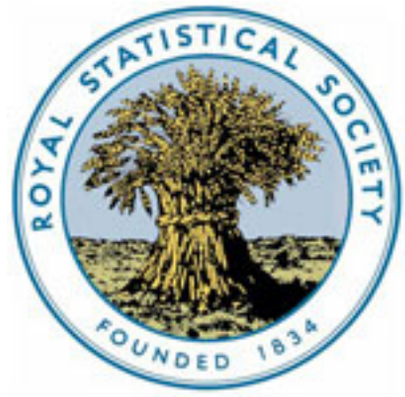

Trade Union Expenditure *on* Unemployed Benefit.

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Major Patrick George Craigie, C.B., President, in the Chair.]

The question of fluctuations in employment has been dealt with in the *Journal of the Royal Statistical Society* twice during recent years. In a remarkable paper read before the Society in December, 1899, Mr. Wood examined the progress made by the working classes since 1860. The line of inquiry which he followed was to trace year by year the changes in money wages, in the percentage of unemployed as shown in the records of the more important trade unions, and in the consumption of the important raw materials of food and clothing by all the inhabitants of the United Kingdom. In the diagram he added two more tests by introducing curves based upon the marriage-rate and upon pauperism. The point in Mr. Wood's paper, which I particularly wish to emphasise, is that the diagram shows that whether the prosperity of the working classes is tested by the change in money wages, or by the lack of employment, or by the power of consumption, or by the marriage-rate, or by pauperism, a wonderful similarity of result is obtained. Each test gives fluctuations in the prosperity of the people from year to year, and in each case the fluctuations are practically identical in character and simultaneous in time. I refer to this point, as it is my intention to deal in some detail with only one of the tests used by Mr. Wood, namely, fluctuations of employment, and I wish it to be borne in mind that if material were available for making similar investigations through the medium of the other tests, similar results might be expected.

In the discussion following upon Mr. Wood's paper, Mr. George Howell suggested that fluctuations of employment could be more accurately measured by the amount of money expended by the trade unions on unemployed benefit than by the number of unemployed given in the trade union returns. I had prepared, some two years previously, diagrams based upon "unemployed benefit" for many trades, and was in a position to state that the result of the examination suggested by Mr. Howell would confirm the accuracy of the result obtained by Mr. Wood from the other method. In March, 1900, Mr. Wood contributed to the *Journal* a paper dealing exhaustively

with this point, and proved that the curves of unemployment, whether based upon the percentages of the trade union members unemployed or upon the amount of money expended on unemployed benefit, were practically identical in the character and time of their fluctuations.

I propose in the present paper to push the investigation of the statistics relating to the unemployed benefit a little further, by examining the figures relating to different industries, or groups of industries, in order to see if they throw any light upon the relations of one industry or group of industries to another, and to what extent different industries are affected by movements common to all or peculiar to themselves.

The material available consists of the records kept by the various trade unions, some of them over long periods of time. These were collected and tabulated up to 1895, and published in the "Eighth Report on Trade Unions," C–8232. The figures for the more important unions were continued year by year in the reports on trade unions up to 1900, since which year they have unfortunately been discontinued. It is noticeable that in some of the later reports the figures for previous years have been revised. The figures in this paper, except where specially mentioned, are all based upon figures taken from these reports.

The reports adopt the form of "cost per member" of unemployed benefit, and the "cost per member" for any particular year is obtained by dividing the total sum expended by the society in unemployed benefit during that year by the total number of members at the end of the year. In using the figures this must be kept in mind. In several of the unions many of the members do not subscribe to the unemployed benefit; and, further, during certain periods there have been considerable fluctuations in the number of members; so that the number of members at the end of the year may differ considerably from the average number for the year. A more correct method of measuring the "cost per member" would be to divide the total expenditure by the average number of members during the year who subscribe to or participate in the unemployed benefit. Some of the trade unions adopt this method in their annual reports; if all the chief unions could be induced to do this, and the returns were collected and tabulated by the Labour Department in this form, a very valuable record would thus be obtained of the vicissitudes of the people employed in the main industries of the country. In dealing with the average "cost per member" of unemployed benefit of a considerable number of trade unions, the error due to the method of calculation adopted by the Board of Trade does not vitiate the general results, as is conclusively proved by Mr. Wood's

paper of March, 1900, but in dealing with the figures of any individual society special regard must be paid to these possible sources of error.

Another point to which attention should be directed is the nature of unemployed benefit and the different rules and conditions under which it is administered. Not only do these vary in the different societies, but the same society occasionally changes the scale of its benefits. It follows that these figures must not be used to compare the absolute amount of unemployment in one society with the amount in another, or even to compare the absolute amount in the same society over long periods of time, unless a proper correction is made for the changes in scale. Moreover, as a general rule the out-of-work pay is only continued for a stipulated number of weeks, and if the member is out of work for a longer period he receives no more "unemployed benefit," and so ceases to leave his record on the figures. Hence in periods of prolonged depression, such as 1879, though the figures of unemployed benefit keep a faithful record of the time when the depression begins to be felt in each industry, they minimise the extent of the suffering involved, and tend to show a recovery from the depression rather sooner than the actual recovery takes place.

The scales of the benefits of the different societies vary from a small allowance for travelling expenses while the member is in search of work, commonly called "tramp pay," to an allowance of 12*s.* per week, with a further small allowance for each child. To facilitate a comparison between the fluctuations in the expenditure of the different societies on such different scales of benefit, it is necessary to reduce the records to a common base. In doing this I have followed the method used by Mr. Wood, and for convenience the same period has been adopted as base; this is the average of the yearly "cost per member" during the ten years 1882-91. Table I shows the percentage which the cost per member of the selected societies for each year bears to the average cost per member during the period 1882-91. In some cases individual figures do not correspond with those given in Mr. Wood's table, but generally this is due to the alterations made in the official returns which have been published since that paper was written.

TABLE I.—*Showing Variations in the Expenditure by certain Trade Unions on Unemployed Benefit, and in the Total Imports and Total Exports of British Produce (excluding Ships), reduced to Percentages of* 1882-91.

Union.	Number of Members in 1900.	Average of Cost per Member of Unemployed Benefit during Years 1882-91.	Percentage of each Year to Average of 1882-91.							
			1860	'61.	'62.	'63.	'64.	'65.	'66.	'67.
Coal.		£ s. d.								
Northumberland Miners	23,950	– 3 1	—	—	—	—	—	—	15	—
Durham Colliery Enginemen	2,062	– 4 5	—	—	—	—	—	—	—	—
Metals.										
Iron Founders	18,357	1 6 3	38	112	179	127	72	59	102	249
Amalgamated Engineers	87,672	– 19 9	37	89	162	176	56	45	170	175
Steam Engine Makers	8,495	– 12 4	50	50	142	208	81	41	41	78
Boiler Makers and Iron and Steel Ship Builders	47,670	– 14 5¼	—	—	—	—	—	—	—	240
Textiles.										
Amalgamated Cotton Spinners	18,384	1 – 2	—	—	—	—	—	—	—	—
Blackburn Beamers, Twisters and Drawers	661	– 7 6¼	—	—	—	—	—	—	—	—
Blackburn Weavers	12,500	– 4 9¾	—	—	—	—	—	—	—	—
Amalgamated Lace Makers	3,361	1 10 11¾	—	—	—	—	—	—	—	—
Irish Flax Dressers	1,284	– 18 5	—	—	—	—	—	—	—	—
Building.										
Amalgamated Carpenters and Joiners	65,012	– 19 1¼	4	40	30	26	6	6	17	68
United Operative Plumbers	11,186	– 1 6½	—	—	—	—	—	—	—	—
„ Bricklayers	3,438	– – 8¾	—	—	—	—	—	—	—	756
Friendly Stonemasons	19,419	– 2 5⅓	—	—	—	—	—	—	75	123
Printing.										
London Compositors	11,287	– 15 7¼	12	55	46	23	55	77	71	100
„ Consolidated Bookbinders	1,339	– 15 –¾	98	165	145	86	40	48	47	101
Typographical Association	16,179	– 6 7¼	—	—	—	182	108	87	93	147
Transport.										
Amalgamated Railway Servants	62,023	– 1 4	—	—	—	—	—	—	—	—
Clothing, &c.										
Amalgamated Tailors	13,439	– 1 7¾	—	—	—	—	—	—	—	—
Boot and Shoe Operatives	27,960	– – 3¾	—	—	—	—	—	—	—	—
Miscellaneous.										
United Brushmakers	1,470	1 10 6¼	—	—	—	—	—	—	—	—
Alliance Cabinet Makers	5,270	– 17 6	—	—	—	—	—	—	—	—
United Kingdom Coach Makers	6,526	– 14 7¼	—	—	—	—	—	—	—	132
Yorkshire Glass Bottle Makers	2,840	1 7 1¼	—	—	—	—	—	—	—	102
Cigar Makers	2,196	1 7 3¼	—	—	—	—	—	—	—	—
Average of above unions	—	– 14 4½	40	85	117	118	60	52	70	190
		Average of Imports, 1882-91.								
Percentage of total imports of each year to average of 1882-91	—	Mln. £398	53	55	57	63	69	68	74	69
		Average of Exports.								
Percentage of total exports of British produce (excluding ships) to average of 1882-91	—	Mln. £235	58	53	53	62	68	70	80	77

