58	16
Commercial Clerks	28	60	12	26	60	14
Messengers, Porters, &c.	71	18	11	73	17	10
Farmers' Relatives, &c.	38	60	3	35	61	4
Agricultural Labourers	25	44	31	23	46	31
Bolt, Nut, &c., Makers	30	50	20	29	49	21
Surgical Instrument Makers, &c.	20	63	17	26	59	15
Glass Bottle Manufacture	33	53	14	30	53	17
Cotton Manufacture	30	54	16	30	52	18
Wool and Worsted Manufacture	27	50	24	28	47	24
Rope, Twine, &c., Makers	33	38	29	32	41	27
Textile Bleaching	31	53	16	30	52	18
Slipper Makers	31	58	12	26	59	15
Chocolate and Cocoa Makers	38	54	8	29	60	11
Pawnbrokers	34	52	14	33	52	15
Civil Service (Messengers, &c.)	34	52	13	22	60	19
Carmen, Carriers, &c.	17	65	18	12	66	22
Coalmine Workers	21	60	19	20	60	20
Paper Box and Bag Makers	34	51	16	28	56	16
Printers	24	60	16	22	58	20
Cellarmen	27	59	14	26	58	16
Costermongers, &c.	18	49	33	26	46	28

The main orders of occupation in which women are employed in any numbers have also been examined in the same way, and the same age groups have been adopted. Married and widowed females have not been included, as the marriage factor would affect the results in a way not easy to estimate. Moreover, certain changes

introduced in 1911 in the schedules sent out render comparison with 1901 unreliable for some classes of married women; these changes affect more particularly: (a) female relatives of farmers; (b) boarding-house and lodging-house keepers; and (c) shop-keeping and other dealing businesses in which relatives, especially wives, assist. Comparison for the unmarried, however, can be made with fair accuracy.

The general results, as seen in Table IX, agree in their main lines with those obtained for males. In nearly every case, except two, Conveyance and Agriculture, there is a fairly marked diminution in the proportion of girls employed below 20 years of age, and one of these occupations—Agriculture—is the only one in which the proportion of women over 45 years of age has fallen to a noticeable extent.

TABLE IX.—*Percentages occupied at the ages specified.*

(Unmarried females.) Occupation.	1901.			1911.		
	10—	20—	45—	10—	20—	45—
I. General or Local Govern- ment	19	75	7	15	78	7
III. Professional	23	69	9	9	78	13
IV. Domestic	37	57	6	33	59	8
V. Commercial	37	61	2	35	62	2
VI. Conveyance	57	41	2	60	38	2
VII. Agriculture	31	57	12	32	59	9
IX. Mines and Quarries....	56	39	5	52	43	5
X. Metals, Machines, &c.	58	40	2	55	44	2
XI. Watches, Instruments, &c.	54	43	3	47	49	4
XIII. Wood, Furniture, &c.	50	45	5	43	52	6
XIV. Brick, Cement, Pottery, &c.	58	41	2	54	44	2
XV. Chemicals, Oil, Soap, &c.	57	41	1	50	48	2
XVI. Skins, Leather, &c.	54	43	3	50	46	4
XVII. Paper, Prints, Books, &c.	55	43	3	49	48	3
XVIII. Textiles	48	49	3	46	49	5
XIX. Dress....	41	53	6	40	54	7
XX. Food, Tobacco, Drink and Lodging	33	57	10	30	58	11
XXII. General and Undefined Workers and Dealers	46	48	7	41	51	8
XXIII. Retired or Unoccupied	68	25	8	67	24	10
Total Occupied, Orders I to XXII	53	40	7	50	42	8

Here, again, the explanation is partly to be found in the surprisingly great increase between 1901 and 1911 in the number of unmarried women over 45 available for labour (which itself is affected also by changes in the marriage rate) as compared with those at other ages, and especially with those between 10 and 20, as shown in the following table :—

Percentage increase, 1901-11, in all unmarried females and in all such occupied at ages shown.

