

APPENDIX.

---

PART I.

## REPORTS OF THE COMMISSIONERS.

	PAGE
REPORT by R. A. SLANEY, Esq., on the State of Birmingham and other Towns . . . . .	1 to 20
Questions for Circulation in Populous Towns and Districts . . . . .	21
Replies to the above Questions :—	
Birmingham—by the Mayor and a Committee of the Inhabitants . . . . .	23
Wolverhampton—by T. Hill, Esq. and a Committee of the Inhabitants . . . . .	29
Wednesbury—by Rev. J. Clarkson and a Committee of the Inhabitants . . . . .	30
Walsall—by a Committee of the Inhabitants . . . . .	31
Bilston—by a Committee of the Inhabitants . . . . .	33
Dudley—by a Committee of the Inhabitants . . . . .	36
West Bromwich—by Mr. Sweeting, Inspector of Police . . . . .	39
Kidderminster—by the Town Clerk and a Committee of the Inhabitants . . . . .	40
Stourbridge—by Mr. Ackroyd . . . . .	41
Burslem—by Mr. D. Hall, Chief Constable, and a Committee of the Inhabitants . . . . .	42
Hanley and Shelton—by a Committee of the Inhabitants . . . . .	44
Longton—by the Chief Bailiff and a Committee of the Inhabitants . . . . .	46
Newcastle-under-Lyme—by G. H. Hall, Esq., Mayor, and a Committee of the Inhabitants . . . . .	47
Chester—by the Mayor and a Committee of the Inhabitants . . . . .	49
Shrewsbury—by the Mayor and a Committee of the Inhabitants . . . . .	52
Wrexham—by Sir J. Lloyd and a Committee of the Inhabitants . . . . .	54
Gloucester—by A. H. Jenkins, Esq., Mayor, and a Committee of the Inhabitants . . . . .	56
REPORT by Sir HENRY T. DE LA BECHE, on the Sanatory Condition of Bristol, (in conjunction with Dr. LYON PLAYFAIR) . . . . .	61
Dr. WILLIAM KAY's Report on the Sanatory Condition of Clifton . . . . .	76
Dr. WILLIAM KAY's Report on the Sanatory Condition of Bristol . . . . .	91
By Sir HENRY T. DE LA BECHE, on the Sanatory Condition of the City of Bath . . . . .	107
on the Sanatory Condition of the Town of Frome, Somerset . . . . .	121
on the Sanatory Condition of the Town of Swansea . . . . .	129
on the Sanatory Condition of the Town of Merthyr Tydvil . . . . .	142
on the Sanatory Condition of the Town of Brecon . . . . .	151

## APPENDIX.

## REPORT ON THE STATE OF BIRMINGHAM AND OTHER TOWNS,\*

By ROBERT A. SLANEY, Esq.,

*One of the Commissioners for inquiring into the Causes of Disease, and the best means of promoting the Public Health, among the Inhabitants of Large Towns and Populous Districts.*

APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

In drawing up a Report on the state of Birmingham and other towns inspected, it may be useful to state—

1. The course of proceeding.
2. The general result.
3. Any general observations connected with the subject.

The usual course of proceeding adopted was, for the Commissioner, some time before his visit to these towns, to communicate in writing with the Mayor, or other principal authority, giving notice of his intention, explaining the objects of the Commission, (a copy of which, with the printed questions† was enclosed,) and requesting that a committee of the most respectable and intelligent inhabitants might be formed, for the purpose of giving information and assistance.

Care was taken to state, that as the objects of the Commission were for the general good, all party feeling, whether of a public or local nature, should, as far as possible, be laid aside in the selection of the committee and the prosecution of the inquiry.

Sometimes a communication of a like nature as to the objects of the inquiry was made through private individuals of intelligence and influence, who happened to reside in the town and district, and whose aid was requested in forming such a committee.

In all cases these requests were met in a kind and obliging manner, and the most ready assistance was afforded by all parties.

It is a pleasure to be able to state, that the most distinguished men belonging to the medical profession were always among the first to volunteer their gratuitous and valuable attendance.

A day being fixed for the committee to assemble, either in a public or private meeting, as had before been determined, the Commissioner, who had before visited all the worst parts of the town or district, and made many inquiries, attended the meeting.

The Commission was then read, its principal objects explained, and any information in his power afforded by the Commissioner, who endeavoured to point out the importance of the subject to all classes, and to show how much the public health, moral habits, and happiness of the poorer classes would be improved by attention to sanatory regulations and cleanliness in and about their dwellings; and how true an economy it would be eventually to promote all such public improvements as may conduce to this end.

The state of the town or district was then entered upon, and any information or suggestion worth attention was noted down.

The printed questions agreed to by the Commission were then read and explained, and left with the local committee, to be replied to after due inquiry. The answers sent in sometimes led to additional investigation, and were often compared with the notes which had been made upon the spot.

Although the principal inhabitants and local authorities gave every facility and aid to the investigation of the Commissioner, yet it must be observed that the replies to the questions were frequently of too favourable a nature, arising sometimes perhaps from a natural desire in the parties answering to represent things in the best light, and to avoid any imputation of neglect, and sometimes from not having had their attention led to the existence of evils close to them, which did not immediately affect themselves.

The towns of which it is proposed to give a short Report may be divided into three classes :—

- 1st. Birmingham, and the other towns in its vicinity, in which the people are chiefly engaged in the manufacture of metals, or in mining.
- 2d. The towns in Staffordshire, called the Potteries, with Newcastle-under-Lyme, near them.
- 3d. Several isolated county towns, having no common character, as Chester, Shrewsbury, Wrexham, and Gloucester.

Birmingham, containing 189,000 inhabitants, is perhaps one of the most healthy of our large towns. It possesses many natural advantages—as a good site, with adequate fall for

\* See list of towns, page 20.

† See copy of the queries, page 21.

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.  
Birmingham.

drainage; a dry and porous subsoil, and water generally of good quality. A good and cheap supply of coal is found in the vicinity.

It would be useless to give any long detail of the state of the town, as it has been so recently and, in general, so accurately described in "The Report on the State of the Public Health in the Borough of Birmingham, by a Committee of Physicians and Surgeons." I am able to bear my willing testimony to the ability and industry manifested in that Report; I have been able to verify most of its statements respecting the neglected condition of the houses of the poorer classes; and if I sometimes differ from its opinions or conclusions, it is with deference and respect.

The principal streets of Birmingham are generally wide, well made, and with sufficient fall; in the parish of Birmingham, the drains in the main streets are well laid, and tolerably attended to. The houses of the richer and middle classes appear generally dry and airy, and with convenient buildings appendant to them. The supply of water for these classes is good, and the drainage and cleansing is little complained of, though susceptible of considerable improvement.

The state of the habitations of the working and poorer classes is often widely different. Their houses vary indeed greatly in comfort and convenience, as in size and situation, and the excellent custom of each family having a house to themselves appears generally to prevail. I am obliged, however reluctantly, to say, that many, if not most of the narrow streets, alleys, and courts in which their habitations are situated, are much neglected as regards drainage, paving, and cleansing, and though wells are found in most of them, they are frequently out of order, or the water indifferent.

The courts in the parish of Birmingham alone are above 2000 in number, and their inhabitants exceed 50,000; besides many in the adjacent parish of Aston. "The ingress to most of the courts is, by a narrow entry, from three to four feet in width. This is generally arched and built over, so as to form part of the houses fronting the street. The ventilation of the court is by this narrow and covered state of the entry very much impeded." The number of houses in each court varies from four or five to 20 or 30. At the end, or on one side, there is often a washhouse, sometimes an ash-pit, and always one or two privies, or sets of privies, close to which there is often one or more pig-sties,\* tubs full of hog-wash, and heaps of offensive manure. In the midst of the court stands the pump of supply for the inhabitants. These courts are frequently unpaved, and the open channel for dirty water ill-defined, so that stagnant puddles in wet weather are the consequence.†

In many, the overflows from the privy vaults, pigsties, and dirt heaps, trickling down the court, pass close to the well, and no doubt often enter it. Many of these courts are unpaved. There appears to be no system of sweeping or cleansing of any kind, except what is from time to time done by the inhabitants themselves. The smaller streets are also much neglected in this respect; and this remark applies to every town visited.

In Birmingham, and many of the towns round it, the privies belonging to houses of the working classes, and many others, are constructed in almost all cases with open vaults for the night-soil at the back or side of the building. These are not covered over with either stone, wood, or earth, but exhale continually a most offensive stench. They are sometimes fenced round with a low wall, but often left quite open. In either case, ashes, stalks of vegetables, and other refuse, are thrown in, and the mass is left to taint the air from month to month. In rainy weather this receptacle of filth often overflows, and traces its fetid course through the open channel of the court or alley, and along the pathway entrance, till it reaches the street.

The Report of the former Committee on the State of Birmingham said with great truth, "There appears in general to be no drainage for the privies by which their more fluid contents might pass away;" and adds, "the privies and ash-pits in the courts in our opinion require regular inspection and cleansing."‡

The neglect of all public regulations for draining, cleansing, or paving the courts and alleys in which the poorer classes reside, prevails in all the towns and districts visited. In a few towns, as Shrewsbury and Newcastle-under-Lyme, there are bye-laws or regulations to prevent nuisances and ensure cleanliness, but in none of them are these regulations enforced.

I have never found any powers given, or any rules laid down, for a periodical inspection or report on the state of these crowded districts by the authorities of the place within which they are situated. Even if at the instance of any benevolent persons such

\* A return of the number of pigsties and pigs kept in the borough, and accessible to the police, September, 6, 1843, was as follows:—

	Sties.	Pigs.
In Birmingham parish . . . .	1,681	2,366
In Edgbaston parish . . . .	54	165
In Aston within the Borough . . . .	624	844
Total . . . .	2,359	3,375

From the Registrar, Mr. Knight.

The number of Irish in Birmingham by the census of 1841, was 4,683.—*Population Return*.  
† "Courts and alleys are not regularly cleansed by appointed scavengers, &c., such courts and alleys are frequently found in a very filthy state."—*Reply of Local Committee*.  
‡ Report, p. 4.

report were made, it does not appear that the municipal bodies, the constituted authorities, or parochial Boards or Unions, have such powers as would enable them to carry out the improvements that are necessary for the health and comfort of the poorer classes; and in none of the towns visited is there any system of contracts with scavengers or nightmen to clear away at proper stated periods all refuse, filth, and night-soil from the courts and small streets\* inhabited by the poorer classes, though some such provision is urgently required for the health of all the community, and for preserving decent self-respect among the mass of the people.

"It is a common custom throughout the town" (says the report before quoted) "to empty the contents of the ash-pits and privies in the night into the streets, from which they are carted away early the following morning; but some filth always remains after this proceeding."† This is the mode in which this disagreeable duty is performed where the police regulations are best observed; but in many of the other towns complaints are made of the removal of these matters during the day, and in a manner to create great annoyance to the inhabitants, and great disgust to passengers.‡

It has been stated that in no one of the towns visited is the filth and ashes from these populous courts, alleys, and streets cleared away by contract (as in London), or under any general authority to enforce its due performance, which would be the cheapest as well as the most effectual way. The present method is for each inhabitant to make his separate bargain with some farmer, or person who sells to the farmer, to clear and carry away the filth and refuse belonging to him. In some cases (chiefly the larger towns) a trifle is given to the party taking the manure away; in others, and for the most part, something is paid for this manure by the countryman, or filth collector, or nightman.§ By this method, or rather want of method, it would be seen that these places are not cleared at any regular periods, or by the same parties, or by persons furnished with proper carts with covered flaps, barrows, or other necessary implements. A whole court or alley is not cleaned at the same time, much less all the courts on the same side of the street; whereas, under proper regulations, one dirty day and one journey of the waggon might often do for all; and thus the business be done better and cheaper.¶ At present the old adage is verified to the letter, "What is done with trouble is never done at all;" consequently in most of these crowded courts no cleansing takes place, and the privies, ash-holes, and manure heaps are not emptied or removed till they have long been full, or overflowing, and a nuisance for some time to the vicinity. It is the interest of the party purchasing to get as much as possible, with as little trouble as he can, for his money; he therefore constantly puts off coming for his bargain from day to day; whilst the neighbours and lamenting housewives vainly complain of his delay.