TABLE I *Contd.—Variations in Unemployed Benefit, and in Total Imports and Exports.*

Union.	Number of Members in 1900.	Average of Cost per Member of Unemployed Benefit during Years 1882-91.	Percentage of each Year to Average of 1882-91.							
			1868.	'69.	'70.	'71.	'72.	'73.	'74.	'75.
Coal.		£ s. d.								
Northumberland Miners	23,950	– 3 1	—	38	—	7	—	50	12	47
Durham Colliery Enginemen	3,062	– 4 5	—	—	—	—	—	—	—	—
Metals.										
Iron Founders	18,357	1 6 3	245	210	115	42	21	51	68	69
Amalgamated Engineers	87,672	– 19 9	196	180	95	33	37	36	49	72
Steam Engine Makers	8,495	– 12 4	202	208	163	52	28	36	40	64
Boiler Makers and Iron and Steel Ship Builders	47,670	– 14 5¼	48	40	39	22	8	14	15	104
Textiles.										
Amalgamated Cotton Spinners	18,384	1 – 2	—	—	—	—	—	—	—	—
Blackburn Beamers, Twisters and Drawers	661	– 7 6¼	—	—	—	—	—	—	—	—
Blackburn Weavers	12,500	– 4 9¾	—	—	—	—	—	—	—	—
Amalgamated Lace Makers	3,361	1 10 11¾	—	—	—	—	—	—	—	—
Irish Flax Dressers	1,284	– 18 5	—	—	—	—	—	—	—	—
Building.										
Amalgamated Carpenters and Joiners	65,012	– 19 1¼	70	100	103	69	32	25	21	18
United Operative Plumbers	11,186	– 1 6¾	23	24	44	30	19	29	18	8
„ Bricklayers	3,438	– – 8¾	1,000	373	240	148	146	173	150	108
Friendly Stonemasons	19,419	– 2 5½	146	194	209	110	102	114	84	101
Printing.										
London Compositors	11,287	– 15 7¼	92	107	152	75	51	41	45	28
„ Consolidated Bookbinders	1,339	– 15 –¾	141	157	204	78	60	115	101	36
Typographical Association	16,179	– 6 7¼	118	137	109	77	73	66	97	139
Transport.										
Amalgamated Railway Servants	62,023	– 1 4	—	—	—	—	9	—	48	120
Clothing, &c.										
Amalgamated Tailors	13,439	– 1 7¾	—	64	80	57	59	64	119	130
Boot and Shoe Operatives	27,960	– – 3¾	—	—	—	—	—	—	—	—
Miscellaneous.										
United Brushmakers	1,470	1 10 6¼	—	—	—	—	—	—	—	—
Alliance Cabinet Makers	5,270	– 17 6	6	27	39	11	1	1	5	10
United Kingdom Coach Makers	6,526	– 14 7¼	143	125	132	101	69	57	69	65
Yorkshire Glass Bottle Makers	2,840	1 7 1¼	117	20	19	27	1	1	2	2
Cigar Makers	2,196	1 7 3¼	—	—	—	—	—	—	—	—
Average of above unions	—	– 14 4½	182	125	116	59	45	55	55	66
		Average of Imports, 1882-91.								
Percentage of total imports of each year to average of 1882-91	—	Mln. £398	74	74	76	83	89	93	93	94
		Average of Exports.								
Percentage of total exports of British produce (excluding ships) to average of 1882-91	—	Mln. £235	76	80	85	95	109	109	102	95

TABLE I *Contd.—Variations in Unemployed Benefit, and in Total Imports and Exports.*

Union.	Number of Members in 1900.	Average of Cost per Member of Unemployed Benefit during Years 1882-91.	Percentage of each Year to Average of 1882-91.							
			1876	'77.	'78.	'79.	'80.	'81.	'82.	'83.
Coal.		£ s. d.								
Northumberland Miners	23,950	– 3 1	205	466	163	50	40	72	43	52
Durham Colliery Enginemen	2,062	– 4 5	8	201	280	401	76	35	Nil	14
Metals.										
Iron Founders	18,357	1 6 3	107	154	234	355	156	125	69	73
Amalgamated Engineers	87,672	– 19 9	102	122	168	343	140	87	48	70
Steam Engine Makers	8,495	– 12 4	95	122	212	340	142	96	54	67
Boiler Makers and Iron and Steel Ship Builders	47,670	– 14 5¼	143	104	160	268	162	15	6	16
Textiles.										
Amalgamated Cotton Spinners	18,384	1 – 2	—	—	—	148	62	75	68	63
Blackburn Beamers, Twisters and Drawers	661	– 7 6¼	15	22	518	128	10	29	20	171
Blackburn Weavers	12,500	– 4 9¾	—	—	—	—	—	19	19	—
Amalgamated Lace Makers	3,361	1 10 11¾	68	81	39	—	8	7	—	46
Irish Flax Dressers	1,284	– 18 5	89	61	99	38	—	130	90	75
Building.										
Amalgamated Carpenters and Joiners	65,012	– 19 1¼	19	26	66	174	130	107	75	74
United Operative Plumbers	11,186	– 1 6½	11	19	49	102	81	77	57	54
„ Bricklayers	3,438	– – 8¾	165	399	676	985	451	271	342	120
Friendly Stonemasons	19,419	– 2 5½	70	156	—	—	—	—	63	65
Printing.										
London Compositors	11,287	– 15 7¼	66	76	91	140	127	121	109	91
„ Consolidated Bookbinders	1,339	– 15 –¾	91	218	210	192	128	54	100	115
Typographical Association	16,179	– 6 7¼	166	138	184	231	184	163	100	98
Transport.										
Amalgamated Railway Servants	62,023	– 1 4	67	73	100	170	136	128	114	69
Clothing, &c.										
Amalgamated Tailors	13,439	– 1 7¾	131	169	152	185	151	131	122	126
Boot and Shoe Operatives	27,960	– – 3¾	—	160	253	153	107	40	73	93
Miscellaneous.										
United Brushmakers	1,470	1 10 6¼	—	—	166	184	228	112	92	93
Alliance Cabinet Makers	5,270	– 17 6	26	32	62	151	98	69	63	89
United Kingdom Coach Makers	6,526	– 14 7¼	93	133	161	306	95	90	75	75
Yorkshire Glass Bottle Makers	2,840	1 7 1¼	5	28	195	228	153	102	45	63
Cigar Makers	2,196	1 7 3¼	—	—	—	—	—	91	90	97
Average of above unions	—	– 14 4½	83	134	192	240	130	90	77	79
Percentage of total imports of each year to average of 1882-91	—	Average of Imports, 1882-91. Mln. £398	94	99	93	92	104	100	104	107
Percentage of total exports of British produce (excluding ships) to average of 1882-91	—	Average of Exports. Mln. £235	86	85	82	82	95	100	103	102

TABLE I *Contd.—Variations in Unemployed Benefit, and in Total Imports and Exports.*

