

Report to the Local Government Board on the sanitary circumstances of the Axbridge Rural District, Somerset / by Dr. Reginald Farrar.

Contributors

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REPORTS

TO THE

LOCAL GOVERNMENT BOARD

ON

PUBLIC HEALTH AND MEDICAL SUBJECTS.

(NEW SERIES No. 7.)

Dr. Reginald Farrar's Report on the Sanitary
Circumstances of the Borough of Oldham.



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Dr. Reginald Farrar's Report to the Local Government Board on the Sanitary Circumstances of the Borough of Oldham.

ARTHUR NEWSHOLME,
Medical Officer,
28th May, 1909.

THE attention of the Local Government Board has been drawn to a report presented by the National Housing Reform Council to the Oldham Trades and Labour Council respecting the sanitary circumstances of Oldham. It is alleged in the said report that, largely on account of extensive mill-building in recent years, there is a great scarcity of suitable dwelling-houses for the working classes in the Oldham district; that more than 10,000 persons live in a condition of overcrowding, and that many insanitary evils and an unduly high general death-rate and a high rate of infantile mortality have been thus occasioned.

A question arising out of the report was addressed to the President of the Local Government Board, in the House of Commons, and the matter has given rise to much comment in the local press.

It was, therefore, determined that one of the Board's medical inspectors should visit Oldham and report on the housing and sanitary conditions of the borough. I received instructions accordingly.

Statistical considerations.—The borough of Oldham, in Lancashire, has an area of 4,736 acres. The population at the census of 1901 was 137,246. The gross annual rental of the town at the date of my inspection was £780,314, and the assessable value for purposes of the district rate £511,381. The current borough rate was 6s. 6d., and the poor rate 1s. 2d., making a total rate of 7s. 8d. in the £1, the amount produced by a rate of 1d. in the £1 being £1,911.

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The following are the census populations of the borough during the 19th century and for 1901 :—

1801	12,024	1861	72,333
1811	16,690	1871	82,629
1821	21,662	1881	111,343
1831	32,381	1891	131,463
1841	42,595	1901	137,246
1851	52,820		

The growth of Oldham during the whole of the nineteenth century has been very rapid.

The population estimated by the Registrar-General to the middle of the year 1907 is 141,730, and based on this estimate the annual rate of births per 1,000 living population for 1907 was 26·5, and the "crude" annual rate of mortality from all causes 19·4; the "corrected" death-rate being 21·8.

In the absence, however, of authentic information as to the actual population, no trustworthy conclusions can be drawn from the above rates. The medical officer of health, from a general knowledge of the housing conditions and of the state of trade in the borough, concludes that the population as officially estimated is at least 5,000 below the actual population, and in conversation with me has expressed the opinion that the correct figures may be as high as 150,000. If this be correct, it is probable that the apparent birth and death rates as estimated above are considerably in excess of the actual rates.

The only figures in the official returns which can be taken as absolutely correct are those of the infantile mortality rate, which for 1907 was 144 per 1,000 births. The death-rate and the infantile mortality rate will be presently considered.

Topography.—The topographical characteristics of Oldham are sufficiently described in the following extract from the annual report of the medical officer of health for 1907 :—

"The town is mainly situated on the south-western slopes of offshoots from the Yorkshire range of hills, the height of the surface varying from about 1,200 feet above the sea level at the highest point, to 360 feet in the lower part of the town. The Old Market Place is 696 feet above the sea level.

"The subsoil is chiefly rock or shale overlying the coal measures, and in the lower part of the town there are areas of clay with occasional sand pockets.

"The country to the west and south-west is open to the sea, which is about 50 or 60 miles distant. The situation of the town is thus naturally an exposed one, with a heavy rainfall."

The borough, which lies six miles to the north-east of Manchester, is continuous with the adjacent urban districts of Failsworth, Chaderton, Royton, Crompton, and Lees; beyond these it is surrounded in most directions by open moorland country. The bracing air and hilly character of the district doubtless do much to counteract influences injurious to health which are involved in the factory system.

Industrial considerations.—Oldham is a typical centre of the Lancashire cotton industry. Two large firms (Platts', employing

between 12,000 and 13,000 men and boys, and Asa Lees', employing about 3,000) are engaged in the manufacture of machinery for cotton-spinning and weaving. The remainder of the male population, with the exception of those engaged in retail trade or in other occupations subservient to the general needs of the community, and a large number of women and girls are employed for the most part in cotton-spinning or weaving mills. There are about 12,600 looms in Oldham, giving employment to about 6,300 persons.

SANITARY CIRCUMSTANCES.

Housing Accommodation.—The number of inhabited houses in Oldham at the census of 1901 is returned as 29,909. During the period 1901–1907 1,767 houses were erected and 161 were closed, voluntarily or by order of the Corporation. At the time of the census there were 1,044 houses habitable but not occupied, practically all of which are now occupied, and 1,432 houses not habitable and not occupied, of which a large proportion, probably more than half, have been put in repair, and are now occupied. It may fairly be estimated that there were at least 33,273 inhabited houses in the borough at the end of 1907. In 1908 plans for 344 new dwellings were passed down to the end of October, of which about 150 had at the time of my visit already been erected. The number of persons per house at the census of 1901 was returned at 4·588. If we estimate the present population at 150,000 and the number of inhabited houses at 33,400, we obtain an average of 4·49 persons per house. The average number of persons to a house for urban districts in England and Wales is 5·4.

The following table gives the tenement statistics of Oldham for 1901 and the percentage of total tenements as compared with England and Wales and with urban districts :—

Rooms in tenements.	Number of tenements in Oldham.	Percentage of total tenements.		
		Oldham.	England and Wales.	Urban districts.
1 room	99	0·3	3·6	4·5
2 rooms	1,773	5·9	9·4	10·4
3 rooms	434	1·5	11·1	11·5
4 or more rooms ...	27,603	92·3	75·9	73·6

Since the census several of the one-roomed tenements have been closed, many of the back-to-back two-roomed tenements have been converted into four-roomed houses with through ventilation, about 2,000 houses practically all of them four-roomed or larger have been built, and about 2,000 houses which were unoccupied at the time of the census have come into occupation.

The National Housing Reform Council in the report above referred to quote the census report for 1901 which shows that on the census standard of overcrowding, *i.e.*, more than two persons

to each room in the dwelling, there were 10,191 "overcrowded" persons in the borough at the date of the census, being—

145	in one-roomed tenements,
2,005	in two- " "
280	in three- " "
7,761	in four- " "

Thus it appears that less than 7·5 per cent. of the inhabitants of Oldham were in a condition of technical, though not necessarily legal overcrowding; of these technically overcrowded persons more than 77 per cent. were in four-roomed tenements.

The percentage of "overcrowding" at the census was for—

England and Wales	...	...	...	8·20
County Boroughs	...	...	...	8·30
London	...	...	...	16·01
Oldham	...	...	...	7·43

The above figures do not indicate a grave amount of overcrowding in Oldham as compared with England and Wales, or with other towns of similar size.

Instances of true overcrowding are to be found—in one instance two men, three women and five children were occupying a very dirty two-roomed tenement in a row of back-to-back houses in Gravel Walk—but such cases are exceptional, and when discovered are promptly dealt with by the sanitary authority. They are usually associated with drink or other causes of social failure, and cannot be regarded as characteristic of Oldham.

Examination of the following tables shows that the rate of building has more than kept pace with the increase of population:—

Houses built in the borough.

Year.		No. of houses built.	
March, 1871, to	March, 1872	...	277
"	1872	" 1873	197
"	1873	" 1874	588
"	1874	" 1875	649
"	1875	" 1876	867
"	1876	" 1877	1,181
"	1877	" 1878	1,010
"	1878	" 1880	989
"	1880	" 1881	746
"	1881	" 1882	738
"	1882	" 1883	644
"	1883	" 1884	631
"	1884	" 1885	737
"	1885	" 1886	780
"	1886	" 1887	657
"	1887	" 1888	711
"	1888	" 1889	371
"	1889	" 1890	218
"	1890	" 1891	214
"	1891	" 1892	190
"	1892	" 1893	227

Year.				No. of houses built.	
March, 1893, to	March, 1894	...	...	...	362
"	1894	"	1895	...	284
"	1895	"	1896	...	294
"	1896	"	1897	...	360
"	1897	"	1898	...	505
"	1898	"	1899	...	455
"	1899	"	1900	...	608
"	1900	"	1901	...	543
"	1901	"	1902	...	439
"	1902	"	1903	...	375
"	1903	"	1904	...	357
"	1904	"	1905	...	242
"	1905	"	1906	...	185
"	1906	"	1907	...	169

Table showing the relation of the increase in the number of inhabited houses to the growth of population in Oldham.

Census of—	Population.	Number of inhabited houses.	Percentage increase in each decade of—	
			Population.	Houses.
1871	82,629	16,743	—	—
1881	111,343	22,555	35	35
1891	131,463	27,485	18	22
1901	137,246	29,909	4	9

During the whole period 1871–1901 the population increased by 66 per cent., while the number of inhabited houses increased by 78 per cent. In 1871 the number of inhabited houses was as one for every 4·9 persons; during the period 1871–1901 one new house was built for every 3·4 persons added to the population; during the period 1901–1907, as already mentioned, 1,767 new houses were built and 161 closed, an increase equivalent, if the population for 1907 be reckoned as 15,000, to an addition of not more than one house to every 7·9 persons added to the population. On the other hand more than 1,000 houses which were unoccupied at the time of the last census have been made habitable and brought into use.

The years immediately following the Boer war were characterised by a boom in the cotton trade and a somewhat rapid influx of population into the borough. Concurrently, there appears to have been, as compared with the previous quinquennium, a decline in house building, 1,328 new houses having been erected during the period 1902–1907 as against 2,550 during 1897–1902. During the boom period the activity of the building trade appears to have been diverted from the building of houses to the building of cotton mills, and the demand for new houses hence became somewhat in excess of the supply. Since the early part of 1907, however, there has been a relative depression in the cotton trade, while the erection of new houses is actively proceeding.

It is instructive to study the extent to which the capital of the working-classes in Oldham is invested in house property.

Through the courtesy of the secretaries I have obtained the following figures relative to the four chief building societies in the town :—*

The Oldham Industrial Co-operative Society has since its formation (in 1850) advanced £396,884, in amounts not exceeding £300, at 4 per cent. With this money 2,448 houses have been bought, averaging £162 per house. During the first nine months of 1908 £33,517 was advanced to 181 applicants, with which 192 houses were bought.

