PUBLIC HEALTH ACT.

(11 & 12 Vict., Cap. 63.)

REPORT

TO THE

GENERAL BOARD OF HEALTH,

ON A

PRELIMINARY INQUIRY

INTO THE SEWERAGE, DRAINAGE, AND SUPPLY OF WATER, AND THE SANITARY CONDITION OF THE INHABITANTS

OF THE BOROUGH OF

W I G A N.

BY GEORGE THOMAS CLARK,

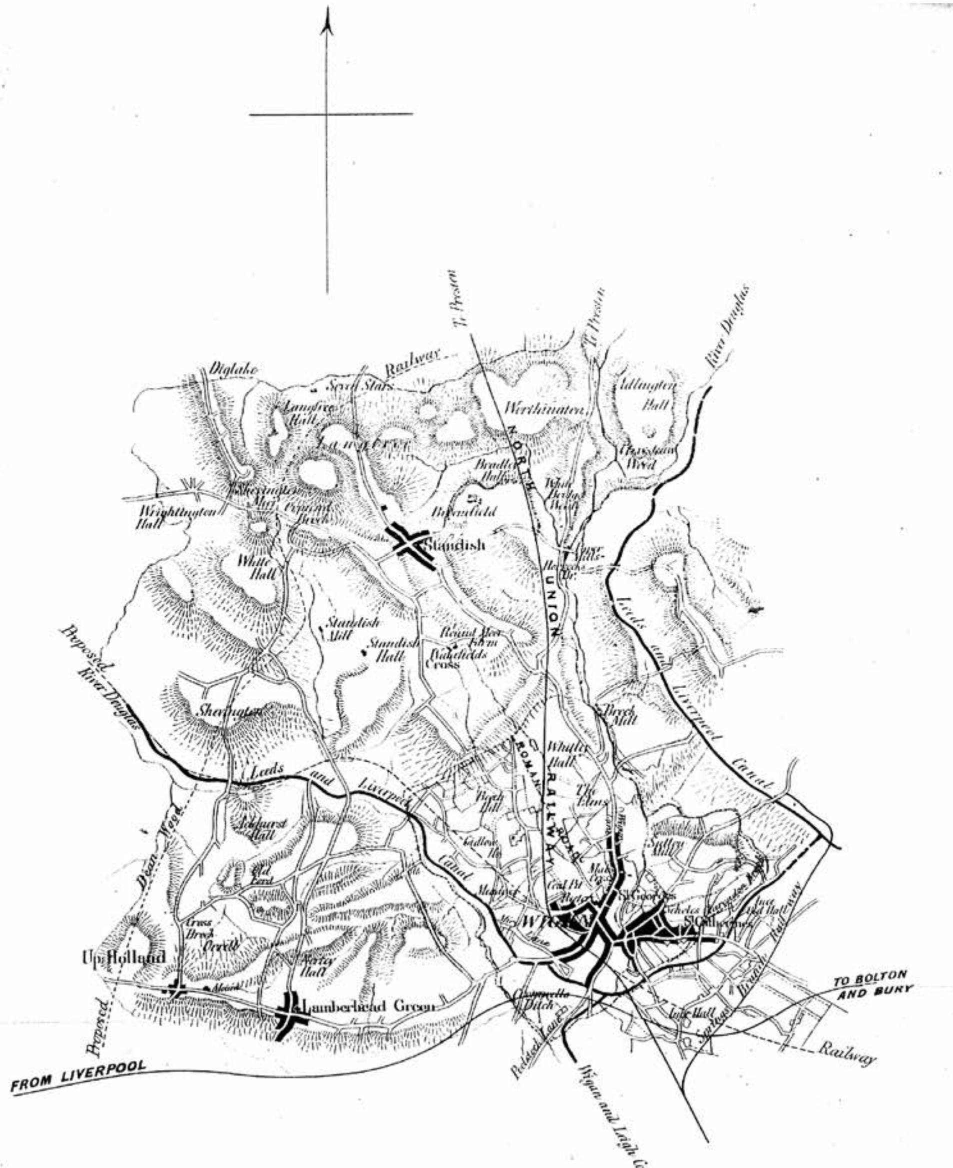
SUPERINTENDING INSPECTOR.

LONDON:

PRINTED BY W. CLOWES & SONS, STAMFORD STREET,

FOR HER MAJESTY'S STATIONERY OFFICE

1849.



Borough Boundary - - - - - - - - - - - -

PUBLIC HEALTH ACT (11 and 12 Vict., cap. 63).

Report to the General Board of Health on a Preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Borough of WIGAN.
By GEO. T. CLARK, Superintending Inspector.

MY LORDS AND GENTLEMEN, *London, 17th April,* 1849.

ACCORDING to your instructions, and after notice given as directed by the Public Health Act, I have inspected and now proceed to report upon the borough of Wigan, in the county of Lancaster. I held public sittings there, in the Moot Hall, on the mornings of the 23rd, 24th, 26th, and 27th of March last, and employed the remainder of those days in various branches of the inquiry, and in collecting materials generally for this report.

2. I have to acknowledge the support of the Mayor and Town Clerk, the official organs of the Corporation, the officers of the Poor Law Union, of Mr. Scott on the part of the Water Works Company, and the presence of Mr. Darlington, churchwarden. My principal aid, however, has been derived from Mr. Jos. Pritchard, Hon. Secretary to the Wigan Working Classes Public Health Association. I found in the books of this active officer a mass of very extensive and minute information upon the sanitary statistics of the place, brought down to the date of my visit.

3. I received from the Town Clerk a plan upon which the course of the existing sewers had been laid down; but the borough has been recently surveyed by the Ordnance department, and the plans published at a scale of 5 feet to the mile, with numerous levels marked upon them. My observations and engineering conclusions are wholly based upon these plans, they have been of great use, and have been, and will be, the saving of a very great expense to the borough.

4. The inquiry was made upon petition, numerously signed; but the town being corporate, besides having Local Acts, the application of the Public Health Act, if made, must be sanctioned by Parliament.

5. Having found elsewhere that very erroneous impressions prevailed on the subject of the effect of the application of the Act, I took some pains, at the public meetings, to obtain the attendance and company, during the local inspection, of any

persons whose impressions were unfavourable to the Act. In this I was unsuccessful. It may be that the whole town is of one accord in the matter. If it be not so, I must regret the absence of those who think otherwise, from an inquiry in which they would have had a good opportunity of stating their objections, and of hearing and seeing for themselves what would really be the effect of the application of the Act, and the extent to which it is needed in Wigan.

6. GENERAL DESCRIPTION.—Wigan, a borough town, in the southern division of the county of Lancaster, is built upon the summit and skirts of a sort of promontory, formed by the junction of two ridges of high ground, descending from the northward by Worthington and Standish, and encircled on three sides by a great bend of the Douglas. The ordinary volume of the Douglas is not what might have been expected from the length of its course. It rises near Rivington, flows past Blackrod, and having made three distinct doublings upon itself, it sweeps round Wigan, divides the old town from its suburb of Scholes, and flows north-westwards down a low marshy valley, by the way of Douglas chapel and Rufford, to swell the estuary of the Ribble at Hesketh. Immediately above Wigan its valley is deep and craggy; near the chapel of Douglas it separates by a ravine the high rocky masses of Dalton and Wrightington. Below this, to its termination, it flows through a wide tract of moss and moor, at present undrained and ill cultivated, but capable, as will be seen, of being turned to great account in agriculture.

7. Wigan, then, is built upon the Douglas. The ancient town upon the right, the modern suburb on the left bank. Over the former, upon the brow of the hill, 90 feet above the river, predominates the massive and venerable tower of the parish church. The new and graceful spire of St. Catherine crowns the opposite height, and overlooks the whole of the division of Scholes.

8. The town lies open to the southern breeze. It is screened on the north and east by the distant heights of Anglezark and Rivington, and nearer by the ridge of Haigh, thickly crested with trees. Excepting always Lancaster, no town in this great county can boast a finer position, one more naturally healthy, or one better suited for a complete and cheap supply of water, or a perfect system of drainage; nor is there one that commands an inferior district of so great extent, or so well capable of receiving and profiting by the employment of its refuse for agricultural purposes.

9. GEOLOGY.—Wigan is placed in the western centre of the great coal field of Lancashire, and the mineral is extensively

worked both around and beneath the town. The principal seams vary from 2 to 6 feet thick, at various depths, short of 400 yards. The celebrated Cannel-coal is a product of this district, being found in a bed 2 feet 6 inches thick, at from 100 to 200 yards deep. The town actually stands upon coal measures and sandstones of the coal. here dipping south-east at a high angle. The upper part of the town nearly to Standish is masked by a bed of sandy loam. The lower and principal part is founded on a surface of clay. Much of the immediate margin of the Douglas is an alluvial deposit, but its bed is chiefly rocky.