Union.	Number of Members in 1900.	Average of Cost per Member of Unemployed Benefit during Years 1882-91.	Percentage of each Year to Average of 1882-91.							
			1884	'85.	'86.	'87.	'88.	'89.	'90.	'91.
Coal.		£ s. d.								
Northumberland Miners	23,950	– 3 1	30	61	618	130	48	Nil	5	10
Durham Colliery Engineers	2,062	– 4 5	126	192	283	192	63	34	21	72
Metals.										
Iron Founders	18,357	1 6 3	116	166	202	143	79	30	42	76
Amalgamated Engineers	87,672	– 19 9	124	154	163	156	102	48	49	79
Steam Engine Makers	8,495	– 12 4	103	162	185	191	96	41	38	62
Boiler Makers and Iron and Steel Ship Builders	47,670	– 14 5¼	275	212	194	122	40	14	48	68
Textiles.										
Amalgamated Cotton Spinners	18,384	1 – 2	81	117	125	122	109	128	94	90
Blackburn Beamers, Twisters and Drawers	661	– 7 6¼	239	142	31	47	322	182	55	52
Blackburn Weavers	12,500	– 4 9¾	—	—	—	67	113	178	106	114
Amalgamated Lace Makers	3,361	1 10 11¾	149	167	106	78	87	76	115	74
Irish Flax Dressers	1,284	– 18 5	95	166	146	121	114	91	92	9
Building.										
Amalgamated Carpenters and Joiners	65,012	– 19 1¼	99	141	172	135	127	74	49	56
United Operative Plumbers	11,186	– 1 6½	52	145	213	135	126	74	70	77
,, Bricklayers	3,438	– – 8¾	118	122	118	51	40	37	31	17
Friendly Stonemasons	19,419	– 2 5½	84	97	117	112	147	146	116	62
Printing.										
London Compositors	11,287	– 15 7¼	85	107	106	88	95	81	81	152
,, Consolidated Bookbinders	1,339	– 15 –¾	97	145	181	113	89	56	48	53
Typographical Association	16,179	– 6 7¼	96	110	107	107	128	94	92	71
Transport.										
Amalgamated Railway Servants	62,023	– 1 4	75	92	86	286	88	45	58	89
Clothing, &c.										
Amalgamated Tailors	13,439	– 1 7¾	142	122	113	109	98	65	59	65
Boot and Shoe Operatives	27,960	– – 3¾	93	120	87	133	140	107	80	100
Miscellaneous.										
United Brushmakers	1,470	1 10 6¼	105	96	110	149	108	90	80	79
Alliance Cabinet Makers	5,270	– 17 6	140	173	206	144	91	34	19	44
United Kingdom Coach Makers	6,526	– 14 7¼	89	124	157	115	132	97	65	64
Yorkshire Glass Bottle Makers	2,840	1 7 1¼	143	120	286	75	89	101	49	30
Cigar Makers	2,196	1 7 3¼	98	123	126	111	92	—	—	62
Average of above unions	—	– 14 4½	114	135	168	202	106	77	62	66
Percentage of total imports of each year to average of 1882-91	—	Average of Imports, 1882-91. Mln. £398	98	93	88	91	98	107	106	110
Percentage of total exports of British produce (excluding ships) to average of 1882-91	—	Average of Exports. Mln. £235	99	91	91	94	100	106	112	105

TABLE I *Contd.*—*Variations in Unemployed Benefit, and in Total Imports and Exports.*

Union.	Number of Members in 1900.	Average of Cost per Member of Unemployed Benefit during Years 1882-91.	Percentage of each Year to Average of 1882-91.								
			1892	'93.	'94.	'95.	'96.	'97.	'98.	'99.	1900
Coal.		£ s. d.									
Northumberland Miners	23,950	– 3 1	24	274	78	234	148	23	27	44	5
Durham Colliery Enginemen	2,062	– 4 5	20	407	115	399	280	160	73	50	23
Metals.											
Iron Founders	18,357	1 6 3	149	165	188	130	49	137	75	28	46
Amalgamated Engineers	87,672	– 19 9	126	180	181	122	57	90	45	54	48
Steam Engine Makers	8,495	– 12 4	116	241	203	133	51	94	67	52	39
Boiler Makers and Iron and Steel Ship Builders	47,670	– 14 5¼	128	175	171	144	119	152	67	34	40
Textiles.											
Amalgamated Cotton Spinners	18,384	1 – 2	124	102	123	143	99	115	97	84	178
Blackburn Beamers, Twisters and Drawers.....	661	– 7 6¼	139	301	80	—	—	—	—	—	—
Blackburn Weavers	12,500	– 4 9¾	131	209	56	141	93	145	83	73	195
Amalgamated Lace Makers	3,361	1 10 11¾	57	77	80	61	52	42	57	39	38
Irish Flax Dressers	1,284	– 18 5	67	43	72	41	37	23	56	49	71
Building.											
Amalgamated Carpenters and Joiners.....	65,012	– 19 1¼	68	79	101	92	35	29	25	26	49
United Operative Plumbers....	11,186	– 1 6½	112	122	150	85	80	98	108	80	67
,, Bricklayers	3,438	– – 8¾	45	60	68	54	48	23	20	20	31
Friendly Stonemasons	19,419	– 2 5½	74	86	121	113	101	69	56	49	88
Printing.											
London Compositors.....	11,287	– 15 7¼	172	159	220	155	135	125	115	148	187
,, Consolidated Bookbinders	1,339	– 15 –¾	284	174	224	225	144	129	93	113	172
Typographical Association ...	16,179	– 6 7¼	73	129	176	207	210	168	166	147	177
Transport.											
Amalgamated Railway Servants	62,023	– 1 4	278	223	109	126	90	55	450	72	78
Clothing, &c.											
Amalgamated Tailors	13,439	– 1 7¾	43	53	47	47	41	39	34	28	26
Boot and Shoe Operatives	27,960	– – 3¾	120	153	60	120	140	120	146	100	93
Miscellaneous.											
United Brushmakers	1,470	1 10 6¼	129	169	204	134	112	120	128	62	81
Alliance Cabinet Makers	5,270	– 17 6	88	103	102	88	42	37	42	40	63
United Kingdom Coach Makers	6,526	– 14 7¼	92	95	106	95	56	55	55	54	60
Yorkshire Glass Bottle Makers	2,840	1 7 1¼	103	150	240	205	95	83	107	44	59
Cigar Makers.....	2,196	1 7 3¼	91	98	115	80	65	45	57	46	78
Average of above unions ...	—	– 14 4½	110	155	123	132	95	87	90	61	79
		Average of Imports, 1882-91.									
Percentage of total imports of each year to average of 1882-91	—	Mln. £398	107	102	103	105	111	114	118	122	131
		Average of Exports.									
Percentage of total exports of British produce (excluding ships) to average of 1882-91	—	Mln. £235	96	93	92	96	102	100	92	109	120

In selecting the societies whose records appear in the table, it would have been desirable to make them as representative as possible of the general employments of the country. Unfortunately, some large spheres of employment are necessarily absent. In the cases, for instance, of agriculture and general labour there are no representative societies which have kept records of value relating to unemployed benefit. The records, too, of the textile trades and of coal mining are not adequate to represent the magnitude of the interests involved. The selection has naturally been confined to those societies whose records have been kept continuously and for a considerable period, and which are fairly representative of important industries.

The bottom lines of Table I are occupied by the percentages of the total imports and of the total exports of British produce (exclusive of ships) reckoned on the same base, the figures used being taken from the recent publication of the Board of Trade, Cd–1761.

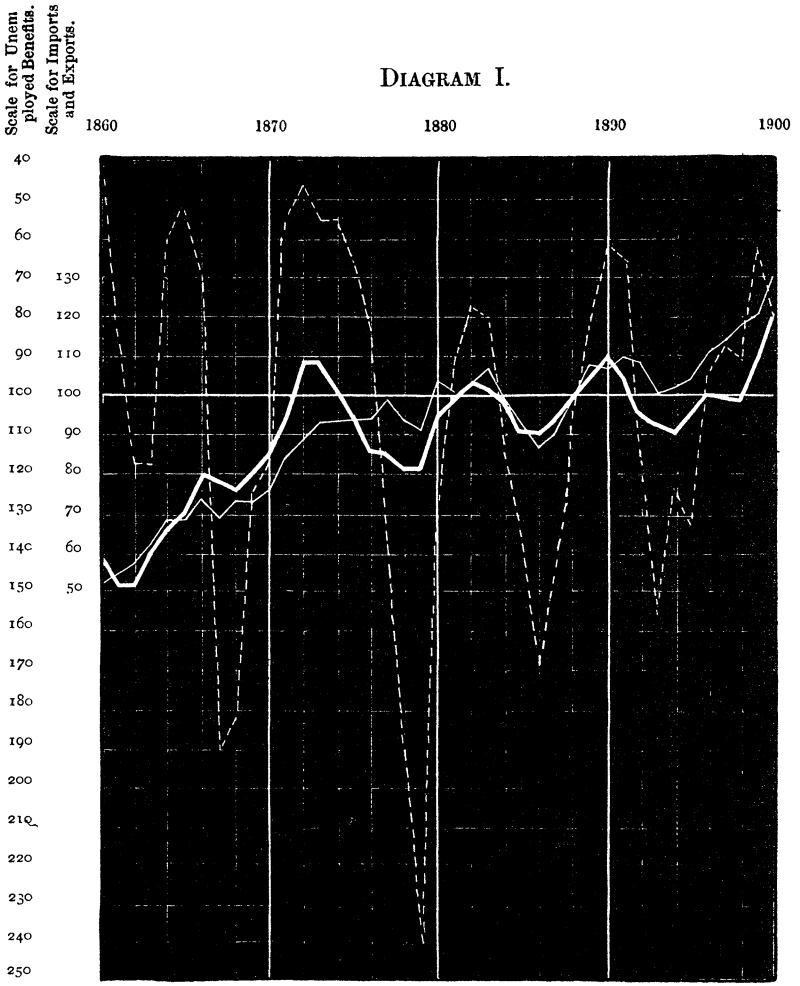
Dealing first with the fluctuations in employments as a whole, it is noticeable that the reports on trade unions during recent years have constantly drawn attention to the intimate relation between the general condition of the trade of the country and the amount expended by the 100 principal unions in unemployed benefit. Since 1897 the reports have contained a table showing side by side the percentage of unemployed and the total value of imports and exports for the corresponding years.