Class.		Age 10—	Age 20—	Age 45—	All ages, 10 and over.
All Unmarried Females		4	14	37	10
All Occupied Unmarried		5	19	42	15

In each age group the percentage increase in occupied unmarried females is greater than the percentage increase in all unmarried females, bringing out once more the increasing power of absorption shown by the industry of the country during these 10 years as the population itself grew.

Table X gives some information as to the age at which boys and girls first enter into the labour market. In the 1911 Census Report it was shown that by far the greatest number begin work between the ages 14 and 15. The argument used was as follows: In 1911 the total number of males occupied, aged 13 and under 14, was 75,561; while the total number occupied, aged 14 and under 15, was 222,854. Assuming, on the 1911 basis, that 75,561 out of this latter number were already occupied in 1910, the difference, 147,293, represented approximately the number entering employment between the ages 14 and 15 in 1911. Admittedly no account was taken of numbers withdrawn by death, migration, or other causes, but the result obtained was so marked as to be convincing in spite of this defect.

The numbers entering employment in 1901 and 1911 at ages 12-13, 13-14 and 14-15, also at ages 15-16 in 1911 alone, have been calculated by this method for certain occupations, which, in the official report, receive special mention because they attract large numbers of minors, and they are put together in Table X. The 1901 Census unfortunately did not give the numbers occupied between ages 15 and 16.

Signs of improvement are evident from this table during the ten-year period 1901-11. Boys and girls tend to enter into employment later in life than used to be the case. For example, among males in the first three occupations tabulated the greatest number began work between the ages 13 and 14 in 1901, while in 1911 the greatest number began work between the ages 14 and 15. The improvement, though not so pronounced, is seen in all the other cases considered, both for males and females, as well as in the totals for all occupations, though in the textile industry, where it is the custom to begin work earlier in life than in most other occupations, the change for the better is only very slight.

This general raising of the school-leaving age has, no doubt, been greatly assisted by local legislation.

TABLE X.—*Approximate numbers who began work at the given ages.*

Occupation.	Years.	12—13.	13—14.	14—15.	15—16.
<i>Males.</i>					
Coalmine Workers	1901	665	11,636	6,250	—
	1911	29	8,047	14,442	4,243
Messengers, Porters, Watchmen (not Railway or Government)	1901	3,548	23,995	13,684	—
	1911	2,975	14,687	33,735	0*
Agricultural Labourers	1901	2,100	10,934	8,450	—
	1911	317	7,058	11,467	4,067
Textile Workers	1901	8,803	6,698	2,713	—
	1911	8,390	6,753	4,499	418
Commercial or Business Clerks	1901	71	1,833	5,964	—
	1911	6	618	5,598	6,963
General Engineering and Machine Making	1901	137	2,398	7,628	—
	1911	99	1,753	7,050	5,848
All Occupations	1901	19,339	94,028	112,083	—
	1911	14,659	57,862	147,293	55,421
<i>Females.</i>					
Domestic Servants	1901	1,926	15,895	29,168	—
	1911	314	6,988	32,187	25,759
Commercial or Business Clerks	1901	8	210	890	—
	1911	3	165	1,771	2,636
Textile Workers	1901	9,068	11,817	10,394	—
	1911	8,869	11,449	12,844	4,768
Dressmakers	1901	123	2,131	7,197	—
	1911	50	1,232	9,243	6,767
Tailoresses	1901	80	1,518	3,051	—
	1911	40	1,063	3,569	2,149
All Occupations	1901	11,976	44,419	74,117	—
	1911	9,880	29,007	94,184	60,068

* The effect in this case is really negative ; the numbers who left between the ages 15 and 16 exceeded the numbers who entered.

Further evidence in support of this improvement is submitted in Table XI, where the ratios of numbers occupied (not in this case the numbers *entering into occupations*) among males and females, at ages 14—15 and 10—14, also at ages 15—20 and 14—15, in 1901 and 1911, are shown. In by far the majority of cases we find the ratios of those occupied at the higher ages to those occupied at the lower ages increasing, which implies that young people in 1911 were not in general obliged to begin to maintain themselves so early in life as their predecessors in 1901.