10. The application of sanitary measures to the town will be an easy task. The greater part of the houses stand upon slopes more or less steep, and more or less exposed to the free air. The main thoroughfare runs north-east and south-west, right across the long axis of the town, under the names of Wigan-lane, Standish-gate, Market-place, and Wall gate. From the market-place proceeds Mill-gate-street, running south. These two streets, though irregular, are, on the whole, of fair width and creditable aspect, and about them, more particularly in Wigan lane and Standish-gate, are built several of the best houses in the town. The church is near the market; and northwards from it, blocked up for a short distance by small tenements, runs Hall-gate-street, terminating in the combined rectory and manor-house of this important and valuable piece of church preferment.

11. From Mill-gate-street a road of tolerable breadth crosses the river and intersects Scholes. There are a few other streets in the town; the houses of the poor are, for the most part, arranged in courts on each side of those named. No general supervision appears ever to have been exercised over the buildings in the town. Individuals have been left to make such arrangements as suited themselves, without any reference to the comfort, health, or life of their neighbours.

12. The embankment of the North Union Railway skirts the town, close on the west, dividing it from the lower part of Wall-gate. This is again intersected by the Liverpool and Bury Railway, recently opened, and which passes through a part of the town, in cutting, and beneath Wall-gate. West of the North Union, at the end of Wall-gate, is the Leeds and Liverpool Canal, crossing the Douglas and checking its current. This canal here receives a branch from Manchester.

13. The only point at which the town possesses any considerable breadth is about the market-place; elsewhere it is narrow and more or less open, on the south-east side to the vale of the Douglas, on the north-west to the Folly fields. Parts of the bank of the Douglas, both in and below the town, are liable to be flooded, as will be specially noticed hereafter.

14. TRADE AND MANUFACTURES.—The staples of Wigan are coal and cotton. The coal is largely exported from the ports of the Mersey, Ribble, and Wyre, being conveyed thither by canal and railway. The cotton manufactures are chiefly twist-spinning, power-loom weaving, and hand-loom weaving, in various branches. There is a little silk weaving, but not so much as in the immediate neighbourhood.

15. GOVERNMENT.—Wigan is an ancient municipal and Parliamentary borough, dating from the 3rd of Henry III., or earlier, and returning two Members. It is governed by a Mayor, 10 Aldermen, and 30 Common Councilmen, 40 in all, presiding over five wards. There are Committees of Watching, Finance, General Purposes, Sanitary Improvement, and the administration of Charities. The Corporation do not levy any borough rate. The revenue is derived solely from "Stallage and Pickage," varieties of market dues, producing about 300*l.* per annum.

16. The parish of Wigan is 10 miles long by 6 broad, and includes 27,610 acres, and 13 townships, of which that of Wigan is co-extensive with the borough and contains the mother church. Parish officers are appointed annually in vestry for the township, and among them a Highway Board.

17. The rates levied for the year ending March 1849 were—poor-rate, 8*s.*; highway, 6*d.*; lighting, 3*d.*; church, 3½*d.*; making the whole burthen upon the borough 9*s.* 0½*d.* in the pound. The poors'-rate during the last three years has been much above the annual average. The Rector, as lord of the manor, has certain small market tolls let on lease to the Corporation. There are 12 borough magistrates.

18. In May, 1848, was founded the "Wigan Working Classes Public Health Association." This Society has circulated various papers on sanitary subjects addressed to the working classes, and has caused lectures on the same subjects to be delivered in the town. One principle of the Society, as stated in its first report, is "to interfere with no rights, to dictate to no interests, to keep aloof from all parties; but steadily, slowly, and surely, to work its way into the homes and hearts of the people." I am disposed to put considerable faith in the conduct of the Association, on account of the extent and accuracy of the information concerning the wants and habits of the poor, and the sanitary statistics of the place, collected by its organ, Mr. Pritchard.

19. POPULATION.—The borough, including 2,170 acres, contained in 1831, 20,774 persons, forming 3,988 families. There were then 4,092 houses, of which 218 were uninhabited and 4 building. In 1841 the borough contained 25,517 persons and 4,911 houses, of which 317 were uninhabited and 34 building.

20. MORTALITY.—It appears from the registration of the borough, that deducting the deaths of extrinsic residents in the Union-house, taking the population of 1841, and allowing an annual nett increase of 500, the average annual mortality of the seven years, 1838-44, is 30·7 per 1000. The same calculation applied to the last seven years, or 1842-8, gives a mortality of 33·3 per 1000; and if applied to the last three years, 1846-8, no less a rate than 39·7 per 1000. The above estimated annual increase gives, as a general result, a present population of 29,281, which is supposed to be about the actual number. The mortality of the registration district, in which Wigan is included, as stated in the official return for the deaths of the seven years, 1838-44, is 26·7 per 1000.

21. From a statement drawn up by the late Mr. Fairhurst, then Registrar for Wigan, and printed in Dr. Playfair's Report, it appears, that whereas in the better conditioned districts the annual mortality was 1 in 36, in the ill-conditioned districts it was 1 in 29, the births in the two being 1 in 28 and 1 in 23. And whereas the average age of death in artizans in the former district was 23·10 years, in the latter it was 17·10 years. In other words, as compared with Wigan, the members of the artizan families who inhabit Scholes lose, on an average, 6¾ years of life, and the borough has to support a corresponding increase in the number of widows and orphans. The Wigan registration district, according to the tables of the Health of Towns Association, ranks upon a par with Warrington and Leigh. There are nine districts in the county less unhealthy and nine more so; of the former, in Ulverstone, the mortality is 17·7 in the 1000; of the latter, in Liverpool, it is 33·3 in the 1000.

22. Mr. Pritchard prepared for me the following classification of the houses in Wigan at this time:—

Wards.	Respectable Private.	Shops.	Working Classes.	Total.
Scholes . . .	35	206	1,727	1,968
St. George's .	109	155	522	786
Queen-street .	63	112	850	1,025
Swinley . . .	116	113	621	840
All Saints . .	54	149	544	747
Total . .	377	735	4,264	5,366

23. From the same authority I quote a second statement, showing the ventilation of different parts of the borough in March, 1849:—

Wards.	Houses back to back.	Other Houses without Windows at the back.	Cellar Dwellings.	Cellar Weaving Shops.
Scholes . . .	456	367	34	339
St. George's . .	111	56	..	29
Queen-street. .	175	69	15	26
Swinley . . .	206	84	2	63
All Saints . .	201	71	9	63
Total . .	1,149	647	60	520

24. And a third statement showing the distribution of damp cellars throughout the borough:—

CELLAR WEAVING SHOPS in a damp condition.

Scholes Ward	80
St. George's	3
Queen-street	12
Swinley	19
All Saints	14
Total	128

25. It appears, therefore, in the first place, that of the 5,376 houses in the borough only 377, or nearly 7 in the 100, are those of persons of the higher class, and that 4,264, or above 79 in the 100, are those of artizans or the poorer classes. In Scholes, the most populous of the five wards, 1,727, or 87·7 in the 100, are houses of the poorer classes, and in Queen-street ward, 850, or 83 in the 100. It is sufficiently evident from these figures what class of persons any general improvement in Wigan, to be effectual, must be calculated chiefly to benefit.

26. It appears from the second table, that in the borough there are the enormous number of 1,149 houses, or above 21 in the 100 of the whole, built back to back, and therefore without any private court. In Scholes this number is 456, and 367 are without windows at the back. There are 60 cellars in the borough occupied by families as habitations, and 520 inhabited from 10 to 14 hours daily by hand-loom weavers. Of these, 128 are in a damp condition, some being flooded with the contents of sewers.

27. Mr. Pritchard has selected from the poorer quarters of the borough certain districts, specimens of the whole, classed according to the degree of privy accommodation afforded. Thus there are—

Of 1	privy	to	2	houses	6	districts	Of 1	privy	to	8	houses	10 districts.
1	,,		2½	,,	5	,,	1	,,		9	,,	3 ,,
1	,,		3	,,	18	,,	1	,,		9½	,,	2 ,,
1	,,		3½	,,	8	,,	1	,,		10	,,	5 ,,
1	,,		4	,,	24	,,	1	,,		10½	,,	1 ,,
1	,,		4½	,,	8	,,	1	,,		11½	,,	4 ,,
1	,,		5	,,	26	,,	1	,,		12	,,	2 ,,
1	,,		5½	,,	4	,,	1	,,		14	,,	1 ,,
1	,,		6	,,	25	,,	1	,,		15	,,	3 ,,
1	,,		6½	,,	2	,,	1	,,		16	,,	3 ,,
1	,,		7	,,	13	,,	1	,,		22	,,	1 ,,
1	,,		7½	,,	2	,,	1	,,		24	,,	1 ,,

Out of a large number of privies observed there were 90 in a condition to demand special notice; of these there were,—

Rather filthy	2
Filthy	10
Very filthy	45
Exceedingly filthy . . .	7
Disgustingly filthy . . .	26
	90

28. I have no general return of nuisances; among those noted down there occur, of cesspools receiving the contents of privies, and in a particularly bad state, 44; pigsties, 67; open dung-heaps, 44. These nuisances, however, occur in a very limited district, and are exclusive of open ditches, which are nothing better than elongated cesspools.