Diagram I enables these general movements to be examined with more minuteness. It shows that, as a rule, fluctuations in imports, exports, and the state of employment, are simultaneous and in the same direction. Exceptions to this general rule are found in 1860-62, 1873-77, 1890-92. In these three periods, while exports were falling, imports were either rising or stationary. It is noticeable that in each of these periods the state of employment followed the direction of the exports and not of the imports. But, generally speaking, the movements correspond in all the curves, and a reference to the diagram in Mr. Wood's paper of December, 1899, shows corresponding movements in the rates of wages, in the consumption of food and clothing, in the marriage-rate, and in the pauperism of the country.

The departure of the curve of imports from all the other curves indicative of the prosperity of the masses of the people during the three specified periods, and particularly during 1873-77, is so marked that it calls for further investigation. One would certainly expect the imports of raw material and of food stuffs to fluctuate in sympathy with the state of employment. That the volume of food

stuffs and of the raw material for clothing does so fluctuate was shown by Mr. Wood's curve of consumption before referred to. That this result could not be affected by a rise in the level of prices appears to be clear from the fact that Sauerbeck's index numbers showed little change between 1860 and 1862, fell considerably between 1873 and 1877, and fell slightly between 1890 and 1892.

DIAGRAM I.



——— Percentage of imports of each year to the average value of imports for ten years 1882-91.

▬▬▬ Percentage of value of exports of British produce of each year to average value for 1882-91.

- - - - - Curve of index number of expenditure on unemployed benefit from the table.

TABLE II.—*Showing the Values of Imports of Manufactured and Partly Manufactured Goods, and of Imports other than Manufactured and Partly Manufactured Goods, and the Percentages of the Values of each Year to the Average Value of the Years* 1882-91.

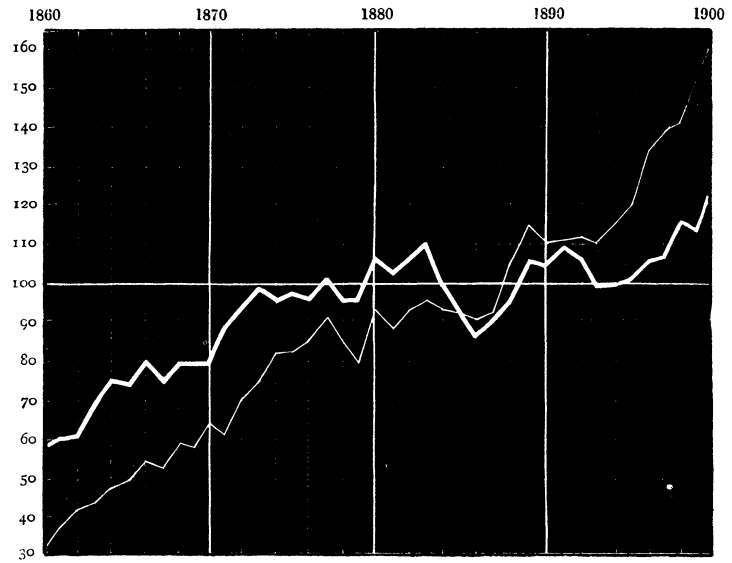
	Value of Imports other than Manufactured.	Percentage to Average of 1882-91.	Imports of Manufactured and Partly Manufactured only.	Percentage to Average of 1882-91.
	In Million £'s.		In Million £'s.	
1860	181	58	29·3	33
'61	184	60	32·9	37
'62	190	61	36·2	41
'63	211	68	38 2	43
'64	233	75	41·9	47
'65	228	74	43·5	49
'66	248	80	47·0	53
'67	228	74	47·5	53
'68	243	78	51·5	58
'69	243	78	51·9	58
1870	246	79	57·0	64
'71	277	89	54·3	61
'72	292	94	63·2	71
'73	304	98	66·8	75
'74	297	96	72·7	82
'75	301	97	72·7	82
'76	299	96	76·1	85
'77	313	101	80·6	91
'78	294	95	75·1	84
'79	293	94	70·4	79
1880	328	106	83·2	93
'81	318	103	78·8	89
'82	329	106	84·1	94
'83	342	110	84·9	95
'84	307	99	82·9	93
'85	288	93	83·4	93
'86	269	87	81·4	91
'87	280	90	82·4	92
'88	295	95	93·2	105
'89	326	105	100·8	113
1890	323	104	98·2	110
'91	337	109	97·6	110
'92	325	105	98·9	111
'93	307	99	98·1	110
'94	306	99	101·7	114
'95	309	100	107·7	121
'96	324	105	117·6	132
'97	327	106	123·8	139
'98	356	115	125·1	141
'99	349	112	135·9	153
1900	378	122	145·2	163
Average of 1882-91....	309·5 = 310 (say)	—	88·89 = 89 (say)	—

In order to test these suppositions I have deducted from the figures of the total imports for each year the amount of imports of manufactured and partly manufactured goods as given in pages

5 and 6 of the Board of Trade Report, Cd–1761. With respect to these figures the report points out that the import figures relate to total imports, and include the value of a certain quantity of goods which are re-exported. The report says, however, that in considering manufactured goods this is of comparatively little moment, as the re-exports consist for the most part of food and raw material. Table II shows the actual figures of these distinct divisions of our imports, and also the percentage of each year for each division worked out on the average of the period 1882-91.

Diagram II is based upon the percentage columns of the above table, and shows the respective curves of imported manufactures and of imported food stuffs and raw materials.

DIAGRAM II.



——— Percentage of imports other than of manufactured and partly manufactured goods to the average of 1882-91.

——— Percentage of imports of manufactured and partly manufactured goods of each year to the average of 1882-91.

The curves of the two classifications of imports afford many interesting points of comment, but the most conspicuous is in the period 1873-76, when the imports of raw material and food stuffs were falling slightly simultaneously with the curve of exports and the curve of employment, while the imports of manufactured and

partly manufactured goods were continuing in a steady rise, which culminated in 1877.

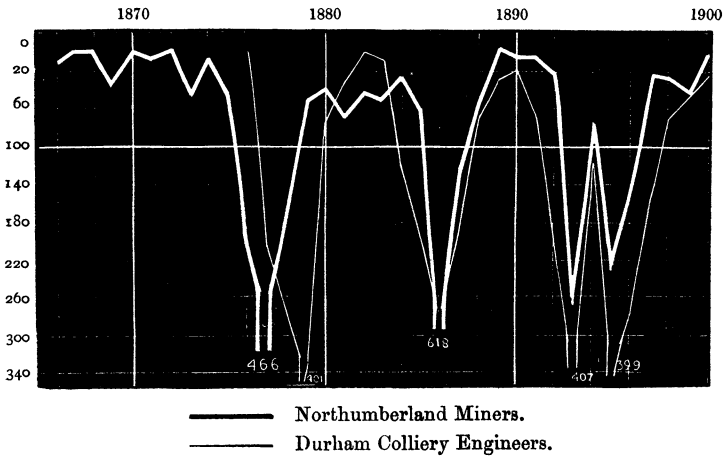
In dealing with the various industries in detail, it will be convenient to have at hand the number of persons engaged in the different groups of occupations as classified in the Census Report for 1901.

TABLE III.

