

On the INDUSTRIAL and SANITARY ECONOMY of the BOROUGH of LEEDS, in 1858. By ROBERT BAKER, one of the Inspectors of Factories.

[Read before Section (F,) Economic Science and Statistics, of the British Association for the Advancement of Science, at Leeds, on 24th September, 1858.]

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I.—*Topographical Divisions.*

THE Borough of Leeds comprises the Township of Leeds, and the out-Townships of Farnley, Potter Newton, Chapel Town, Beeston, Headingley with Burley, Bramley, Armley, Wortley, Hunslet, and Holbeck, all in the Parish of Leeds; and Osmondthorpe and Coldcotes, which are small hamlets in the Parish of Whitkirk. Its Parliamentary and Municipal territory are co-extensive. In the year 1080, Leeds proper was a farming village, with an estimated population of somewhat less than 300, including 27 villeins and 4 soke men; and the manor consisted of about 1,000 acres. In 1081 it had a Priest, a Church, and a Mill, of the yearly value of 4s., and ten acres of meadow. In 1858, it has a population of 112,945 souls, engaged in more varied works than perhaps those of any other Town in the Kingdom. Bede in 735 calls Leeds, Leodys, and the Domesday Survey, Leedes; and Thoresby says, it was one of the 28 cities of ancient Britain mentioned by Nennius, and called the city of "Loid in the Wood." The out-Townships, as they are called, are said to derive their names as follows:—

1st. *Hunslet*—[Population in 1851, 19,466; area in statute acres, 1100]—from "Hunde," a dog, and "Slet," a house, because of the number of dogs which were formerly kept here. [There was a water corn mill at Hunslet in the 13th century.] Its population is employed in the manufacture of Flax, Woollens, Iron, Glass, Wire, Glue, Earthenware, Chemicals, Locomotive Engines and Carriages, Steam Boilers, and the getting of Coal.

2nd. *Holbeck*—[Population in 1851, 14,152; area in statute acres, 760]—derives its name from the Saxon word "Hol," a low place, and "Beck," or the brook which flows through it.

It is described by a recent historian, as "one of the most crowded, one of the most filthy, one of the most unpleasant, and one of the most unhealthy villages of the County of York."

It is true, that the fair meadows once possessed by Holbeck, of which the writer also speaks, are now covered with houses and workshops,—that the trees which adorned them have been cut down, and that the air is somewhat loaded with the black vapours which issue from its immense manufactories. But still, the description which this historian gives is greatly exaggerated. Holbeck is, and Hunslet is nearly, now united to Leeds in unbroken continuity. It was once the seat of an experiment which is worth recording, of a steam engine being put down to pump the water of the Beck on to a water wheel, by which to turn the machinery of a Factory.

It possesses a large supply of sulphureous water, once celebrated for medicinal virtues, but now required for, and applied to, manufacturing purposes. The population is employed in the manufacture of Flax, Machines, and Woollens.

3rd. *Bramley*—[Situated about four miles from Leeds, and forming the western boundary of the Parish. Population in 1851, 8,929; area in statute acres, 2,331]—is said to derive its name from "Bram," a man's name, once its possessor, and "ley," a field. Its population is mainly employed in the Woollen Manufacture, Agriculture, and the getting of the celebrated Bramley Fall Stone of Millstone grit.

4th. *Wortley*—[Situated about a mile from Leeds. Population in 1851, 7,896; area in statute acres, 1,036]—is said to derive its name from its herbage. Geologically it is a most important part of the Borough, since it contains Coal, Pipe Clay, Sanitary Pipe Clay, Iron, and Stone, all of which, as well as the Woollen Manufacture, employ its population.

5th. *Armley*—[About 1½ mile from Leeds. Population in 1851, 6,190; area in statute acres, 907]—is said to derive its name from one "Orm" or "Arm," and "ley," a field. Its population has been employed in the Woollen Manufacture for many years.

5th. *Headingley*—[About 2 miles from Leeds. Population in 1851, 6,105; area in statute acres, 3,058]—derives its name from "Hedde," a Dane, "ing," a patronymic added to his father's, and "ley," a field.

Headingley, with Burley, is full of the suburban residences of our merchants and manufacturers; whilst Kirkstall, which forms part of the same Township, contains Woollen, Worsted, and Flax Factories. There is just without the Borough, and at a short distance from the Abbey, one of the largest Iron Forges of the neighbourhood, which, in Thoresby's time (1658), was so extensive, that he declared it might serve Vulcan and his Cyclops to work in.

The Fulling Mills of Armley and Kirkstall, are, perhaps, the most ancient in this part of Yorkshire.

6th. *Chapel Allerton*—[2 miles from Leeds, north. Population in 1851, 2,842; area in statute acres, 2,747]—is said to derive its name from four adjoining hamlets called the Alder Hills. It is mainly composed of suburban residences. Its poorer population is employed in Agriculture and the getting of Stone.