In some cases the landlord of a small row of houses retains the contents of the place of refuse and ash-hole, &c., for himself; if so, the matter is not mended, as it is never cleared till choked up, and then in the same way before described. I believe the consequences of this neglect (which prevails generally in all the towns visited) to be most injurious to the health of the people—to be inimical to cleanliness, decency, and habits of self-respect, so beneficial to all classes. I feel assured that much discontent and many disputes hence arise; that many working men, finding their homes surrounded by nuisances, leave them for the public-house; and that to children brought up amid these scenes of neglect and dirt, it is extremely difficult, if not impossible, to teach customs of order and neatness, so essential to their improvement, and especially so to the female sex.¶

On visiting these neglected places, and remonstrating sometimes with the inhabitants on the dirt around their dwellings, I have been answered by their saying, "It is very true; and the smell in summer is enough to breed a fever; but what can we poor people do, who are only here for a time? there is no drain, and no convenience about, and the landlord will do nothing." Others again reply, "What's the use of my sweeping up or making clean, none of the others will, and it's no use my trying alone?"

In many of the neglected courts and obscure places in these populous towns there are collections of refuse, dung, and dirt brought in from the highways, and heaped up in some corner till sufficient for sale.\*\* There being no authority carried out to prevent this, one neighbour does not like to complain of another, and the offensive matter remains undisturbed. In some of these towns the contents of the common sewers are collected in stagnant reservoirs or mud-holes, in the midst of a crowded neighbourhood, to be sold as

\* In Edinburgh "where all the streets are cleansed every day, and the narrow closes several times a day, the total expense of the cleansing department is nearly 12,000*l.*, but the sale of manure yields, on the average of several years 10,000*l.* (or  $\frac{2}{3}$  of the whole cost.)"—*Mr. Alexander Ramsay's (Inspector of Cleansing, Edinburgh) letter to Dr. Playfair*.

† Report on Birmingham, p. 4.

‡ Wednesbury, Dudley, Salop, &c.

§ In one part of Kidderminster, Duncan's Buildings, the open privy was cleaned about twice a-year, and the contents sold each time for 5*s.* which was given to the women. There being there 10 houses this amounted to 6*d.* each. "In Bilston the necessities are cleared as the waggoner comes, without pay, order, or method, in the day time."—*MS. Note*.

¶ Night-soil is so removed by public scavengers at night in Edinburgh, vested by Act of Parliament as police properly. The Inspector of the Cleansing Department thus expresses himself on this head, "If there be any point which I should wish to impress upon strongly, it is this, If you allow private individuals to remove night-soil, it will never be regularly or efficiently performed."—*Letter from Mr. Alexander Ramsay to Dr. Playfair, Replies, &c.*

¶ We have the concurrent testimony of all the intelligent clergy and medical men in all the places visited to these points.

\*\* Gloucester, Shrewsbury, Chester, Potteries, Newcastle, Wolverhampton, Bilston, &c.

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.  
Birmingham.



## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.  
Birmingham.

manure;\* in others, the fluid contents are dammed up to irrigate meadows or gardens in the close vicinity of the town, exhaling a pestilential smell in hot weather.†

In none of the towns visited are there any regulations for securing the proper construction or ventilation of the narrow alleys, streets, and courts in which the poorer class reside. The entrance is constantly under a narrow archway, and the place is built up all round, so as to be little visited by the sun or air. The older buildings are generally the worst; but many new ones are lamentably crowded, and constructed without reference to the health or eventual convenience of the inmates.

One instance of this may be mentioned, viz.—That, owing to the entrances to the vast majority of the courts being much too narrow for a cart, all the rubbish, manure, night-soil, and ashes, must be wheeled out in barrows, or carried out in baskets by hand; and all the coal or other fuel, and all furniture, must be conveyed into the courts in the same way, causing thereby a great increase of trouble, delay, and expense, and attended with great additional annoyance to all inhabitants of the courts and passengers in the streets.

The construction of the privies, ash-pits, and other conveniences proper for the humbler class of houses in these populous places is often very defective, and frequently a disgrace to the community. Sometimes one necessary is public for 10 or 12 houses, and therefore neglected by all; often so placed as to be seen by all, almost always having the vault open to the air.‡ Many houses and whole rows of houses have no privies at all; and in some places the inhabitants, even of tolerable habitations in other respects, are reduced to the most disgusting expedients.

Medical men and all thinking persons will unite in opinion that such circumstances are most injurious to the health and well-being of the working classes, and most prejudicial to the moral habits and feelings of decency, especially among the young.

In general the drainage of Birmingham is good, but the narrow streets and courts are neglected, and several parts of the parish of Aston are without under-ground drains.§

Though the supply of water is generally good, yet complaints were frequently made in those parts inhabited by the humbler classes of the inadequacy of the supply and the indifference of the quality; the pumps being sometimes injured by surface-water soaking in, and frequently being out of repair, and neglected by the landlords who provide them.

The drainage of some parts of the town is much impeded by obstructions from mills on the river Lea, described in the Report before quoted.||

There is no public walk at Birmingham, and such is much wanted. The schools for the poorer classes are indifferently ventilated, and require improvement.

There is no place in Birmingham or the vicinity where the working-classes have permission to bathe; a matter much needed.

For farther details on these and other points of local information, I can refer to the Report before quoted, to my own Notes made on the spot, and to the Replies to the Questions circulated by the Commission, from which one or two extracts are given.¶

Query 4, as to obstructions to Drainage.—“The greatest obstruction is Duddeston mill, which backs up the water in the river for about a mile, and causes it to be stagnant: into this stagnant water the main drainage of the borough empties itself, and remains to ferment, presenting a pestiferous surface of white scum, from which a noxious effluvia is exhaled.”

“No regular plan is adopted for emptying necessaries, nor is there any summary power in any of the local Acts to enforce sanitary regulations; consequently many of the necessaries are frequently in a very offensive state.”

Reply to Query 9, by Mayor and Local Committee.

Reply to Query 19.—“It will be seen that the powers of the several Boards are extensive, but in many respects inadequate.”—*Vide also General Report on Sanatory Condition*, 8vo., 1842, p. 305.

After Birmingham, the towns of Wolverhampton, Walsal, Dudley, Bilston, Wednesbury, and West Bromwich, were visited and examined; in all the neglect adverted to, as existing respecting the habitations of the working classes in Birmingham, was found to

\* Case in Shrewsbury, Wrexham, and Burslem.

† This occurs at Newcastle-under-Lyme and Chester.

‡ With reference to this subject we find the following notes made on the spot, in different places:—

“Courts full of full privies, open, with sad stench.”—*Birmingham*.

“Courts with pigs, middens, and open privies, bad water.”—*Birmingham*.

“Open privies; water as green as a leek.”—*Birmingham*.

“Courts uncleansed; open privies.”—*Edgbaston-street and Dudley-street, Birmingham*.

“Choked up privies and dust-holes overflowing.”—*Wednesbury*.

“Filthy open privies and stagnant liquid filth.”—*Wednesbury*.

“Green stagnant stinking puddles, open privies, ample sources of fever.”—*Wild-court, Bilston*.

“Open privies, open drains under houses, stench dreadful, ‘Enough,’ said the women, ‘to bring the plague among poor folks.’”—*Birch’s-buildings, Bilston*.

“None of the houses in courts have under-ground drainage, very few any privies.”—*Wolverhampton*.

“Privies terrible.”—*Wolverhampton*.

And so, more or less, through all the towns visited, except Stourbridge.

§ The mortality per cent. in Birmingham, as given by the Registrar-General’s return for the years 1840—1842, appears to be 2·7, but the return of the registrar of the district, Mr. Knight, gives a mortality for 1841 and 1842 only, of about 2·5, including the General Hospital and Union house, but varying in different parishes.

¶ Communication from Captain Vetch, of the Royal Engineers, as to the obstructions to drainage, &c. in Birmingham.—Report on Sanatory State of Labouring Classes in 1842. Appendix, No. 5, p. 387.

¶ “As respects lighting and paving, the borough is under three distinct bodies of Commissioners, under local Acts of Parliament, and four distinct Boards of Surveyors, appointed under the provisions of the general Highway Act.”—*Reply of Local Committee*.

exist in a still greater degree; and their health and comfort to suffer in consequence. The three first towns, Wolverhampton, Walsal, and Dudley, are remarkable for favourable situations, as regards excellent sites, dry soil, and facilities for drainage, and also a good natural supply of water; but these advantages have been much neglected for want of due regulations for drainage, cleansing, and other necessary public improvements.

I had the advantage of visiting Wolverhampton after reading the able Report on the state of that town by Dr. Delane, to which I can refer, and whose statements I am able to verify in almost all points.

“Wolverhampton,” says that Report, “notwithstanding its great increase during the last 50 years, still retains, in the arrangement of its streets, and the buildings adjoining to them, all the evils of ancient times.” In speaking of the dense population congregated in close courts and alleys, the Report continues:—“In the formation of these buildings everything has been sacrificed to secure a large pecuniary return; they are of themselves often of the very worst construction, and in immediate contact with extensive receptacles of manure and rubbish.”\* A great disregard to decency exists in connection with all these dwellings; many of them having only one privy allotted for the use of several families—an arrangement obviously tending to unhealthy as well as immoral results.†

To this I may add, that, as regards the courts, alleys, and narrow streets where the poorer classes reside, the drainage is for the most part neglected, or very indifferent. No system of cleansing is adopted; nuisances are not removed; and the supply of water, though good in some places, is very insufficient in others. Many of the courts are in the most filthy state, full of stagnant puddles‡ of fetid water; neglected privies with open vaults, pig-sties, and heaps of manure on all sides. The main streets seem well attended to; but there is no public walk, or any place where the working class are permitted to bathe near the town.

The mortality of this populous place is high, being 2·8 per cent.§ and, after seeing the neglect which prevails, and which it does not appear the authorities have power to correct, there is reason to fear that the rate of mortality would have been still greater but for the admirable site and great natural advantages of the place.|| For additional details I would refer to the Report before quoted on the state of the town.

Walsal and Dudley are both admirably situated on declivities, with all advantages for drainage;¶ but the remarks made on the state of the courts and alleys in Wolverhampton, will also apply to many in these towns, though their general character is certainly better. Nevertheless, the same narrow entrances to close courts are found; the same ill-constructed privies with open vaults; often surrounded by heaps of dirt and pig-sties; whilst the courts are unpaved, channels undefined, and cleansing neglected.\*\*

In Dudley, notwithstanding there is a water company who profess to give a good and cheap supply, there are great complaints among the poorer class both of the cost and quality of the water, and many cannot get it at all, as the pipes do not reach them. The cost they say is 16s. a-year for the smallest houses, besides 2l. per house to lay down piping; in consequence they buy from the Castle spring at a halfpenny per pail, and a halfpenny more the carriage of it; and in another populous district, near Salop-street, the people said, “the water was very bad, and it was above a quarter of a mile to the spring.”†† In other places full of the working classes the same complaints were repeated, and their “hard case and loss of time lamented.”‡‡

There is in the vicinity of Dudley a fine walk, called the Castle-walk, belonging to the Lord Ward, and, till lately, permission used to be given to the people constantly to walk in it, to the great advantage of their health. Owing, however, to the misbehaviour of a few persons, or some other cause, this walk has lately been shut up, to the great injury of the inhabitants. It is earnestly to be desired that, under proper regulations to maintain order, this valuable privilege may again be accorded to the inhabitants of Dudley by the noble proprietor.