The table may be read as follows : In “ Chemicals, Oil, &c.” in 1901 there were nearly three times as many boys between ages 14

and 15 occupied as there were between ages 10 and 14; in 1911 there were eight times as many so occupied between 14 and 15 as there were between 10 and 14. Similarly for any other occupation.

TABLE XI.—*Ratio of numbers occupied at the ages given below.*

Occupation.	Males.				Females (unmarried).			
	Ages 14-15. Ages 10-14.		Ages 15-20. Ages 14-15.		Ages 14-15. Ages 10-14.		Ages 15-20. Ages 14-15.	
	1901.	1911.	1901.	1911.	1901.	1911.	1901.	1911.
I. General or Local Government	2.0	5.8	3.6	4.2	2.9	5.2	37	69
II. Defence*	35	2.6	80	69	—	—	—	—
III. Professional, &c.	2.8	4.5	11	12	3.6	5.0	14	35
IV. Domestic	1.8	3.2	6.4	7.6	2.3	5.1	9.2	11
V. Commercial	3.9	9.9	11	16	4.9	11	18	21
VI. Conveyance	1.5	2.3	3.4	3.1	1.2	2.5	3.4	2.4
VII. Agriculture	1.4	2.6	5.5	6.4	2.0	3.7	10	10
VIII. Fishing	3.0	5.4	14	20	—	—	—	—
IX. Mines and Quarries	1.5	2.8	5.8	6.5	2.8	5.4	12	14
X. Metals, Machines, &c.	3.1	5.1	9.0	9.8	2.4	6.0	7.5	8.1
XI. Watches, Instruments, &c.	3.3	9.8	10	9.0	2.3	8.4	6.8	6.5
XII. Building and Works of Construction	3.7	6.3	14	13	—	—	—	—
XIII. Wood, Furniture, &c.	3.1	5.4	8.9	8.6	3.3	5.1	8.4	8.7
XIV. Brick, Cement, &c.	1.8	2.1	5.4	5.7	2.2	2.0	7.2	6.8
XV. Chemicals, Oil, &c.	2.8	8.0	7.3	10	3.6	8.0	7.8	8.8
XVI. Skins, Leather, &c.	2.6	5.1	7.5	9.3	2.8	9.3	6.3	5.9
XVII. Paper, Prints, Books, &c.	2.2	5.0	5.6	7.0	2.6	5.1	6.2	6.9
XVIII. Textiles	0.7	0.8	4.4	5.0	1.0	1.1	6.0	5.9
XIX. Dress	1.6	2.2	6.7	7.5	3.0	5.0	8.4	8.1
XX. Food, Tobacco, Drink and Lodging	2.3	4.6	7.7	10	2.8	6.5	10	11
XXI. Gas, Water and Sanitary	2.4	11	14	15	—	—	—	—
XXII. General and Undefined Workers and Dealers	1.9	0.7	9.4	8.6	2.7	5.2	8.2	8.3
XXIII. Retired or Unoccupied	0.1	0.1	1.2	1.1	0.2	0.2	2.7	2.4
Total Occupied, Orders I to XXII	1.6	2.3	6.5	6.8	1.9	2.7	8.2	8.7

* The numbers under this heading were affected by the Boer War.

To sum up, these notes attempt in the first place to bring out, by means of tables, and more clearly than this has been done in the official reports, certain features in the state of the occupied population from Census to Census since 1881. While all the individual figures cannot perhaps be taken at their full face value, owing to changes in the method of return, &c., they seem, when considered

together, to point to one or two conclusions for which the evidence is fairly general :—

(1) Women are entering, in steadily increasing numbers, into many occupations which were confined almost entirely to men ten, twenty and thirty years ago.

(2) Judging from the 1901 and 1911 returns, the age of entry into the labour market for boys and girls is rising appreciably, if slowly.

(3) In the majority of occupations there were fewer young people under 20, and more older people over 45, employed in 1911, in comparison with adults between those ages, than there were in 1901. Moreover, as the age is diminished below 20, it is noticeable that the number of boys and of girls employed falls faster in 1911 than it did in 1901.