7th. *Beeston*—[2½ miles from Leeds. Population in 1851, 1,973; area in statute acres, 1,535]—though now an agricultural and mining village, was once celebrated for the manufacture of Bone Lace, and Straw Hats. Coal Mines have long been worked here, and Iron is also now obtained of a peculiarly fine quality.

8th. *Farnley*—[About 2 miles from Leeds. Population in 1851, 1,722; area in statute acres, 1,990]—derives its name from the Ferns which formerly grew here in great abundance, and which to this day flourish in many parts of it. Its population is employed in Woollen Manufactures, the getting of Coal of rather an inferior quality, of Clay, particularly for Sanitary Pipes, and in the manufacture of iron.

9th. *Potter Newton*—[About 2 miles from Leeds, north. Population in 1851, 1,385; area in statute acres, 1,657]—is said to derive its name from its being a new Town in which Potteries and Brick Kilns existed, contiguous to a Roman station. It possesses many suburban residences. Its industrial population is mainly employed in Agriculture, and the getting of Stone.

Of the remaining small hamlets within the Borough, there is not much to be said. Their populations amount to 237, and are mainly employed in Iron and Coal Mines, and in Agriculture.

For Municipal purposes these out-Townships are divided into Wards, which send representatives to the Borough Council Chamber. In the following Table (A), the superficial area in statute acres, and the population in each Ward, is given.

Leeds Proper is also divided into Wards, the superficial area of each of which is also given in statute acres, in order that both within and without the Town, the density of the population upon the acre may be seen.

The following is the Table (A) giving a résumé of the facts in 1851, as regards area, houses, and population, in Leeds Proper, and in the out-Townships.

(A.)—Borough of Leeds, 1851.—Area, Houses, and Population.

OUT-TOWNSHIPS.	Area in Acres.	Inhabited Houses.	Population in 1851.	1851. Population to a House.	1851. Population per Acre.
Farnley	1,990	350	1,722	4·9	0·8
Potter Newton	1,657	282	1,385	4·9	0·8
Chapel Town.....	2,747	612	2,842	4·6	1·
Beeston	1,535	427	1,973	4·8	1·2
Headingley	3,058	1,222	6,105	4·9	1·9
Bramley	2,331	1,876	8,949	4·7	3·8
Armley	907	1,303	6,190	4·7	6·7
Wortley	1,036	1,672	7,896	4·7	7·6
Hunslet	1,100	4,216	19,466	4·6	17·6
Holbeck.....	760	3,099	14,152	4·5	18·6
	17,121	15,059	70,680		
LEEDS PROPER.					
North-West Ward	538	2,693	12,270	4·5	22·8
East Ward.....	657	3,781	17,421	4·6	26·5
West ,,	560	4,231	20,176	5·	36·
North-East Ward	541	4,564	21,301	4·6	38·
Mill Hill ,, ..	127	969	5,414	5·5	42·7
South ,,	123	1,363	6,677	4·9	54·2
Kirkgate ,, ..	31	632	3,337	5·3	107·6
North ,,	92	2,828	14,454	5·1	157·1
<i>Leeds Proper</i>	2,672	21,061	101,050		
<i>Out-Towns</i>	17,121	15,059	70,680		
	19,790	36,120	171,730		
Military.....			293		
			172,023		

We thus see that over the whole Borough, the population to a House, varies, so to speak, from $4\frac{1}{2}$ to $5\frac{1}{2}$; the density on the acre being from 0·8 to 157.

II.—Population and Houses.

In all the Townships of the Borough, with the exception of one (Beeston), and in all the Wards of the Town Proper, with the exception of Kirkgate, this density increased in the decennial period between 1841 and 1851, and it has gone on increasing up to the present period, with the exception of the Mill Hill Ward in addition to Kirkgate, in which since 1851 it has also decreased.

At the present time (1858) the population of Leeds Proper is 113,945; of the out-Townships, 77,748. The number for Leeds is calculated on the proportion of persons to a House in each Ward in 1851, the multiplicand being the number of inhabited houses in July 1858, correctly ascertained in Wards from the rate books.

That for the out-Townships is based on the per centage increase of Leeds Proper.

The superficial area of the Town of Leeds is thus shown to be in the aggregate of the Wards 2,672 acres and 2 roods, of which, in 1840, 695 acres were occupied by buildings.