29. It appears, also, that there are of courts with covered entrances 246, with open entrances 148; of wide courts 87, narrow courts 307. These particulars are confined to the dwellings of the working classes.

30. Inspection of the Town.—In this inspection I was accompanied throughout by Mr. Scott, solicitor to the Water Company, and during a part of the time by the Rev. S. Doria, Mr. Acton, a county magistrate, Mr. Pritchard, Mr. Corbett of Manchester, an engineer, and Mr. Bolton, the inspector of the town drains.

31. I received from Mr. Ackerley, clerk to the Board of Guardians of the Wigan Union and Superintendant Registrar, a list of 27 localities in seven divisions of the borough, in which epidemic and contagious diseases usually prevail, and of which localities no less than 14 were in Scholes ward. My attention was also drawn to the sanitary condition of the town by a statement from Dr. Stuart, a practitioner of 20 years experience in Wigan, and physician to the public dispensary. He observes—

"I am able to bear testimony from my own personal observation to the great prevalence of fevers and disease generally among the poorer

classes; during several months of almost every year since my connexion with the dispensary a considerable proportion of the patients of that institution have been affected with fever, and it has very rarely happened that at any time the institution has been wholly without fever cases.

"Fever has occasionally appeared in all parts of the town, but those cases which have occurred in the more cleanly and paved and drained portions of the town are few in comparison with those which have existed in the more filthy and unpaved and undrained districts. While the former localities are often for long periods exempt from fever, the latter appear to be scarcely ever entirely free from it. When fever prevails epidemically, its ravages are always greatest where draining and paving have been most neglected. It often rages in such places with great virulence and fatality when the other portions of the town have suffered but slightly.

"While there is very evident connexion between the want of paving and draining and the prevalence of fevers, there is no doubt that the want of domestic cleanliness is also a very prolific cause of disease among the poorer classes in Wigan. Where the houses are kept in a filthy condition disease is generally prevalent.

"This want of cleanliness characterizes a very large proportion of the houses of the poorer classes in Wigan, and is attributable, in the greater number of instances, to the very inadequate supply of water, together with the absence generally of house drainage. The efficient supply of both these necessaries for health and domestic comfort, by furnishing the means of practising them, would be sure to foster habits of cleanliness among the working classes, and thereby remove the cause of many diseases.

"Innumerable cases have fallen under my own observation of persons suffering from disease, produced by removable causes, being thus rendered paupers, and I have no doubt that those connected with the administration of the Poor Law in Wigan can trace an immense amount of pauperism to this source. This effect is more especially observable during the prevalence of epidemic fevers. Hence we are justified in concluding that in adopting means to remove the causes of disease we shall very materially relieve the burdens of the rate-payer. That something may have been done in Wigan towards the mitigation of some of the evils I have alluded to, by the exertions of individuals, and by the operation of the Nuisances Removal Act I admit; yet these means are wholly inadequate to meet the exigencies of the town for sanitary purposes. The Nuisances Removal Act does not reach many evils complained of, and the mere removal of a nuisance is insufficient for a permanent purpose; for I can state from my own observation, that where nuisances have been removed they have often been speedily renewed.

"The Public Health Act, if applied to Wigan, will unquestionably be a great boon to the whole population of the town, and I feel confident that in its operation it will reduce the amount of disease, diminish the mortality, and eventually be a saving to the rate-payers of the town."

32. Commencing at the parish church, on its north side, communicating with Bishop's-gate and Hall-gate, are a number of houses, often of three stories, with cellars used as work-rooms,

arranged in courts and much crowded. *Marsden's-court* has a large open cesspool occupying the ground-floor of a dwelling-house. Behind the *Globe Inn* the ground drains upon the houses. Here is a cesspool 18 feet by 10 feet under a work-shop. It is emptied about thrice annually, and is at all times very offensive, and particularly so when it is being cleansed. In *Bishop's-gate* are pigsties and open cesspools above the floor level of the houses. In *Hall-gate* the houses are old and in bad repair, the courts ill paved or not paved at all, the fields adjacent are traversed by foul open ditches, in three courts are slaughter-houses, and in one a bone depôt. None of these courts are efficiently drained. The water is supplied by the water company at one or more public taps set up in each court. For this the company charge the landlords 5*s.* per house per annum, but in most cases the landlord charges 6*s.* 6*d.* The rents are collected weekly. In some few cases the tenants are charged 8*s.*

33. *Top Croft* and *Lower Croft* in Hall-gate, returned as seats of fever, are, on the whole, the worst cottage property in the town. The filth from the houses and privies of Upper Croft drains over an unpaved surface into an open ditch, which runs along the back of the houses of the Lower Croft. This ditch is about 3 feet above the floor of the houses, and its contents ooze through the walls, and in wet weather overflow into the windows. Beamish, a weaver, works in one of these cellars. The wood work is rotten, and the bed clothes in the room above are much affected by the damp. In another room, unpaved, the loom-treadle is placed in a hole, and this is occasionally flooded. The cases are numerous in which these cellar-weaving-shops are injuriously affected by putrescent filth. *Robin-Hood-yard, Turton's-court* (a fever nest), and *Wall's-court*, are all in a very dirty condition. Of many bad quarters this Hall-gate, though placed between the church and the rectory, is one of the most neglected and almost the worst.

34. Near the market-place is *Fleece-yard*, an open airy court, but ill paved, and in a most filthy state as to cesspools and drainage. *Rose-entry*, a seat of fever, is unpaved, with large cesspools and ruined privies. In *Rylance-row* the houses are old and bad, and fever has prevailed. *Dicconson-street* has a new barrel sewer, into which the houses are drained. *Brick-kiln-lane* is badly paved, with open foul gutters, and a drainage from the privies above. *Griffin-yard* and *Little-croft* drain upon the main street, and are in a bad state, with muck-heaps and large open cesspools. Behind, in the fields, is a large catch-pit for manure. *Little-London* has 1 privy to 24 houses, an open ditch 13 yards by 1 yard, no pavement, no drain, and heaps of house-filth in the corners; in the cellar of one house is a stable, generally containing a quantity of manure, and much

complained of. *The Folly* and *Grayson's yard* form a group of houses, in a most objectionable state as regards drainage, water-supply, and pavement. The situation is good, but most of the houses are built back to back, and the cesspools are very large. Fever has prevailed here to a considerable extent. Near the head of Wigan-lane is *Lord-street*, and a collection of houses called *Patrick's-row*, looking upon the Folly-fields. These houses are built back to back with cellars, employed during the day as weaving-shops; they are very damp, without soft water, and with a number of offensive ditches traversing the fields in front. They are returned as seats of fever. In some parts of the town, for example, in Hall-gate, Lord-street, and Standish-gate, are cow-shippons, whence the liquid manure flows down the yard gutters into the open streets.

35. The east side of Wigan-lane is in rather better order. Near the reservoir, however, in *Banks's yard*, the contents of a large cesspool oozes through the wall of a house. Around this cesspool there has been fatal typhus fever. This nuisance has been much complained of, and application made to the Board of Guardians in vain. The street-drains are in bad order, and have large and offensive gutter-grates. Nearer the market-place, *Moore's entry* is close and crowded with houses back to back. Here is court within court, with narrow passages, here and there a slaughter-house, and at one place a tallow-boiler. *Cooper's yard* is in a bad state, as is *Barrack-yard*, in Wallgate, ill-drained and ill-paved, and a seat of fever.

36. Concerning this yard, by no means a peculiar case, I have on record the following statement:—

"*Wigan, March* 26, 1849.

"I, William Schofield, of Wigan, rent-collector, say that I collect cottage-rents at Wigan. I collect the rents of the tenants of the 45 cottages in the Barracks-yard, Wallgate-street. The same are let at different rents; the average weekly rental is 1*s.* 8*d.*; the same are in a very confined situation, no thoroughfare, and are closed up at the bottom by buildings. The cottages are very small, and the first or ground-floors are below the level of the ground. The same severally consist of two rooms, one over the other. There are four privies only to all the 45 cottages. The same privies are very small, and are in the dirtiest and filthiest state, and there are sleeping-rooms over the privies. The yard is neither lit, nor has any water been taken into it. The tenants are very anxious to have water and light. There is no proper drainage. The number of inhabitants in the yard is 257. On an average there are nearly six inmates to each cottage. From the want of drainage the yard is always in a bad and dirty state. There is a drain passing under the houses, and the tenants complain of the bad smell from it. The smell is not only very bad in the houses, but in the yard itself. The cottages were formerly a range of low buildings, used as a cloth hall at the fairs, and have been lately converted into cottages. The Wigan

Waterworks Company wished to supply them with water at the rate of 5*s.* a-year per house. The landlord wished to have the water cheaper than the scale of prices at which similar houses were supplied in the town; and because he could not have it cheaper than any one else, he refused to take the water into the yard. The Wigan Water Company would have laid all the necessary lead-pipes themselves, at their own expense; the only expense the Company would not have borne was that of the cocks, and in case of stand-cocks, the expenses of the wooden boxes enclosing the same."