(4) Finally, as the population increased, during the ten years between 1901 and 1911, the industry of the country appeared to develop an increasing power of absorption of the workers. In fact, not only do industry and the people grow together, but they seem to grow as one, as a single organism, though this is not to imply that the rates of growth in different parts of the organism have always been or need always be uniform.

These conclusions, satisfactory as they appear, must be accepted with caution, because, in a matter so complicated as the Census of Occupations, important factors, perhaps not always expressible in numbers, might easily be overlooked by the most careful worker. It is hoped, however, that no serious errors have crept into the tables, and that they, apart altogether from the conclusions drawn, may have some little value.

DISCUSSION ON MR. D. CARADOG JONES'S PAPER.

MR. T. A. WELTON, in proposing a vote of thanks to the author, said he was very glad to see on the part of a young member a healthy and intelligent curiosity devoted to such an uninviting volume as the Census of Occupations. He himself for fifty or more years had studied that subject, and no doubt by the time Mr. Jones had expended as much time in gathering experience as he (the speaker) had, he would to some extent modify his methods. What he liked to see was a healthy and legitimate curiosity accompanied by industry and originality of treatment, and in that respect he thought Mr. Jones's Paper was very much

to be commended. He could only welcome a recruit to that kind of investigation, of whom there were not by any means too many.

Mr. JESSE ARGYLE, in seconding the vote of thanks, joined with Mr. Welton in congratulating Mr. Jones on the industry he had shown, and on the fact that he had succeeded in quite a short Paper in bringing out the most salient points of the recent Census returns, without overburdening the Paper with too much detail or too many statistics. He thought also Mr. Jones had suggested lines upon which further research might well be made. He would venture to refer to one or two points, and, as a preliminary, suggested that the words "England and Wales" should be added to the title of the Paper, so as to make it clear it did not include Ireland and Scotland, which countries also had their Occupation Censuses in 1911. He referred to Mr. Jones's attempt to investigate the statement made that "Employers refuse nowadays to take into 'their service men who have passed their prime ('Too old at Forty' "being the phrase used)," and to his speaking of the peculiar fact that in only one instance had the percentage of old labour decreased. But it must be borne in mind with regard to this, that no account of unemployment was taken in gathering the particulars for the Census. It was merely a record of the occupations to which men returned themselves, and a man might be unemployed, or very badly employed, especially if he were getting on in years, and yet not desert his trade. Unfortunately there was little mobility of labour, particularly in the lower ranks, and a man would, for instance, still go on calling himself a miner, although he might get but a few days work in the year. Although his employers considered him too old at 40, he did not consider himself so. That would make a good deal of difference. With regard to the employment of young people, Mr. Jones had shown the decrease in the numbers of boys and girls employed. But that would be still more clearly brought out, he thought, if one took a longer view and went further back in studying the figures. The ten-year period hardly gave a sufficient view of it. They had to remember there was not only the reduction in the school-leaving age referred to in the Paper, but there had been a great deal of legislation in the way of Factory Acts, and added to that, more particularly in the skilled trades, considerable action on the part of the men themselves, through their trades unions, in restricting the amount of boy labour. He had ventured to go back, in the case of some occupations, as far as 1861. By doing so the improvement in regard to the question of the employment of juveniles was remarkably brought out. If they took the total of males between 10 and 15 in 1861, they found that nearly 4,000 in 10,000 were occupied, whereas in 1911 the figure was only about 1,800 in 10,000. Of those between 15 and 20, the occupied were about 900 per 10,000 in 1861, and in 1911 they were only just over 800 per 10,000. Taking the mean of those figures, they found that the occupied under 20 in 1861 were 2,400 per 10,000, whereas in 1911 they were only 1,300 per 10,000. So

that practically there was only about one-half the proportion of young people employed now that were employed in 1861. It was still more strongly expressed in some industries. In the building trade the figures were remarkable. They knew that the building trade since 1861 had practically doubled in the number employed; yet the proportion at ages 10 to 15 had fallen from 122 per 10,000 in 1861 to 34 per 10,000 in 1911. Between 15 and 20 it was 650 in the former year and only 415 in the latter year, or, taking the mean again, the reduction was from 386 per 10,000 to 224 per 10,000. As he had said, that was in spite of the wonderful increase in the trade during that time. Again, with regard to textiles, the writer of the Paper thought that the improvement in respect to juveniles was very small, taking only the last ten years. But if he went back as far as 1861 he would find that the difference was very great. For instance, in 1861 there were 654 per 10,000 employed under 15 and only 246 in 1911. Between the ages of 15 and 20 the numbers had gone down from 877 to less than 600 or, combined, from 765 to 422. So that even in what they considered to be the worst industries from the standpoint of employing juvenile labour, there had been an enormous improvement.