(B.)—Leeds, 1840.—*Superficial Area and Buildings in Acres.*

Wards.	Land.			Buildings.			Total.		
	A.	R.	P.	A.	R.	P.	A.	R.	P.
East.....	546	3	—	111	—	—	657	3	—
North-East.....	466	—	—	75	3	—	541	3	—
North-West.....	456	—	—	82	1	—	538	1	—
West.....	334	—	—	176	—	—	560	—	—
South.....	66	1	—	57	1	—	123	2	—
North.....	28	1	—	63	3	—	92	—	—
Mill Hill.....	26	1	—	101	2	—	127	3	—
Kirkgate.....	4	—	—	27	2	—	31	2	—
<i>Total Acres.....</i>	<i>1,977</i>	<i>2</i>	<i>—</i>	<i>695</i>	<i>—</i>	<i>—</i>	<i>2,672</i>	<i>2</i>	<i>—</i>

The Inhabited Houses of each Ward, with the population, and its increase or decrease, stands as follows:—

(C.)—Leeds, 1841-51-58.—*Population and Inhabited Houses.*

Ward.	1841.		1851.		Population Per Cent. 51 over 41.		Houses, 1858, Over 1851.			Population, 1858, Over 1851.		
	Houses.	Popln.	Houses.	Popln.	Inc.	Dec.	Houses.	Inc.	Dec.	Pop.	Inc.	Dec.
East.....	3,436	15,530	3,781	17,421	10·3	...	4,038	6·7	...	18,570	6·7	...
N.-East	3,959	17,867	4,564	21,301	19·1	...	5,174	13·3	...	23,798	11·6	...
N.-West	2,237	10,609	2,693	12,270	15·6	...	3,441	27·7	...	15,484	26·1	...
West ...	3,475	16,616	4,231	20,176	21·4	...	4,906	15·9	...	24,530	21·5	...
South ...	1,273	6,210	1,363	6,677	7·5	...	1,502	10·2	...	7,358	11·6	...
North ...	2,711	13,001	2,828	14,454	11·1	...	2,891	2·2	...	15,744	8·9	...
Mill Hill	996	5,222	969	5,414	3·6	...	940	...	3·	5,170	...	13·9
Kirkgate	656	3,411	632	3,337	...	2·2	621	...	1·7	3,291	...	1·4
	18,743	88,466	21,061	101,050	14·2	...	23,513	11·6	..	113,945	12·7	...

by which we gather, that of late years, the tide of population in Leeds has steadily flowed towards improved ventilation and surface condition ; since the increases in seven years from 1851 to 1858 in the West and North-west Wards exceed the per centage decennial increases of the ten years between 1841 and 1851.

There has been a gradual decrease in the number of inhabitants in the Mill Hill Ward, which is in the centre of the Town, and mainly composed of wide and well ventilated streets ; but here the

population has given way to warehouses, shops, and offices. And in the Kirkgate Ward, there has also been a continued decrease which we can understand; for though it is also in the centre of the Town as it were, and mainly occupied by shops and warehouses, yet its dense courts and yards lie contiguous to a river, which, though a trout stream within the last seventy years, having footways clothed with avenues of trees, is now nothing but an open sewer, containing first, the sewerage of Bradford, a Borough ten miles away west, and nearly as large as Leeds; of Shipley, secondly, with a population of upwards of 4,000; and, lastly, of all the Mills, Houses, Dyehouses, Tanneries, and Workshops, which crowd its western banks, and cannot, therefore, be healthy or pleasant to those who have the means of removing elsewhere. We see, in fact, towards the less densely populated Wards a gradual movement made from the old localities, as well as a steady increase of a new population, evidencing an improved state of society, both socially and morally, and owing no doubt in part to the improvement in the condition of the streets which has been lately effected.

In 1838-39 and '40, as Councillor of the Borough, on a motion which I brought before the Corporation, I was entrusted with the task of statistically inquiring into its then general condition, and to report upon it; the necessity of which inquiry was perhaps more familiar to me than many, from having had large intercourse with the working classes, both medically and officially, for several years. That Report obtained an Improvement Act, by which a general system of sewerage was enforceable; and a Burial Act, by which Leeds was enabled to acquire new Cemeteries, at a distance from the living; and it is most gratifying to find, that by a comparative Return just made to me, of the Births and Deaths in the Registration Districts of Leeds Proper for 1851 and 1858, though the rate of mortality of the Town is still high as compared with the Country Districts round about, yet it is most materially lessened from what it formerly was, which, indeed, it needed to be; for by a Table of Deaths made under the same inquiry, the following results (D) appeared:—

(D.)—*Leeds, 1839-40.—Relative Longevity.*

Only 1 Male in	145 and 1 Female in	119 lived to be 70
1 „	536 „ 1 „	343 „ 75
1 „	677 „ 1 „	471 „ 80
1 „	10,471 „ 1 „	2,689 „ 85
1 „	13,961 „ 1 „	5,081 „ 90
1 „	20,942 lived to be 100.	

Also, that

Of 9 Gardeners	1 lived to be 70	Of 88 Linen Drapers	1 lived to be 70
31 Saddlers.....	1 „	168 Grocers	1 „
44 Labourers	1 „	187 Blacksmiths... 1	„
58 Charwomen	1 „	185 Butchers	1 „
58 Brickmakers	1 „	250 Cloth Dressers	1 „
59 Bricklayers	1 „	302 Flax Dressers -	„
61 Upholders	1 „	443 Clerks	- „
63 Bakers	1 „	557 Dress Makers -	„
75 Joiners	1 „	698 Mill Workers -	„
86 Cabinet Makers	1 „		

For Registration purposes, the Wards of the Town are divided into Districts, as follows; viz.:

1st. The North District, comprising the North and East Wards.