The Oldham Equitable Co-operative Society has since its formation (in 1850) advanced £50,573 to 1,007 borrowers. During 1907 £19,944 was advanced to 95, and £12,249 was repaid.

The Oldham Church Building Society has since its formation (12 years) advanced £74,024, in amounts varying from £70 to £300, at $4\frac{1}{2}$ per cent. £10,628 was advanced in 1907 and £5,408 during the first nine months of 1908.

The Oldham Trust Company since its formation (16 years) has advanced £44,189 in sums varying from £100 to £250.

The above are the four principal building societies. There are in addition the Oldham Borough Building Society, the Oldham Building Company, the Oldham Atlas Building Society, the Oldham Central Building Society, the Oldham Estate Co., Ltd., the Hollinwood Building Society, and the Oldham House and Mill Co., Ltd., besides a large number of building societies (quite 50 or 60) which meet in public-houses and clubs.

Altogether it is estimated that more than 10,000 artizans in Oldham are the owners of their own cottages.

Of the (estimated) total of 33,273 inhabited houses in 1907, 17,800, or more than 53 per cent., have been erected since 1871, and of these 11,296 have been built under the regulations as to new streets and buildings included in Part VI. of the Oldham Improvement Act, 1880, which repealed existing byelaws passed in 1865 and 1867. These regulations, in the main, comply with the requirements of the Board's Model Byelaws (Series IV.), but are somewhat less stringent.

No back-to-back houses have been erected since 1881. It has been shown that already in 1901, 92 per cent. of the dwellings were four-roomed or larger houses, and the proportion is now still higher, for practically all the houses erected since this date have been four-roomed or six-roomed houses.

The great majority of the modern artizans' houses in the borough are well planned cottages, well ventilated, light, and fairly roomy, with plenty of cupboard room and good kitchen and pantry accommodation, having paved curtilages and a separate ashbin and water-closet to each house. The type of cottage commonly found in

* It must be explained that the amounts advanced by the co-operative societies are in addition to the sums paid by the purchaser. Every purchaser of a house has to pay a sum out of his own pocket, and the co-operative societies advance the remainder.

Oldham compares very favourably with those met with in other industrial towns. Many of the artizans live in six-roomed houses. The average rent of a good four-roomed cottage is 5s. 6d. to 6s. "clear," that is including rates, which are generally paid by the landlord.

As it might be inferred from the published representations which gave occasion to the present inquiry that slum areas prevail in Oldham to a very considerable extent, I may be permitted to quote the impression of the housing formed by an independent observer, Dr. Arthur Shadwell, the author of "Industrial Efficiency." (Vol. I. p. 92. 1906 Ed.) :—

"The housing is of the same character (as in Bolton) and for the most part good. The average number of persons to a house is 4.58 (1901), the density of population is 29 persons to the acre for the whole borough and 94 in the most populous district. I could find even less visible evidence of squalid poverty in Oldham than in Bolton; one traverses street after street of tidy, well-kept cottages. They are monotonous, but comfortable, and, here too, many workmen are the owners of their houses. Of course in a town of this size there is some insanitary property," but Dr. Shadwell proceeds to show by an extract from the annual report of the medical officer of health for 1901 that the amount is relatively small, and that the sanitary authority are displaying proper activity in mitigating it.

I may add that most women in Oldham appear to be "house proud" and that a large majority of the married women stay at home to attend to their housewifely duties.

I have already shown that in respect of the number of persons living in each occupied room, which is regarded as "the essential element in testing the true density of population," the amount of overcrowding in the borough is less than the average for urban districts. As regards the statement that "it is overcrowded in a marked degree as far as proportion of population to site is concerned," this proportion, estimating the present population at 150,000, is less than 32 persons to the acre, certainly a high degree of density, but less than that of many large industrial towns.

I was much struck in visiting Oldham with the number of waste and vacant spaces that are to be found in the most populous parts of the town: many of these areas are the sites of old mills or blocks of dwellings: they are neglected and untidy, and tend to give an appearance of squalor to the place. There would be great advantage in laying out some of these neglected spaces as gardens or recreation grounds. As regards the allegation of bad planning and of "the complete lack of any method in the development of the town"—of the central parts of the town it is true that mills, workshops, business premises, and workmen's cottages are intermixed in a haphazard fashion. This state of things was occasioned by the rapid growth of the cotton-spinning industry during an era when the art of town-planning was almost wholly ignored, and could not now be remedied without a wholesale demolition of factories and dwellings; but the peripheral parts of the town, in which a majority of the artizans are housed, are characterised by long and orderly rows of neat dwellings.

These are, however, in a very large number of instances open to the reproach that the back streets between the rows of houses and in some instances the front streets have not been properly made up. In the case of many houses which have been built for periods of more than 20 years the back streets have not yet been properly made up, and remain squalid, dirty, and full of ruts. In this respect the corporation appear to have sacrificed the interests of the public to considerations of private ownership. In respect of the making up of streets the regulations do not appear to be sufficiently stringent.

In the Garden Suburb, which is now being laid out in Hollinwood Ward, due attention has been paid to the art of town planning. This is an estate of 50 acres which is being developed by a company. It is laid out in plots with a maximum of 14 houses to each acre, a plan which allows for 700 houses on the estate. It is stipulated that each house shall have a garden, in which no shed or other building may be erected, and that each house shall have, in addition to the kitchen and offices, three rooms available as bed rooms.

I visited several of the houses which have already been erected and are occupied on this estate. Those I saw were semi-detached houses, well-built, and of artistic appearance, having each a kitchen with a good range, &c., a back kitchen containing a bath with hot and cold water laid on, a pantry and three good rooms available as bedrooms. The rooms were well planned, light and airy, and constructed with good cupboards in the walls; the staircases were light and well ventilated, a feature often neglected in the construction of artizans' dwellings. Each house has a separate waste water closet and ashbin. The gardens are separated by light fences of chestnut paling. I was informed that semi-detached houses of this class cost on an average £183 to erect. They are let at rents of about 5s. 9d. weekly, exclusive of rates. A few plots are to be let on chief rent on the same terms and stipulations as apply to the houses built by the company.

The Garden Suburb when fully developed will be a very creditable area of housing, and will go far to remove the reproach that considerations of town-planning have been neglected in the borough.

Slum areas.—There are still slum areas existing in Oldham, though, as I shall show, the corporation have shown activity in dealing with these. Being for the most part centrally situated they are more obvious than the comfortable working-class dwellings which characterise the more peripheral parts of the town; but in reality the slum areas bear a comparatively small proportion to the total housing, and in this respect Oldham can well bear comparison with most other industrial towns.

The number of back-to-back houses may perhaps be taken as a rough test of the proportion of insanitary property. In 1894 there were in the town 4,893 "single" and "back-to-back" houses.* Of these a large number have been converted into "through" houses

* The estimate included in one category "single" houses—*i.e.*, houses having only one entrance, and which might or might not have through ventilation—and houses built back-to-back. The large majority would, however, be back-to-back houses.

by making a doorway through the party-wall and converting them into four-roomed houses, while about 500 have been voluntarily or compulsorily closed. No new back-to-back houses have been erected since 1881. The number still remaining is estimated at between 300 and 400.

There are about 25 cellar dwellings in Oldham, and 60 "under" dwellings, that is, dwellings below or partially below the ground level on one side. They are generally let as two-roomed tenements and in most cases have through ventilation. I visited a large number of these with the medical officer of health, and the different inspectors of nuisances and health visitors. I found them generally dark, often damp, and in most instances dirty. Many of them should be closed as unfit for habitation: several such dwellings have been closed during recent years, and the medical officer of health endeavours to prohibit the occupation of cellar-dwellings by families comprising infants or young children.

In the older parts of the town are some single-roomed tenements let as "furnished" rooms.* The furniture is of the poorest sort, and seldom worth more than a few shillings. The rent of such furnished rooms averages 4s. to 4s. 6d. weekly, or 6s. for two rooms. Most of these tenements are dirty and squalid, but their wretched condition is due rather to the improvident and degraded habits of their occupants than to any structural defects in the dwellings. In most cases it is thriftlessness and moral defects rather than unavoidable poverty which induces people to pay the rent which might provide a decent four-roomed cottage for one or two so-called "furnished" apartments of this class.

Here and there, in the central parts of the town, I observed old houses which showed grave structural defects, and some which ought to have been condemned as unfit for habitation. Nevertheless, on the whole the corporation appear to show a fair amount of activity in dealing with insanitary houses. During the decennium 1898-1907, 119 houses were condemned as unfit for habitation; of these 102 were closed, and 17 made habitable. During the same period 131 houses were voluntarily closed and 123 underwent structural improvements, the majority being back-to-back houses which were made "through."

During my visit I observed a large number of houses undergoing improvements in respect of structure or drainage, or both, in different parts of the town.

I visited the four insanitary areas specially selected for comment by the National Housing Reform Council. Of the two in Coldhurst Ward, the Cannon Street, Eagle Street, and Garlick Street area is being dealt with by the corporation, and at least one half of the houses in this area have been already demolished; the Hopwood Street, Grosvenor Street, Smethurst Street, &c., area has not yet been thoroughly dealt with, but there has been general supervision and some of the houses have been closed. In the

* The exact number of these "furnished" rooms is not known, as they are not required to be registered before occupation as such, but, as far as is known, there are believed to be about 200.

Gravel Walks, &c., area, in Mumps Ward, some houses were closed in 1907, other back-to-back houses made "through," and a large piece of ground made into an open space or playground. In St. Mary's Ward, the Lord's Hill District has been bought up by a builder, and the houses in it are now being re-constructed and put into proper condition. The above-described action in respect of these areas was already in progress at the time that the National Housing Reform Council's report was issued.

Several blocks of houses are mentioned in the annual reports of the medical officer of health as having been closed during the last three years.

An area of rather more than an acre in the Hartford Ward, comprising 78 houses, of which 38 were standing empty, has been condemned, and is being rebuilt by a private benefactor.

The general death-rate in Coldhurst, Mumps, St. Mary's, and Hartford Wards is higher than in other parts of the town, and these are the wards in which dwellings are most crowded on area. They are also the wards which contain the large common lodging-houses and the greater number of the single-room tenements, whereas the more peripheral wards are suburban in character, and consist almost entirely of decent artizans' cottages, the occupants of which are exempt from poverty and want.