	Male.	Female.	Total of Males and Females.	Percentage to Total Occupied.	
				Males Only.	All.
Engaged in national or local government	171,687	26,500	198,187	1·6	1·4
Defence of the country	168,238	—	168,238	1·6	1·2
Professions and their subordinate occupations	311,618	294,642	606,260	3·7	4·2
Domestic services	304,195	1,690,722	1,994,917	3·0	13·9
Commercial	530,685	59,944	590,629	5·2	4·1
Conveyance of men, goods, and messages	1,249,000	18,825	1,267,825	12·3	8·9
Agriculture	1,071,040	57,564	1,128,604	10·5	7·9
Fishing	23,725	166	23,891	0·2	0·2
Mines and quarries	800,179	5,006	805,185	7·8	5·6
Metals, machines, implements, and conveyances	1,174,180	63,016	1,237,196	11·5	8·6
Precious metals, jewels, watches, &c.	130,731	18,707	149,438	1·2	1·1
Building and works of construction	1,042,864	702	1,043,566	10·2	7·3
Wood, furnishing, fittings, and decorations	233,000	24,592	257,592	2·3	1·8
Brick, cement, pottery, and glass	142,365	33,148	175,513	1·4	1·2
Chemicals, oil, soap, &c.	101,938	26,702	128,640	1·0	0·9
Skins, leather, hair, and feathers	80,071	25,270	105,341	0·8	0·7
Paper, prints, books, and stationery	188,057	90,900	278,957	1·8	1·9
Textile fabrics	492,175	663,222	1,155,397	4·8	8·1
Dress	414,637	710,961	1,125,598	4·1	7·8
Food, tobacco, drink, and lodging	774,291	299,518	1,073,809	7·6	7·5
Gas, water, and electricity supply, and sanitary service	71,284	141	71,425	0·7	0·5
Other, general, and undefined workers and dealers	681,016	61,503	742,519	6·7	5·2
Total engaged in occupations	10,156,976	4,171,751	14,328,727	100·0	100·0
Without specified occupation or unoccupied	1,977,283	9,017,834	10,995,117	—	—
Population over ten years	12,134,259	13,189,585	25,323,844	—	—

Passing to particular industries, the first group is that of mines. The statistics of unemployed benefit referring to these are very scanty. Many of the most important coalfields are unrepresented, and the best available records are those put in the table. The curves show great depressions between 1875-79, 1884-88, and 1892-97. In the first period the different coalfields experienced their maximum of distress in different years. In Northumberland the maximum payment was made in 1877, while in Durham 1879 was the bottom year. All appear to have felt the depression of the next decade most severely in 1886. In the last depression employment improved temporarily in 1894, owing to the great disputes in 1893, and the consequent exhaustion of stocks. The curves generally coincide with the general movement of our foreign trade. The fluctuations are more sudden and more pronounced than in the other industries of the country. This is doubtless due in a large measure to the fact that labour plays a large part in the cost of production, and fixed expenses a small part. Mr. D. A. Thomas, in his paper published in the Society's *Journal* of September, 1903, estimated the cost of labour at about 80 per cent. of the total cost of Welsh steam coal, while fixed charges form less than 10 per cent. of the total cost.

DIAGRAM III.

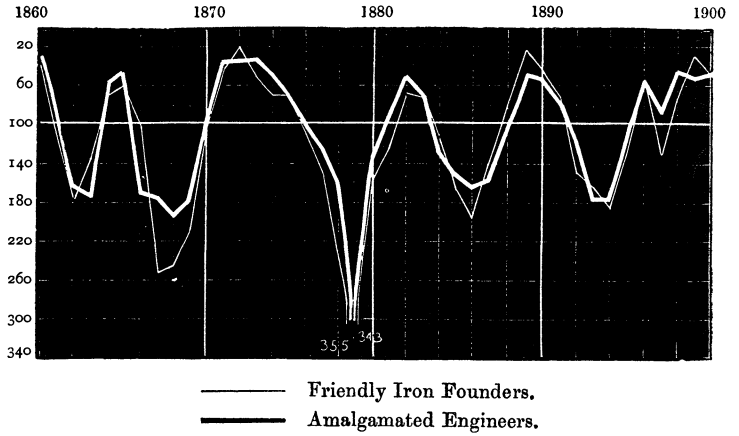


Note.—In those years where the figures are given, the curve has run outside the limits of the scale.

The metal trades are well represented by the societies in the table. The records of these have evidently been kept with great care, and the curves based upon them show great uniformity. On

account of its importance and size, the Amalgamated Society of Engineers may be taken as the best representative of the group. The curve of its unemployed benefit is almost identical with that of the Steam Engine Makers.

DIAGRAM IV.



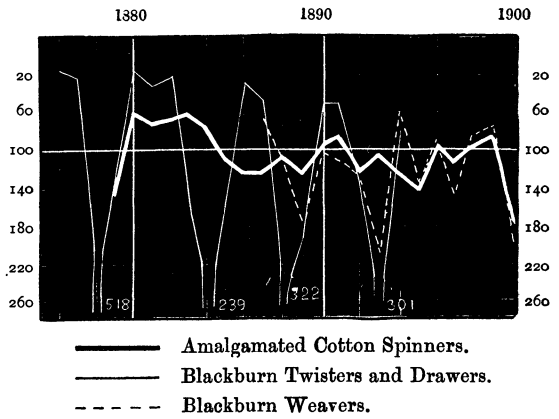
Note.—In those years where the figures are given, the curve has run outside the limits of the scale.

The activity of the metal trades depends so directly upon the activity and enterprise of the world at large, that one is not surprised to see how closely the curve of employment in this group of industries follows the curve of our exports. The fluctuations are much more gradual than in the coal trade, due partly to the fact that a large amount of capital is sunk in fixed plant, and consequently in times of depression the return upon this capital provides a margin which is sacrificed before the labour engaged in these industries is thrown out of work. The depressions in the metal industries naturally coincide with those in the mining industry. As these industries together employ nearly 20 per cent. of the male working population of the country, their influence upon the home trade must be very great, and it will be seen later that the curves of employment in many home industries are in close harmony with those of the metal trades.

The textile trades are not adequately represented in the table. The number of societies which during recent years have kept records of unemployed benefit is very great, but, as a rule, their membership is small and their individual importance is inconsiderable. The Amalgamated Operative Cotton Spinners may be taken as typical

of cotton spinning. It has a membership of 18,384, while the total number of persons employed in cotton spinning in 1901 was 64,127 males and 34,553 females. In the cotton weaving industry there are a large number of local societies, many of whose records cover only recent years. Of these perhaps the best representative is the Blackburn Weavers' Society; but as their record only starts with 1886, the record of the Blackburn beamers, twisters, and drawers is added as an indication of the state of employment in the weaving branch of the cotton industry during the earlier part of the period under review.

DIAGRAM V.



Note.—In those years where the figures are given, the curve has run outside the limits of the scale.

The curves illustrate the fact that cotton spinning is often bad when weaving is good, and *vice versâ*. The curve of spinners, too, suggests that the fluctuations in the employment of spinners are less severe than in the case of weaving; and it is again noticeable that the proportion of cost due to fixed plant as compared with the cost of labour is much greater in spinning than in weaving.

From the fact that the value of exports of cotton yarn and goods amounts to about one-fourth part of our total exports, one might expect that the curve of employment in this trade would follow the curve of exports. But coming from the examination of the metal group, one is rather astonished to find how the cotton curves depart from the export curve. Though they show some response to the great general movements, the fluctuations peculiar to themselves are almost equally marked. It should be borne in mind that though the general demand of the world for cotton goods is an important factor in its prosperity, the demand from India is of

especial importance. India takes two-fifths of the total cotton goods exported. Hence the price of silver and the rate of Indian exchange have played a very prominent part in the fortunes of the cotton trade since the demonetisation of silver in 1872-73. The weavers' diagram shows a marked improvement in employment in 1894, while the general trades of the country were in the slough of despond. This was due to the rise in Indian exchange which followed the closing of the Indian mints in June, 1893. Then another factor peculiar to the cotton trade is the supply of its raw material. The effect which this factor has upon the employment curve has no relation whatever either to the exports of cotton goods or to the total exports of the country. In 1903 the high price of raw cotton swelled the value of the exports of cotton goods, but diminished employment considerably. Roughly speaking, the cost of raw material amounts to nearly one-half of the cost of finished cotton piece goods.

The foregoing conditions to which the cotton trade is subject offer some explanation of the great divergence between the curves of employment in this important industry and the curves in the great home industries. The total number of persons employed in the industry is so considerable, that one would expect their prosperity to be reflected upon the secondary industries of the country which their wages help to support. In estimating the importance of the number employed, some allowance should be made for the large proportion of females to males, for the employment of a large number of children, and for the fact that wages generally are lower than in the metal trades.

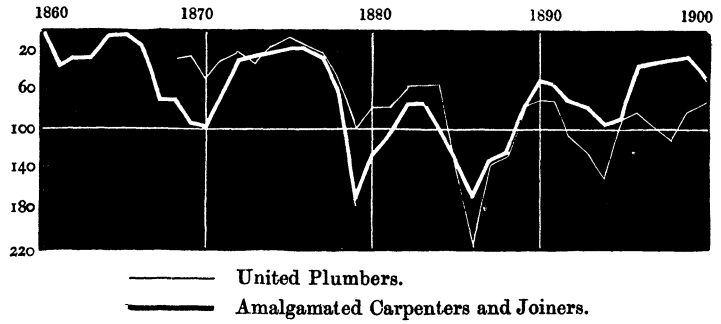
The lace makers and the flax dressers of Ireland, in common with other textiles, are affected more by causes peculiar to themselves than by the general movements of the trade of the country.

Speaking generally, the employment curve in the textile trades is quite unreliable as an index of the general prosperity of the country, while that of the metal trades is singularly reliable.

The building trades form the only large group of essentially home industries which are represented in the table. The Amalgamated Carpenters and Joiners may be safely taken as the best representative of the class.