2nd. The West District, comprising the Mill Hill, West, and North-West Wards.

3rd. The South-East District, comprising the Kirkgate, South, and East Wards.

And when the sums of these Wards are added together, these Registrations stood thus in 1851, and stand in 1858 as follows:—

(E.)—Leeds, 1851 and 1858.—*Inhabited Houses and Population.*

Registrn. Dis. in Wards.	Acres.	Inhabited Houses.	Population.	Popln. to House.	Popln. to Acre.	Births to Popln.	Deaths to Popln.	Year.
North and North-East	633	7,392	35,755	4·8	56·4	One in 24·7	One in 28·	1851
	633	8,065	38,542	4·7	60·8	24·4	35·	1858
Kirkgate, South and East	812	5,776	27,435	4·7	33·	24·3	31·3	1851
	812	6,160	29,219	4·7	35·8	26·9	36·6	1858
Mill Hill, West North-West	1,226	7,893	37,860	4·7	30·8	28·9	36·7	1851
	1,226	9,287	45,184	4·8	36·6	31·7	45·	1858

We thus see that in the North Districts, with an increased density of population upon the acre, the births to the population remaining the same, in the seven years from 1851 to 1858, the deaths decreased 25 per cent.

So also in the South-East District, with an increased population, the deaths decreased 16 per cent.; and, lastly, in the West District the diminution of deaths reached, as in the first instance, 25 per cent.

I know that in former years Infantile Deaths, half of which used to occur under five years of age, instead of eight, raised the mortality of Leeds Proper, most materially; but whether their health in particular is improved, or the general health makes the difference I cannot

exactly say ; but as many children died formerly from being unable to sustain the insanitary influences of impure atmospheres, and still worse nursing from the crowded state of the dwellings, so I am led to believe that children's lives now add to the improved vitality of the original neighbourhood ; at any rate, there can be no doubt of the improved healthiness of Leeds, for it is a fact notorious to the local Medical Profession ; and it becomes, therefore, a question of considerable interest ; for though much of this altered condition may be, and I believe is, attributable to the sewerage which has wisely threaded these dense populations first, yet other causes operating within the same period may have also tended to the same result ; such, for instance, as compulsory vaccination, the decrease of cellar occupancies, migration to better ventilated districts, better regulations as to hours of work, improved wages, temperance societies, a higher social and intellectual state, or a better knowledge of the general laws of life, disseminated by lectures, cheap publications, and Institutes for mutual improvement ; all of which remedial elements Leeds possesses in an eminent degree.

The importance of sanitary measures indeed, to such a Town as Leeds, can scarcely be overrated, when we are made aware, that 18 per cent. only of all its houses exceed 10*l.* annual rent ; showing how large is the proportion of the working classes to the general population ; and that the elevation of these workpeople in the scale of social life, depends mainly upon those sources which increase their self respect. For although their freedom from popular tumults depends greatly upon their diversified employments, few of which languish simultaneously, yet high wages always consequent on a demand for labour again consequent on diversified employment, within the same area, without moral control, have often produced in the Manufacturing Districts of England, outbreaks, expensive alike to individual as to the commonwealth.

III.—*Woollen, Worsted, Flax and Silk Trades.*

I have attempted to show already, in a general manner, the industrial occupations of the out-Townships. I shall now, by a reference to some of the larger Trades in the Town Proper, endeavour to give an idea of those which are predominant, and the wages which are distributed in them. I propose also to glance at the people's self-providence, and at the charities which assist them ; and after all, I am afraid that social science has yet its great work to accomplish, viz., to teach the working classes that kind of economy, by which they would feel pauperism a degradation, and ignorance a crime ; that by their own efforts they are able to become independent ; and even themselves to assist in rendering ragged schools unnecessary, and the cost of reformatories, and of criminal prosecutions, comparatively insignificant.

There are certain Trades—all of which may be said to be staple in Leeds. These are the Woollen, Worsted, Flax, and Silk; Dyeing, Machine Making, Leather, Shoe, Paper, Tobacco, Sanitary Pipes and Fire Bricks, Glass, Earthenware, Glue and Chemicals, Coal, Stone, Railway Furnaces, and amongst the general Trades, Tailoring in particular, simply because large numbers of persons are employed in making garments for exportation.