37. On the west side of Mill-gate are several ill-paved, ill-drained, and somewhat intricate courts, with open cesspools, and a very insufficient supply of water. *Elbow-lane* is in particularly bad order, and the want of proper lighting is here much complained of by its inhabitants. *Princess-street* and *Faggy-lane*, opening out of Queen-street, are returned as seats of fever.

38. Descending Wallgate, *Great George-street*, though of fair breadth is, with nearly the whole of this suburb, unpaved. Here the footways are laid, but from want of a concerted plan, at different levels, so that the road surface will always be ill arranged. *Chapel-street*, leading out of Queen-street, is in a filthy state; here is one water-tap for 60 people. *Great George-street*, *Clayton-street*, and the *Pottery*, all low, undrained, unpaved, and filthy, are returned as seats of fever, as is *Spring-gardens*, a block of houses in a similar state, upon Frog lane. The following is one among several representations made to me:—

"There is a cellar-dwelling in Faggy-lane, near Chapel-lane, in which a poor widow resides. It is more damp than any I have seen, and unfit to be a human habitation. This poor woman's son, a man of some 30 or 35 years of age, is living there seriously ill, apparently sinking. I believe there is a sough running under the stone floor. The dampness proceeds very much from the back part not being puddled with clay, where the shoot discharges its water. The landlord has refused (so the woman assured me) to remedy the mischief, although she has offered to pay a portion of the expense. Her rent is 1*s.* per week; it is a hard case."

39. Certain numerical particulars relating to the suburb of Scholes have already been given. This is decidedly the dirtiest, worst drained, and most unhealthy part of the town, and a large portion of its inhabitants are Irish weavers.

40. Generally speaking the houses in Scholes are substantially built and well roofed; the main streets are of sufficient width and airy, and even the courts are seldom objectionably narrow, and in many cases of great breadth. Although many of the houses have cellars, of which, as already stated, many are used as work-rooms, and a few as sleeping-rooms, these are rarely above 5 feet deep, the floor over them being raised above the ground by a flight of three to four steps. Unfortunately

many of these houses are built close back to back, but with these important exceptions, the capabilities of Scholes for cleanliness and comfort are considerable. The capabilities, however, have not been taken advantage of. The water supply is from Boy's well, which is a quarter of a mile distant from the lower part of the district; and the road leading to it from Scholes is steep, in wet weather very dirty, and in frosty weather very slippery. None of the houses are drained, not one of the courts efficiently, and but very few of the main streets. The privies open upon uncovered cesspools, the receptacles for all sorts of refuse.

41. Scarcely any of these courts are paved or pitched, or have any prepared surface. The slops from the houses are thrown either into the open cesspool or into the court, and in the larger courts and open spaces are ditches and pools for the sewage. Exactly in front of the Union school, with 120 scholars, is a very large cesspool, which at the time of my visit was being cleansed, that is to say, the whole contents were taken out and piled in the court. The smell was so foul that none of the party could remain. In *Morris's-yard*, behind a disused factory, is a large reservoir of stagnant water. This place is a seat of fever. The reservoir is without a fence, and two children have been drowned in it. In *Amy-lane* is one privy to 15 houses, and over the cesspool of that privy, in one very small room, lives a poor widow with two children, a boy and girl, about 13 and 14 years of age. In summer the stench is described as very foul; all three sleep in one bed. About 100 people have access to this privy, and each family was paying about 2*d.* per week for fetching water from the well. In *Lowe's-square* the drain was choked, the want of water much complained of, the cesspools open, and there was a large dung-heap. In *Union-street* the accommodation was very insufficient. Here and in *Greenough-row* the open drains and cesspools were very foul, and the want of water much complained of. In *Rigby's-gardens* is a very filthy open cesspool, 11 feet square. *Cooper's-yard*, *Mint-court*, and *Mitchinson's-yard*, are either badly paved or unpaved, and are ill drained; and such of the filth as finds its way down these courts, feeds a very offensive open ditch in the fields adjacent. The roadway of *School-lane* is unpaved and in a most wretched condition, in places well nigh impassable.

42. The state of things in Scholes district shows plainly how little the owners of that description of house property, if left to themselves, will do for their poorer tenants. The slope everywhere is excellent; drain-tiles are to be had at a moderate cost; paving or pitching materials are cheap; gas-tar and ashes, not a bad paving for such courts, are still cheaper; and the water company's main is laid in the district, and their terms are not extravagant; and yet with all these facilities the courts

and alleys, and those parts of the premises that can only be kept in order by the landlord, are in a condition in which no decent farmer would allow a pigstye to remain. I am bound also to state that, although a large part of the population is Irish, I found the interior of the houses much cleaner, and in a much less discreditable condition than the exterior.

43. *Wallgate*, including under that name the tract between the North Union Railway and the canal, is in a wretched condition. Here, however, the natural fall, though sufficient if well managed, is less than elsewhere. Chapel-lane is high, but Wallgate-street, with the ground about the canal basin, is very low. In the fields adjoining Trencherfield-mills, a foul open ditch takes the overflow from Chapel-lane, and falls into the canal basin. The sewer feeding this ditch opens 3 feet from the Bridge Inn spring, and fouls the water, which is nevertheless used for various domestic purposes. Near this is another ditch, the odour of which is stated to be often intolerable. For clean and moderately soft water the people send from a half to three-quarters of a mile, to the Sugar-well or the Boys'-well; and the expense of this they state at 1*d.* to 1½*d.* per week, for a very scanty supply indeed. This district is unpaved, traversed by numerous open and very offensive ditches, and here and there are pools of sewage. The people complained much of want of street-lights. So expensive is water, that for some purposes, as to lay the dust, extinguish hearth-fires, &c., the sewer-water is used. *Alker's-court* has a common privy and cesspool under the boarded floor of a dwelling-house. Here the people pay 1½*d.* per week per family for leave to use a pump. *Cardwell's-yard* has a very large sewage-pool close to the houses. An outlay of a very few shillings on the part of the landlord would remove it. Upon and about the canal near the Pottery, Soho Foundry, and the Seven Stars, are numbers of low damp tenements, within reach of the river floods in wet weather, and of the exhalations from its tainted waters, and from numerous dung-heaps on its banks in hot weather. The statistics already given will show that this account can scarcely be an exaggerated one.

44. SEWERAGE.—The public sewers of Wigan are under the management of the Board of Highways, unpaid, unprofessional, and irresponsible officers, which will fully account, here as elsewhere, for their condition. In this part of my inquiry I have derived much information from Mr. Corbett of Manchester, who has been employed by the Health Association to prepare drainage plans for the town, which plans, with his report, have been laid before me.

45. Wigan is in no part efficiently sewered, and in many districts has no sewers at all. It appears from Mr. Corbett's

report, that there are in Wigan, of public and private streets, 28,979 lineal yards, of which there are unsewered, 23,494 yards, and sewered, 5,485 yards, or about 18 in the 100 of the whole. Of public streets, there are 17,371 yards, of which 4,873 yards, or about 28 in the 100, are sewered. Of private streets there are 11,608 yards, of which only 612 yards, or rather above 5 in the 100, are sewered. What are called private streets, are streets not "dedicated" or maintained by the town. So far from being private in any other sense, they are densely peopled, and often contain the worst houses in the town.

46. It is unnecessary to describe in minute detail a system of sewerage so partial and so inefficient. One sewer descends from the head of Standish-gate, receives a private drain from Lowes-yard, and falls at once by St. George's church into the Douglas. Another, the best sewer in the town, is laid in Dicconson-street and Church-street, and reaches the Douglas by a common outfall with the last. Private drains from Rylance-row, the Savings' Bank, New-square, and six courts extending along the north side of Standish gate to the Wigan Bank, join a sewer from the Market-place, which discharges into the Douglas below Roebuck-yard. This sewer also receives drains from a part of Millgate and the Wiend. Besides the above, the Douglas receives, between Weir Bridge and Scholes Bridge, sixteen small drains from courts or private privies.

47. The north side of Standish-gate, having no stream below it, discharges all the sewage that is led away at all, into a number of open ditches which skirt the town and disfigure the Folly-fields. Behind the Market-place and church, where the houses are numerous, a main sewer descends Hall-gate, receives from that crowded district only eight tributaries, and finally discharges into an open ditch close to the National school, and near the Rectory-gate. The mass of this important quarter of the town is wholly without drainage.