The remarkable feature of the diagram is the closeness with which it responds to the general movements of our foreign trade during the last quarter of a century. Its greatest departure from the general movements was during the few years following the Franco-German war. From 1873 to 1877, while the metal group was gradually falling into a deeper and deeper depression, the building trades were practically unscathed. In common with

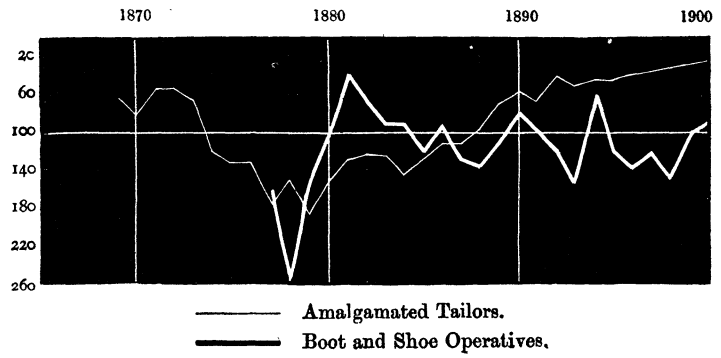
DIAGRAM VI.



agriculture, and with some of the smaller home industries, the building trades retained their prosperity till about 1877, when all industries began to be overwhelmed in a common fate, which reached its most intense form in 1879. The curve of the United Plumbers merely emphasises the same points, while the curve of the operative stonemasons differs very slightly, except that from 1877 to 1881 this society appears to have entirely suspended payment of unemployed benefit. The prosperity of the building trades between 1873 and 1877 was doubtless contributed to by the great demand for suburban residences round all the great centres of industry, following upon the wonderful accumulation of wealth during the previous decade, and also to a continuance of hope and enterprise, for some time after the real depression set in, among those who anticipated that the reaction following the Franco-German war would be as short lived as the reaction following the American civil war in 1861-65, and that of the Austro-Prussian war in 1866.

The dress group is represented by the Amalgamated Tailors and the Boot and Shoe Operatives. The tailors have had a comparatively

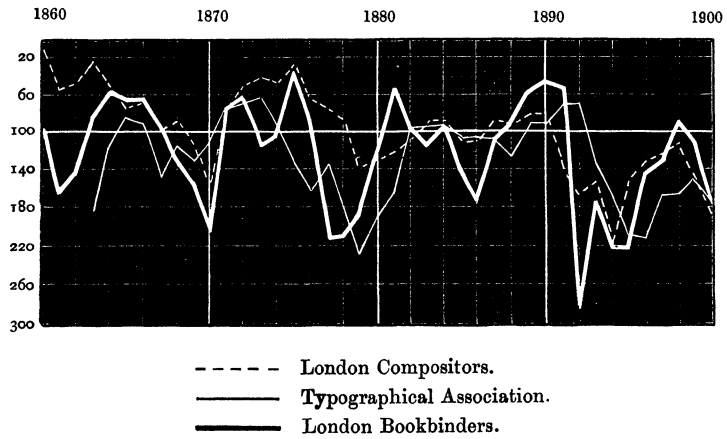
DIAGRAM VII.



uneventful career. Their unemployed gradually increased from 1873 to 1879, since which date they have made steady progress. A dip in 1884, and another in 1891, are the only concessions they have made to the troubles of others. Boots and shoes, on the other hand, reveal two strange features: in 1886, and again in 1894, they had short outbursts of activity, while in other industries the unemployed were walking the streets in ever increasing numbers.

The printing trades supply curves which correspond fairly closely with those of the building group, with the exception that the London Compositors and the Typographical Association show only a slight depression in 1885-87. All the three societies in the table show a marked loss of employment since 1892.

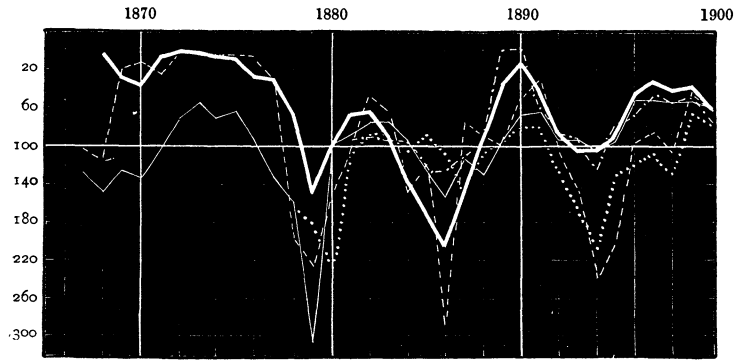
DIAGRAM VIII.



The Amalgamated Railway Servants is the only society connected with transport with any records earlier than 1882. Its membership has varied very largely, so that its figures are not very reliable. The curve of its employment departs considerably from the general average, especially in the last decade. The conditions peculiar to their employment are so obvious, that it cannot be taken as a good representative of those engaged in transport.

The miscellaneous group contains a number of industries selected partly by reason of their diversity, but largely because they are represented by societies which have kept records for considerable periods. With regard to these industries it is difficult to get any other continuous record of their prosperity of equal value. They may be taken to represent a number of miscellaneous industries employing in the aggregate a very large quantity of labour.

DIAGRAM IX.



Alliance Cabinet Makers.
United Kingdom Coach Makers.
Yorkshire Glass Bottle Makers.
Cigar Makers.
Brush Makers.

Each of the societies had years of minimum employment in 1879 (except the Brush Makers, in whose case it came in 1880 instead), 1886 and 1894, while 1873, 1882, 1890 and 1899 were years of maximum employment. Thus each of these diverse trades moves in close sympathy with the foreign trade of the country.

As the curve of the marriage-rate moves harmoniously with the foreign trade, so the curve of the cabinet makers moves with the marriage-rate. Their employment is naturally most brisk when the marriage-rate is highest, and most depressed when the marriage-rate has reached a minimum point. The only necessary qualification of this statement arises in 1891, when cabinet making began to fall, while the marriage-rate increased slightly before following the general downward movement. May we not infer that the promises made during the prosperity of 1890 were faithfully performed in 1891, even though the prosperity had declined so rapidly that the brides of 1891 had to be contented with less than the usual equipment of furniture?

As the employment of the cabinet makers reflects the prosperity of the mass of the population, that of the coach makers reflects the condition of the wealthier classes. Which section of the public is most accurately reflected by the employment of British cigar makers, I will not venture to suggest. But it is clear from the diagrams that furniture, coaches, glass bottles, cigars and brushes all contribute their quota of evidence that the community of industry and commerce is one body with many members, and if one member suffers, all the members suffer with it.

Discussion *on* Mr. E. L. Hartley's Paper.

Professor F. Y. Edgeworth offered remarks on some technical points. As he understood Mr. Hartley's Table I, the row of figures designated "Average of above unions," were each obtained by taking the arithmetic mean of the percentages in the corresponding column; each percentage being obtained by comparing the expenditure on benefit per member in a particular union for a particular year, with the average yearly expenditure per member in the same union at the initial period. If the statistics related to an ordinary money account, the proper method of obtaining averages for several unions might have been to compare the total of the expenditure on all the unions in each year with the corresponding total for the average year of the initial period. But, as the writer had explained, the expenditure on benefit was but an imperfect index of that quantity which was to be measured, the amount of unemployment, or perhaps the prosperity of the working classes. Under such circumstances it was allowable to take a simple average of the percentages in each column. But that simple average should rather be the Median than the Arithmetic Mean. For the worth of the different percentages, considered as observations measuring the quæsitum (unemployment), was evidently very different. The percentage for bricklayers, for example, represented a change in an expenditure on benefit amounting to $3{,}438 \times 8\frac{3}{4}d.$—some $125l.$, supposing the number of bricklayers entitled to receive benefit constant; while, on a similar supposition, the percentage for amalgamated engineers represented a change in an amount of $87{,}672 \times 19s.\ 9d.$, more than $86{,}000l.$ Even if the supposition of constant membership was only approximately true, and even though the amount of the expenditure only imperfectly represented the amount of unemployment, still it was evident that the percentages were far from being equally good measures of that amount. But when observations of very different weight had to be combined with a simple average—in which each constituent counted for one—then in general that simple average had better be the Median than the Arithmetic Mean. For example, suppose the given observations to consist of two equally numerous classes, and that one class was much less accurate than the other, the error to which an observation of the former class was liable, as measured by the *modulus* or *standard deviation*, was as much as two-and-a-half times as great as the error pertaining to the latter. In such a case the simple Median would afford a more accurate (as well as more convenient) measure of the quæsitum than the simple Arithmetic Mean: *a fortiori*, when the disparity in the worth of the observations was greater. Now there was reason to believe that in the case before them the disparity in the observations was such

as to render the Median the more appropriate simple average. It was evident to common sense that such a percentage as 1,000 relating to the bricklayers in the year 1868, if combined according to the method of the Arithmetic Mean with 13 other percentages which range from 6 to 245, would unduly drag up the average, considering that, for a reason already stated, many of the percentages for other unions, as compared with the percentage for bricklayers, were better indices of the quæsitum, the total unemployment. Accordingly the Medians which he had calculated as samples represented the average unemployment for the years 1870-80 better than the corresponding Arithmetic Means which were given in Table I:—

Years.....	1870.	1871.	1872.	1873.	1874.	1875.
Median	109	54·5	34·5	45·5	48	69
Arithmetic mean....	116	59	45	55	55	66

Years.....	1876.	1877.	1878.	1879.	1880.
Median	89	122	165·5	184·5	127·5
Arithmetic mean....	83	134	192	240	130

The fluctuation of the new series was similar in direction to that of the old series, but less violent. There still appeared a close correspondence between the amount of unemployment and exports in direction of their oscillations; and a similar but rather close correspondence between unemployment and imports. The contrast between imports and exports as to the degree of correspondence with unemployment might appear less marked when account was taken of the probable error to which the statistics of trade were liable.