I doubt whether the prevailing manufacture of Leeds at the present day is Woollen or Machinery. Both employ the people largely; and perhaps the largest amount, as well as the highest rate of wages, is paid to the skilled labourer in Metals. But the Woollen Manufacture has been so long known as the staple Trade in Leeds, that we must still give it the priority, though it has only been special to the West Riding since 1735. Although it has had much competition to contend with, it has maintained its hitherto fair fame, and at the present day is not degenerated when fine qualities are demanded. It is curious to refer to an Act passed in the reign of Henry VIII in favour of the City of York, which recites that the poor of that City were daily employed in spinning, dyeing, carding, weaving, &c., for the making of Coverlets; and that the same have not been made in the same County till of late. That this Manufacture has spread into other parts of the Country, and was thereby debased and discredited; and therefore it is enacted that none shall make Coverlets but the people of York.

And—once more—to the verses of the Poet Dryden, so long ago as 1666, in which he speaks of

“ Some English wool vexed in a Belgian loom,
And into cloth of spongy softness made—
Did into France or colder Denmark roam,
To ruin with worse fame our staple trade.”

The Woollen Manufacture begins with the Stapler, who buys the Wool of the Farmer, and ends with the Merchant. It is divided into three principal processes, which are again subdivided.

First, there is what is called, The *Manufacturer*,
2ndly, The Finisher, and
3rdly, The Rag Grinder.

The first manufactures the Raw Material into Cloth.

The second finishes it, or gives it its appearance as it is ordinarily worn.

The third takes the manufacture of the two former processes when thrown aside by the wearer, cuts it into patches, which he forcibly tears asunder, and then remodels them into Raw Material again, to be again used by the first consumer.

And of so much consequence is this last process to the Trade,

that its machines in Leeds alone are capable in full work, of producing 3,605,760 lbs. of Raw Material in a year of 313 working days, or, upon the average of 9 lbs. to the Fleece, of adding to the annual stock of Wool the fleeces of upwards of 400,000 Sheep.

The following Table (F.) gives the details of the Woollen Trade in Leeds at present:—

(F.)—Leeds.—Woollen Manufacture.—Extent, &c., in 1858.

First Process.	Firms.	Nominal Horse Power.	First Process. Spindles.	Gigs.	Power Looms.	Rag Machines.	Total Persons Employed.
1st	68	1,936	8,640	....	952	....	3,636
2nd	48	860	....	860	....	....	6,209
3rd	12	128	....	....	....	16	348
	128	2,924	8,640	860	952	16	10,193

The Wages of these processes amount to as follows:—

Process.	Annually.	Weekly.	Per Person Weekly.
	£	£	s. d.
1st Process—Manufacture....	110,120	2,118	11 7½
2nd „ Finishing	254,215	4,888	15
3rd „ Rags	5,760	111	6 ¼
Total	370,095	7,117	10 ½

I do not, however, trespass further upon this branch of industry, because Mr. Baines, our President, has entered so fully into the Woollen Trade of Leeds, that it would be quite superfluous. He has said everything which can be said about it, and by his statements, an idea can be formed of its importance to the welfare of our local population.

The *Worsted Trade* has very much declined within the Borough of Leeds of late years.

In 1855 there were 9 Mills, 9,716 Spindles, 655 Power Looms, employing 1,077 persons. At present there are not more than 4 Mills, about 120-horse power, and 10,000 Spindles, employing about 540 persons: so that there are a few more Spindles than there were in 1855, but about 369 Power Looms less—and hence the diminution in the number of persons employed. A few years ago, there were in Leeds many Stuff Merchants, carrying on a large business, buying goods principally at Bradford, and selling them at Leeds. But on a

sudden panic, during which they supposed that Bradford was about to absorb the whole Stuff Trade, and that customers would never again be seen in Leeds at all, they fled thither with great precipitancy, leaving the manufacturers only behind them, and who probably would have flown too, but for their Mills, which they could neither carry away nor dispose of.

There remains but to add to this Trade about 200 Hand Loom Worsted Weavers, who still carry on their vocation in Leeds, and who obtain a bare livelihood, in a competition with the Power Loom, which seems all but futile. These Weavers earn about 15*s.* a week, and swell the aggregate wages of the Worsted Trade in the Borough to 20,238*l.* annually, 389*l.* 4*s.* weekly, or 10*s.* 5¼*d.* per person. The Hand Loom Weavers of Leeds formerly amounted to a considerable number.

There is a large Silk Manufactory in Leeds which employs about 550 hands in manufacturing waste silk, at an average wage of about 350*l.* weekly, distributing annually 18,200*l.*, or 12*s.* 8¼*d.* per person, but as there is only one Firm, it would be improper to mention it in further detail.

The Flax Trade is also staple to Leeds, and is only second to Belfast, in the United Kingdom.

In the Borough there are 32 Firms, employing 1818 nominal horse power, 9,020 persons of all ages, of whom 5,700 are women and girls, 149,454 Spindles, 352 Power Looms, and 340 Hand Looms.

The rate of wages of these persons varies somewhat according to their skill. An Overlooker gets 21*s.*, a general labourer, 15*s.*, Women, 6*s.* 6*d.*, Lads from 4*s.* 9*d.* to 5*s.* 6*d.*, Weavers from 10*s.* to 15*s.*, Mechanics 29*s.*, Enginemens, 29*s.*, weekly.