48. The south and south-west quarters of the town are partially drained direct into the Douglas or into the Wall-gate sewer. Six drains from Mill-gate, King-street, and Chapel-lane, discharge by a common entry into the Douglas below Scholes Bridge, and two others fall in a little lower.

49. Wall-gate has a sewer from the Moot-hall downwards. Throughout its whole course it receives only eight court drains. It discharges most objectionably into the basin of the canal, at no great distance from the waste of a condensing steam-engine. Great George-street and the adjacent block of houses have street drains discharging into the field ditches around.

50. Some only of the streets in Scholes are sewered, and very few if any of the courts, and none efficiently. A part of the sewage is discharged into the Ince brook, but the greater part

flows into the Douglas at Scholes Bridge. With the exception of barrel culverts in Dicconson-street, Church-street, and about 200 yards in Wigan-lane, the construction of all the existing sewers appears to be vicious. They are flat bottomed, about 16 inches square, of rubble stone, pervious to vapours, and they give out offensive smells at the gutter grates. They may possibly be employed to remove surface water, but they will be of no other use. There are no arrangements for flushing these sewers.

51. It appears that the sewage of Wigan, so far as it is discharged at all, escapes into the Douglas and into the fields around the town. Both of these courses are bad. The courts and alleys which open upon the margin of the town, receive from the open fields what should be fresh air, but which comes to them in a tainted and unhealthy state. The outfalls of the drains into the fields, that for example in Hall-gate, or at the Bridge Inn, or behind the independent chapel in Standish-gate, are some of the worst and most injurious nuisances in the town.

52. The Douglas is employed as a main sewer, for which it is eminently unfitted. This stream, though in winter sometimes considerable, in summer is low, and by no means covers the whole of the bottom of its channel. Its course also in the town is long and circuitous, its bank and bed are rough and irregular, and its current is checked, and its water penned back by various projections, such as that at Messrs. Taylors' mills, and by several weirs of which the highest and lowest are connected with mills, and that at Scholes Bridge pens back the water to feed the canal. Not only do these weirs injure the drainage, but in summer they retain the dead animals and other offensive substances that float down the stream. Each of the weirs is close to a public thoroughfare, and at the time of my visit the floating matters retained above each were very offensive. If mill and canal owners are allowed, for their own private profit, to block up a town stream, the least they can do will be to take care that no accumulations of filth are allowed above their weirs, and this the local Board, under the Act, should be empowered to compel them, under penalties, to do. The Douglas receives a similar check where it dips under the canal. Here all the floating filth is largely accumulated, and in wet seasons deposited upon the adjacent fields. It is fitting here to mention that, on one occasion, after very heavy rains, the contraction caused by the narrowing the channel of the river near the Weir bridges so far checked the passage of the waters as to cause an overflow on the opposite bank, and the inundation of several collieries. Six lives were lost, and the working of the mines was suspended for months.

53. I cannot learn that, except in a few of the best class of houses, there is any such thing as HOUSE DRAINAGE in Wigan.

54. WATER SUPPLY.—The want of an efficient supply of water is one of the chief, if not the chief cause of complaint throughout the town. The present supply is either rain water, spring water, or water from the water works. The rain water is collected in butts and tanks, and, as the mill-owners do not consume their smoke, is speedily rendered impure. The rich are able, at a considerable first outlay, to secure a permanent supply; the poor obtain it in wet weather only, or for a short time afterwards.

55. By far the larger portion of the supply is drawn from pumps and springs. The pump water, with some exceptions, is too hard for washing. The springs most in repute are the Boys' well, the Mesnes well, Holme-house, Silver, Westwood, and one or two other wells. There are also free pumps in Wigan-lane and Wall-gate. The Boys' well yields at present about seven gallons per minute, and it is computed that between 2,000 and 3,000 persons take water from it daily. The water is clear and sparkling, and according to Dr. Playfair's analysis of a sample sent up during this inquiry, of 23½° of hardness. The district of Scholes contains nearly 2,000 houses, and 10,000 inhabitants, "the generality of whom are dependent on the well for a supply of wholesome water." The above particulars are taken from a printed statement recently put forth in the district.

56. The Mesnes well, on the opposite or Hall-gate suburb of the town, is also much frequented. Dr. Playfair states the sample sent as of 14½° of hardness. The river water above the town is of 12½°.

57. Another portion of the town is supplied by the Wigan water-works, and I have to acknowledge on the part of Mr. Scott, solicitor to the Company, very full and ample information as to the actual condition and prospective arrangements of the Company, as well as concerning the general sanitary condition of the town. The Wigan water-works were established by Act of Parliament 4 Geo. III., 1767. Their capital stock is uncertain, since the earlier books have not been preserved. It is divided into four shares called quarters, held at present by five parties. The concern has for some years been unproductive.

58. The supply is by natural pressure. There are two reservoirs, the upper very recently opened, will contain, when full, 13,300,000 gallons. That now in use is the lower of the two; it derives nearly the whole of its water from the upper, but of course its own altitude regulates the pressure. Its capacity is about 1,750,000 gallons. Its top level, by the Ordnance bench-marks, is less than 94 feet above the canal wharf in Wall-gate; above the Wiend, the summit level of the old town, 12 feet; and below Wallace-lane, St. Catherine church, and Long Shoot-court, the three summits of Scholes ward, 19, 15, and 10 feet. The Wiend is a crowded, central, and important district of the town; Long Shoot is built upon, and the ground

round St. Catherine's church will no doubt hereafter be built upon. Samples of the water from the two reservoirs have been analysed, and are returned at, the upper 11¼°, the lower 11¾°. A filter, but on a small scale, is attached to the lower reservoir. At the period of my visit the surface of the water was covered with a film of soot. I tried the water, however, at several of its branch taps, and found it pure and clear.

59. From the reservoir 1,368 yards of 6-inch iron main conduct the water down the town. Besides, there are laid, of iron mains, 5-inch, 357 yards; 4-inch, 440 yards; 3-inch, 3,665 yards; 2½-inch, 286 yards; and 2-inch, 344 yards; being a total of 6,460 yards, or rather above one-fifth of the whole streets of the town. Upon these there are 49 fire-plugs, or, over the whole length, one at every 131 yards.

60. Besides the above, the Company have laid of court or yard pipes, 2 and 2½ inch, almost all of lead, 2,389 yards; attached to which are 45 taps or cocks, by which the water is delivered to the courts, and supplies about 286 houses. Service-pipes are laid into 519 houses. About 450 cottages are in the same way supplied by stand-pipes in the public streets. Of the 5,000 houses in the borough, the Company calculate that they supply about 1,255, or one-fifth of the whole population.

61. The Company profess to lay on the water at least eight hours daily; but while this was admitted in many courts to be the case, in several the people spoke of the water as only available for about two hours daily.

62. It will be obvious, from the facts stated above, that this water supply must be insufficient for the whole town. Taking the population at 30,000, and the daily consumption at 15 gallons per head, the contents of the reservoir will last four days. If to this be added the feed from the upper reservoir, the gross capacity of the two, or 14,750,000, will yield a supply for 33 days, whereas nothing under 100 days' storage can be considered as safe, The supply, therefore, is seriously deficient in quantity.

63. It has been already shown that there is ground built upon, and likely to be built upon, in Scholes quite out of the reach of the water from the present reservoir; and at the populous district of the Wiend the pressure is only 12 feet, and at the market-place lamp is only 30 feet. These heights are exclusive of friction, and suppose the reservoir to be always full: and it is evident that the working pressure with a six-inch main of 1,000 yards in length would not supply suddenly and for a continued period a sufficient quantity of water to extinguish a serious fire. In this opinion I find myself supported by some observations recently made by Mr. Corbett upon experiments by the Water Company and Water Committee with fire-engines in the town. The pressure is certainly insufficient. I do not

think that there can be two instructed opinions upon the subject.

64. The Company propose to lay their main, of a larger dimension, up to the new reservoir, which is said to contain 13,300,000 gallons, and to be 28 feet above the reservoir now in chief use, This would give, upon the two summits of Scholes and the Wiend, pressures of 9 feet and 16 feet only; and the quantity of water stored, supposing the daily supply to be 15 gallons per head, would be only equal to 30 days, a period to which the existing flow of the feeding culverts does not justify the town in trusting. The additional storage of the lower reservoir is trifling; but of course, if credit is taken for pressure due to the upper, the lower reservoir must be abandoned, unless a second set of mains be in use. I am, for the reasons stated above, decidedly of opinion that the present supply, as well as that proposed to be given direct from the new reservoir, is insufficient both in quantity and pressure for the constant supply of the whole town of Wigan.