The schools for the poorer classes are not ventilated in an improved manner. The play-ground in Stafford-street is very small, and no provision made for a supply of water.

\* Report, p. 3.

† The replies of the authorities and Local Committee to the queries of the Board are probably rather too favourable on some points, but the following are extracts:—

“Query 6. What are the regulations for drainage?—None: the old streets are, the new streets are not, there being no controlling power before the houses are built.

“Query 11. Are there any local regulations in force for systematic drainage, or amendment of defective sewers?—No. The refuse lies on the surface in the poorer streets.

“Query 16. Are the courts and alleys, &c., cleansed?—Not done at all. The supply of water is very deficient; altogether inadequate for the prevention of fires. Dear and good.”—*Replies of Local Committee*.

‡ Fevers are not prevalent, but occur in those parts of the town where sewers are imperfect, or not introduced at all.—*Reply of Local Committee*.

§ By the registrar’s return it appears to be 2·9 for the average of 1840, 1841, and 1842, the population having increased from 24,710 in 1831, to 36,382 in 1841.

¶ The town is about to apply for a new local Act; very much needed indeed.

|| “There are no general regulations for draining the town or district.”—*Answer from Committee at Dudley*.

\*\* “Few of the houses of the poorer classes have proper necessaries, as they are usually allowed to remain in a filthy state with the contents overflowing the contiguous yard so as to present a mass of filth. Many are without doors; few are arranged so as to open into drains.”—*Answer of Dudley Committee to 5th Question*.

†† Notes—*Dudley*.

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.  
Wolverhampton.



## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Bilston, Wednes-  
bury, and West  
Bromwich.

With respect to Walsal, I may also say, there is no efficient system of drainage except in the principal streets. "The weir for a mill pounds up the water back in part of the town, and the stream below is full of stagnant filth, and is quite inadequate to carry off the dirt brought down by the sewers. There is a bad stench in summer."

The race-ground near the town would be a good place for a play-ground and public walk, but I was told that it is lammas land, with a right to the Earl of Bradford to float and cut hay between January and August, and exclude the people then.

There is a fine walk and view from the churchyard high above the town, but it has been shut up lately by order of the vicar, as it was said, on account of some irregularities. If re-opened under proper regulations it would afford a healthy walk.

Bilston, Wednesbury, and West Bromwich are three populous places, situated on the high road between Birmingham and Wolverhampton, and may be considered as varied specimens of the state of other towns and dispersed groups of houses, inhabited chiefly by the poorer classes, occupied in and about iron and coal mines, in the great Staffordshire coal-field. This district reaches from beyond Stourbridge, in Worcestershire, to Walsal, comprehending a very densely-peopled country of from 12 to 15 miles square, and inhabited probably by not less than 200,000. The towns of Hales Owen, Oldbury, Rowley Regis, Brierley Hill, Tipton, Sedgeley, Willenhall, and Darlaston belong to this division, all of a somewhat similar character as regards the poorer people and their habitations.

Wednesbury consists of one long street, along the turnpike-road, with many lateral ones branching into courts and alleys, inhabited by the working classes. There is no drainage worth the name, no scavengers or system of cleansing, and the supply of water very scarce and indifferent. There are no pipes, (though there is, it is said, a good supply near it, at a high level above the town,) few pumps, and the wells are often bad.\* "The people complain much, and have to carry water near a mile, or to buy at a halfpenny for three cans."

The workhouse for the town has very bad water in the well, and they are obliged to fetch it for washing or drinking several times a-day. The courts, alleys, and small streets are unpaved or ill-paved, full of stagnant puddles, privies with open vaults, pigsties, &c.;† there is, in fact, no care taken on these points, and the greatest neglect appears. I find it stated, "There is a dreadful stinking tank or ditch at the back of the Turk's Head, where the magistrates always meet, and the public enter by this filthy place."‡

The reply of the Local Committee to the queries of the Commissioners states, "The facilities for drainage are remarkably good;" and continues, "there are not any public drains,—such drains are very desirable in this parish." In another answer to the question 16, "If the courts and alleys inhabited by the poorer classes are cleansed by appointed scavengers, they reply, 'No, consequently they are in a filthy condition.'"<sup>§</sup> There is no place where the working classes are allowed to bathe, nor any public walk or place of exercise.

The British and Foreign School, with 140 children, was badly ventilated, few of the windows open at the top. There is a pretty good play-ground. The mortality of parts of this town is said to be no less than 4 per cent., and the increase in 10 years from 1831 to be 33 per cent., showing that a high rate of mortality is not inconsistent with a rapid increase of population.

Having seen the neglected state of the poorer classes in Wednesbury, we might hope to find an improvement in the neighbouring town of Bilston, but this is by no means the case; on the contrary, the courts, alleys, and streets occupied by them are in a still worse condition than in Wednesbury, and we cannot but consider them a disgrace to the country. The town of Bilston was a few years since stricken with a visitation of cholera, more dreadful in its ravages than any place in the kingdom, owing, doubtless, in great measure, to the neglect of cleanliness which prevailed there. There is now a building, bearing in large letters the words "Cholera School," raised by subscriptions for aid of the orphans of that calamitous period. Great exertions were then made for improvement in cleansing and ventilation, and we might have hoped that so severe a warning would not so soon have been forgotten by the people themselves or the authorities of the country. At present the places inhabited by the poorer classes are as much neglected as ever;|| the

\* Notes.

† The following entries appear:—

"Whitehouse-square—Filthy choked up privies, and dirt holes overflowing.

"High Bulleyn—Open drains, full, and stinking.

"Ledbury's-buildings—Filthy open privies; stagnant liquid filth and receptacles; bad water generally, opposite court bad privies.

"Houses opposite Turk's Head—Open receptacle of liquid filth."—MS. Notes.

‡ Notes.

§ Report of Local Committee, query 16.

Such notices as these are frequent in our notes on the spot: "Filthy open privies, no water, no drain."

"Green stagnant puddles."—Miss Webley's Court.

"Open terrible drains, no water but by buying."—Bullock's Fold.

"Open privies, pigsties, filth, and ashes;" "Open drain, full of filth."—Buck's Buildings.

"Three had the fever in our house (said a woman), one died; privy full, filth overflows."—Workhouse Fold.

|| Of court owned by Miss Hill—"Filthy state; stench very bad; terrible throughout; from 30 to 50 families with children live here; no water; very bad open privies."

Green Craft Hall Court—"very bad, no fall or drain."—MS. Notes.

"Price's Entry and six courts in Temple street—very bad; pig-wash very bad smell, worse than privies."—MS. Notes.

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Bilston.

West Bromwich.

courts, alleys, and small streets are not inspected or cleansed, and are for the most part in a disgraceful state; injurious to the health of the people, and destructive of all habits of decency and self-respect. In one point they are better off than in Wednesbury, as there is a water company from Dudley supplying part of the town and the richer classes with water. Nevertheless I heard many complaints; and the reply of the Local Committee states (No. 32), "The poorer classes are supplied chiefly from pump or draw wells, and by supplies fetched in pails from the water-engines, often at a considerable distance, and by begging;" and again, where there is no such supply (from the company), "which is mainly the case, complaints are universal."\*

The town possesses tolerable advantages for drainage, but "there are not any regulations for draining the town or district,"† the only drains being one or two in the main streets, whilst the most crowded districts are totally neglected. "There are several courts within courts with no sewerage, and the surface-drains very bad and stagnant; no cleansing, no privies, but with vaults open to ashes and rubbish; stench always bad. The inhabitants have no water but what they buy at a halfpenny per pail, or fetch a long way. All the worst places might easily be drained by small branch culverts leading to those now in the main street near."‡

The mortality has been stated to be as high as 3·4 per cent. on the population, and in bad places 4·5 per cent.—a fearful consequence of neglect. The general mortality, however, on an average of three years, 1840, 1841, and 1842, was stated by the superintendent registrar, Mr. Payne, of Wolverhampton, as 628, being 3·1 per cent., and one of the highest of any town in this vicinity. The population has increased from 14,490, in 1831, to 20,180, in 1841, being an increase of 33 per cent., or one-third, in 10 years. During this rapid increase no proper regulations for health, decency, or comfort seem to have been attended to!

West Bromwich, a few miles from Birmingham, has one street of good houses along the turnpike-road, with adjacent small streets and courts; the rest of the people (near 27,000 in number) are spread over a large parish, in mining villages, or groups of houses built with little regularity. The streets in and near the town are tolerably well laid out; but many have never been paved.

There is no drainage, or any regulations for it, or for cleansing any of the places where the working classes reside. The alleys, small streets, and rows of small houses are quite neglected; puddles, filthy open drains, pigsties, and open privies are seen on all sides. The stench from many of these is so bad in summer that the superintendent of police said, at night he changed his road to avoid them, or stopped his nose in passing. The population, however, is not much crowded together, from the dispersed situation of the different groups of dwellings. If, owing to this circumstance, the effect of this neglect of all sanitary regulations is less injurious to health, still it is very hurtful to all habits of decency and cleanliness, especially among children and the female sex.§

There is no supply of water, but from wells, and some pumps; the water is sometimes indifferent, and the pumps often out of order.

The same state of things prevails, says the intelligent inspector of police, and as we can partially confirm, in "all the adjacent populous parishes inhabited by the same classes. Some places are worse than others, but all, except in the main streets, quite neglected."\*\*

The West Bromwich national school appeared dirty, and in indifferent order, with the windows broken, the privies full, and the ventilation bad, and little neatness about it; there was a play-ground, but very damp and neglected.

This populous place has, however, one advantage scarcely found in any other town similarly situated. A benevolent proprietor, the Earl of Dartmouth, has reserved a field of about four acres, which is walled round and kept in order. This he lends at different times of the year, for the use of the poorer inhabitants, at wakes and festivals, who enjoy themselves, under the management of a committee of subscribers, in athletic sports, races, and rustic exercises. They and their families assemble in crowds, proper rules are established, and no disorder occurs; whilst thousands enjoy their harmless holiday. Some raised seats are erected for the committee, and a card of the pastimes, which are suited to the humble classes, is printed beforehand. A small subscription is entered into for prizes to the competitors. I have reason to believe this nobleman adopted this plan to wean the people from bull-baiting and other cruel amusements, by substituting something better in their place. He seems to have succeeded completely in his laudable object; and we earnestly hope his example may be followed by many others, being convinced that, by a little considerate kindness towards the workmen, and by providing for them some occasional harmless amusements, they might be led from meetings prejudicial to them, and from drinking-shops, which are now their only resorts for any excitement.††

\* Report of Local Committee.

† Report of Local Committee.

‡ MS. Notes.

§ Row out of Moore-street, 11 houses—"Privies full and open; bad water; no drains; pig close; no ash holes;" poor woman says, "the smell has made her bad many times."—MS. Notes.

Elsewhere, "stinking cesspools," &c. &c.

¶ "A large portion of the liquid refuse is thrown into the water-courses, and in many instances remains stagnant on the surface, which is very offensive."—Local Report.

\*\* MS. Notes.