My inquiries convinced me that the relatively high death-rate in the centrally situated wards of the borough is attributable rather to the social condition and habits of the dwellers in the slums, than to structural or sanitary defects in houses, or overcrowding of houses upon area, though these defects need to be remedied.

To sum up the housing conditions in Oldham :—at the last census more than 90 per cent. of the total houses in the borough were four-roomed or larger houses of a satisfactory class, and less than 8 per cent. of the population were living in a state of technical overcrowding, as defined by the Registrar-General. In these respects, therefore, the borough compares favourably with most industrial towns. There are, however, certain slum areas in the borough. These are a legacy of the very rapid development of the cotton trade in the past. In the first half of the nineteenth century Oldham more than trebled its population, and the erection of rows of back-to-back houses proceeded rapidly at a time which corresponded with the worst era of jerry-building. There are few industrial towns of this type which have not slum areas due to the same cause. It can, however, reasonably be expected in our own generation that the sanitary authority shall display activity in dealing with insanitary areas or with sanitary defects in houses, and shall only permit the erection of new houses under effective regulations for purposes of health, and with proper regard to considerations of town-planning. These obligations the corporation have, in my opinion, during recent years endeavoured to fulfil, except in respect of the making up of the surfaces of certain streets, especially back streets.

Common lodging-houses.—There are 17 registered lodging-houses in the borough, having a total accommodation at night for 1,243 persons, and an average occupation per night of 824.

It may be remarked incidentally that the relatively small number of persons resorting to common lodging-houses is to some extent an index of the general industrial prosperity of the community.

These premises are subject to byelaws passed in 1866, are supervised by the police force, and are under the control of the watch committee. I inspected the three largest, licensed respectively for 285, 258, and 180 persons, and several of the smaller of these, and found them in most respects very clean and well kept; but at Jagers' lodging-house in Mumps Ward the trough closets in the yard were in a very filthy condition, and, the sanitary bins having been stolen or otherwise removed, ashes and refuse were being deposited on the ground in a heap.

Stores for the sale of provisions are attached to the two largest.

I have already mentioned that there are several houses in the central parts of the town of which the rooms are let as furnished lodgings. Many of these are situate in the insanitary areas of the town, and the rooms are themselves often kept in a very unsatisfactory condition.

Byelaws as to houses let in lodgings were passed in 1888. The houses let in lodgings are not registered, but the sanitary authority have a list of about 20 such, which are regularly visited.

Water supply.—The water supply of Oldham is moorland surface water derived from a gathering ground of 5,480 acres, on the Penine range (Carboniferous formation). The gathering ground, which comprises several distinct drainage areas, is for the most part outside the borough boundary, but the corporation of Oldham have acquired control by purchase of 4,150 acres, and only water derived from the areas thus acquired is used for domestic purposes. Within the watersheds comprising these areas all farm houses and other dwellings have been pulled down, and the land thrown out of cultivation, and only used for grazing sheep. The water gathered from the remaining 1,330 acres, which have not been acquired by the corporation, is utilized either as compensation water or for trade purposes, and in the latter case is conveyed in separate trade-mains to mills and other works: 700,000 gallons of water daily are supplied for trade purposes, and 2,605,000 gallons for compensation.

The water is collected in 16 separate reservoirs, four of which are reserved exclusively for compensation water, and four for compensation and trade purposes. Of the remaining reservoirs, three are used as service reservoirs for the domestic supply, the flood-water being stored in the high-level reservoirs, and passed by decantation into the service reservoirs, after being clarified by sedimentation. There are no filter beds.

The water is remarkably free from organic impurities, but as collected is very soft, having only about $2\frac{1}{2}$ degrees of total hardness, and is acid by reason of peaty acid. In its natural state it is, therefore, somewhat plumbo-solvent, but this condition is remedied by placing bags of whiting (prepared chalk) in the inlets to the reservoir, and at the Denshaw reservoir by mechanically mixing

whiting with the water in the proportion of $1\frac{1}{2}$ grains to the gallon. As it passes into the domestic mains the water has about three degrees of hardness, and is slightly alkaline, having no action on lead. The action of the water on lead is tested monthly, and the amount of whiting used is varied accordingly. As an additional precaution against the tendency of the water to absorb lead, tinned "health-pipes" are installed in some of the better-class houses.

The undertaking supplies a total population of 230,000, the district supplied comprising, in addition to the borough of Oldham, the urban districts of Chadderton, Crompton, Failsworth, Lees, Royton and Springhead. A daily average of 25 gallons per head of population supplied is issued, viz., 18 gallons for sanitary and domestic and 7 gallons for trade purposes.

As it is difficult to maintain this supply in dry weather, it is proposed to supplement it by sinking boreholes into the sandstone measures, and also by utilizing water which has accumulated in a disused coal mine. The additional water thus gained will add, it is estimated, $1\frac{1}{4}$ million gallons to the daily average supply, and will tend to increase its hardness.

In Oldham the water is laid on practically to every house, with the exception of one or two farms on the outskirts of the borough, which are supplied by springs. The supply is constant; water used for trade purposes is charged for by meter.

Excrement Disposal.—The methods of excrement disposal in the borough are two-thirds water-carriage and one-third dry conservancy. In December, 1907, there were altogether 20,739 water-closets, and 10,604 "sanitary pans," i.e., pail closets. The town is being gradually converted from the pan or pail closet to the water-carriage system, the figures for the last three years being as follows:—

Year.	Increase of water-closets.	Decrease of pan or pail closets.
1905	1,301	1,112
1906	1,428	1,365
1907	1,764	1,493
Totals for 1905-1907 ...	4,493	3,970

A large amount of work in the same direction was in progress during my visit to the town, more than 1,200 pan closets having been replaced by water-closets down to the middle of November, 1908.

The water-closets in the borough are of three kinds:—

	Dec., 1907.
Waste-water-closets	15,750
Trough " 	1,874
Clean-water- " 	3,115
	<hr/>
Total water-closets	20,739
	<hr/> <hr/>

The waste-water-closets, which constitute a large majority of the whole, are constructed of brown earthenware, and the soil-pipe discharging to the sewer is flushed automatically by a "tippler" working on a hinge below the ground level; the "tippler," which has a capacity of three gallons, receives the household slop-sewage, surface water and roof water.

The closet seat consists of an earthenware pedestal with perpendicular sides 18 inches in height, the diameter being either oval, 15 by 10 inches, or circular, 12 inches. In most of the working-class property the pedestal is fitted with a wooden rim lifting on a hinge, but in some of the better cottages the pedestal is cased in with wood-work.

Closets of this type are open to objection in many respects. They are, however, inexpensive and simple in construction, readily kept in order, and cannot easily be damaged, even by the most careless tenant. The chief drawback to them appears to be the absence of provision for flushing the pedestal above the "tippler," which constitutes the receptacle, and the sides of which are liable to fouling. To keep these properly clean they should be periodically flushed with a hose-pipe. For better-class houses having private yards, clean-water-closets with flushing cisterns are certainly to be preferred.

Trough-closets are provided in schools and factories and in some of the poorer courts. These have flushing cisterns which are controlled by a key, and are discharged daily by an officer of the sanitary department. They cannot be considered altogether satisfactory.

The clean-water-closets which are found in some of the better private houses have flushing cisterns of the ordinary type, and call for no special description.

The sanitary pans or pails which, as already mentioned, constitute about one-third of the whole, but are being annually diminished in number, are of galvanized iron. They are provided and kept in repair by the corporation, the contents are emptied weekly and the pan dusted out with carbolic powder. I heard no complaints of any irregularity in respect of their emptying, which is done at night.

In ordinary cases the excreta from these pans are mixed with "shoddy dirt" (waste dust from the cotton-mills) and sent away to be sold as manure; 12,965 tons of this manure were sold during 1907. When cases of enteric fever are isolated in the patient's home, special pans are provided, and the excreta are burnt in the corporation's destructor.

So far as I could ascertain, there are no midden-privies or closets of any type in the borough, other than those above described.

There is some insufficiency of closet accommodation in some of the older courts, where an allowance of one closet to three or more houses is not uncommon; in some cases of houses built back-to-back the closet can only be reached by going out into the street, and round the corner to the back of the block. The insufficiency, however, exists only in the older parts of the town, and the great majority of cottages are supplied with separate closets, which are insisted on for all new houses.

Refuse disposal.—Household refuse is deposited either in ashpits or ashcans.

The ashpits, which are found on the older property in the town, are thoroughly objectionable. They have often a superficial area of more than 40 feet, and the floor is in most instances sunk below the ground level. Their large capacity enables them to hold several months' accumulation of refuse, and as they are commonly made the receptacles not only of ashes but of moist food refuse, animal and vegetable, their contents are subject to fermentation, and attract great numbers of flies. The stench from these ashpits is often abominable, and as they are generally found in the older and more crowded parts of the town, and are often, therefore, necessarily within a few feet of the house doors, they must be regarded not only as a grave nuisance, but as a serious menace to health, wherever they are found.

It commonly happens that ashes and refuse are not deposited fairly in the pit, but partially on the ledge of the containing wall or on the surrounding ground. I noted several instances in which the ashpits had been allowed to become over full, the contents not having been removed for several months: I also noted instances in which their walls had been allowed to become dilapidated. A nuisance incidental to the ashpit system in some of the older courts is that the scavenging carts cannot approach near enough to empty them directly. The contents have, therefore, to be carried out and deposited in the street, where I have seen them lying for a considerable time before they were taken away by the carts.

The corporation are making great exertions to abolish the ashpit system, which is only found in the older parts of the town. For several years no new houses have been allowed to be constructed with ashpits, and wherever property is undergoing repairs, or complaints are made of nuisance arising from them, pressure is put upon landlords to substitute ashcans for ashpits. A circular letter urging this reform is issued by the medical officer of health to landlords of houses which still retain ashpits. In the course of my inspection I met with numerous cases in which it was being effected. The figures for the last three years are as follows:—

Year.	Ashpits abolished.	Ashcans provided.
1905	267	446
1906	230	500
1907	218	768
Total for 1905-1907	715	1,714

The number of ashpits still remaining in the borough was returned, at the end of 1907, as 8,798, and the number of ashcans at the same date as 8,435.

During 1908, down to the end of the first fortnight in November, 280 ashpits had been done away with and 795 ashcans provided.