Miss C. E. COLLET called attention to one point which she thought should be noticed with regard to unemployed benefit in the textile trades. Although there might be very bad trade, that bad trade did not show itself to any great extent by people being dismissed, but rather by the adoption of short time or by slackness. The boot and shoe and tailoring trades, as well as the textile trades, would all be found subject to that rule—they were not actually out of work in the same way as engineers.

Mr. BRABROOK was always glad when public attention was drawn to what he might call the peaceful operations of trade unions. People were too much inclined to look upon trade unions as hostile bodies created for the purpose of carrying on warfare between employer and employed, and they overlooked benefits which were distributed by trade unions amongst their members, not only in the direction of the out of employment benefits, but also ordinary friendly society benefits, such as pay-

ments during sickness and superannuation payments in old age. Very large sums were distributed in these directions by the trade unions relatively to the sums they distributed in strike pay. It was desirable that the public should be made to understand that these institutions exercised large functions of a peaceful character, and that that circumstance tended to make them less aggressive and less willing to enter upon hostile pursuits, because they knew that everything that was spent in strike pay diminished the amount they would have available for the ordinary peaceful requirements of their members. He expressed a wish that the diagram in the paper could have been supplemented by a large coloured diagram on the wall. They would all undoubtedly agree in the concluding words of the paper—that all these things which the author had referred to "contribute their quota of evidence that the community of industry and commerce is one body with many members, and if one member suffers, all the members suffer with it." He must confess, however, that the line which had been drawn between one only of the factors which contributed to the prosperity of the country and these various trades, with all their differing conditions and circumstances, was almost too near and too accurate to be convincing to one's mind. He would have liked to have seen it displayed in such a manner that one could have exactly followed the various resemblances and the various divergencies which constituted the general result. While the prosperity of the country and the extent of employment amongst all classes of the country were things which must necessarily have a close relation to each other, it would not necessarily result that a single collection of facts—namely, the amount of out-of-employment benefit which was granted by trade unions—should follow with absolute closeness other collections of facts which were quite independent of them. For example, the trade unions in some trades represented only a small proportion of the amount of employment in that trade, and that proportion was selected by themselves for various reasons, and its extent depended very largely on the circumstances and conditions of the particular trade involved. Therefore it was only on a very broad and very large comparison of facts that one would expect to see a very close resemblance and association, such as had been disclosed in this very excellent and careful paper.

Mr. R. H. HOOKER did not quite follow the author's suggestion that a more correct method of measuring "cost per member" (p. 53) would be to divide the expenditure by the number participating in the benefit, unless by "participate" was to be understood "entitled to participate." In Diagram II Mr. Hartley laid great stress on the differences between the curves in the years 1873-76; but differences at least equally striking could be observed in other years if the relative movements were considered, *e.g.*, the separation of the two curves was in reality more marked in 1883-86, although both were falling. To his mind, however, the most interesting feature of that diagram was the more rapid increase shown in the imports of manufactured goods as compared with other commodities. He was

not quite convinced by Professor Edgeworth's suggestion that the median might give a truer picture than the arithmetic average. The median would indicate the condition of the average trade, but not necessarily the average condition of the whole country. Where one or two industries were very largely affected, he thought that they should be taken into account in getting an average for the whole country; and in the paper before them this latter was, it seemed to him, the information sought for. Mr. Hooker also ventured to differ from Mr. Brabrook's view that it would have been better to have one large diagram, including the movements of all the trades, than several small ones; a diagram, to be clear, should have as few lines as possible on it, and he accordingly preferred the method which had actually been adopted by the author. Finally, he would point out that a decrease in breaches of promise in 1891 was not the only inference to be drawn from the figures relating to cabinet makers. It seemed to him that the curve was quite normal, and consistent with the usual theory that manufacturers in times of trade maxima turned out large stocks, which were worked off during years of depression.

Mr. T. A. WELTON said it appeared to him that the exclusion of exceptional figures from averages was often advantageous. He was at one time associated with the timber trade, and from his experience he found that it was a year or two after other trades were affected before the timber trade felt the effects of prosperity or the reverse. In like manner he thought they would find that the reason the building trade was more durable in its prosperity than other trades, was that building was a good deal fostered after the decline of general trades because of the cheapness of money when trade was slack. He thought it was a pity that the marriage curve was not included. With respect to the furniture question, he might mention that when in 1902 he was drawing attention to the considerable checks that happened in the marriage and birth-rates, he was informed by a friend in the bedstead trade that there had been a great slump in bedsteads, and his friend associated the two things.

Mr. JESSE ARGYLE thought the paper was of considerable interest so far as it went, but was not very conclusive; the basis was too narrow. If one compared the totals in the trade unions selected in some cases with the totals engaged in the trade, it would be found that they hardly amounted to 5 per cent. of the total employed. Again, the trade unions as a general rule comprised the very best of the workers, so that, taking the whole trade through, the percentage of unemployed would probably be found to be greater. Then, as the writer pointed out, the comparison was vitiated by the fact that the number of members in the society was taken, and not the number who contributed to unemployed benefit. In some societies that would make a very serious difference. The point as to short time mentioned by Miss Collet applied to several employments besides the textile trades, particularly mining. Further, there was the question of sickness to be taken into

account. Many societies had no sick benefit, and so numbers of men were returned as unemployed, when it was really sickness that kept them out of work. That was more particularly the case with declining industries. The paper no doubt suggested a line of study from which a good deal could be obtained, but it needed to be pushed a good deal further before its conclusions could really be accepted.

Mr. W. POLLARD DIGBY expressed regret that the paper did not give the specific imports and exports of the industries in which the leading unions which Mr. Hartley had quoted were engaged, inasmuch as one branch of the country's industry might be fully occupied while another branch might be working short time, as happened, for instance, in Glasgow some years back, when the locomotive builders were short of work, and members of the trade union employed by the locomotive manufacturers found employment in the shipyards, which happened to be busy. He would also like to ask whether years of maximum exports were always years of maximum employment, because in 1901, while throughout Prussia, Saxony, and Bavaria there were large numbers unemployed, yet in that particular year the exports of Germany reached a value hitherto unknown. What Mr. Hartley had said with regard to the larger unions of the country did not, he thought, always apply to the smaller. He had some figures of the Electrical Trades Union, whose members were composed of artisans, wiremen, and so forth, 90 per cent. of them being engaged in the wiring of buildings. The figures showed, curiously enough, that the year of maximum imports was the year of maximum payment of out-of-work benefit, while the year of maximum exports was also a year of high expenditure on out-of-work benefit. Thus, while the membership of this particular union had risen, and while the exports of electrical apparatus had increased, the payment of out-of-work benefit had gone up in each year.

Mr. W. M. ACWORTH referred to Mr. Brabrook's statement that unions only represented a small percentage of the trade. In some cases that was no doubt so, but in other cases he supposed they represented a very large percentage, especially in the case of a local union. For instance, he believed he was right in saying that the London compositors, who were mentioned by the author, represented a very large percentage of their industry, and with regard to the silk hat makers, there was said to be not a silk hat made except by members of the union. Probably the same thing was more or less true in the case of most small trades. He would like to ask Mr. Hartley how far it might be the case, especially in the smaller unions, that the reason for unemployed benefit, or the fact of people being unemployed, was a cataclysm in the trade itself. There was, for instance, some time ago, a great fight between the compositors and one of the great printing firms, and the printing firm beat the men and became what the London compositors called "an unfair house." That was probably represented by a large

drop in the employment of men belonging to the compositors' trade union. That was a matter quite outside any question of general laws and tendencies. He thought it would be possible, in the local unions at any rate, to give alongside the number of a trade union on a given day, the number according to the census who were engaged in that trade. If this could be done, it might indicate to what extent causes such as those he had referred to vitiated the conclusion they were asked to draw as to the broad and general causes.