†† By an account of the West Bromwich wake sports in 1843, it appears the whole cost did not exceed 187. 10s., which was raised by subscription; this included prizes for foot-ball, various kinds of foot-races and other sports, adapted to amuse the working classes.

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Stourbridge.

Before leaving our outline of the towns in the Great South Staffordshire Coal-field, it is agreeable to be able to except from the complaints made the town of Stourbridge. This place, with a population of above 7000, is in its general aspect of cleanliness, and in improved drainage, a favourable contrast to many of the towns before described.

There is a local Act, with powers for paving, draining, lighting, and cleansing, and its provisions seem well attended to, though defective on one or two points; even here, however, there is no mode adopted for clearing away all filth and refuse from crowded places by contract, and enforcing cleanliness upon a regular system.

The night-soil and ashes are only removed by farmers, who purchase them from time to time, and the smaller streets and courts are imperfectly cleansed, by order of the Town Commissioners.

The supply of water is tolerable from wells and pumps, but many of the people, where the water is hard, are obliged to purchase soft water from water-carts, at a halfpenny for five or six gallons.

This town contains many opulent inhabitants, and its general aspect is that of improvement. There is, however, no public walk or place for exercise; no place where the poorer classes are permitted to bathe; and our intelligent informant, in replying to the question as to the state of the schools for the labouring classes, says, "There is a great want of play-ground for the children; the want of it forces them into thoroughfares, and to trespass on private property."

King's Swinford.

In the immediate vicinity of this neat and flourishing town is a large straggling and populous hamlet of King's Swinford, called by the appropriate name of "Lye a waste." These waste people are almost all nailors; their houses, or rather huts, are of all forms, grouped in two, three, or more together, over a wide space. Filthy open ditches, heaps of rubbish and dirt surround their neglected habitations; disorder and poverty appear on all sides; there are no regulations or attempts at improvement.\*

Kidderminster.

*Kidderminster.*—The populous town of Kidderminster is situated within a few miles of Stourbridge, though not belonging to that class of towns we have been describing. It is at some distance from the mining districts, and the inhabitants are chiefly occupied and supported by the manufacture of carpets. As, however, it is in this neighbourhood, it may be well to give here a short account of the state of it.†

This town has many natural advantages, being situated on a declivity, with the river Stour passing through it as a ready drain; the soil is a porous sandstone, and the water supplied from wells is generally good and plentiful.

The streets where the richer classes live are open and well-drained; but the small streets, alleys, and courts inhabited by the working classes are much neglected, and are in want of drainage and cleansing; the rain water, together with slops thrown from the houses, often lying in stagnant puddles in the ill-made surface gutters.

The privies in all such courts and entries are constructed with open vaults, into which ashes and refuse are thrown; they are frequently full and overflowing, and causing a noisome smell; seldom are clean or attended to, one often serving for several houses. They are never cleansed regularly, and must, with the dirt collected round the houses and the cesspools, which are not unfrequent, be the cause of loss of health in many cases.

I visited and examined, in company with an intelligent medical gentleman, the worst parts of the town, and he stated his strong opinion, that the health, comfort, and morals of the poorer classes in all these neglected districts were much injured by the evils before described, and which the powers of the local Act were entirely ineffective to remove.

These points, together with some obstructions to the drainage, are stated in a candid spirit in their Report by the authorities and principal inhabitants of the town, who appear desirous for improvements, and anxious for powers to effect them.

The answers given by the Local Committee to three of the most important questions framed by the Commission will show the state of many parts of this populous town, and are as follows:—

Q. 8. "Have the houses proper necessities, &c. &c.?—A. The necessities are usually common to many houses; they open into cesspools *uncovered*, and are a constant source of putrid exhalations, the frequent cause of fever, and some of the greatest nuisances in the town."

Q. 11. "Are there any local regulations in force for the systematic drainage of the

\* It is said that these persons were most of them enfranchised for votes for the county in some contest of past times.

† The following are extracts from notes on the spot:—

"Some very bad places, narrow courts up close entrances, bad surface drains, stagnant filthy cesspools in gardens—Queen-street back and front. Jerusalem, Mouth of Nile—bad. Pantile-row—very bad cess-pool. New-street—fever. Courts on west side of Mill-street—very bad narrow courts, obliged to stoop to enter; damp and trickling with foul drain, the only outlet; open privies."—*MS. Notes.*

"Tan-bank, back of Waterloo-street—filthy open stagnant ditch from privies. Daddle-brook pounds up gardens and cellars in Blackhall-street and Swan-street. Nailors entry and narrow entries. Blackhall-street—very bad indeed, privies open, bad stench, pig-sties, filth, &c.

"Entries in Mill-street—very damp. Duncan's-building—privies common to many, open to view, disgraceful state, cleaned irregularly by sale, 5s. for 10 houses, sold three weeks since, never fetched by farmer. Cursfield and the Batteries—two rows of small houses, nasty open gutter and bad smell, have plenty of fall.

"The square Bowdley-road—open privies, heaps of filth, muck-holes full, well of water between two muck-holes.

"Some houses are built back to back in Pantile-row, and some other streets and courts are closed up at the end."—*Reply of Local Committee.*

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Burslem, Hanley,  
and Longton.

district?—A. There are local regulations under the Act, but no systematic drainage; such as the drainage is it is defective, and occasions the accumulations of refuse, and the emission of offensive smells."

Q. 16. "Are those courts and alleys which are inaccessible to carts, and inhabited by the poorer classes, cleansed by appointed scavengers, &c.?—A. It is never done, and there are no appointed scavengers."

After these statements, it would be useless to extend our description; but I may add—there is no water company, or service by pipes! the school-rooms for the poor are generally indifferently ventilated, and have no play-grounds; the necessary vaults open and often offensive!\*

I now have to state the general condition of three towns in North Staffordshire,—Burslem, Hanley,† and Longton‡, where the people are chiefly occupied in the potteries; and of Newcastle-under-Lyme, an ancient town of the same vicinity. These towns have all some points in common, which may be first noticed; and their points of difference will be afterwards noted. The three pottery towns§ are of comparatively recent date, having risen and increased with the trade which chiefly supports them. They are built in an irregular and rather dispersed manner, on moderate declivities affording good fall to water, and have the advantage of the houses not being packed close together; and sometimes gardens, or intervals of unoccupied land separate groups of dwellings. The principal streets are tolerably wide and open. On the other hand, these towns bear all the marks of their recent origin; they have no sufficient powers by Act of Parliament for adequate drainage||, cleansing, or the removal of nuisances: and the condition of the courts, alleys, and narrow streets, where the poorer classes reside, is in almost all these particulars greatly neglected, to the injury of their health and the destruction of their comfort, and all habits of decency.¶

The same remarks as to the want of attention to the state of the lower orders may be applied to the ancient town of Newcastle, placed in a very advantageous position, and having many local advantages. Though the authorities have a local Act for cleansing and improving the borough, and by the Municipal Corporation Act the town council act as Commissioners to carry it into effect, little is done for the health or comfort of the large majority of the poorer inhabitants. The main streets are generally open and well drained, but there are many narrow entries, alleys, and courts, quite neglected.\*\* Some new streets of sufficient width are unpaved and undrained, and although the water is generally good in quality, frequent complaints were made by the poor women, that the public pumps, from which many were supplied, were out of order,†† or gave an inadequate supply. Part of the town is supplied by pipes, and the whole might in the same way be easily furnished with this indispensable necessary at a moderate cost, from an unfailing source.

A few extracts from the returns of local committees will exemplify the state‡‡ of these several places, and some matters peculiar to each. None of the pottery towns have

\* "St. George's National School is well ventilated, but badly warmed and no play-ground; open privy; stench dreadful in hot weather, says a boy. Girls' school well warmed by stove, privy bad."—*MS. Notes.*

† The following comparison of the mortality of two districts in the township of Shelton (part of Hanley) is of much interest.

*Comparative Mortality of two Districts for Six Years, from August 1, 1837, to August 1, 1843, from the Registrar's Account; sent by J. B. Davis, Esq., Member Royal College of Surgeons, London.*

No. 1, including Hill, John, and Albion-streets, parts of Lechfield, Bethesda, High and Broad-streets, Bagnall, George, and Cannon-streets, containing in June, 1841, 839 inhabitants, being well-drained, ventilated, and kept clean, and pretty well supplied with water: deaths, in 6 years. 85 persons.

No. 2, including King, Queen, Princess, Castle, New, Cambridge, Oxford, and Buck-streets, containing 921 inhabitants in 1841, being badly drained; ventilated; houses much crowded, always dirty, badly supplied with water; deaths, in 6 years, 171 persons, reducing the population of No. 2 to that of No. 1: deaths stand (in No. 1) 85, in No. 2, 156, or nearly double, i. e. above 3 per cent. per annum.

‡ In Longton there is a good supply of water from reservoirs through pipes, "but no regulations for draining, except those by the surveyors of highways under the general Act. There are no public scavengers. A large proportion of the liquid refuse is thrown into the water-courses; it either soaks into the sub-soil or remains stagnant on the surface."—*Report of Local Committee.*

§ "In Hanley the water brought by pipes is of very indifferent quality; purer water is brought in water-carts and sold at a halfpenny per pailful. Good water is much wanted, and might be had from a pure spring at Washerwell."—*Report of Local Committee.*

|| "The principal streets in Hanley are drained under the Highway Act only; there are no regulations for the draining of the back streets, courts, or alleys; behind the dwellings of the poor there are generally open drains to carry off the surface water and refuse from the houses, which the occupiers of land use for manuring the meadows; this occasions a great nuisance."—*Report of Authorities.*

¶ "Burslem—Old and New Bag-street and courts very bad; open privies, filth overflowing; causing, said the people, a sad stench in summer." "Navigation-street—Bad, open sewer in front," &c. &c.—*MS. Notes, confirmed by the report of Local Committee and Chief Constable.*

There is no drainage but under the Highway Act.

\*\* Back of Friars—"New filthy open privies, cesspools, pig-sties; very bad." Back of Corn-street—"Bad open drains, to float meadow with sewer water."—*MS. Notes.*

†† Public pump in Pump-street, Higher land—"out of order for a fortnight till now. Drayton-street sadly plagued for want of water for weeks from pump, say the women."—*MS. Notes.*

‡‡ Burslem—"Daniel's-row—filthy open drain. Hole Houses—very damp, open dirty drains. Filthy open mud-hole, near Old Church, receiving sewers and filth in a populous neighbourhood, for manure."—*MS. Notes.*

"Great complaints of want of water near Old Church, obliged to carry it from spring, a quarter of a mile off, and scant supply there."—*MS. Notes.*

"Hanley is cleaner than Burslem; Swan-street and Chapel-fields unpaved; no drain; damp courts; open stagnant drains."

"Marsh-street—All complain of want of water; no water company as at Burslem; water purchased



## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Newcastle-under-  
Lyme.

Shrewsbury.

any open or public walks, or any places where the working classes are permitted to bathe. These towns are in one point superior to the mining towns, as the vaults of the privies are generally, however imperfectly, covered over, which is seldom indeed the case in the latter. There are many small gardens let to the working classes near Newcastle, and they enjoy the rare advantage of some good public walks, well laid out, and planted in its immediate vicinity. These want some stone benches. The national school of the town, with 232 boys on the books, is very close, "and wants ventilation very much," according to the statement of the master. The girls' school also requires improvement. Those conveniences necessary for health and cleanliness were much neglected at the boys' school. The mortality of Newcastle, notwithstanding its many natural advantages, is near 2·8 per cent. on the population, probably owing in a great measure to the want of proper regulations before described.\* The chief employment in this place is the manufacture of hats, which has long been established there. The population in 1841 was about 10,000, having increased from 8500 in 1831—about 16 per cent. in ten years.