A resolution has been passed by the health committee that in the forthcoming Parliamentary Bill for Oldham, which is now being

drafted, powers shall be sought to replace ashpits by ashcans throughout the town.

Ashcans are provided by the corporation at a cost of 6s., and, when desired, a cover is also provided at an additional cost of 2s. Covers are only asked for in exceptional cases. I think it would be well that, wherever practicable, and especially in private houses having separate back yards, tenants should be induced to procure covers for their ashcans. The ashcans, when necessary, are repaired in the corporation's yard at cost price.

Notices are issued by the corporation warning tenants against the abuse of ashpits, water-closets, and drains, forbidding the deposit of animal or vegetable refuse in ashpits, or the blocking of water-closets and drains by solid substances, cotton-waste, &c.

The contents of ashcans are collected once a week. I heard no complaints and observed no instances of neglect in this respect. In some instances, as above mentioned, I noted ashpits which had been allowed to become over full.

The work of refuse collection, has, for reasons of economy in the use of horses, &c., been recently transferred from the sanitary department to the "carrying and cleansing" department. It is, therefore, no longer under the direct control of the medical officer of health.

Destructors.—The refuse collected from ashpits and ashcans is burnt in the corporation's destructors, as is also most of the offal from fishmongers, butchers, &c., which is collected at frequent intervals, a small charge being made. A small amount of this offal, however, is mixed with shoddy-dirt and sold to farmers for manure.

There are three Horsfall's destructors in the borough, at Rhodes Bank, Robin Hill, and Hollinwood, respectively. The cost of these destructors is, in part, recovered by utilising the products. The coarser clinker is screened, graded, and utilised for the filter-beds at the sewage works, the finer being ground up for mortar, of which 3,883 tons were sold during 1907. At the Hollinwood destructor paving flags are manufactured from the clinker, of which 28,493 were sold during 1907. The heat from the Robin Hill destructor is utilised for heating the water for the adjacent public baths.

A lavatory and bath for the employees is provided at each of the destructors.

Sewerage and Drainage.—The following description of the sewerage is extracted from the report of the Medical Officer of Health for 1907 :—

"There is a complete system of sewerage in the town, a large proportion of which consists of properly constructed sewers and pipe drains. There are, however, a considerable number of stone drains still in existence. These, when the opportunity allows, are gradually being converted to a more satisfactory type. On two sides of the town there are main intercepting sewers, which convey the sewage of the town to the Sewage Works. Except in one small portion of the town the sewage finds its way by natural gravitation to the works. From this lower portion the sewage is lifted to a higher level by a

Shone's Ejector, the air being automatically compressed by the sewage coming from the higher levels. The combined system of drainage is in vogue."

Apart from the number of old stone drains still in existence, there are two main defects in the system. 1. The storm-water gullies in the streets are, for the most part, untrapped, and, in consequence an offensive stench frequently rises from them. 2. The rain-spouts from the houses are in very many instances not disconnected, but discharge directly into the sewers; they act, therefore, as vent-shafts to the sewers, and their heads being in some cases unduly close to window openings, may constitute an element of danger. The street storm-water gullies require to be properly trapped, and rain-spouts to be disconnected from the sewers and made to discharge over trapped gullies.

Sewage Disposal.—The sewage disposal system is fully described in the report of the medical officer of health on "The Treatment of Oldham Sewage during the year 1907," and requires no detailed description here.

The sewage works, about 70 acres in extent, are situated in Fox Denton Lane, outside the borough, in the Chadderton Urban District. The plant consists essentially of:—

1. Two detritus tanks, with coarse and fine screens, fitted with revolving chains, rakes, and buckets for removing the detritus.
2. Twelve sedimentation tanks, each having a capacity of about 176,000 gallons.
3. Thirty-five clinker filters or bacterial contact beds, of an aggregate area of nearly $10\frac{1}{2}$ acres.

The filter beds are worked as single contact beds, and as a rule are filled twice daily, standing full for three hours at a time, but are not worked on Sundays, the sewage on this day being merely passed through the sedimentation tanks. The daily average flow of sewage is about 5,800,000 gallons, but during storms as much as 24,000,000 gallons is sometimes reached. At present only the dry-weather flow, $3\frac{1}{2}$ to 4 million gallons, is treated in the filter beds, but all the sewage is screened and passes through the sedimentation tanks. New filter beds are, however, being constructed, and it is proposed in the future to treat three times the dry-weather flow completely, and from three to six times this volume in storm-beds.

For this purpose borrowing powers of £25,000 (margin of loans sanctioned) in respect of the sewage works still remain.

The sludge from the sedimentation tanks is mixed with lime, lifted by a Shone's ejector to a pressing house, where it is pressed, and afterwards, except for a small amount which is fetched away by farmers for manure, is tipped into a valley which is being filled up.

The sewage works are under the control of the medical officer of health, and the working of the filter beds is directed by an analyst who makes a daily analysis of the effluent.

The effluent, which appears to be satisfactory, and which is frequently inspected by the inspectors of the Mersey and Irwell Rivers Board, is discharged into the Winch Brook, a tributary of the River Irwell.

Provision for dealing with cases of infectious disease. The Borough Isolation Hospital is at Westhulme. It comprises an administration block and three ward-blocks, the nominal accommodation of which is as follows :—

Scarlet Fever block (4 wards)	40 beds.
Typhoid block (4 wards)	48 beds.
Isolation block (4 wards)	10 beds.
Total	98 beds.

The hospital was erected partly out of loan and partly out of money obtained under the Oldham Corporation Act. The typhoid fever block was built in 1884, the isolation block in 1897, and the scarlet fever block in 1898. The hospital may be considered as satisfactory, though the older portions are not designed on present lines.

The out-offices comprise a Reck's steam disinfector, a laundry with a gas-engine, and a mortuary with an inspection-window.

When beds are available patients are admitted on payment from adjacent sanitary districts, including the Chadderton, Crompton, Failsworth, Lees, and Royton Urban Districts.

Small-pox Hospital.—There is a small-pox hospital at Strinesdale, having a nominal accommodation of sixty-six beds. The hospital is within the borough boundary, but in a well-isolated position. As only about 50 per cent. of the children born in Oldham have been vaccinated during the last few years, it is a matter for congratulation that provision has been made for isolating cases of small-pox on a fairly liberal scale. A widespread epidemic of small-pox prevailed in Oldham in 1905.

Disinfector.—There is a Goddard, Massey, and Warner's steam disinfector at the municipal depôt at Rhodes Bank, in addition to the Reck's disinfector at the Infectious Diseases Hospital, of which mention has been already made : 5,426 articles were disinfected in the apparatus during 1907, and 13,290 during 1906. In connection with the disinfector there are separate vans for foul and for disinfected articles, respectively.

There is also at the depôt a *disinfecting bath*, for the disinfection of persons, which can be used under the supervision of a nurse when required.

Disinfection of houses is generally carried out by fumigation with sulphur candles after sealing the room to be treated with strips of brown paper. The wall-papers are stripped off if necessary. After cases of phthisis or small-pox spraying with formalin is resorted to.

Disinfectants in the form of Izal, Sanitas, carbolic powder and soap, are distributed gratuitously to houses where infectious disease exists.

As already mentioned, the excreta of typhoid fever patients where no water-closets exist are received into special receptacles, and burnt in one of the destructors.

The drains of houses in which typhoid fever, diphtheria or puerperal fever may occur, are tested, when possible, by the smoke machine, and any defects found are remedied.

Notification of Infectious Diseases.—In addition to the diseases ordinarily notifiable, measles was made notifiable for a period of five years on 1st December, 1908, and phthisis was made voluntarily notifiable in May 1907.

Every case of infectious disease notified is visited, and the necessary inquiries made. If the patient be not removed to hospital the house is visited at frequent intervals, to ensure isolation as far as possible.

Non-notifiable infectious diseases, such as whooping-cough and chicken-pox, or cases suspected thereof, and cases of skin diseases are reported regularly by the head teachers of schools, and most of those cases are subsequently visited by the women inspectors, and instructions given as to their care and isolation, and as to the exclusion from school of the cases and their contacts.

A supply of anti-toxin for urgent cases of diphtheria is kept by the medical officer of health, and it is also stocked by a local firm of chemists.

A supply of anti-tetanic serum is also kept in stock, and renewed as required.

Public baths.—There are seven public baths in different parts of the borough. These comprise both swimming baths and slipper baths, and in one case a Turkish bath. Instruction in swimming is given to most of the school children.

Schools.—There are 39 elementary schools in the borough, besides three special schools, for the blind, the deaf, and the mentally or physically defective, respectively.

Of the elementary schools 18 have been built by the local education authority; the remainder belong to or have been taken over by the council from various denominations. I visited several of the former class and was much struck, particularly in the more modern examples, with their planning and equipment, their spaciousness and good ventilation, and the general excellence of their sanitary arrangements.

The school for mentally and physically defective children is a model of admirable management.

The denominational schools are less modern, less spacious, and less well equipped.

Dr. Wilkinson, the medical officer of health, is also medical officer to the education committee, which pays £150 a year to the health committee for medical work. Dr. Wilkinson systematically inspects all the schools as to their sanitary condition and reports any defects found; he examines children as to their fitness to attend school, and deals with cases of minor infectious diseases, or skin disease, reported by the head teachers.

Under the direction of the assistant medical officer of health* the eyesight of children in the schools is systematically tested by the teachers. Those found to have defective vision are then ophthalmoscopically examined and spectacles are, if necessary, prescribed. It is found, however, that a large proportion of parents neglect to avail themselves of the opportunities afforded them to remedy defects in their children's eyesight.

* Up to the end of 1907 this work was carried out by Dr. Buckley, who was then assistant medical officer of health but has since resigned the appointment.

A detailed report dealing with the sanitary condition of the schools, the prevalence of infectious diseases in them, and the examination of school children is submitted annually by Dr. Wilkinson.

Since January 1st, 1908, the medical inspection of school children, in accordance with the Education (Administrative Provisions) Act, 1907, Section 13, has been regularly carried on, under the supervision of Dr. Wilkinson, by Dr. Lucy Pinniger, M.B., &c., assisted by a trained nurse. At the time of my visit to Oldham the examination of infants was not yet complete.