65. It is not necessary that I should enter minutely into the financial affairs of the Company. Their charges are extremely moderate, especially considering the character of their powers and their long standing. They charge, either for a tap in the house or for access to a tap in the yard, 5*s*. per annum per house for the cottage class, and for other houses at a rate for the most part under 1*s*. in the pound on the rental. Their gross income is 832*l*., which is wholly expended in management, payment of debts, and improvements upon the works. No dividend has been paid for the last five or six years.

66. The causes of the small demand for this Company's water are not difficult to discover. In the first place, the charge made by the plumbers for laying on house-pipes was until recently very heavy. The manager, Mr. Barnes, in consequence took this matter in hand for the Company, and reduced the cost one-half; so that now 9*s*. 6*d*. is the average cost at which a pipe and tap can be laid into a cottage Even this, however, the landlords will seldom pay; and unless corresponding house drainage be supplied the benefit is questionable. Also, however great the convenience of a supply within each house, for the mere right to fetch water from a tap outside, 5*s*. 6*d*. is a charge that the poor, when within reach of a free well, do not care to pay. These two causes, the cost of laying on the pipes and the cost of the water as compared with the convenience when not laid on, and in many cases some check in the flow of water, no doubt operate to prevent the Water Company's water from being generally taken.

67. It is essential to the thorough carrying out of these sanitary measures that the poor should not have to step out of their houses for water, still less that they should have to wait their turn at a public tap. In Great George-street the average

number of persons thus waiting, in the morning, round one stand cock is about 60. If the water be not obtainable without trouble, and at a charge quite within the reach of all, a material check will be placed upon the cleanliness of the poor.

68. The present system of one tap to several houses, for the right to go to which the Company charge 5*s.* per annum, and the landlords charge commonly 6*s.* 6*d.*, is too high for the accommodation afforded. The question is not what the Water Company have spent upon their works or in various ways, but what, with high ground at hand and great natural advantages, the water ought to be delivered at. The natural capabilities of these works for the proper supply of Wigan will be considered among the remedial measures in another part of this Report.

69. HIGHWAYS AND PAVING.—The main streets are in part pitched and in part Macadamized, with flagged footways. The bye streets are some of them pitched, as are a few of the best of the courts, though very badly.

70. A large proportion of the bye streets, under which name are included some of considerable size, as Great George-street, though having paved footways, are utterly without any made road surface at all, and the ground being clay, they are in all weathers in a very bad condition, and in wet weather scarcely passable for vehicles. This, however, though a serious nuisance, is a less evil than the state of the courts, but few of which have other than the ordinary surface of the ground, in many cases sodden with the refuse thrown upon and the rain-water flowing over it. This state of the surface is the more to be regretted, since many of the courts are airy and enclose considerable spaces, and would, if paved and drained, cease to be unhealthy or comfortless places.

71. GAS.—Wigan is lighted with gas by a Company, incorporated by Act 15th May, 1822. There are 233 public lamps, found, maintained, lighted, and extinguished by the Gas Company. They are lighted for nine months in the year, or for 3,600 hours, and are estimated each to consume in that period 12,500 cubic feet of gas. These lamps are charged at 62*s.* per annum each.

72. The Company supply 650 private lights at a rate of 6*s.* per 1,000 cubic feet, and about 12 mills, consuming from 1,000,000 to 2,000,000 of cubic feet, charged at 5*s.* per 1,000 cubic feet. The total make in 1848 was about 12,000,000 cubic feet. Cannel-coal may be delivered at the works for 10*s.* per ton.

73. The prices charged, considering the price of coal, its excellent quality, and the gross consumption of gas, seem high. Mr. Lancaster, of the Ince Hall Coal and Cannel Works, has forwarded to me a statement that he is about to offer to supply gas at the gasholders for about 2*s.* per 1,000 cubic feet.

74. I received numerous complaints, especially from the lower classes, of the insufficiency of the lights provided; and I satisfied myself by visiting parts of the town at night that these representations were strictly true. In a town like Wigan, in which the amount of drunkenness and street riot, especially in Scholes ward, is considerable, darkness becomes a very serious evil.

75. VENTILATION.—The houses near the centre of the town and about the church are crowded together in a very objectionable degree, and here one or two new lines of street are much needed. In other and especially the newer parts of the town the houses, though sometimes built back to back, are placed in rows at a proper distance apart, and only need proper paving, draining, and water supply to benefit by the fresh air which blows in among them.

76. PUBLIC NUISANCES.—The public nuisances are chiefly the slaughter-houses and the low lodging-houses. There are no less than 27 slaughter-houses in the town. I visited several of these, and found them in an objectionable state, and very ill supplied with water. Six are reported as public nuisances in an especial degree, and several are in confined and crowded quarters of the town.

77. The low lodging-houses are very numerous, and their inmates, chiefly Irish, are apt to be very disorderly: 17 of these places are situated in localities recognised as seats of fever. From the chief constable's return it appears that there are altogether 21 houses, containing 59 rooms, of which about 40 are bed-rooms, and contain 128 beds.

78. A fish-market is held daily in the public market-place. This is much complained of. The fish-stalls and the persons buying at them block up the way; and it is stated that the quality of the fish sold is very often offensive to passers-by.

79. A market for cattle and sheep is held weekly in the town. The animals occupy the foot pavement in a leading thoroughfare in front of the post office, which is also the shop of a respectable stationer and bookseller. The market is unquestionably an injury to his business.

80. The want of proper paving in the bye roads and courts of the town is a very serious public nuisance, as is the want of a sufficient number of gas-lights.

81. Connected with many of the mills are reservoirs of foul condensing water, sometimes sewer water. There are two in Miry-lane, and one in Scholes, and several others. The steam rising from the dirty heated water is particularly offensive.

82. SUBURBAN, SURFACE AND DEEP DRAINAGE.—The disposition of the ground about Wigan is scarcely such as to allow of

any considerable accumulation of stagnant water. Along the course of the Douglas, within the town, various narrow strips of land are occasionally overflowed; and near Scholes Bridge, where a part of the low land is built upon, the houses are damp. Lower down the stream the impediment of the canal occasionally floods a small field on the left bank just above it. Below the canal the river winds through a tract of flat land, part of which seems to possess great natural fertility, but which is undrained, and generally very ill-farmed. There is no common land in the parish.

83. POLICE.—There are nine policemen in the borough, under the chief constable. It appears that no regular borough rate is levied, but that the expenses are charged upon the poor-rate to the extent, in 1848, of 2,512*l.*

84. There are only three fire-engines, one large and two of smaller size, in charge of the police; but I cannot learn that it is the custom to exercise these, or to prepare the persons retained as firemen for the discharge of their duties when called upon.

85. MARKETS.—There is no market-house. The public market is held weekly in the market-place and Standish-gate, and, with the fish-market already mentioned, ought to be removed into a proper covered market-house.

86. PUBLIC PARKS.—There is no space whatever open for the recreation of the middle and poorer classes, and the want of such a space is much felt and complained of. The natural and best position for the purpose seems to be a tract of land extending from Patrick's-row to the Rectory, including the "Folly-fields."

87. There are no baths or washhouses in the town. These should be at once provided. The existing Water Company is both willing and able to supply the water, and the condensation water of any one of the numerous steam engines at work in the town might be economically employed to warm it by means of heating pipes.

88. BURIAL GROUNDS.—Wigan is very badly provided in this respect. I learn from the vestry clerk that the area of the churchyard, exclusive of the church, is 7,170 superficial yards, and that the average of burials during the last seven years has been 595¼, and of the last two years 711½. The maximum of burials in any one year was 730 in the year 1847.

89. I have applied the co-efficients given in the "Interment in Towns Report, 1843," page 129, and derived from the Wirtemberg experience, to the case of Wigan, taking the average burials of the last three years. The time allowed for the decay of the

corpses,—adults, 10 years; youths, 8 years; infants, 7 years, I believe to be much too short for this country; but even with this advantage, I find that the requisite area is 223,000 superficial feet, whereas the actual area is 64,500 feet, or about one-third of what is required. The present state of the churchyard is disgraceful, nor is the rebuilding of the church and the raising of a part of the churchyard a sufficient excuse for the disrespect paid to the remains of the dead and the feelings of the living. During my visit a pile of broken-up coffins stood on one side, and the surface was scattered with bones. It was very evident that much of the disorder was of a permanent character, and due to the want of proper space for burials. The churchyard is surrounded on three sides by a low and dense population. I found a great indisposition to give evidence upon this point, but loud general complaints of the want of cemetery, in the necessity for which I fully concur.

90. The following statement which, since the close of the inquiry, I have received from the Rev. B. Powell, incumbent of St. George's church, and one of the patrons of the Health Association, shows the opinion of a resident clergyman on this subject:—

"I fear you have been expecting to hear from me on the subject of our churchyard, the old part of which is so improperly full that I am told that boys playing therein have struck their feet through coffin-lids. In fact, some are interred so near the surface that there is an effluvium sensibly felt, in summer time especially.