I now proceed to give a short account of the state of some county and other towns situated at considerable distances from each other, and having no particular common character. They are not dependent on any single manufacture, and may probably be considered as fair samples of the older English towns. Shrewsbury,† the county town of

at a halfpenny a pailful; filthy open drains close to houses; foul ditch near houses dammed up for irrigation."—*MS. Notes.*

"There are no regulations for draining back streets, courts, and alleys; the only regular scavenger is the rain."—*Report of Local Committee.*

"Longton—Gallamore's Bank; small houses, very bad open privies; refuse in heaps; puddles; no channels; water plenty; 2d. per week." Back of Flint-street and George-street no drain.

Mayer's-court—many small houses; open filthy drains and puddles; open privies. New Bridge-street and Waterloo-street, very bad.

"Mayer's Passage—filthy open drain; many complaints. Green-dock, very bad. Paradise-row, "bad cesspools." Daisy bank—filth, pig-sties, &c. Chillock's lane—"open drain." "Meat won't keep, say women."—*MS. Notes.*

Newcastle. Back of Union-street—open filthy privies, running over into the street. Pump-street—open stagnant drain; choked; many complain, it was so for three months. Courts at back of Pump-street—very bad; open privies; stagnant water. Cross-street—lower side overflowed from rain; no drain. "Drayton-street—very bad;" so Mill-pool, filthy drain, enters in front of the barracks.—*MS. Notes.*

Newcastle. Lower-street, back of lodging-house—filthy places; cesspools, &c. Court—upper side "very bad." Second Court very bad; filth running down the passage. Blue Ball Entry—open privy; choked drain; dry pump. Courts Breeches-square, very bad. Back of Old Churchyard—open drain; very bad. Back of Holborn—"Open rivulet, receiving filth and drains in the midst of the town." Court near "side," soughs stopped; "landlords do nothing."

Newcastle—Fine spring wells, want cleaning, road and stone work round want improvement. Dung heaps and gathered manure in all courts, and waste corners in heaps.

Filthy open privy at alms-house, filthy court below, open filthy ditch across Bridge-street, a principal street. Bath-street—back yards bad, open privies, pigs; all streets unpaved. Hayle-street—back courts and yards "very bad." Princess-street—not paved, bad drain.—*MS. Notes.*

Newcastle—All on the Stoke-road without drains and badly off for water. Fever near Hartshill church from want of drains. Gaswork-road—courts in Bath-street very bad, privies, pig-sties, &c. Corporation house in Penkull-street—back premises a nuisance, full of filth. Yard of Golden Lion—large open cess-pool in the heart of the town, &c.—*MS. Notes.*

Back of London-row—"privies full, ash-holes, sad stench."—*MS. Notes.*

"There are no fixed regulations for draining the town, consequently many parts of it are without public sewers, the filth allowed to accumulate in courts and alleys.

"In the modern built parts of the town where no sewers have been constructed, the refuse and slops are thrown into the water courses."—*Reply to Questions by Mayor and Local Committee.*

\* An intelligent inhabitant says, "The refuse from the houses is flung into one promiscuous heap contiguous to each property, and removed when it is incapable of receiving more." The same respectable authority says, "there are now 600 Irish in the town," (most of the lowest class) and he remembers as a youth when there was only one in the place, in an English family.—*Mr. Mayer's Letter.*

† Shrewsbury. Connal's Lodging-house, Castle Foregate—"pigs at back," cess-pool, no drain, privy very bad. Dykes-street—"bad, no drain." Evan's-street—"filth, refuse, &c., in open dirty heap, full, no drains." Beacall's-street—no drain, offensive smell from pig-sty. Bagley Brook—at back of houses open, very bad receiving sewers.—*MS. Notes.*

Edward's-buildings—drain from street under passage of house, "smells dreadful," say women near; "cannot live in the house for the smell; worse than a privy."—*MS. Notes.*

Castle Foregate—"no under-ground drain over most of this populous district; slops thrown into the street.

John's-row—front houses, "the privies are earthen steins emptied once a fortnight into ashes in front, close to the public road. No soft water without buying it."

Castle Foregate—clay-pits, houses low and damp, privies full, and so for six weeks; "prevent them," say poor women, "eating their food below stairs." Jones-row—"sough stopped, filth enough to breed a fever."—*MS. Notes.*

Back of Dolphin-row—"open filthy sough, pig-sties, sad stench;" culvert at back not opened. "No pipe-water higher up, though much needed."—*MS. Notes.*

Brocas's-buildings—"Stagnant cesspools at back of full privies, overflowing, very bad indeed; no regular clearing of privies, ashes, or refuse; old man, T. Horner, clears at a penny per barrow, and mixes it at top of the garden, close to the road."—*MS. Note.*

"Bad smell from gas-water in the scum on surface of Shropshire Canal, passing through part of the town, kills the fish for a mile, owing to the washing of the gas-works being permitted to escape."—"Bad open ditch near Oswald's houses." Row near Canal Tavern—"bad open drain."—*MS. Notes.*

Castle Foregate.—Birch's-buildings, 12 houses—no drain; open channel, choked with filth, coming into road, "privies with tubs carried out from time to time."

Hayledine's-square—"bad surface-drain, &c. &c. Various other places in a neglected state.

Back of British and Foreign School—"Filthy open drain, midden, and offensive pig-sties," one close under the window; privies want improvement; also ventilation of girls' "school," floor damp.—*MS. Notes.*

Public walk from English Bridge towards Castle quite neglected, broken up, and ruinous; if well kept, of great beauty and utility, being "close to the river."

Coleham—Many places neglected. Mrs. Poole's buildings—filth deposited in open drain, very bad; privies emptied with tubs once a fortnight into Severn; dirt and slops thrown down in the court; "no neigh-

Shropshire, is situated on the Severn, which serves as a natural drain to it. The more ancient and principal part of the town (which was formerly walled round, and of considerable strength) is placed on a gentle elevation of the red sand-stone, with the river flowing almost round it in form of a horse-shoe, so as to possess every natural advantage for being kept clean. It has, however, beyond the river four suburbs, reaching along four different roads, being outlets from the town. One, called the Abbey Foregate, chiefly consists of good houses in one wide street, and is kept in good order. The others, called Frankwell, Castle Foregate, and Coleham are, in great measure, inhabited by the working classes. A small part of each is occasionally liable to be flooded by the Severn (a mountain river) or its tributaries, and all of them are much neglected as regards drainage and cleansing. A good supply of water, found in the centre of the town, through pipes laid down by a company, only extends partially to the suburbs. The main streets are wide, and have a good declivity; but a great portion of the most populous part of the place is lamentably in want of improvement, and the inhabitants suffer severely for want of it. Some of the answers to the questions of the Commission, drawn up by an intelligent committee of inhabitants, under the sanction of the mayor and town-clerk, will give a general description of the main points:—

Q. 6. "What are the regulations for draining the town?"—A. "There are no general regulations for draining the town, and none whatever as to the suburbs." "The suburbs of the town are not under-drained, as also portions of the town."—"There are several open ditches in the suburbs from which noisome smells arise."—"Very many of the dwellings of the poorer classes have no necessities, and it is a source of very great discomfort to the poor, injurious to their habits and feelings, and occasions a great public nuisance. Even the better class of houses are inefficiently supplied."—"There is a service of scavengers who cleanse the streets within the walls, but do not go into the suburbs, nor enter the courts and alleys."

The evils arising from this state of neglect were amply shown on visiting the district in question. Many complaints were made by the poorer inhabitants as to the want of the means of decency and cleanliness round their dwellings, of their health in some cases suffering from these causes, and of the insufficient supply of water they received from the pipe service; and in other places their difficulty of procuring it at all. Many of these evils might easily be remedied with proper exertion, though additional powers are requisite to enforce and keep up adequate improvements.

This town has the advantage of a fine public walk, adorned with fine trees, and beautifully situated on the banks of the Severn. The population of this town is 18,285; in 1831 it was 21,297. The mortality, including, however, the County Infirmary, is 2·6 per cent., which might be much diminished with proper precautions.

Chester, the county town of Cheshire, is finely situated on a site of moderate elevation, on the banks of the river Dee. It has many natural advantages, which, if properly used, would cause it to be a healthy city. At present, owing to the neglect which prevails as to drainage, cleansing, and a good supply of water to the poorer classes, the mortality, including the County Hospital and Gaol, amounts to no less than 3 per cent., being higher than the neglected district round Wolverhampton. There is no particular manufacture carried on here; but this place is the town of supply to a large and opulent district round it. The same neglect which has been described as prevailing in Shrewsbury and other places, as regards the narrow streets, alleys, and courts inhabited by the working people, prevails in Chester. In several of the principal streets there is no effective drainage. There are stagnant cess-pools and ditches of an offensive kind in several places; open privies, overflowing with filth, are often seen; churchyards crowded with bodies are situated in the midst of the town; and the supply of water is often inadequate and dear. It appears useless to report in long detail the same evils which we have seen set forth in other towns, and which exist here in all the more crowded places where the poor dwell. A few are mentioned in the notes.\*

bour is healthy, there is a bad smell in all weathers," says one poor woman. Factory yard—full of filth, pigsties, &c.; many small houses, no water but from Severn. Back Coleham. Hayledine's Houses—privies overflowing; no drain; very bad smell; many other neglected places of a similar kind.—*MS. Notes.*

Shrewsbury. Barker-street, Hart's buildings Court—full privies, very bad; drain from above brings filthy water into open place; the people complain bitterly of the stench; no water. Shipers-street, ditto. No sewer in Claremont-street, Hill's-lane, or Belmont. Taylor's-buildings, out of small close passage entrances to seven houses, very bad; no water, no privies, no ash-holes; filth and slops thrown into open channel; poor inmates complain sadly of the stench; slaughter-houses and most offensive heaps of dung and offal close.—*MS. Notes.*

Mason's-street—many small houses; bad open channel; no ash-holes; no water but carried from the river. Sheeps'-head-street—12 houses. King's-head-street—Several; no water; no privies; no ash-holes; both in a disgraceful state. Carnarvon-lane—nine houses, "utterly without conveniences of any kind, or water." Frankwell.—Rookery, seven houses; "open filthy privies, choked; open drain and cesspool, enough to breed a fever; no water; many complaints. Other neglected places, but not so bad."

Opposite Circus-row and near 30 houses in St. Austin's-row is a large open receptacle for the filth brought down by the common sewers, called the mud-holes. It is kept in a stagnant state to be sold for manure, though the river is close with a good fall. This is a dreadful nuisance close to a public walk, and injurious to a considerable neighbourhood.—*MS. Notes.*

Courts in Foregate street—privies full; open vaults; pig-sties; ash-holes full; authorities never cleanse courts or small streets. "The women complain much of the dirt and smell."—*MS. Notes.*

\* Chester.—Whitehouse-court, Swan-court, &c.—quite neglected; stagnant ditch; pavement full of puddles, filth, &c.; three pig-sties. "We are almost poisoned out of the place," says a decent woman.—*MS. Notes.*

Love-lane and courts—open privies; stagnant ditch; no drain or water. Union-street—courts into very

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Shrewsbury.



APPENDIX.  
Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.  
Chester.

The schools for the children of the working classes partook of the general character of those visited, varying however with the intelligence and zeal of the managers and committee. I find the following account in my notes on the spot; though the answers of the local committee was of a more favourable kind, as was frequently the case. I am able to add that the authorities and intelligent inhabitants evinced every desire for improvements, and have lately made considerable exertions to effect them.