As having a bearing on the public health two circumstances in connection with the schools may be specially noticed:—

1. *The teaching of hygiene.* A full course of lectures followed by practical demonstration and practice is given in the continuation schools on three nights a week by Miss Rothwell, one of the women inspectors, who is a member of the Royal Sanitary Institute, and holds the School Hygiene Certificate. Both elementary and advanced classes are held, each course comprising 21 lectures with demonstrations. The courses embrace elementary physiology and hygiene, domestic science, home nursing, and the care and management of infants. (A syllabus of each course is given in Appendix I.) The classes are well attended, principally by girls employed during the daytime in the cotton mills. I attended both the elementary and the advanced class on one evening during my visit, and was much struck both with the excellence of the teaching and with the attention and evident relish of the pupils. During the three years that the classes have been in progress about 530 girls have passed through them.

Careful instruction of this kind given to the future mothers of the community is likely to have a good effect on the general health, particularly by the reduction of infantile mortality.

2. "*Beautiful Oldham.*" This is the name of an organisation promoted in the schools with the sanction of the Education Committee, and embracing nearly all the school children. The members sign a form of pledge, one of the clauses of which is:—"I promise to do all I can to make my home, school, and town beautiful." The members are taught not to allow paper or rubbish to be littered about, and also pledge themselves to protect wild birds and their nests and eggs, trees, plants and flowers, and to sow seeds or plant trees or flowers in and around Oldham at least once every year. Plants are distributed from time to time to the members, and prizes are given for window gardening, &c.

The name of the organization and its objects may at first excite a smile, but the movement can hardly fail to be useful in promoting the amenities of life, fostering a sense of house-pride and civic pride, and thus furthering good sanitary ideals.

The Crèche.—Among the influences which have some bearing on the rate of infantile mortality is a small but well-managed crèche in Jackson Street, which is directed by a voluntary committee, but is partly subsidized by the health committee of the corporation. Mothers leaving their children in the crèche, which is presided over by a trained nurse, are charged 8*d.* a day, 4*d.* for half a day, or 3*s.* 6*d.* a week. For this sum milk is provided: the first feeding

bottle is given free of charge, and no feeding bottles with india-rubber tubes are allowed. I was struck by the healthy appearance of the infants whom I saw in the crèche.

Cowsheds, dairies and milkshops.—These premises are under the supervision of the food inspector, and are regularly inspected. There are in the borough 57 registered dairies, 128 registered cowsheds, and 437 registered retail milk shops. Regulations under the Dairies, Cowsheds and Milkshops Act, 1885, were adopted in 1890.

Unfortunately, too many of the cowsheds fail to satisfy the requirements of these regulations. Of the total number, 98 contain less than 600 cubic feet of air-space per beast. Of these, 83 contain less than 500 cubic feet, 41 less than 400, and 6 less than 300. I visited a few of the cowsheds. In one I found 10 cows ranged in two rows, head to head and having only 264 cubic feet of air-space per beast. The owner of this is under notice to effect improvements.

Twenty-seven notices, all of which were complied with, were served by the inspector during 1907; about twenty cowsheds were under notice at the time of my visit.

In spite, however, of the fact that since the adoption of regulations, several notices have been annually served and complied with, the medical officer of health, in his report for 1907, comments unfavourably on the manner in which the occupiers of farms observe the regulations as to cleanliness, &c., respecting cowsheds; he hopes, however, by personal inspection, persuasion, and a more strict enforcement of the regulations to secure greater cleanliness and, in consequence, a better milk supply.

The retail milk-shops are visited by the inspectors about twice annually. Those that I saw were satisfactory.

Slaughter houses.—There were 52 slaughter-houses on the register at the close of 1907. They are licensed annually, and the licence is withheld if the premises are not in a satisfactory condition. I visited 12 in one quarter of the borough, including the largest and some of the smaller and less satisfactory slaughter-houses. Those that I saw were all clean, well-paved and drained, and for the most part well-lighted, having in some instances windows worked by a lever. In some cases the drain-inlet was inside the slaughter-house: one or two premises were cramped in respect of space. Copies of the byelaws were exhibited in all. The co-operative slaughter-house, tripe-boiling house, butcher's shop, &c., in respect of space, general construction and cleanliness, was a model establishment, save that the drain inlet was inside the slaughter-house.

The slaughter-houses and butchers' shops and the meat in them are regularly inspected; 13 tons 3 cwt. of unsound food was seized and destroyed during 1907. It has not, however, been necessary to take legal proceedings against any butcher in the town, for the butchers on finding a diseased carcass almost invariably send for the inspector, and submit the same to him before the carcass is prepared for sale.

The medical officer of health points out, in his report for 1907, that the difficulty in refusing to renew the licences of slaughter-houses which are unsatisfactory in respect of space or position is that there is no central or public abattoir to which the tenants may be referred. The local Farmers' Association have intimated that

the provision of a small public abattoir, which any of their members could use for the slaughter of occasional animals or animals which had been injured in some way, would be of great convenience to them.

Bakehouses.—There are 374 registered bakehouses, including 28 cellar bakehouses, in the borough. These are regularly inspected by the food inspector, about 1,200 visits having been paid during 1907. I visited the co-operative bakehouse, which was in respect of space construction and equipment a model establishment.

Smoke nuisances.—The corporation are very energetic in dealing with black smoke. The sanitary staff includes a smoke inspector who takes regular observations. During 1907, 1,256 observations were taken of chimneys in the borough. In 36 cases the emission of black smoke was found to exceed the scale in force. In 18 of these cases legal proceedings were taken, in the remainder warning letters or notices to abate were issued. In consequence of the energy displayed in this direction several firms which had in the past been frequently prosecuted for the emission of black smoke, have subsequently fixed appliances which have been completely successful in controlling it.

More nuisance is caused in Oldham by the chimneys of mills in districts surrounding the borough, which lie at a lower level, than by smoke originating in the borough itself. Efforts have been made to induce the authorities of adjoining sanitary areas to take joint action with the borough of Oldham for suppressing the smoke nuisance by the formation of a Joint Smoke Board. So far it has not been possible to induce neighbouring authorities to agree in the formation of such a board.

Efficient work is done by the medical officer of health and the sanitary staff under the provisions of the *Midwives Act*, the *Sale of Food and Drugs Act*, the *Shop Hours Act*, &c. On these heads I have no information other than is given in the full and detailed annual reports of the medical officer of health, and it is unnecessary to consider them further.

Sanitary Staff.—This is composed as follows :—

				<i>Salaries.</i>
Medical Officer of Health ...	...	...	...	£500 per annum, and £100 per annum for school work.
Assistant do. do. ...	...	...	...	£200, rising to £260 per annum.
Chief Inspector of Nuisances	...	...	...	£160, rising to £200 per annum.
3 Assistant Inspectors do.	...	...	...	£1 18s. per week with uniform.
1 Do. do. do.	...	...	...	£1 16s. per week, rising to £2 with uniform.
1 Factory and Workshops Inspector	...	...	...	£2 per week with uniform.
1 Smoke Inspector ...	...	...	...	£1 10s. per week, rising to £2 per week with uniform.
1 Assistant Food Inspector	...	...	...	£1 15s. per week, rising to £2 5s. with uniform.

Salaries.

2 Women Inspectors	... ..	£1 18s. per week with uniform.
1 Visiting Nurse (temporary)	... ..	£1 4s. per week.
2 Disinfectors	... ..	£1 6s. per week with uniform.
4 Clerks.		

Dr. James Wilkinson, M.D., Edin. D.P.H., Vict., is the Medical Officer of Health. Dr. Wilkinson's annual reports are admirable documents, and give detailed accounts of the sanitary work done in the borough; he is well supported by his council, and has, during the years that he has held the appointment, achieved a large amount of useful work.

The assistant medical officer of health is Dr. James Wood, M.B., D.P.H. Vict., who was appointed at the beginning of 1908 in succession to the former assistant, Dr. Buckley, who had received the appointment of medical officer of health for the borough of Crewe.

The chief inspector of nuisances is Mr. George Winterbottom, who holds the sanitary inspectors' certificate and the meat inspectors' certificate of the Royal Sanitary Institute; he is an able and energetic officer. I was accompanied by three of the assistant inspectors and the two women inspectors on different occasions in my inspection of their districts, and by Mr. Winterbottom in my inspection of slaughterhouses, cowsheds, &c. The work of the entire inspectoral staff appeared to be well done save in the case of one of the assistant inspectors, whose district comprises St. Mary's, Mumps, and St. James's Wards. I observed in this district a large number of nuisances which had been suffered to remain unabated. It is true that these wards contain some of the oldest and most insanitary property in the borough, and, therefore, naturally present difficulties to an inspector.

Of the excellent work done by the women inspectors I shall presently speak.

Printed leaflets and notices are from time to time issued to householders giving instructions on various points connected with personal or domestic hygiene.

The only adoptive Acts in force in Oldham are the Public Health Acts (Amendment) Act, 1890, which came into force on October 1st, 1904, and the Notification of Births Act which came into force on January 8th, 1908.

A list of the byelaws in force in the borough is given in Appendix 2.

DEATH-RATE AND INFANTILE MORTALITY.

The causes of the high death-rate and the relatively high rate of infantile mortality in Oldham may now be discussed.

In respect of the high death-rate, I have already pointed out that in the absence of complete information as to the present population of the borough no absolute conclusion can be drawn from the apparent death-rate based on the Registrar-General's estimate of population. On this estimate the "crude" death-rate

is 19.35, and the "corrected" 21.76. If, however, as is locally thought to be the case, the actual population is as high as 150,000, the "crude" death-rate becomes 18.21 and the "corrected" 19.47.

On the most favourable estimate the death-rate is high, and in the Registrar-General's Table A, showing the comparative death-rates of 76 great towns in England and Wales, the rate, corrected for age and sex distribution of the population, is shown to be higher in Oldham than in any other large town excepting Middlesbrough, which occupies in this respect an almost equal position. It should be added that the death-rate for the borough has recently declined in successive quinquennia from 24.2 in 1887-1891 to 18.6 in 1902-1906, equal to a decline of 23 per cent. This decline may be compared with a corresponding decline in England and Wales and in three other large Lancashire towns, Liverpool, Preston and Salford.