"You would observe that in what is called the 'New Burial Ground,' there remain only a few yards unoccupied. There are springs under the ground, but what the effect of filtering may be it is not for me to say, the water from the wells supplied therefrom may be rich, but one thing is certain, that the town is unhealthy, and it appears to me idle to talk of improving the sanatory condition of the town, and to allow the parish churchyard to be used for more interments. The present state is not only unhealthy but disgusting, and the moral effect is bad. The necessity of another burial-place must have forced itself on your own observation. In a house adjoining the 'New Burial Ground,' I visited a sick person and felt so deeply convinced that the health was destroyed by the effluvia, that I recommended a change of residence, which took place, and the individual is now in robust health. The butchers' meat becomes green near a thin wall adjoining the yard from the impurity of the air.

"The general opinion is, that a cemetery out of the town is absolutely necessary for the preservation of health. Without this it is useless to think of improving the sanatory condition of the borough. The mitigation of the gross indecency of our churchyard should be attempted without any unnecessary delay. This public nuisance in the centre of a large town should be removed at any cost and at any personal inconvenience."

91. Boundaries.—The boundary of the borough appears to be the proper administrative area.

92. Local Acts.—The Acts granted to private Companies for local purposes are two; the Water Companies' Act, 4 Geo. III., 1764, and the Gas Act, 3 Geo. IV., 1822.

REMEDIES.

93. Water Supply.—Taking the population of Wigan at 30,000, and the daily consumption of each person at 4 cubic feet, or 25 gallons per head, the daily consumption of the town will be 120,000 cubic feet. Nor is this allowance too large, since there are steam-engines to the extent of 1,086 horse-power in the town, some of which will probably take their boiler water from the works. There are also the Stations of two railways in the town, and a third line of railway is about to join one of the former. The town also contains a fair proportion of brewing publicans, hotel-keepers and inn-keepers, and of other great consumers of water.

94. Supposing the above supply to be required, and a storage of 100 days to be desirable, a reservoir of, say, 15 feet mean depth, and about 19 acres of surface would be necessary.

95. There are three principal sources from whence it might be practicable to obtain this supply, and which in this preliminary inquiry I can do little more than point out.

96. The one is the high rocky eminence between Up-Holland and Billinge, at three to four miles west of the town, and separated from it by the Valley of the Douglas. The water supply here appears to be plentiful; with its quality I am unacquainted, but the principal objection to its employment is the long extent of unproductive iron main, which would be required to convey this water across the valley, preserving its pressure, into Wigan.

97. This objection does not apply in the same degree to either of the two other sources, the high ground between the Douglas and the Croal entering into the township of Haigh, and the ridge extending from Wigan-lane to Standish village. From the former quarter the water could be led along the high land, so as to enter the town at Scholes, where the main would descend into the valley, and, rising, supply the old town of Wigan. By this plan the expensive iron main would be only needed over that part of the ground now built upon and productive.

98. The third or Standish source I have examined personally with some care. It appeared right to do so before expressing any opinion as to the capabilities of the existing water-works, the supply of which is drawn from this quarter. The ridge marked by the high road to Standish, and which divides the valley of the upper from that of the lower Douglas, rises gradually from the town end to Prospect-house, a place south-east of Standish village. From hence, a ridge extends south, skirting

the Hall domain to the colliery, and thus encloses the heads of a small valley. From this valley, and from the west flank of the ridge, an area of about 400 acres may be obtained, discharging at a level quite above all the requirements of Wigan, and with ground well suited for a sufficient and nearly natural reservoir. This area is not alone by any means sufficient for the supply of the requisite quantity of water. It contains, however, two brooks, one at least of which appears to be tolerably copious in all seasons, and brings down water of 10½° of hardness.

99. In a district which is partially, and will, ere long, be wholly undermined, it is, however, scarcely prudent to trust to other than surface water. If upon a careful survey, with sections, of this area, extending it both on the east and the west side of the ridge, carried as far as the Seven Stars Brook, north of Standish village, it should turn out that the sources in this quarter can safely be depended upon to supply a present population of 30,000, and a prospective one of 50,000, then, I think, this quarter in other respects the most economical; but if this be not so, recourse must probably be had to the high land behind Haigh. A careful examination, with levels, of these localities by a competent engineer, should be one of the first steps directed by the local Board. In my estimate, for present purposes, I have assumed that one or the other of these two last sources will be selected.

100. Sewers and Drains.—In arranging any plan for the future sewerage of Wigan, three points should be steadily borne in mind, one, that the whole of the sewage-matter must be combined upon a limited number of outfalls below the town; a second, that the outfalls should be as high as is consistent with good drainage; and, a third, that the channel of the Douglas must not be made use of as a sewer. The concentration of the matter upon but few points, and the elevation of these above the general surface of the valley, are necessary to allow of the economical distribution of the sewage as manure, and to convey it down by means of the Douglas would be to convert that stream into a nuisance in ordinary weather, and at other times to lose the sewage altogether by over dilution.

101. Bearing these points in mind, it appears to me that the future sewerage of the town may be arranged under six principal divisions. Of these the first will include the houses on either side of Wigan-lane and Standish-gate, as far as a point near the savings' bank, to which there is a good natural fall. From hence a sewer should be led along the lowest ground nearly in a direct line to the end of the tram-road and coal wharf in Hall-gate. This is not the natural valley, but will require an extra depth of cutting, which at one point, and for a short distance, will amount to about 11 feet. From the Hall-gate this sewer should

be continued along Frog-lane in the direction of the marshes north of the workhouse and the meadow farm.

102. The advantage of this general course is obvious; by it the sewage of a large portion of the town will be conveyed at once to the main outfall, instead of being led by the natural but circuitous route by Harrowgate and Wallgate. Distance will be saved, the fall much improved, and the low district will not be burthened with the sewage of the districts above it.

103. The second principal division is of a smaller extent; it includes the south side of Mill-gate, nearly to its west end. This will be drained by a small sewer along the hill side, taking the back drainage of the houses, and falling into the last-described sewer near the savings' bank. By this means the sewage also will be led by a direct course with a good fall into the main outlet.

104. A third division will contain the tract from the north side of Mill-gate, nearly to King-street, the Market-place, the Parish church, and the central portion of the town. This district will be drained down Hall-gate, at the bottom of which the sewer will fall into the main, near the coal wharf.

105. A fourth district will consist of the south end of Mill-gate, Chapel-lane, and the tract between King-street and the North Union Railway. This sewer should then be led across the railway into Wallgate, and thence along Great George-street towards the Frog-lane main sewer.

106. The drainage of Scholes will form a distinct division. From it the sewers will converge upon the Scholes Bridge, cross the river at or near that point, and be led round the southern margin of the town to join the last-named sewer in Wallgate.

107. The suburb of Wallgate, between the North Union Railway and the canal, will form a sixth division, the whole of which from Lower Chapel-lane and Milk-street will drain by Miry-lane towards the open fields to the north-east.

108. There remain a few houses on the eastern and south-eastern margin of Scholes which must be drained into the Clarington or Ince Valley, where their sewage may be beneficially employed upon the meadows near the junction of that brook with the Douglas.

109. By the above plan a good drainage may be secured to every quarter of the town. The outfalls will be confined to two, led to nearly the same quarter below, and at a proper distance from the town; the one, however, being nearly 20 feet above the other. By this means, supposing no extraordinary power to be employed, the lower sewage may be conveniently distributed upon the low lands near the river, while the upper, led along the higher grounds, will command a range of somewhat wider extent.

110. SEWAGE DISTRIBUTION.—Wigan is in all respects admirably suited for the employment of sewage for agricultural purposes. The valley of the Douglas, near the town, contains a considerable tract of low land, capable, if properly tile-drained and irrigated with the fluid manure, of being rendered productive. Lower down, seven to ten miles below the town, the valley expands, and the river flows across the broad expanse of the Hesketh Moors, forming the southern shore of the estuary of the Ribble. Between Preston and Wigan there seems no reason why a very large portion of this tract of land should not be rendered in a very short time highly productive.

111. The fall of the Douglas for a dozen miles below Wigan is very considerable—quite sufficient to allow of the sewage-main being led along the edge of the higher land, at a less fall, so as to give head or pressure enough to irrigate a great extent of low land. It is indeed possible that to carry this system out effectually it may be desirable to employ a steam-engine, but it will be sufficient for present purposes to state the practicability of employing the sewage at the natural fall, especially as the arrangements with this view, so far as they go, are also those suited for the employment of steam-lifting power.

112. The three chief evils under which Wigan is now suffering, and for which the application of the Public Health Act will afford complete relief, are, want of water, want of proper house and street drainage, and the absence of proper pavement in the courts.

113. Under the proposed arrangements, a water-pipe and tap will be led to every house, and the water will be always laid on, unlimited in quantity, filtered, and fitted either for washing or drinking. The pressure will be "natural," and will be sufficient to command every roof in the town.