The population of the city of Chester appears to have been

in 1811, above 24,000,  
in 1811, 17,472.

Mortality 3 per cent.  
Wrexham.

The mortality (including however the Gaol and County Hospital, amounted in 1842 to 720, or three per cent. The Poor-rates correspond with this high rate of mortality, being between 4s. and 5s. in the pound.

Wrexham, a borough and county town of Flintshire, in North Wales, was visited as a sample of such towns in the Principality. I regret to have to report so much neglect of all necessary precautions for the health, decency, or comfort of the habitations of the poorer classes. Instead of going into details, which will only be a repetition of what we have seen the case in other places, it appears better to give the answers of the Local Committee\* to some of the most important questions of the Commission. The Committee describe the bed of the small river flowing through the town "as obstructed by gravel and rubbish, and flooding the neighbouring cellars and main drains to a considerable extent." That this obstruction is "chiefly to be attributed to five dams erected within the township in the last 40 years, and is daily increasing. There are no regulations for drainage, except those vested in surveyors of highways. The whole of the filth on one side of the town is conveyed into a meadow in the town, where large open ditches are cut for its reception and retention in a stagnant state, and from which an abundant exhalation of miasmata arises. There are no proper decent necessities belonging to the houses of the lower classes, and the state of those which do exist is most disgraceful and offensive."

There is no service of scavengers; no cleansing the courts or alleys, where the poorer class live; no supply of water but from wells and pumps, and this often complained of. "Many of the lower classes collect dung and filth from the roads, and keep it up against their houses for sale, which is only removed once a-year."

Owing to the natural advantage of having a good fall, and the people not being so crowded together as in the larger towns, this place has not so large a number of annual deaths per cent. in the population as might be expected. It must be, however, almost unnecessary to remark that the moral habits, comforts, and decencies of life of the poorer classes are greatly injured by the circumstances described; and that the health of all

bad; slops in channel; filthy open ditch, "enough to poison any one," says the surveyor himself; plenty of fall. In Boughton—open drains; manure in open street; filth in puddles; no water.—MS. Notes.

Stephen-street—no drain, no water; bones and filth collected; full of Irish; *fever always prevails, causing great expense*; open drain by canal near Russell-street. George-street—"open privies, filth, manure, pigs; stench, &c. very bad indeed." George-street and William-street, New Town—not paved or drained; never visited or cleaned. Yard for collecting bones near is a great nuisance.—MS. Notes.

Back of George-street—"open stagnant drain overflows the yards of all the houses." Back of Brook-street—bad place near Wamburgh Churchyard. Row of houses near—bad state. Northgate-street—no drain; slops and water from water-closets pumped into the open street at night. Stagnant ditches on Tower-field and race ground. Wall's-lane—"no drain; dirty; very sickly." Heaps of manure close to houses.—MS. Notes.

Tower-fields—"an open, fetid, stagnant ditch, receiving many sewers close below the Gaol, Infirmary and Stanley-place (full of the best houses); it is pounded up to float with; the smell at times very bad." Bad courts at back of Trinity-street—cesspools, &c. Various close courts—very bad state. Britton's Entry—court within court; "very bad indeed; 'there are many more,' says the registrar, 'the same.'"—MS. Notes.

Blue Coat School for boys—badly ventilated; four windows out of six only open a sixth part at the bottom; good play-ground; bad open privies. Consolidated Day-school—"115 girls; privies small, very bad; ventilation and warming imperfect." National School, Girls—"Fire-place for a stove; very cold or hot; windows don't open well; roof not plastered."—MS. Notes.

Diocesan National School—"170 boys; fine room, not plastered on roof; want ventilation and stoves; no play ground; privy open, drain and urinal dirty." British and Foreign School, supported by Lord Westminster (near 400 children)—"Good school-rooms, well ventilated by windows. Girls' school rather cold in parts in winter; privies open vaults, require to be covered, and have drain; play ground wants a little sloping and draining; and a pipe and cock to each play ground, with a chained iron ladle to supply water."—MS. Notes.

Harrock's Entry, Bridge-street—"very bad state." Noake's-court—sad state; very populous; women complain much. Boarding-school-yard, Bridge-street—privies, &c., in a shameful state. Hollies-street and Clare-court—not very bad privies; pig's filth; stench. Old Quarry, Northgate-street—stagnant long cesspool full of filth, &c. &c.

\* This Committee was assisted by one of the magistrates of the county and the vicar of the town, and comprised some of the most intelligent and influential inhabitants.

Gitton's-yard, York-street—pounded up filth received from drains; this, kept in the middle of the town for manure, "brings 1l. per annum; costs three times that in doctor's bill," says the inmate. "Hence fever." Edwards's-yard—same thing here, cesspools and filth. Inmate says, "never without sickness."—MS. Notes.

Yorkshire-square, and various other places—open drains, bad privies, manure and filth heaped up close to houses; "privies overflowing." Inmates complain, "Cupboard smells so bad, it's of no use."—MS. Notes.

Dirty pig-sties and cesspools in many courts; women complain of the stench. Barnham-yard—13 houses, midden, and privies full; bad smell; no water. Welch Entry, 7 houses—"very bad; no drain; no water," &c. Currier's Entry, ditto, &c., &c., &c.

Burre brook runs through the town, receives all sorts of drains and filth, is never cleansed; there is a bad smell in summer, the bed is wide and straggling, full of rubbish, gradually choking up.—MS. Notes.

Want of water often complained of; national school badly ventilated; other improvements wanted.—MS. Notes.

classes suffers likewise. The Poor-rate is stated to be very high, viz. 4s. 6d. in the pound. The mortality appears to be 2·4 per cent.\*

Gloucester is finely situated in the vale of the Severn, for the most part on a moderate acclivity, and well placed for drainage. This however is very little attended to, and all the poorer parts of the town, as regards sewerage, cleansing, the regular supply of water, and the removal of nuisances, is greatly neglected. The answers of the local authorities and committee to questions submitted to them, were as follows: "There is no general system of drainage." "In many parts of the town there are several stagnant pools and ditches, the receptacles of filth and refuse of all sorts, very injurious to health, in some of the most crowded parts of the city."† "In many parts of the town there are no proper necessities, often but one to ten or a dozen houses: they are frequently allowed to overflow."

With respect to the courts and alleys being cleansed, it is replied: "In some parts, the soil and refuse is brought out to the public scavenger. In other parts, amongst a dense population, it is allowed to accumulate near the houses, and is afterwards sold for manure." The consequence of this neglect was witnessed throughout all the poorer parts of the town in the same disgusting scenes that have been described in various other towns. Many streets and courts are without pavement, drains, or cleansing.‡ One large stagnant ditch, called Dockham ditch, receives the filth from a populous vicinity, and is never cleansed, but allowed by its stench to corrupt the air, and spoils a good open public walk in the meadows near. This town has a fine supply of water, by pipes at a high pressure, but it is not carried to many populous parts of the town.

The return of the registrar shows a high rate of mortality:

The population in 1831 was 13,686,  
and in 1841 was 14,869.

The mortality in 1840 was 447, or 3 per cent.

1841 was 393, or 2·6 per cent.

1842 was 430, or 2·88 per cent.

Average of three years, 423, or 2·8 per cent.

Some allowance is to be made for the County Infirmary within the city. To this indifferent account of the state of Gloucester we are sorry to add, that on some flat ground belonging to the corporation, but beyond the borough, and at some distance from the town, a suburb of very poor houses (of one story only) are fast building, close to a filthy full ditch, and without any drainage or regulations to preserve health. The evil consequence of this must in a short time be apparent; and the police already complain of the predatory habits and bad example of many of the inhabitants.

I was enabled, besides visiting and examining closely the large towns before described, to look into the state of Droitwich in Worcestershire, Wellington in Shropshire, and other small towns, and am sorry to be obliged to report that great neglect of proper sanitary regulations prevails in all of them, to the great injury of the inhabitants. In almost every one of the smaller towns there is some suburb or assemblage of miserable and neglected dwellings, the constant abode of fever or other disorders.

It is matter of remark also, that in many of these places a colony of poor Irish have planted themselves, who are fast increasing in numbers: their habitations are habitually dirty and neglected; the frequent source of disease; and the inhabitants are generally, from their frequent quarrels, and the bad example they afford to others, a great trouble to the vicinity.

The general state of the poorer classes in large towns and populous districts, as affected by the state of their dwellings, and the offices and conveniences belonging to them, is a matter of increasing interest to the country, and will more and more force itself on our attention.

From the statements made and inquires instituted, it is evident the health and comfort of multitudes are greatly dependent on a good system of drainage, cleansing, and an ample supply of water; all subjects beyond their control, and chiefly resting on laws or municipal regulations, which it seems the duty of a wise and benevolent Government to superintend and enforce.

It may, I think, be demonstrated, that as the health, and consequently the power to labour, of the poorer classes is injuriously affected by the absence of proper provisions on these points, that thereby their support from poor-rates or otherwise is thrown on the other classes; it seems to follow, that judicious enactments on these just causes of complaint would eventually be found measures of true economy, and would repay, with compound interest, the necessary outlay to the country at large.

Laying aside, however, the important consideration of the health of these masses of persons, I would venture to submit some reflections on other injurious consequences to the community, which seem to arise from neglect as to the points alluded to.

In visiting and examining the state of many populous towns, both during the inquiries

\* By a return from the Registrar-General, it appears to be 2·4 per cent. on a population of 11,960, which includes some rural districts.

† Answers 6 and 7. "Norman's-row—close court, very bad state. Out of 90 inhabitants, 30 died when the cholera was here."—MS. Notes.

‡ Kay-court, Glass House-yard, and many courts in the island, and on each side Leather Bottle-lane, are in a most filthy, neglected, and unhealthy state.—MS. Notes.

Clear-street and courts adjacent, Sweet Brier-street, Milk-street and courts out, and various other places, are in a filthy and disgraceful state. The "stench and dirt in one populous place, called Reform-court, belonging to a retired tradesman, was enough to breed a fever."—MS. Notes.

APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.  
Gloucester.

Droitwich, Wel-  
lington, &c.



## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Evil consequences  
of neglect of sanatory  
regulations to  
all classes.

instituted by the Commission of Health; and on former occasions I have observed how much the moral habits, the domestic manners, and the general demeanour of the poorer classes are influenced by circumstances immediately around them; and by nothing more than the comfort or discomfort, the cleanliness or want of cleanliness, of their dwellings. This will be evident on attentive observation; and I feel confident that the absence of the decencies of life, and the constant presence of disgusting and dirty objects, gradually destroys the moral feelings of the people, and renders them brutal, reckless, and drunken. The working man, returning to his home, (which is often surrounded by dirt, with no provision for drainage or cleansing,) affected by the smell, and having no water for his use, readily resorts to the spirit shop or public house, where, in short-lived indulgence, he forgets his troubles. The woman, neglected and peevish, visits, on her children, or her husband on his return, her vexation, and thus domestic brawls ensue.

Amid such scenes the children become hardened, careless of cleanliness, unused to order; and all the benefit derived from the best education which may be given is destroyed by the constant evil examples they see round their homes. This is especially the case with the female sex, who, if early tainted by the disgusting scenes existing in the places described, and by the want of all decency and self-respect there exhibited, become at a future day the nursing mothers of vice and wretchedness, instead of inculcating the household virtues. I wish, however, independent of these considerations, of the loss to the country from the inferior value of such persons as labourers, workmen, and artisans, from their want of docility, perseverance, and industry; to represent the cost and danger arising from multitudes increasing every year, who have no homes which they value, and no feelings of interest to bind them to the institutions of the country. These persons, having no property themselves, have no respect for the property of others; and thus we find increasing numbers reckless in habits and conduct, ready at all times to join in disturbance and discontents, whether of a general or local nature, and requiring an augmented constabulary force to keep in order, and an additional vigilance to restrain.