Mr. F. HENDRIKS pointed out for the information of the last speaker that in Table III were given the numbers of the different groups of occupations specified in the Census report of 1901, from which it seemed in round figures that there were about 10,000,000 employed industrially.

Mr. W. M. ACWORTH objected that they could not be correlated with any particular trade.

Mr. HENDRIKS replied that to some extent they could be. As to the designations, "fishing, mines and quarries, metals, machines, implements and conveyances," those were, for example, some of the designations in the Census report, and they might include iron-founders, amalgamated engineers, steam engine makers, boiler-makers, and iron and steel shipbuilders. Those were some of the great industries; but altogether, if they were to add up Mr. Hartley's figures in his Table I of analysis of occupations, the members of the unions mentioned amounted to 473,980 persons, as compared with 10,000,000 in the census, and that was not more than $4\frac{3}{4}$ per cent. of the whole number employed. Certainly this was only a small proportion, nevertheless it might be a fair sample of the total.

Mr. N. L. COHEN drew attention to the suggestion that useful information bearing on the question of lack of employment could now be obtained from the organised labour bureaus, independently of the trade unions. He had been pleased to note that in late years there had been less hesitation on the part of the trade unions in reference to such organisations. It would be a great benefit if, throughout the country, the newly established local organisations should be at least empowered to set up such labour bureaus. It was a curious circumstance that when the Act of Parliament authorising the London local organisations or borough councils to establish labour bureaus was passed, no member of Parliament should have suggested that a similar facultative power should be also expressly enacted for country organisations. He had always pleaded, during the nineteen years in which he had advocated a system of labour bureaus, that such arrangements were likely to be even more beneficial in sparsely populated than in very populous districts. As showing the caution with which they should generalise from the paper, he would like to emphasise the remark on p. 60,

that there was no information at all with regard to lack of employment, as there existed no system of out of work benefits specially for the agricultural classes or for general labourers. Whilst appreciating the interesting conclusion which had been suggested by the paper, that there was apparently a very close relation between the variation in the export of manufactured and partly manufactured goods and the variation in lack of employment, he thought there must be other influences at work affecting the latter factor. For instance, one would think the curve of lack of employment would be also greatly affected by the provision of manufactured and partly manufactured goods for the home market. He would not venture to speculate on the cause of the special relation suggested by the paper, or whether exports were stimulated by the depression of the price of goods in the home market. As a comparatively old member of the Society, he welcomed the prospect of having further carefully collated papers from the able pen of the author of that paper at some future time, continuing the inquiry perhaps with a somewhat wider scope. Miss Collet's observations on the paper seemed to point to the conclusion that statistics alone, however conscientiously and carefully prepared, were not a sufficiently conclusive guide to the condition of the working population. They required to be supplemented or corrected by business and commercial experience. An inquiry which simply presented tabulated statistics, without giving the opportunity to traders and workers to relate their actual experience, could not be entirely satisfactory. This fact seemed to afford a clue to the absolutely contradictory character of many allegations in reference to the trading and industrial activity of the country.

Mr. OWEN FLEMING observed as to the building industry, that the members of the different trades connected with it were fairly well employed simultaneously. When there was a great deal of building going on, carpenters, bricklayers, plumbers and masons were well employed, and when there was no building, unemployment was also fairly general. Looking at the table of the average cost of the unemployed to the members of the building and allied trades from 1882 to 1891, he saw that the carpenters received 19*s.* for that decade; plumbers, 1*s.* 6*d.*; bricklayers, 8*d.*; stone masons, 2*s.* 5*d.* He did not see why carpenters should be having 19*s.*, while bricklayers were only receiving 8*d.* It might, of course, be that the bricklayers did not pay unemployed benefit on such a large scale as the carpenters, and he would be glad if Mr. Hartley could enlighten him on that point. As to Miss Collet's question, he would ask whether the textile trade unions paid for unemployed benefit when they were working short time? (Miss Collet: "No.") In conclusion, he asked whether the author had been able to test the alleged analogy between exports and unemployed benefit in other countries. It would be interesting to know whether the same correlation of curves was to be found there.

The PRESIDENT proposed a hearty vote of thanks to Mr. Hartley for the great pains he must have taken in bringing together the

data employed and in presenting them in the graphic method he had adopted. It was, however, essential, that they should bear in mind, in endeavouring to draw conclusions upon this matter, how important were such factors as the relative magnitude of the different bodies concerned in determining the relative degrees of influence to ascribe to these separate curves, or, again, the varying movements in particular classes of exports or imports which might have peculiar relation to particular trade depressions. In many different directions interesting side lights would be thrown upon the subject of periods of slack employment by a study of the paper. The suggestion which Mr. Hartley made, that so unlikely a cause of increased employment as unemployed processions might nevertheless ultimately increase the business of the shoemakers, was striking, even if probably true. There were, indeed, all through the paper doubtless other veins of connection which even the good discussion they had had failed to bring out, but which some amongst them who were interested in the larger questions which were agitating the country might yet be able to discover. A careful study of the groups of separated yet related diagrams would, no doubt, assist further discussions on the very interesting subject of the dominant factors which influenced unemployment in our very complex and remarkable industrial system.

Mr. E. L. HARTLEY, in reply to Professor Edgeworth's criticism, said that he merely used the arithmetical average of the twenty-six unions in Table I as one test of the fluctuations of prosperity. Almost identical results would be obtained if they applied any of the five tests which had been applied by Mr. Wood. He wanted to establish the reliability of expenditure on unemployed benefit by the societies mentioned in the table as a test of fluctuations of prosperity, because there was no other continuous statistical record, to his knowledge, bearing upon the prosperity of many of those trades. He would ask the gentleman who would have liked him to have put in the paper the imports and the exports relating to each particular trade, what imports and exports could be shown as bearing upon the prosperity of the building trades or the printing trades? There were no other statistical records of any kind, so far as he knew, bearing upon the prosperity of such industries as the British cigar makers, cabinet makers, coach makers, or brush makers. Therefore, as there was a mass of statistics based on the amount of money paid by the societies in unemployed benefit, it seemed well to see if any use could be made of them. As to the question whether the records of unemployed benefit were reliable, the criticism had been made that the number of trade unionists employed in each of the trades was an exceedingly small percentage of the total number employed. That was true, and he would also admit that the trade unionists were as a rule the aristocracy of labour, and that they would suffer less from a depression in trade than the mass of the people engaged in the trade. But if he proved that the aristocracy in each industry were feeling depression in certain periods, was it not a safe inference that the residue of the

people engaged in the industry would feel that depression rather more quickly and in a more intense form? Hence the comparison of the fluctuations of prosperity in the separate industries, being all based upon the same test, was fairly reliable. That answer would apply to most of the questions raised in the discussion as to the reliability of the test. The criticism of Miss Collet he regarded as very pertinent. In the textile and in some other trades depression often affected the working people by reducing their employment to three or four days a week, instead of their being dismissed for a prolonged period, and in that case their loss of employment was not shown in the amount of unemployed benefit. But it might be taken that when the textile trades were in a bad state, while some firms were working short time, from a merciful desire to decrease the distress of their workpeople and to keep them together, other firms would close their factories entirely, and so they might reasonably assume that even in such a case the amount of money paid in unemployed benefit would record the depression in the industry, though the system of working short time would tend to hide the severity of the depression. The comparison between the curves of our imports and exports and that of employment, was made chiefly for the purpose of showing the general movements of trade and comparing with them the general fluctuations of employment. He refrained from drawing any inference from it, except that generally speaking great trade movements made themselves felt not only in the exports but also in the imports, as well as in employment. In some periods imports and exports might be moving in opposite directions, and then it would be found that the curve of employment followed the exports. That was also true of the other tests which had been employed by Mr. Wood, viz., changes in wages, consumption of food and clothing, the curve based upon pauperism, the curve based upon the marriage-rate, and the curve based upon the number of people unemployed as given by the Board of Trade. It seemed to him that statisticians by dealing with averages often lost the greater human interest to be derived from the examination of individual cases. He had attempted to go into the history of some individual trades. He had been astonished to find how closely the employment in many secondary and parasitic industries followed the curve of the export trade. He was struck, too, with the fact that the state of the metal trades was an excellent barometer of the prosperity of the country at large, while that of the textile trades was a very bad one. The curve of the marriage-rate showed that marriages go in epidemics, which continue as a rule for two years. Epidemics occurred in 1872-73, 1882-83, and in 1890-91. If the marriage-rate had followed the state of prosperity strictly, it would have been cut off in 1890, instead of continuing, as it did, for the usual two-years period in 1890 and 1891.