The Flax consumed in Leeds amounts annually to about 12,000 tons, obtained principally from France, Flanders, Holland, Ireland, the Baltic, and home growth. A considerable quantity of Tow is also consumed in Leeds, equal annually to about 3120 Tons. The production annually amounts to about 3,355,804 bundles of 60,000 yards to the bundle.

The improvements in Flax Machinery within the last ten years, have raised the rate of wages, and materially increased the quantity of production.

The gross Wages paid in the Borough of Leeds for the Manufacture of Flax amounts to, annually, 188,052*l.*; weekly, 3,616*l.*; or about 8*s.* per person.

Dyeing is, of course, an important trade, where the textile fabrics are so largely made; and it is one in which, in Leeds, great improvements have followed rapidly upon each other. The Wages vary according to skill—very skilled workmen receiving as much as 120*s.* a week.

The Dyers divide themselves into Woollen and Stuff Dyers. The former devote themselves to Woollen Cloths, the latter to Worsted or Stuff goods. The Woollen Dyers, including the hands engaged by the Manufacturers who dye their own goods, employ 312 persons of all ages, but no women. Their aggregate Wages amount to, annually, 14,352*l.*; weekly, 276*l.*; per person, 17*s.* 8½*d.*

The Stuff Dyers employ an aggregate number of persons amounting to 1,336, of whom 251 are lads, and 33 are females, whose aggregate Wages amount to, annually, 62,400*l.*; weekly, 1,200; per person, 17*s.* 11½*d.*

The aggregate sum of the Dyeing Trade in the Borough of Leeds is then as follows:—

Firms.	Horse-Power.	Persons Employed.	Annual Wages.	Weekly.	Per Person.
				£	s. d.
32	550	1,668	76,752	1,476	17 8

IV.—Iron and Machine-Making Trades.

The next most important Trade after the aggregate of the Textile Fabrics is that of Iron and the Metals generally—including in fact all branches, from smelting to the finished machine; and all the domestic work in it, if so it may be called, over the whole Borough.

There are employed:—

	Persons.
1st. In Flax and Tow Machine making, including men and lads	2,630
Men's wages varying from 25 <i>s.</i> to 28 <i>s.</i> weekly.	
2nd. In Tool Engineering and Machine Tool Making—men and lads	1,800
Men's wages varying from 26 <i>s.</i> to 30 <i>s.</i> weekly.	
These 1,800 persons turn out 12,800 tons of Tools alone, per annum.	
3rd. Engineers, Millwrights, and Boiler Makers, of whom 2,400 are employed in the manufacture of Locomotive Engines	4,140
Men's wages varying from 28 <i>s.</i> to 32 <i>s.</i> —Lads from 4 <i>s.</i> to 10 <i>s.</i> weekly.	
4th. In the various Smith's Shops, exclusive of those employed in Machine and Engineering Shops	450
Wages varying from 12 <i>s.</i> to 27 <i>s.</i> weekly.	
5th. In the manufacture of Bar, Plate, and other Malleable Iron	2,250
Wages varying from 25 <i>s.</i> to 31 <i>s.</i> weekly.	
Weight of Iron manufactured by these persons per annum, 59,800 tons.	
6th. In the various Jobbing Brass and Iron Foundries	350
Wages varying from 20 <i>s.</i> to 24 <i>s.</i> weekly.	
7th. In Hackle and Gill Manufacturing	230
Wages varying from 6 <i>s.</i> to 29 <i>s.</i> weekly.	

Thus the total number of Workers employed in the Manufacture of Metals within the Borough amounts to 12,110.

Their Annual Wages to 566,748*l.*—Weekly do. to 10,899*l.*—Per Person, 18*s.*

The rate of Wages amongst the ordinary workers in Iron has not varied very much for several years. It may have increased a little.

V.—Paper, Tobacco, and Pottery Trades.

The Paper Manufacture is of some importance with us. It employs 190 persons, of whom 80 are women, 200-horse power, consumes in rags and ropes 2,600 tons, and produces 1,560 tons of Paper annually.

The annual Wages amount to 7,280*l.*; weekly, 140*l.*; per person, 14*s.* 8 $\frac{3}{4}$ *d.*

In addition, the Paper-hanging Trade employs about 120 persons whose Wages I have not been able to ascertain.

The manufacture of Tobacco has long been staple to Leeds, large quantities being weekly produced. In 1857, there came into Leeds, 2,460,000 lbs. weight, the duty paid on which amounted to 387,450*l.*

There are nine Firms in the Town, who manufacture weekly about 46,400 lbs. The total number of persons employed amounts to 115; annual wages to 18,060*l.*; weekly wages, 347*l.*; per person, 26*s.* 11 $\frac{1}{4}$ *d.*

There is one feature peculiar to the Tobacco Trade which deserves notice, *i. e.*, that whilst the actual cost of the Tobacco amounts weekly to 9,280*l.*; it is sold when manufactured for 7,733*l.* 6*s.*, or at an apparent loss of 19*d.* per lb. to the Manufacturer.