114. Below each water-tap will be laid a sink, and from it a tube-drain direct into the main or branch drain, so that all fluid matters discharged into the sink will at once be removed. These sinks will be grated and trapped.

115. In each court will be a tube-drain and sink. The cesspools will be at once filled up and forbidden. A proper number of privies will be constructed, and into each of them will be laid a water supply, and from each a tube-drain. A proper dust-bin will be built for every five houses, with a funnel aperture, and a dust-bucket below. Each court will have its surface properly levelled, and either paved, pitched, or covered with a mixture of gas-tar and ashes.

116. The cleansing of these courts and the removal of the dust-buckets will be let to a contractor, bound under penalties to keep everything clear. Hence there will be no excuse for accumulation of dirt, now almost unavoidable.

117. CHARGES.—Although the data afforded were not such as to enable me to lay before the Board a regular formal estimate of the various items of expenditure and income, yet I believe I have very secure grounds for a general conclusion as to the total expense of the works, and the weight in which that expense will fall upon the rate-payers and house-owners in the town. The main sewerage, the water-mains, and the charge for laying on the water and maintaining the water-pipes and drains in repair, will be included in the general rates for water and sewerage; the former levied upon houses only; the latter upon land also, in the proportion of one-fourth, and the whole need not exceed a rate of 9*d.* in the pound, levied for 30 years. The Local Board will also, if required, lay the service and house drains: but these, and the cost of proper paving, of dust-bins, and of decent privies, executed either by the town contractor, or to the satisfaction of the local Board, may be charged to the house-owner, not as a gross sum, but, if he so pleases, and the Central Board approve, as an annual rent charge upon the property for 30 years. Thus, supposing a court or bye street of 50 houses to be paved, drained, supplied with water, 10 dust-bins set up, and as many water-closets; and suppose the cost of all these improvements to be 200*l.*, or 4*l.* per house; instead of having to pay down 4*l.* per house, the owner will be charged to the amount of a penny per week per house, over 30 years, as a "private improvement rate." The rate for main sewage and water supply will be in addition to this; and in the class of houses supposed will be 1*d.* per week on each house; making a total of 2*d.* per week, or, if paid annually, with interest at 5 per cent., 9*s.* 8*d.* upon each house, for a series of improvements, that it is rigidly demonstrable will diminish sickness and pauperism, promote cleanliness and domestic comfort, and tend to secure a better tenantry, and to raise the value of the property.

118. GENERAL OBSERVATIONS.—Wigan, though at present in a very bad state, and suffering under an enormous poor's-rate, and an unusually heavy mortality, is not without certain very considerable, and in some respects almost peculiar advantages. Not only is the greater part of the town high, but by far the greater number of the lowest class of houses are substantially built, with raised floors, in courts tolerably wide, and frequently open to the fields. It is true that from the want of paving and draining, and the foul ditches in the fields, ventilation at present is often felt to be an evil; but when these matters are remedied, it will be found that in all substantial points these courts will leave little to be desired. There is less than usual of that assemblage of miserably built houses in crowded courts, which renders a thorough sanitary reform so difficult in many of the

great cities and agricultural towns. The houses built close back to back are alone almost hopeless cases.

119. Dr. Stuart's letter, already cited, states what I find to be the general opinion with regard to the application of the Nuisances Removal Act. The amelioration produced by it is less than might have been expected; the nuisances in some localities are only partially abated; in others quite untouched. The Town Council and Health Committee are here well aware that that Act is quite inadequate to secure any permanent amendment, and their opinion forms a marked contrast to the views somewhat factiously advanced on this head in some other places.

120. The conversion of the sewage of the town into a source of profit, will have the contingent and not inconsiderable advantage of preserving the Douglas in a state of purity. This stream in its passage through the town, ponded up by its numerous weirs, is much exposed to sight and smell, and at present ranks as one of the nuisances of the place. When its waters are freed from the sewage they will flow down in a state of tolerable purity, and the various pools and weirs will become rather ornamental than otherwise. This water also is pumped up largely for condensing purposes by the mills and factories; and at present these, by heating the putrid water, produce a portion of the bad smells already noticed, and complained of in their neighbourhoods. This source of nuisance will thus be removed.

121. The town of Wigan has recently witnessed a considerable fire, upon which a strong opinion has been expressed that the water supply was insufficient; the Water Company, on the other hand, throwing the blame upon the town officers. This is one of the many evils of divided responsibility. Had the water-works and the engines been under the control of one body, no dispute could have arisen. Since the completion of this inquiry, a second fire has broken out in the central part of the town. I understand that on this occasion, the supply of water was quite insufficient.

122. There is another point not unimportant in other cases, but which demands peculiar attention here. The lands from whence the water will probably be obtained, as well as those over which the supply of sewage manure will be distributed, are at present wholly undrained, and in common with a formidable proportion of north country land, yield large crops of rushes. To secure a copious, rapid, and pure supply of surface-water from these lands, above the town; and to enable those below it to profit in any considerable degree by the fluid manure, it is absolutely essential that they should be efficiently tile-drained—a process which would very soon pay itself. To secure this end, it seems

desirable that the local Board should have some power of entering into engagements with the landowners, of laying down the drains, and of receiving a certain proportion of the augmented value of the land.

123. In the case of the water supply, in which it is not improbable that the water may have to be led through various lands in clay pipes, it seems also highly expedient that there should be, under proper restrictions, compulsory powers to carry the pipe across private property; and it is an additional reason for these powers being granted, that they are needed, not for the benefit of a private Company, but for the daily health and comfort of the inhabitants of the town.

124. The administration of the Act, when applied, in the case of Wigan, will fall into the hands of the Town Council of the borough, and the duties will be of a character with which, to judge from the condition of the town, that body is by no means familiar. I need scarcely observe, that at least during the arrangements for and the execution of the necessary works (whatever may be the case when they are only to be maintained), it will be essential to the economy and success of the undertaking, that the local authorities should make themselves well acquainted with the improvements in water-supply and drainage, and the various economies now coming into operation elsewhere, especially in the manufacture and use of clay piping, improved water-closets, sinks, and the like.

125. Conclusions.—Having examined the borough of Wigan, it appears to me,—

1. That an excessive rate of mortality prevails there, as compared even with other towns; that this mortality is greatest in certain districts, and that it is in some considerable measure produced by epidemics, endemics, and contagious diseases.

2. That the whole town, and more particularly the districts in which the mortality is heaviest, is ill supplied with water, imperfectly drained, unpaved, badly lighted, very ill provided with privies, and, from the presence of pigstyes, dung-heaps, and open cesspools, in a very dirty condition.

3. That although other causes, scarcely separable from poverty or residence in towns, may, and no doubt do, affect the mortality; yet that a large, probably the largest proportion of this mortality, and of the sickness of which it is the indication, are due to the causes above enumerated, and are to be prevented by their removal.

4. That at this time, from these causes, heavy expenses are incurred: by the community, in in-door and out-of-door relief, in medicines, in the support of widows and orphans, and in various police expenses, due to want of proper lighting and to the extension of drunkenness: by individuals, in the purchase of

water, (either in labour or money.) in the use of an unusual quantity of soap and soda when soft water is not to be had, in loss of profitable labour by sickness, in the expenses of burials, in the depreciation of house property, and in the almost valid excuse which the state of their dwellings affords the poor for frequenting the public-houses, and there drinking to excess; nor is it unreasonable to attribute the peculiar prevalence of drunkenness complained of in Wigan to the causes already mentioned.

5. That remedies, complete, efficient, and calculated to remove these evils, and to save a considerable portion of these expenses, public and private, may be applied at a cost certainly within a general rate of 9*d.* in the pound, and special private rates upon owners of cottage property varying from a farthing to a halfpenny per house per week, (on interest being at 5 per cent.) or 1*s.* 5*d.* to 2*s.* 10*d.* per annum.

6. That these calculations are wholly exclusive of any revenue to be derived from the employment of the sewage for agricultural purposes, but that the circumstances of the town and of the lands below it are such as to allow of this sewage being applied with great economy and considerable effect.

I have the honour to be,
My Lords and Gentlemen,
Your obedient servant,
GEO. T. CLARK.

The General Board of Health,
&c. &c. &c.

NOTIFICATION.

THE General Board of Health hereby give notice, in terms of section 9th of the Public Health Act, that on or before the 18th August, written statements may be forwarded to the Board with respect to any matter contained in or omitted from the accompanying Report on the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Borough of WIGAN, or with respect to any amendment to be proposed therein.

By order of the Board,
HENRY AUSTIN, *Secretary.*

Gwydyr House, Whitehall,
14*th May*, 1849.

London: Printed by WILLIAM CLOWES and SONS, Stamford Street,
For Her Majesty's Stationery Office.