Crude death-rate for period.	Oldham.	England and Wales.	Liverpool.	Preston.	Salford.
1887-1891	24.2	19.1	25.7	26.0	25.8
1892-1896	21.6	18.1	24.0	21.8	23.6
1897-1901	20.9	17.7	22.8	20.9	23.5
1902-1906	18.6	15.7	20.6	17.4	19.1
Total decline per cent.	23.1	17.8	19.8	33.1	26.0

In the following table I have compared, so far as the returns of the Registrar-General and of the medical officer of health for Oldham respectively permit this to be done, certain factors contributory to the death-rate in England and Wales and in urban communities (those factors, namely, which are especially influenced by sanitary circumstances) with the corresponding figures for Oldham :—

	Phthisis.			Pneumonia.		Bronchitis.		Diarrhoea.		Enteric Fever.		Diphtheria.		Infantile Mortality.	
	1897-1906.	1902-1906.	1907.	1902-1906.	1907.	1901-1905.	1907.	1897-1906.	1907.	1897-1906.	1907.	1897-1906.	1907.	1902-1906.	1907.
Oldham	1.6	1.4	1.6	1.6	1.9	2.2	2.5	0.82	0.53	0.11	0.03	0.18	0.13	152	144
England and Wales	1.3	1.2	1.1	1.3	1.3	1.2	1.2	0.78	0.30	0.14	0.07	0.22	0.16	134	118
Urban Counties ..	—	1.3	1.2	1.5	1.6	—	—	—	—	—	—	—	—	—	—
76 Great Towns ..	—	—	—	—	—	—	—	0.89	0.40	0.11	0.07	0.20	0.17	—	127
Lancashire	1.4	—	1.3	—	—	—	—	1.15	0.45	0.19	0.10	0.22	0.16	—	138
London	1.6	1.5	1.4	—	—	—	—	0.85	0.32	0.11	0.07	0.28	0.16	—	116

The above table shows that the death-rates for phthisis, pneumonia and bronchitis in Oldham are all distinctly high, and that these diseases taken together occasioned in 1907 an excess in the death-rate of 2.4 or more than half the difference in the crude

death-rate for Oldham as compared with that of England and Wales. It may, however, be noted that the death-rate from phthisis in Oldham does not exceed that of London for the decennium 1897-1906. The diarrhœa death-rate for Oldham was, for the ten years 1897-1906, slightly in excess of that for England and Wales, but less than that for Lancashire, London, or the 76 great towns, while for the same period the Oldham death-rates for enteric fever and diphtheria are low as compared with those of England and Wales, Lancashire, London, or the 76 great towns. The infantile mortality rate is distinctly high, though Oldham is not classed in this respect by the Registrar-General among the 16 Lancashire towns which occur in List A (Seventeenth Annual Report, p. xliv.) of Towns with High Rates of Infantile Mortality.

A high death-rate may be due to sanitary circumstances, or to topographical, meteorological, social or industrial circumstances, or to all these combined. The question demands consideration to what extent defects in the sanitary circumstances of Oldham contribute to the high death-rate of the borough.

Overcrowding and defective housing are generally known to be factors which contribute to a high death-rate, and probably influence specially the phthisis rate which in Oldham is high. The proportion of technical overcrowding is, however, less, and the proportion of commodious housing is greater in Oldham than in England and Wales or in urban districts generally. Though there is insanitary property it is not large in amount. So far, therefore, as overcrowding alone is concerned, Oldham might be expected to show a lower death-rate than England and Wales or urban districts generally, and the excessive death-rate cannot be attributed solely or chiefly to this cause.

Defective methods of excrement and refuse disposal contribute to the spread of zymotic diseases, particularly of diarrhœa, enteric fever, and perhaps diphtheria. In the older parts of the town many of the population live in close proximity to large and offensive ashpits, which are necessarily a menace to public health, and although the corporation have shown considerable activity in dealing with these, and have abolished about 1,000 in the last four years, more than 8,000 of these objectionable contrivances still remain. The presence of these probably contributes to the slight excess of diarrhœa over that of England and Wales, but the diarrhœa death-rate in Oldham for the last ten years is less than that of the 76 great towns or of London. The death-rates for enteric fever and diphtheria are less than those of England and Wales.

On the whole it cannot be shown that the sanitary circumstances* of Oldham, which, though defective in certain respects, compare favourably in others with those of most urban districts, have had a preponderant effect in determining the excessive death-rate.

* NOTE.—I here use the term "sanitary circumstances" in its generally accepted sense as referring to such matters as housing conditions, water supply, sewerage, drainage and methods of excrement and refuse disposal, &c. In another sense all circumstances, industrial, social or other, which affect the death-rate, are sanitary circumstances.

The topographical and meteorological circumstances of Oldham are in some respects favourable, in others unfavourable, to the general health. Its exposed situation and high rainfall (48 inches for 1907) tend to diminish the incidence of diarrhœa, but may, on the other hand, lead to catarrhal disorders in those whose work necessitates alternations of exposure to weather with work in mills and factories. It is impossible to estimate the precise allowance that must be made in respect of these circumstances.

The industrial circumstances of Oldham lie to some extent outside the scope of this report, but they cannot be entirely ignored when the fact of an excessive death-rate is under consideration. On this point it is to be noted that the death-rate for the county of Lancashire is 17·0, and that of the 15 Lancashire towns which are included among the 76 great towns (over 50,000 inhabitants) for which the Registrar-General supplies corrected death-rates, all but three, viz., Barrow-in-Furness, 15·5, Warrington, 17·3, and Bury, 17·9, have death-rates exceeding 18·0, and occur closely grouped together among the 20 towns at the bottom of the list. Most of these are towns in which practically the whole population is engaged in industrial occupations, and the high death-rate in them may not improbably be due partly to industrial rather than exclusively to sanitary circumstances.

The factory system as embodied in the Oldham cotton mills involves certain influences that are favourable and others that are, perhaps, injurious to the public health.

To the credit side must be placed the fact that wages are good and work plentiful in the town, which is a characteristic example of a prosperous industrial community, the population being almost wholly composed of the artizan class. An interesting feature of the place is that from the age of 13, and in many instances from the age of 12 onwards, practically all the youth are wage-earners. As "half-timers," at the age of 12 boys earn in the cotton mills about 5s., and girls about 3s. a week. They leave school at 13, and by the time they are 16 they are earning 10s., and by the age of 19 from 19s. to 23s. a week. Men earn on an average from 28s. to £2 a week. Thus the joint earnings of an artizan family often exceed £5 or even £7 weekly. When the mills are running there appears to be very little genuine unemployment* in the town, apart from that residuum (not large in Oldham) which is due to drunkenness and moral instability. Good wages and steady employment have obviously a favourable effect on the public health by enabling the purchase of good food, good clothing, good housing accommodation, and the minor amenities of life.

On the other hand the cotton-factory system involves certain features which cannot fail to be more or less injurious to health.

The half-time system.—Children in Oldham are allowed to work as "half-timers" at the age of 12, and about 1,330 children are so employed in Oldham. These children work in alternate weeks 30

* The termination of the recent cotton lock-out occurred in the course of my inquiry in Oldham. The lock-out, of course, occasioned temporary unemployment on a large scale, though Platts' and Asa Lees' factories continued working, but when the mills re-opened the displaced labour was reabsorbed rapidly, and careful inquiry showed the number of genuine unemployed to be inconsiderable.

hours in the mill and $12\frac{1}{2}$ hours in school, or 26 hours in the mill and 15 hours in school. I examined a large number of the "half-timers" in several of the largest schools and questioned the teachers as to them. So far as general impressions enable me to form an opinion, the signs of physical deterioration in these children, though apparent, and in the worst cases strongly marked, were not in the majority of the children so obvious as I had anticipated—it is possible that the system, if injurious, does not develop its full effects till later in life—the children appeared to enjoy the work in the mills, which in itself, apart from the hours worked, is not heavy, and few of them confessed that they felt it to involve hardship. On the other hand, the teachers whom I questioned all agreed in asserting that morally and intellectually and, most averred, physically, children so employed deteriorate rapidly. Morally, they lose the sense of discipline and exert a bad effect on the other scholars; intellectually, they fall behind in their work to an extent which one teacher appraised at 50 per cent., and physically, most of the teachers maintained that the half-timers lost colour and vitality. The results of medical inspection of school children may be expected in course of time to throw useful light on this matter.

The balance of impression and evidence points to the conclusion that children of 12 and 13 cannot be regularly employed in factories without ultimately suffering in health and vitality to a degree which can hardly fail to influence the death-rate. I was assured by mill owners that the requisite technical skill could readily be acquired in the factory at the age of 14.

I visited two large cotton factories and a weaving shed, and carefully observed the girls at work. The employment is not arduous or exacting, and appears in most of its branches to allow intervals of rest and opportunities for sitting down from time to time. The girls are noticeably a stunted race as regards stature, but are for the most part plump and well-nourished. A leading practitioner in the town informed me that anæmia is prevalent among them, but I could not observe that it was more common than it is, for example, among domestic servants or shop girls. Anæmia and signs of fatigue, particularly as affecting the half-timers, were most obvious in those parts of the factory where the finer "counts" are spun, and where a higher temperature and a moist atmosphere are maintained, but, as Oldham produces chiefly low and medium "counts," this factor would not assume such prominence as it might in other towns.

The tendency to anæmia is to some extent counteracted, not only by the fact that the mill girls can, as already mentioned, afford to buy good food and clothing, but also by the fact that most of them make excursions into the surrounding moorland country on Saturdays, Sundays and holidays, and nearly all take a week's holiday at Blackpool or some sea-side resort every year.

The proportion of boys and girls at different ages engaged in occupations is shown in the following table. It is seen to be less than in several of the other cotton-spinning towns. Thus Oldham with 25.1 per cent. of boys and 17.5 per cent. of girls under 14

employed contrast favourably with Blackburn, Bolton, Burnley and Rochdale, all of which towns have lower death-rates.

England and Wales and Lancashire.—Proportion per cent. of boys and girls at different ages engaged in occupations, 1901.