When speaking of the out-Townships, Wortley was mentioned as being geologically of great interest to the Borough of Leeds, especially with reference to its Clay for sanitary pipes. This Clay has for 70 or 80 years, or perhaps long before that, been made into Fire Bricks for Blast Furnaces and other forge works, and found to be equal in quality to any Fire Clay in the Kingdom. This Clay was at the first got by diggers with the spade, where the bed cropped out; and a great portion of this was sold to the Tobacco-pipe Makers and Potters. For many years past, however, it has been obtained by sinking to a depth of about 50 yards.

The analysis of this Clay is as follows:—

Silica	60
Alumina, faintly tinged with iron.....	35.5
Water.....	4.5
	100

It contains no lime whatever, and the proportion of Iron is so small that it may be neglected.

Dr. Ure thinks this Clay superior to that of Stourbridge for Fire Bricks, as it contains more Alumina, less Iron, and no Phosphate of Lime. Extensive works have lately sprung up for the manufacture of this Clay into Sanitary Pipes, Fire Bricks, and amongst other things into large Retorts for Gas Works, superseding even those of Iron.

The pipes made at Wortley have been used by the Town Council

for sewerage the Town of Leeds; and many are now made, socketted and glazed, of three and four feet in diameter.

The numbers of persons employed in this branch of manufacture within the Borough amounts to :—

Persons of all ages.....	900
Weekly wages	£775
Annual ,,	£40,300
Per person	17s. 2½d.

This bed of Clay varies from 18 to 30 inches in thickness; and a thin bed of Coal varying from 12 to 15 inches thick, is found laid upon it and got with it.

Connected with Clay is Earthenware, of which three sorts are rather largely made within the Borough, viz., White, Brown, and Black. The White is made with Clay from Dorsetshire; the Brown and Black with Clay found in the neighbourhood of Leeds.

The following persons are employed in this branch of labour :—

In White Earthenware	460 persons.
In Brown and Black.....	80 ,,
	540

Of whom 113 are women and girls.

Their annual Wages amount to 13,842*l.*; weekly to 266*l.*; per person, 9s. 10½*d.*

Glass is also an article of considerable manufacture with us, and employs about 600 persons. There are several houses both for Crown and Bottle manufacture.

I am obliged to form an estimate of their Wages, on account of their varying so much, being for the most part piece work. It is as follows :—Persons employed, men and lads, 600; annual Wages, 35,360*l.*; weekly, 680; per person, 22s. 8*d.*

VI.—*Chemical and Coal Trades.*

The manufacture of Chemicals, where so much Dyeing is carried on, cannot be overlooked. In Leeds—Refined Indigo, Preparations of Indigo, Liquid Ammonia, Soaps of various kinds, Oil of Vitriol, Nitric and Muriatic Acids, Dyer's Spirits, Cudbear and Archill, Prussiate of Potash, Bichromate of Potash, Soda and Soda Ash, Copperas, Sulphate of Ammonia, Alum and other Chemicals sold by Druggists are all manufactured.

The total Horse-power employed is estimated at	400
Persons of all ages.....	520
Annual Wages	£32,240
Per person	26s.

It is to be regretted, that in Leeds we do not give to our home Manufacturing Chemists all the employment we might do. It is estimated that only a tithe of the Soda Crystals, Soda Ash, Soap,

Alum, and Bichromate of Potash, used in and around Leeds, is bought at home, though equal in quality with that which comes in from other places, and the cause of this neglect of home produce is not unworthy of consideration. Does it arise from a want of enterprise on the part of the Chemists themselves engaged in the manufacture of these articles, or to an unwillingness on the part of the consumers to encourage local industry? This encouragement, however, ought to be afforded, since the success of Manufacturing Chemists as a branch of trade in Leeds is necessary to the completion of nearly all the manufacturing operations of the district.

The Oil Trade, though it does not employ so many persons, is yet a very important branch of our local industry. It may generally be considered to be in full work only for seven months in the year, and during that time the presses of Leeds will consume 9,820 quarters of Linseed and 38,080 quarters of Rape Seed, producing 123,760 gallons of Linseed Oil, and 723,520 gallons of Rape Oil.

It employs about 242 persons, men and lads, whose annual Wages amount to 12,584*l.*; weekly, 242*l.*; per person, 20*s.*

Employment on the Railway Termini is equivalent with us to a Manufacture, since it gives large wages to a numerous body of Employés. We cannot but remember how seriously Railways were expected to displace labour, and yet the Termini in Leeds alone give employment to 1,016 persons, whose annual Wages amount to 55,620*l.*; weekly, to 1,069*l.*; per person, 1*l.* 1*s.* 0½*d.* Added to this is the manufacture of Railway Trucks and Wheels, in which employment, exclusive of that before given under the head of Iron, are the following persons, viz. :—men and lads, 475; annual Wages, 20,800*l.*; weekly wages, 400*l.*; per person, 16*s.* 11*d.*

The Coal and Iron Miners within the Borough are estimated at 2,000.