In all disorders which have taken place from time to time in any of our populous districts, we shall find the neglected classes described constantly swelling those meetings or mobs which have caused uneasiness to all other classes, and have been the source of great cost to the country.

I feel firmly assured that, as a matter of true economy, and, above all, as a matter touching the peace and safety of the country, it is absolutely necessary for Government to take some effectual steps towards removing the evils described. The crowded and neglected state of the dwellings of the poorer classes in populous places, productive of so much evil, and exercising so injurious an influence on their characters and conduct, appears to have arisen from circumstances greatly within our control, and to be mitigated, if not removed, by well-considered regulations.\*

The cause of this state of things appears to be the rapid increase in our town population within the present century, and the absence of any general rules as to the construction or easements of houses erected; and as to sewerage, cleansing, and the supply of water, as regards the poorer classes.

By the population returns, it appears that the number of manufacturers and workmen living in towns was to the labourers in country districts as one to two in 1790.

In 1841 the proportions are exactly reversed, and the numbers of the former are to the latter as two to one.

In 40 years, from 1800, agricultural labourers have increased from 40 to 45 per cent., whilst workmen in towns and manufacturing districts have augmented 120 per cent., and in great towns much more.†

This rapid increase will be found chiefly in the manufacturing districts; and since the improvement of the steam-engine, and its adaptation to machinery, our principal manufactures are all carried on where our beds of coal are found.

The increased demand for workmen in these districts called for additional dwellings, which have been erected, or run up, as the phrase is, in many instances with extraordinary celerity, and with no regulations to ensure those conveniences which are necessary for the health and comfort of the inmates. The great majority of houses for the working classes thus built are the property of small capitalists, tradesmen, and others living on the spot, who only desire to make the largest interest on their money. Some are erected by building clubs, who are generally led by the same motive. Thus rows of small houses are built by contract from time to time, the main object in almost all cases being to pack as many dwellings as practicable on any given quantity of land, and to build them at as little expense as possible, consistent with their being let; consequently there is very little outlay on any of those conveniences, which, though conducive to the comfort and decencies of life, are not essential to existence.

Most of these small capitalists and proprietors of houses live on the spot, and super-

\* An abstract of the state of 51 of the principal towns, visited by the Commissioners, and where the annual mortality on an average was the highest, was made as "bearing on the public health, and the condition of the poorer classes of the people." The main points inquired into, viz.:—1. Sewerage; 2. Cleansing; 3. Supply of water; were divided into good, indifferent, bad, and gave these results;—

Sewerage.	Cleansing.	Supply of Water.	Powers generally insufficient and frequently neglected.
1 good.	2 good.	6 good.	
7 indifferent.	7 indifferent.	13 indifferent.	
43 bad.	42 bad.	32 bad.	

These towns comprise the seats of all the chief manufactures of the kingdom, together with the four principal sea-ports (after London), and contain a population exceeding three millions of persons.

† Abstract of population returns.

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

intend the property by themselves or their agent, receiving weekly or beforehand the rents from the inhabitants. Although some may be led by different motives, yet, as a general rule, it may be safely said their only object is to make the highest interest they possibly can, without looking to any other consideration.

I fear it may be shown, that as a mere matter of profit, (to a callous collector of rents,) that the poorest and worst class of habitations pay the highest interest, as the reckless and improvident always pay the highest prices. Thus, often the tramp's lodging-house, the low brothel, and the poorest class of dwellings, pay to a stern and unscrupulous owner the highest returns. It is true the returns are made from the pillage of other classes, or indirectly taken from them through the medium of poor-rates or alms, but this is not thought of by the small capitalist, with no scruples to check him, and no laws or regulations to interfere with him.

It will generally be found there are few persons of education or considerable property resident in these crowded districts; with the exception of persons belonging to and busily engaged in the learned professions, and master manufacturers, few others remain.

If the houses of the working classes are built by, or belonging to, master manufacturers, as is sometimes, but not very often, the case, they are almost always of a better class, and with more conveniences about them than those before described; in such case, however, workmen are not always free agents to work for whom they please, and to make the best bargain they can for their labour.

It has been observed, and constant experience in all the districts examined confirms it, that there is a natural tendency arising from self-interest among the small capitalists for whom the poorer kind of houses are erected, to prefer a low class of cottage dwellings to those of a better description. Exceptions will always occur, but this will be found the general rule.

It requires forethought and consideration, and a strong feeling in favour of decency and cleanliness, (that is, just the virtues which great masses of the working classes in these neglected places have not,) duly to estimate the value of efficient drainage, proper conveniences to their houses, and a good supply of water always at hand. Thus, their want of the decencies of life prevents their requiring them, and not being provided, their children are brought up in the same degraded state. This seems exactly the case in which the judicious regulations of a benevolent Government should be carried out to assist them.

Independent, however, of the tendency which exists in these populous places, among small owners, to prefer an inferior to a better class of dwellings, there is in the existing state of the law and practice, as regards poor and other local rates, a direct inducement to such persons to desire an indifferent instead of an improved kind of houses as investments.\*

Under the old Poor Law the rents of many of the poorest houses were in some districts paid out of the poor-rate. But in almost every place the lowest class of houses, partly through the inefficiency of the law, and partly through the difficulty of enforcing it, pay scarcely any of the local rates, including the poor-rate. In some places they are exonerated by local Acts,† in others excused, and in all the impracticability of collecting the trifling rate to be levied on each inhabitant prevents its being regularly enforced. If attempted, the constant excuses of the poor inhabitants, and their uncertain tenure, prevent the collection, and little is to be had unless by trouble and cost, exceeding the value of the rate! In this manner, this low class of dwellings becomes virtually exempt from burthens paid by those of an improved character. Thus a premium equal to whatever is the amount of the rate is added to the interest of capital laid out in this lower class of tenements, and is quite sufficient to operate against building such as would pay less interest by having the rates deducted from the rents, or the rents lower in consequence, which is the same thing. This is a bonus given for a bad set of dwellings, whereas it ought to be for a good set.

In some places, indeed, by local Acts the owners of tenements under a certain annual value are liable to the rates (with a certain allowance) instead of the occupiers, and this ought to be the case under the general law, and would remove one inducement now held out to continue and extend these miserable houses.‡

A measure of this nature has been recommended in the Reports of the Poor Law Commissioners, frequently suggested by local petitions, and was strongly supported by the Report of a Select Committee of the House of Commons in 1838, on a general Act of this nature, which was laid before them, and on which much evidence was heard.§

\* In Chester, all houses of a low rate are exempted from paying to police rate; and in many places there are scales of payment, giving lower rate to a lower class.

† Thus in Wolverhampton houses from 4l. to 7l. annually are rated not exceeding 6d. in the pound.

From 7l. to 10l., 9d. in the pound.

From 10l. to 15l., 1s. ditto.

From 15l. to 20l., 1s. 6d. ditto.

From 20l. to 30l., 2s. ditto.

From 30l. and upwards, 2s. 6d. ditto.

Vide Local Act for Wolverhampton, 54 Geo. III. June 17, 1814.

‡ General Report on Sanatory Condition of Labouring Population, 1842. "Impolicy of exemptions," &c., p. 229.

§ It seems perfectly practicable, as it would be also politic and just, to make provision that the repayment of any money raised for improvements should be spread over a certain period, and repaid in such a way as would cast on each proprietor or lessee of the property a proportion equivalent to his interest in it.—Vide Report on Sanatory Condition of Labouring Population, 1842. The evils arising from the difficulties in rating the occupiers of such tenements, is the injustice arising from it to other classes, as well shown in the Report of the Poor Law Commissioners on Local Taxation, 1844, pp. 58, 59, 60, &c.

Evil of exempting  
or excusing the  
worst class of  
houses from local  
rates.



## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

Evils from the  
causes stated.

Evils to women  
from neglect of  
sanatory regula-  
tions.

I feel fully persuaded that a measure founded on this principle must be the ground-work of improvement in the neglected districts described, and that without it, however they may be made better for a time, they will soon sink into their former state.

It seems demonstrable that there cannot be two rates of interest in the same country at the same time, and that if from a negligent practice under the law, or the fault of the law itself, or from any other cause, we exempt a low class of dwellings from burdens or rates paid by a better, we thereby draw and direct capital towards investment in these miserable tenements, and multiply their numbers beyond what would be the case if the rates fell equally on each.

But we have seen by the various reports of different towns and districts, and by statements derived from authentic sources from various quarters, that other things being equal, the rate of mortality in any place is ordinarily regulated by the number of these wretched neglected dwellings,\* and that the number of destitute, discontented, and depraved persons is nearly in the same proportion.

I have endeavoured to describe some of the evils arising from the want of proper sanatory regulations in many of these crowded and neglected places. They may be summed up as follows:—

- 1st. Shortening the duration of the lives of the community.
- 2nd. Disease, suffering, and inability to work on the part of many who survive; the causes of great cost to the country.
- 3rd. Crime, theft, and the loss of property, which the police constantly point out as arising from these neglected classes.
- 4th. Riots, disturbances, and drunkenness, which may generally be traced to the same class of persons, often to the same places.
- 5th. Great injury to the education of the poor, which is constantly neutralized in its good effects by the neglect and evils they see around them. The same observation applies to the inestimable advantages of religion, and attendance on religious worship.
- 6th. Great discontent in some, and sluggish apathy in others, producing recklessness of conduct, indifference, and want of attachment to the institutions of the country.
- 7th. The loss to the humbler classes of the cheapest, best, and most enduring pleasures, viz., those arising from the kindly influence of the domestic relations between husbands and wives, parents and children, brothers and sisters—that pure source of happiness derived from mutual kindness, attachment, and good offices—is, amid the hardening and disgusting scenes described, almost destroyed.

It is proposed to calculate shortly the *present* cost to the community, arising chiefly from the causes before noticed. Minute accuracy cannot be pretended to, but I fully believe the general result may be depended on. We must also bear in mind that the moral evils arising from the pollution of the mind, the hardness of heart, and all the bad passions found to prevail in the worst of these neglected places *cannot be measured by matter of money*; neither can the long sufferings of broken spirits, bent down to misery, and yet remembering better days, be gauged by any pecuniary calculation.

Amidst these scenes of wretchedness, the lot of the female sex is much the hardest. The man, if, as is usually the case, in employment, is taken away from the annoyances around his dwelling during the day, and is generally disposed to sleep soundly after his labours during the night; but the woman is obliged to remain constantly in the close court or neglected narrow alley where she lives, surrounded by all the evils adverted to; dirty children, domestic brawls, and drunken disputes meet her on every side and every hour. Under such circumstances, the appropriate employments of a tidy housewife in brushing, washing, or cleansing, seem vain and useless efforts, and she soon abandons them.

The average rate of mortality in one of the best parishes in the west end of London, well attended to in most respects, does not exceed 2 per cent. per annum; whilst that of one of the worst and most neglected parishes of the east end is about 4 per cent., or double the former: farther, the average duration of the lives of labourers and their families in one parish is 26 years, and in the other only 16 years.† Thus, after an equal expense of time in each to rear any one through the perils of childhood, his strength and intellect is available towards repaying the cost incurred 10 years longer in one case than in the other.‡ This no doubt is an extreme contrast, but it is clear that as the annual mortality for several of our large towns is found to be near 3 per cent. on the population, we are understating the truth in saying that the mortality of the poorer classes alone in most of our populous cities may be reckoned at 4·2 per cent.; but we know that with proper regulations experience has shown it ought not to exceed 2·2 per cent., which is about the average of

\* *Vide* the General and Local Reports on the Sanatory State of the Labouring Population, and the various Reports of the Commissioners from local inquiry.