	Boys.				Girls.			
	10-13.	13-14.	Under 14.	14-15.	10-13.	13-14.	Under 14.	14-15.
England and Wales...	2.3	34.7	10.3	67.5	1.3	17.2	15.2	39.5
Lancashire	7.9	55.0	19.4	78.8	6.4	41.6	15.2	61.5
Barrow-in-Furness	0.6	29.4	7.3	68.8	0.3	7.4	2.0	30.9
Blackburn	15.2	74.3	29.3	88.5	16.4	69.4	29.4	85.1
Bolton	12.2	72.4	27.3	87.4	8.2	60.1	20.8	79.0
Bootle	1.5	25.7	7.3	61.5	0.1	7.8	2.0	29.3
Burnley	15.6	76.4	30.4	89.8	14.3	73.3	29.2	83.8
Bury	9.1	60.5	23.1	85.9	7.9	62.2	22.1	81.7
Liverpool, City of	1.1	15.8	4.7	61.8	0.2	3.8	1.1	29.8
Manchester, City of	0.7	39.2	10.2	77.3	0.3	21.9	5.7	60.1
Oldham	10.4	68.5	25.1	90.0	5.8	52.0	17.5	78.0
Preston	8.4	63.8	21.5	85.5	11.9	62.1	24.5	81.4
Rochdale	12.6	66.1	25.7	86.2	9.4	58.9	21.6	81.9
St. Helens	2.3	47.2	12.9	80.9	0.3	6.8	1.9	20.8
Salford	1.2	46.1	12.1	80.5	0.4	27.5	7.2	62.7
Warrington	1.5	51.9	13.4	84.2	0.5	27.3	7.2	53.4
Wigan	1.6	49.2	12.9	81.7	0.5	31.5	7.7	69.0

It remains to enquire whether the employment of married women in the factories of this town is of such a nature or prevails to such a degree as to affect injuriously the general death-rate or the infantile mortality rate. In connection with a Home Office inquiry systematic investigation into this question is being made in the Westwood Ward by Miss Rothwell, one of the women inspectors, from whom I obtained the following figures. In this ward, which has been selected as representing a fair average of the industrial conditions of the town, there were 297 births during the period January 1st to November 14th, 1908. In 43 cases, or 14.4 per cent. of the whole, the mother worked in a factory within two months before her confinement. 187 of these births occurred during the period January 1st to July 22nd: In only 10 cases, or 5.3 per cent. of these, did the mother return to work within two months after her confinement.

Breast-feeding is stated by the women inspectors to be the usual practice, and to be increasing. The following particulars were ascertained by them during 1908:—

Number of births visited during 1908 ... 3,428

At first visit.

Number of infants breast-fed 3,002

 " " breast and artificially fed 79

 " " artificially fed 287

 " " died without food 60

At second visit.

Number of births revisited during 1908	...	351
„ infants still on breast	... ..	246
„ „ artificially fed	... ..	105

These figures are, obviously, incomplete, but, so far as they go, they tend to confirm the impression I derived from information supplied by the women inspectors and from more general inquiries, that in most cases married women do not return to work in the factories after the birth of their first child. As a rule they devote themselves to their domestic duties.

The proportion of squat and bandy-legged persons—the results of rickets in infancy—in Oldham is notoriously high, and cannot fail to attract the attention of the observant stranger, and a large number of ricketty children are to be seen. This is sometimes attributed to neglect of their maternal duties on the part of women employed in factories; but may be due to other causes.

The following table shows the proportion in 1901 of unmarried and of married and widowed females at various age-groups engaged in occupations in those towns of Lancashire which have populations exceeding 100,000. It shows that the proportion of married and widowed women engaged in occupations is less in Oldham with its higher death-rate than in Blackburn or Preston, but greater than in Bolton, Liverpool, Manchester or Salford. Of the Lancashire towns having populations at the census of less than 100,000, Burnley, Bury and Rochdale show a higher proportion than Oldham of married and widowed women engaged in occupations, but all of these have a lower death-rate than Oldham:—

Towns in Lancashire with over 100,000 population.—Proportion of unmarried and of married or widowed females, at various groups of ages, engaged in occupations.

Note.—The figures in italics relate to the Married or Widowed.

—	Proportion per cent. at ages 10 years and upwards.						
	Total 10 years and upwards.	10—	15—	20—	25—	35—	45—
Blackburn	76·5	40·3	91·9	93·2	90·4	83·4	75·2
	<i>37·9</i>	—	<i>71·7</i>	<i>66·5</i>	<i>53·5</i>	<i>39·4</i>	<i>27·0</i>
Bolton ...	71·7	32·6	89·1	88·7	84·4	78·3	71·0
	<i>15·1</i>	—	<i>35·4</i>	<i>24·0</i>	<i>14·8</i>	<i>15·0</i>	<i>14·5</i>
Liverpool	50·2	6·8	63·7	71·2	70·3	66·9	63·9
	<i>14·5</i>	—	<i>8·2</i>	<i>8·2</i>	<i>9·2</i>	<i>15·8</i>	<i>20·2</i>
Manchester	63·3	16·7	81·4	83·9	80·4	77·4	74·1
	<i>19·3</i>	—	<i>28·4</i>	<i>17·8</i>	<i>15·4</i>	<i>20·0</i>	<i>23·6</i>
Oldham ...	70·4	29·4	88·7	88·9	84·4	78·2	70·4
	<i>20·0</i>	—	<i>42·0</i>	<i>33·6</i>	<i>24·6</i>	<i>20·7</i>	<i>16·1</i>
Preston ...	73·8	35·5	90·2	90·9	87·1	82·2	75·5
	<i>30·5</i>	—	<i>60·3</i>	<i>52·8</i>	<i>38·5</i>	<i>31·1</i>	<i>25·0</i>
Salford ...	62·6	18·1	81·8	83·4	79·4	74·8	69·8
	<i>16·6</i>	—	<i>20·2</i>	<i>18·4</i>	<i>13·6</i>	<i>17·0</i>	<i>20·0</i>

It is worthy of note that the proportion of married and widowed women, engaged in occupations in Leicester, which has a low corrected death-rate, 13·5 for 1907, is higher than that of Oldham, viz., 25·2.

On the whole, it is not clear that the employment of married women in factories plays in this town a very prominent part as a factor in producing the high general death-rate or in increasing the infantile death-rate. The evils produced from this cause are probably masked by the operation of other causes which are not equal in the towns compared.

The work of the women inspectors.—At this stage the work of the two women inspectors as health visitors may be conveniently considered. In 1902 two women inspectors were appointed on the sanitary staff, Miss Rothwell and Miss Smith. In addition to their other duties these ladies act as health visitors, visiting all mothers recently confined, as soon as the birth of the child is registered or notified, giving advice as to the care and feeding of infants, and leaving behind them a useful card on "The Baby" which has been drawn up by the medical officer of health. They urge breast-feeding where possible, and, where it is not possible, try to insist on the use of the boat-shaped, rather than the tube bottle; they give advice as to the selection and preparation of artificial foods, and act generally as sanitary advisers, especially in respect of infant life. When it is thought necessary they re-visit their cases, and in special instances visit other infants under 12 months old if advice is required. During 1907 they have visited 2,986 births, and paid 663 visits of re-inspection. The visits of these ladies, who are tactful women and well qualified for their work, are in nearly every case welcomed, and well received, and their work appears to have been attended with an encouraging measure of success. The average infantile mortality rate for the quinquennium 1892-1896, was 180, for 1897-1901, 180, and for 1902-1906 (since the appointment of women inspectors), 152; the rate for 1907 was 144, the lowest hitherto recorded.* It seems reasonable to attribute some share, at any rate, in this reduction in the infantile death-rate to the work of the women inspectors, not only on the *a priori* ground that their work is calculated to have this effect, but also on the grounds that the reduction occurred immediately after their appointment, has since been, on the whole, steadily maintained, and has been effected in respect of those deaths which are connected with dietetic irregularities or the improper management of infants, and, in particular, diarrhœa, convulsions, atrophy, inanition and debility, tubercular disease, pneumonia and bronchitis.

This is shown in an interesting table which has been drawn up for me by the medical officer of health comparing the average deaths for the six years immediately preceding and the six years immediately following the appointment of the women inspectors.

* The infantile death-rate for 1908 has gone up to 159 per 1,000 births. At the date of writing this report the medical officer of health has not been able to analyse the cause of this increase or to indicate the class of deaths in which the increase has occurred.

Cause of death.	Average death-rate per 1,000 births, 1896-1901.	Average death-rate per 1,000 births, 1902-1907.	Percentage—Increase or decrease.
Premature birth... ..	20·07	21·71	Per cent. + 8·2
Congenital defects	2·77	5·23	+ 88·8
Atrophy, inanition and debility	21·41	17·78	— 16·9
Diarrhoea... ..	21·06	17·54	— 16·7
Other zymotics	14·20	13·33	— 6·1
Convulsions	14·74	10·54	— 28·5
Dentition... ..	2·87	2·13	— 25·8
Tubercular disease	7·39	4·86	— 34·2
Pneumonia and bronchitis ...	38·75	30·70	— 20·8
Other causes	36·15	27·59	— 23·7
	179·41	151·41	— 15·6

It is true that there has been during the past few years, as the result probably in large part of favourable weather conditions in summer, a reduction, and in many instances a very material reduction, of infantile mortality in most large towns, including many that have not adopted health visitors. The 33 large towns of the Registrar-General have shown a decrease for 1905, 1906, and 1907, as compared with the previous decades, and during this period each one of the 33 towns has contributed to this decrease in a greater or less degree; but there are few large towns which have not made serious efforts at general sanitary improvements, and there are few also in which the influence of special efforts to convey direct instruction in the hygiene of infancy to nursery mothers has not been felt. The system of health visiting by qualified women is one of the most direct and effective methods of conveying such instruction.

Full allowance should be made in this connection for the influence of cooler summers, especially in respect of the reduction of deaths from diarrhoea; but this factor cannot be credited with the whole of the reduction in infantile mortality, and the other factors have apparently remained the same or only slightly varied. After making all allowance for the influence of cooler summers, when, as in the case under consideration, we find that a particular improvement has immediately followed the adoption of a particular measure specially designed to effect that improvement, and has been steadily maintained during several years in which the measure has been in operation, it is reasonable to infer that the measure and the improvement may not improbably bear to one another to some extent, at any rate, the relation of cause and effect.

It is pointed out by the medical officer of health that of the eight Lancashire towns Salford only has a lower infantile death-rate (140) for 1907 than Oldham, that of Liverpool being the same, and of the other towns higher.

It is probable that the full benefit of the work of the women inspectors has not been developed prior to 1908. The Notification of Births Act was adopted in December, 1907, and came into force

on January 8th, 1908. Before this date a large number of deaths, probably a sixth of the whole number, occurred before the birth of the children was registered, or owing to delay in registration the seeds of fatal mischief were sown before the inspector's visit could be made. It is, I think, reasonable to claim that the notable reduction in infant mortality which occurred immediately after the women inspectors were appointed, and has since that date been maintained, is due in some measure at any rate, to the work done by them as health visitors; and it may be anticipated that under the prompt notification of births secured by the Act, earlier visiting will occur, and a further reduction will be manifest in the future in just those deaths due to dietetic and other sanitary errors which have hitherto occurred in infants under two months old.