Some idea of the quantity of Coal consumed in Leeds Proper may be formed, when the following facts are taken into consideration :—

In Mills and Workshops there are 150 Engines—Horse-power	3,950
Dye-Houses	32
Miscellaneous.....	74
Total	256
	5,540

Total Coal required and consumed by these—

	Tons.
Engines, annually.....	277,335
Smelting purposes	195,000
House Coal	189,104
Miscellaneous Coal	15,000
Total	676,439

Lastly, there are the Stone and Leather Trades, and the Shoe Making and Tailoring Trades, all of which are deserving of special notice.

I have not, however, been able to obtain a return of the Stone Trade.

There are several establishments in the Leather Trade, one of which is able to produce 20,000 Sheep, Goat, and Calf Skins weekly, for the purpose of hat linings, covering books and furniture, and for Chamois Leather; another in which 700 hides and 900 skins are tanned weekly; and two others which operate upon about 4,000 skins weekly. Their aggregate Wages may be estimated at 1,000*l.* a week, for about 1,200 persons.

Estimated, because many come into Leeds to work and many go out into the neighbourhood, of the 2,000, 600 may be lads. Their weekly Wages will amount to 1,967*l.*; annually to 102,317*l.*; per person, 19*s.* 8*d.*

In the two trades of Tailoring and Shoemaking about 4,500 hands are employed, averaging weekly about 12*s.* They might earn a great deal more, but they will scarcely work two-thirds time. Yet in Leeds alone 15,000 pairs of boots and shoes are made weekly, and are preferentially sent to every part of the known world, and in many places bespoke before they arrive.

If then we take the present population of the Borough at 190,693, and half of these as females, there is thus accounted for 45,829 persons, or nearly a fourth, including all ages, who receive annually 1,752,689*l.*—or weekly, 33,734*l.* 9*s.* 4*d.*—amongst them. The residual employment is made up of those Trades which are common to all congregated populations whose varied wants have to be supplied. With the exception of Joiners, Masons, Bricklayers, Sawyers, Drapers, Milliners, Butchers, Grocers, Warehousemen, and a few others, there are no Trades else in which 100 persons are engaged.

VII.—*Conclusion.*

The poverty or providence of the whole, taking the mixed character of the population into consideration, is a subject of deep interest.

We test the former by the books of the Guardians of the Poor, and by the various Charities of the Town, Medical and otherwise; the latter, by the deposits in the Savings' Banks and in the Building Societies—and by the amount of Income raised and expended by the Secret Orders among themselves.

In 1857, there were relieved out of the rates—

Men.	Women.	Children.	Vagrants.	Total.
2,238	4,862	5,653	4,684	= 17,437

The Indoor Vagrants, it is true, exceeded the Indoor indigenous Poor by 163 per cent. ; but if we subtract these vagrants from the home poor in the aggregate, there remained, amid all these varied and mixed employments, and with this large distribution of wages, 12,753 persons who were assisted out of the savings of the industrious—notwithstanding all charity—notwithstanding that the Secret Orders raised and distributed among their sick and distressed brethren 20,000*l.*—and notwithstanding an increase of depositors in the Savings' Banks within the last eight years of 3,600, and of deposits of 53,091*l.*, but these 12,753 cases were perhaps not all individual paupers, but individual applications for relief.

To my mind, this pauperism is the result of sheer improvidence ; and as co-existent with varied and consequent choice of employment, and high wages, it will have to be early dealt with by social science. Its causes are already in process of development ; but its elements are so commingled with questions of public policy, that the greatest care will be required in touching upon them, lest feelings of suspicion are awakened, and jealousies of interference aroused, which it might be difficult to allay.

Two great causes certainly, of this state of things, which in the end affects all our interests, are—

1st. The ignorance which exists among the working classes with reference to social virtues ; and

2ndly. The ease with which the pockets of the rate payers can be dipped into by the rate collector.

Many of our women, as yet, do not sufficiently comprehend home attractions and self-respect, and they are therefore not appreciated by the men. For years, these have been lost in the mammon of universal labour—and its enjoyments falsely so called—which have left nothing but regret behind them.

The day is dawning, however, when with its general principles, departmental education will be taught the men ; and if it is necessary that women and children should be employed in congregations, the little good and the great bad thrown into one common assembly, arrangements will have to be made, whereby they will meet under a more domestic system of supervision and control than they have hitherto done, so that morality may be a lesson cultivated simultaneously with labour, and as a people we may be wiser and better for our abundant benefits.