Mrs. WOOD said, with reference to the last speaker's remarks, that owing to the fall in the birth-rate during the last thirty years, the average age of the population had gradually increased: it, therefore, followed that the proportion of young people in industry compared with the total number must show a corresponding decrease, even if the proportion of all young children engaged in industry had remained constant. The method employed by Mr. Jones of comparing the number of children of age 10-14 with the number of age, say, 14-15 for a period of years, overcame this difficulty.

Mr. YULE joined in congratulating Mr. Jones for having offered a very interesting series of studies on the Census of Occupations of this country. There were only two small points he had noted that seemed to call for mention. In the first place, he did not think an industry should be referred to as declining when only the percentage of the population engaged in that industry was decreasing. Surely if an industry continued to maintain the same number of persons, it was in a steady state, and it had only declined when the number of persons in that industry was decreasing. With a rapidly increasing population, the percentage of the population engaged in an industry might be falling although the industry was not declining at all in the proper sense of the term. The method needed a word of caution in that respect. A steady percentage really meant a growing industry. Again, with regard to the subject of percentage changes, at first sight the figures puzzled him a great deal. They were given in summary Table III. In 1910-11, for example, they had a long group of percentage

increases against what looked like a few relatively small percentage decreases, whereas, on the whole, from the way the figures were taken there could be no change, for the figures given were all changes in the percentages of the population engaged in the several trades. What one had to remember was that the quantity which had to be zero was not the arithmetic mean of the increases and decreases but the weighted mean, weighting each change in proportion to the fraction of the population engaged in the given occupation in the earlier year of the decade taken. If they supposed an ideal simple population in which there were only a couple of occupations, the whole of the population, for instance, being engaged either in the church or on the stage, and in the earlier year of the decade 15 per cent. of the population were occupied in the church and 85 on the stage; if after a decade of religious revival, 30 per cent. of the population were occupied in the church and 70 per cent. on the stage, they would then have a percentage increase of the proportion engaged in the church equal to 100 per cent. and a fall of only 18 per cent. in the proportion engaged on the stage. It was the weighted average of those two percentage changes that was zero, when they weighted them in proportion to the 15 and 85 respectively, the fractions of the earlier year, *i.e.*—

$$\frac{15}{15} \times 15 - \frac{15}{85} \times 85 = 0.$$

Mr. CARADOG JONES, in reply, said he very much appreciated all the suggestions and criticisms that had been made with regard to the Paper. He thought one very interesting and good point was made with regard to the fact that no account was taken in the Census of unemployment; but he supposed that a man who, being unemployed, had sunk from the level of a carpenter, say, to that of a general labourer, would come outside the reference that was made. On the point made by Mr. Yule with reference to the heading "Expanding occupations and declining occupations"; by declining he meant declining relative to other occupations, otherwise the word would not be a satisfactory one. He thought that was perhaps better brought out in the context of the Paper than it was in the heading of the table. He thanked the members for the very appreciative way in which they had listened to the Paper, which to some extent lacked lightness of touch because it depended so much for its interest on the tables.¹

The vote of thanks was carried unanimously.

¹ With further reference to the criticism that a person who is temporarily unemployed on Census day is classed to his usual occupation, and the effect that would have upon any conclusions with regard to employment at different ages, it might be pointed out that, since the same applies to both years, 1901 and 1911, while the general index numbers for employment in the two years, obtained from other sources, do not greatly differ, the criticism seems to lose much of its force, especially as the percentage changes shown in the tables for persons occupied at different ages nearly all lean in the same direction when the two years are compared.