The influence of the women inspectors is also shown in another respect which has an important bearing upon public health. I noticed that bedroom windows in Oldham are commonly kept open to a degree which is certainly unusual in industrial towns, and this good habit appeared to be a direct outcome of the teaching of these ladies.

The women inspectors also make inquiries in cases where the death of an infant under 12 months has taken place; 688 visits in this connection were paid during 1907. They also pay visits in cases of non-notifiable infectious diseases or skin diseases reported from the schools, &c. (about 2,400 visits during 1907); inspect workshops in which female labour is employed; make inquiries under the Shop Hours Act, and as to shop seats; and undertake other work as required by the medical officer of health.

When sanitary defects in connection with the structure or drainage, &c. of houses are observed in the course of their work by the women inspectors, they do not deal with them directly, but report them to the inspector of nuisances, who takes the requisite action.

A trained nurse has recently been appointed as an additional inspector (temporary) to assist in the visiting of cases reported from the schools.

In every respect the work done by the women inspectors appears to be well worth the cost involved.

Social Constitution.—Whatever causes tending to produce a high death-rate are inherent in the industrial conditions of Lancashire towns are to be found in Oldham in a concentrated form. The social constitution of the borough is almost entirely artizan and what may be called the residential element, those, for example, engaged in professional or commercial occupations, which forms so large a part of many towns having low death-rates, is very small.

This circumstance is shown by the small proportion of women engaged in domestic indoor service. The proportion per 10,000 of females so engaged, which for England and Wales is 1,009, and for such towns as Hastings, 1,801, and Bath, 1,944, is for Oldham, 373.

In this respect, as will be seen from the following table, Oldham occupies a rather lower position than any of the large Lancashire towns except Blackburn, 364, and Burnley, 322.

Table showing the proportion per 10,000 of females engaged in domestic indoor service in England and Wales, London, and Lancashire towns.

—	Proportion per 10,000 females.	—	Proportion per 10,000 females.
England and Wales ...	1,009	Lancashire— <i>cont.</i>	
London... ..	1,261	Manchester	560
Lancashire	735	Oldham	373
Barrow-in-Furness ...	682	Preston	441
Blackburn	364	Rochdale	417
Bolton	435	St. Helens	604
Bootle	725	Salford	596
Burnley	322	Warrington	541
Bury	398	Wigan	611
Liverpool	866		

In summarizing the results of my inspection of Oldham, I wish first to express my appreciation of the civic pride and spirit of municipal enterprise which characterises the administration of this borough, and which is exemplified, not only in sanitary reforms with which I have dealt, but in other branches of municipal activity, which lie outside the scope of this report. At the same time it is clear that much remains to be done if Oldham is to be raised to the level of a completely sanitary town.

The fact that many of the people still live in the proximity of large fixed ashpits cannot but have a detrimental effect on the general health, though it may be difficult to state the exact extent to which this contributes to the high general death-rate of the borough; nor can the system of waste-water closets be regarded as altogether satisfactory.

In respect of housing the borough still suffers under the effects of rapid and unregulated development during the greater part of the nineteenth century, and is, therefore, still encumbered, to some extent, with old slum areas; and although there has been, at any rate since 1880, marked and very creditable progress in housing reform, and although the housing conditions, so far as they can be tested by the census returns, are not worse than the average conditions of the great towns, this does not imply that they are altogether satisfactory; and much can be done which would favour a lower death-rate, by dealing with slum property and overcrowding at a more rapid rate than has hitherto been attained.

Vigorous action is needed to improve the condition of many of the cowsheds and to secure an improved milk supply.

In conclusion it is my pleasant duty to thank the Town Clerk and the members of the Sanitary Committee, Dr. Wilkinson, the medical officer of health, Mr. Winterbottom, the chief inspector of nuisances, Miss Rothwell and Miss Smith, the women inspectors, the assistant inspectors and others who rendered me ready and courteous assistance in my inquiry.

REGINALD FARRAR.

RECOMMENDATIONS.

1. That the Corporation should acquire some of the squalid and unsightly empty spaces which deface certain parts of the borough and should convert them into gardens or playgrounds, properly fenced in.
2. That streets and back passages which are unrepaired and in a filthy state should be properly levelled or repaired.
3. That street gullies should be properly trapped, rain-spouts, where practicable, disconnected from the sewers, and a sufficient number of ventilating shafts for the sewers provided.
4. That the regulations as to new streets and buildings should in all cases be rigidly enforced.
5. That continued efforts should be made to deal with the insanitary house property in the borough.
6. That continued and increased efforts should be made to replace by ashbins the numerous ashpits which yet remain in the borough.
7. That further efforts should be made to improve the condition of cowsheds in the borough.

APPENDIX I.

Syllabus of Lectures on Hygiene given in the Evening Continuation Schools Elementary Classes.

HOUSEHOLD MANAGEMENT.

SECTION I.—DOMESTIC SCIENCE.

Theory.	Practice.
1. The dwelling. Cleanliness and decorating.	Reading thermometer.
2. The dwelling. Ventilation and warming.	Mixing of disinfectants.
3. Sanitation in home. Water supply—house refuse and its disposal—periodical cleaning of drains—care of slop sink.	Domestic purification of water.
4. Care, cleaning and uses of brushes. Hair, nail, domestic, and clothes brushes.	Washing of hair brushes.

Theory.	Practice.
5. Household expenses.	Keeping accounts.
6. Management of fires, gas and oil lamps. Fire guards—gas escape.	Cleaning of lamps and glasses.
7. Clothing. Diff. in character of woollen linen and cotton—women's dress—clothing of infants.	Use of clinical thermometer.
8. Food. Uses—classification—principal food stuffs.	Bandaging.
9. Effects of exercise, rest and sleep on health.	Bandaging.

SECTION II.—HOME NURSING.

10. Preparation and care of sickroom. Choice of room—decoration and furniture—ventilation and warming—cleaning.	Measuring and giving medicine.
11. Nursing of sick patient. Qualification of a good sick nurse—nurses' dress—bed rests—cradles—bedsores.	Washing sickroom crockery.
12. Emergencies. Cuts—burns—scalds—bites—unconsciousness.	Treatment for cuts, burns, and scalds.
13. Infectious diseases. How communicated—Immunity to disease—disinfectants—zymotics.	Treatment for unconsciousness.
14. Treatment of infectious case. General precautions—special points concerning individual fevers.	Bandaging.
15. Washing, dressing, and making bed of sick patient.	Changing sheets.
16. Uses of poultices. Linseed, and bread and mustard poultices.	Making of poultices.
17. Uses of fomentations and liniments.	Making of fomentations.
18. Sickroom beverages.	Making of beverages.

SECTION III.—CARE AND MANAGEMENT OF CHILDREN.

19. Milk as a food for infants and children.	Preparation of infants' food.
20. Food, clothing, and rest for children.	Cleaning of feeding bottles.
21. Ailments of Children.	Bandaging.

ADVANCED CLASSES.

Household Management.

SECTION I.—ELEMENTARY PHYSIOLOGY.

Theory.	Practice.
1. General construction of the body.	Bandaging.
2. Circulatory system.	do.
3. Respiratory do.	do.
4. Digestive do.	do.
5. Excretory do.	do.

SECTION II.—ELEMENTARY HYGIENE.

6. Skin and cleanliness.	
7. Care of hair, nails, and teeth. Uses of baths.	Taking temperature for various baths.
8. Air. Composition and properties. Impurities and their effects.	Use of clinical thermometer.
9. Water. Sources and distribution. Impure water and its effects.	Do. do.
10. Food. Nature and uses. Children's food.	Sterilising milk.

SECTION III.—CARE AND MANAGEMENT OF INFANTS.

11. Washing and dressing of infants.	Same.
12. Feeding of infants.	Preparation of infants' food.
13. General management of infants.	Taking patterns of infants' clothing.

SECTION IV.—SICK NURSING.

14. Preparation and care of sickroom, and general nursing of sick patient.	Nurse's report for doctor.
15 & 16. Nursing of patients suffering from bronchitis, pneumonia, asthma, measles, scarlet fever, typhoid fever and diphtheria.	Preparation of baths of different temperatures.
17. Consumption—causes and pre- vention.	Preparation of lotion for bedsores.
18. Infectious diseases—causes and prevention. Disinfectants, antiseptics and deodorants.	
19. Washing, dressing, and making bed of sick patient.	Changing sheets.
20. Uses of poultices.	Making of same.
21. Uses of fomentations and lini- ments.	Making of same.

APPENDIX 2.

COUNTY BOROUGH OF OLDHAM.

List of Byelaws in force in the Borough.

Subject of Byelaw.	Date of approval of confirming authority.
Markets and Fairs and Market Porters ...	February 12th, 1866.
Slaughter Houses	Do.
Hackney Carriages, Porters' Carts and Omnibuses, Stage Carriages and Conduc- tors, and Porters and Drivers	Do.
Brokers	Do.
Alexandra Park	Do.
Public Baths	Do.
Common Lodging Houses, Obstructions, Nuisances, &c., and Fines for Non- acceptance of Office of Councillor, &c.	Do.
Chadderton and Greenacres Cemeteries ...	December 3rd, 1881.
Tripe Boiling	December 7th, 1882.
Houses let in Lodgings or occupied by more than one family	July 6th, 1888.
Hollinwood Cemetery	June 5th, 1889.
Dairies, Cowsheds, and Milkshops ...	October 1st, 1890.
Sale of Coal... ..	February 5th, 1891.
Highways and Locomotives	June 2nd, 1897.
Street Cries on Sundays	November 2nd, 1900.
Lights on Vehicles... ..	September 5th, 1900.
Betting in Streets	February 20th, 1901.
Tramways	January 5th, 1903.
Closing Order. Barbers, Hairdressers, Boot and Shoe Dealers, and Tailors...	September 28th, 1905.
Tents, Vans, Sheds, &c.	May 8th, 1908.
Advertising on surface of streets	December 1st, 1908.

Regulations as to new streets and buildings were included in Parts V. and VI. of the Oldham Improvement Act, 1880.