† The average ages of death of the poorer and working classes are shown to be as follows in 1840:—

Kensington Union . . . . .	26 years
Bolton Union . . . . .	18 „
Bethnal Green, London . . . . .	16 „
Liverpool . . . . .	15 „
Leeds . . . . .	19 „
Rutlandshire . . . . .	38 „

*Vide* General Report of Sanatory State of Labouring Classes, 1842, p. 159.

Wherever the mortality per cent. is great, the average age of the living is much lower than where the mortality is low, as well shown in the able Supplement to Mr. Chadwick's Report on Interments.

‡ *i. e.* the existing population have less experience, skill, knowledge, and power to labour, than if the mortality be low.

healthy towns. In these neglected districts the mortality is therefore 2 per cent. higher than it ought to be, and might be with proper care, or in other words, the duration of life, instead of nearly reaching 26, would be limited to about 16½, showing a diminution of the life of each person of 10 years one with another.\*

We have seen that the loss of life will, in this case, be 10 years to each person belonging to the labouring classes or their families. Thus, suppose the average duration of life to be 16 instead of 26 years. In a town of 20,000 in population the annual deaths will be, at 3 per cent., 600 instead of 400. Of these at least 500 persons from the poorer classes would thus be deprived of 10 years of life in the strength of their age. Now we cannot reckon the value of the labour of such persons at less than 5s. per week, including males and females; this for a year would amount to 13l. each, which, for 500 persons, makes up the sum of 6500l. per annum lost to the community, owing to this premature mortality. This is not all; it is calculated that for every person who dies from any of the causes described, at least two others suffer from illness for a considerable period, though they recover.† We must, therefore, calculate the cost of the illness of 1000 more of the inhabitants of the town in question, which may be considered as lasting four weeks each, and disabling them from their usual employments. If the same value is reckoned for their labour as the others, this will amount to a loss of 1000l. per annum. An equal sum at least must be added for their maintenance during illness with medicine and advice, which will be an additional 1000l. per annum in some way deducted from the community.‡

It may be difficult to state with accuracy the loss to the town or district caused by crime arising from the evils described and enumerated as the third head of expense. The degradation and suffering found in these poor districts have a permanent effect on the conduct and character of thousands, lessening exertion, relaxing self-restraint, prostrating the feelings of decency and self-respect, and hardening the sufferers against remonstrance or advice. From much consideration I am led to believe at least one-half the amount of crime found to exist in one of these crowded and neglected towns arises directly or indirectly from this want of proper regulations to prevent the evils before depicted.

Now let us apply this calculation with all reasonable allowance, to a town of 20,000 inhabitants with a mortality of three per cent. The cost of the crime and vice of 4700 vicious characters residing in Liverpool, with a population of 220,000 persons and a mortality of 3½ per cent., was calculated at 700,000l. per annum.§ Liverpool being six times the population of the town we are considering, one-sixth would be the proportionate cost of crime if the rule of proportion only were followed. This, however, it is evident would be a great overstatement—

1st. Because the mortality of Liverpool greatly exceeds the town in question, whence we may infer greater distress, degradation, and vice.||

2ndly. The proportion of population between a very large and a moderate-sized town is not a rule to be depended on.

3rdly. Liverpool being a seaport of great wealth and great transit of goods, property there is liable to more than ordinary pillage.

Instead, therefore, of considering the cost of crime in the smaller town as one-sixth or one-seventh that of Liverpool, amounting to 100,000l. annually, let us deduct one-half on account of the population not being so dense, leaving 50,000l. And again, let us halve this sum to allow for the greater mortality and wealth of Liverpool, leaving 25,000l. Let this sum again be halved to keep quite clear of exaggeration, and we shall have left 12,500l. per annum as the cost of 300 or 400 idle or vicious characters in the town in question (of 20,000 persons) preying on their neighbours.¶ These will include a proportion of vagrants and other vicious and idle characters constantly circulating through all our populous districts.\*\*

I have before stated my conviction that where the mortality amounts to 3·2 per cent. in such a town, one-half the cost of vice and crime may be attributed directly or indirectly to the evils before depicted. We shall then have an annual loss of 6,250l. every year, arising from these causes, in the town we are contemplating. If we are to include the expense and loss arising from drunkenness†† consequent on the points of neglect referred to,

\* Allowing for deaths in infancy.

† It appears by the evidence of Dr. Southwood Smith, taken before the Commission in 1843, that in the London Fever Hospital not more than one in seven die; and that fever arising from neglect of sanatory measures, is peculiarly the disorder attacking those grown up, and the heads of families; those attacked between 20 and 30 years of age exceeding those of all other ages together, on an average of four years and 2537 cases.—*Vide* Evidence, p. 71.—15th June, 1843.

‡ It is estimated that every person in the fever hospital at Glasgow loses six weeks' employment; and the cost of attendance and support, where the party recovers, is calculated at 1l. per case.—*Report on Sanatory State of Labouring Classes about the Metropolis, &c.*, p. 6.

§ *Vide* Report of Constabulary Commissioners, p. 18. This estimate being thought extravagant, was submitted to the close scrutiny of a local committee, and found to be below the truth.—*Report of the Statistical Society of Liverpool. Report of Commissioners on Constabulary Force.*

¶ The number of depredators, offenders, and suspected persons, amounts in Liverpool to 1 in 45; but in the city of Bath is 1 in 37; in Bristol 1 in 31; and in Newcastle-on-Tyne 1 in 27.—*Report of Constabulary Commissioners*, p. 13.

In each of these towns the mortality among the poorer classes is very high, especially in Bristol, where it exceeds 3 per cent. for all, and in Bath, where being 2·6 for all, it must exceed 3 per cent. for the poor.

¶ 400 persons at 10s. per week, one with another would amount to 10,800l.

\*\* *Vide* Report of Commission on Constabulary Force.

†† It was calculated by competent authority, that 10 years ago every person above 12 years of age, consumed on an average one gallon of spirits per annum, but now a gallon and a-half.—Colonel Sykes—*Transactions Statistical Society of London.*

The quantity of spirits consumed appears by returns to have trebled in 20 years, whilst the population increased one third.—*Vide* Returns.

## APPENDIX.

Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.



APPENDIX.  
Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

we shall greatly increase the pecuniary loss to the community whose state we are considering.—The account then will stand thus with reference to such a neglected town, with a population of 20,000 persons and an annual mortality amounting to 3 per cent. :—

	£.
Loss of the labour of those prematurely cut off, as before stated, per annum,	6,500
Loss during illness of those who recover . . . . .	1,000
Their support in illness . . . . .	1,000
Cost of crime and vice arising from the same causes stated . . . . .	6,250

Total per annum . . . . . £14,750

If to this annual amount of cost arising from these causes we add that of drunkenness and the outlay in spirituous liquors, we shall find it fearfully increased. It is calculated that the amount of spirits annually consumed in England amounts to one gallon per head on the whole population, and is sold retail at about 12s. 6d. per gallon; taken, however, at 10s., it would amount to a cost of 10,000l. per annum in a town of 20,000 persons.\* At least half of this may be laid to the account of the causes adverted to, and would add to the 14,750l. already stated 5,000l. more each year.

I have here said nothing of the cost of excesses and loss of time in consequence, or of the cost of constables, police, prosecutions, and gaols; I have added nothing for the heavy payments made by the middle and humble classes for funeral expenses of their relatives prematurely carried off by the mortality described.†

Cost to a town of  
20,000 persons of a  
high mortality.

I feel confident that adding these additional items of cost, to those I have already noted the whole may at the least be estimated at 20,000l. per annum in the city described of 20,000 inhabitants, with a mortality of 3 per cent.,‡ and I feel assured that a similar calculation may be made, and will be found below the truth, for every town and district in the kingdom in the same state. We have then a city ill-regulated, neglected, and unhealthy, where the consequences of this neglect, and the evils engendered by it, cost the community (independent of the discontent, degradation, and wretchedness thereby created) the sum of 20,000l. per annum, or 1l. per head annually on the whole population, and it remains to try whether by due regulations and sanitary improvements, at a much less annual cost, we cannot work out a state of things of quite a different aspect as regards the physical and moral state of the great body of the people, and as regards the annual rate of mortality, which will be a plain criterion of their alteration for the better. If we reckon the number of persons as five to a house in such a town, we should count 4000 houses. These in such a place may be rated, one with another, at 10l. per annum, giving a rateable value of 40,000l. per annum; the cost, therefore, of the neglect and evils described, will amount to a sum equal to a rate of 10s. in the pound annually on all the dwellings in the whole town. I feel assured then that it is within the truth to lay down as a rule, that in every place where the mortality closely approaches three per cent., the annual cost direct and indirect to the community exceeds 1l. per head on the population, or 10s. in the pound, in the rental of all houses. This vast annual outlay, together with an incalculable amount of suffering and guilt, we believe may be prevented by proper regulations wisely directed, and firmly enforced.

Some persons have taken up an opinion, that however we may lament the sufferings caused by disease, and arising from the sources described, yet that the severity of this remedy is necessary to restrain the increase of population; the fallacy of such opinions have been well pointed out in the supplement to Mr. Chadwick's Report on Interment in Towns. (App. No. 11, p. 250). I have constantly observed wherever the mortality was high in close, narrow, neglected courts and alleys, there the children swarmed as if to fill up the places; and it has been demonstrated again and again, that a high mortality in an increasing country, only leads to a great increase of births.§ It can be shown that a high mortality is a source of additional cost, and waste to the community; and compared with a place where the mortality is by proper regulations low; therefore it will follow that capital, and the power of employing labour will accumulate faster where the mortality is low; and thence it will appear that in such a place or country, there will be a constant support and demand for a larger number of persons than where, from a high mortality, cost is augmented and the increase of capital retarded.||

The consideration of effective remedies for the existing evils described, is a task which will properly devolve on the whole Commission, after due deliberation; but it may here be stated that in all the populous towns and districts visited, the state of which is before narrated, great complaints were made of the inadequacy of the present powers and pro-

\* Whether, according to the respective habits of different districts, the parties in question indulged to, excess in spirits or malt liquor, will make no difference in this calculation.

† Vide Mr. Chadwick's able statement on that subject.—*Supplement to Sanitary Inquiry*, 1843, also Report, 1842, pp. 172, 176.

‡ It is not intended that the whole of this cost falls on the rate-payers, or even inhabitants of the town, it is shared by the persons and district around, but equally falls on the country at large.

§ "The proneness to marriage or concubinage in proportion to the degradation of the parties is notorious, and I anticipated, from the fact, an abundant offspring to be carried off by premature disease."—*Rev. W. Elwin's account of Bath in Mr. Chadwick's Report on the Sanitary Condition, &c.* 1842, p. 169.

|| "The disparities in the rates of mortality, and consequently in the duration of life in towns and parishes where the climate and soil are nearly the same, must awaken attention, and prove that the present excessive mortality is not inevitable. To save the life of one human being is meritorious, but here are thousands to be saved in every part of the kingdom, from sickness and untimely death, from the loss of children and of beloved friends, from all the sufferings, all the bitter separations which every one of these figures signifies."—*Fifth Annual Report of the Registrar General*, 1843, p. 34.

visions for drainage, cleansing, the supply of water, and the removal of nuisances; and a strong desire was expressed for the general adoption of sanitary regulations, and some system of periodical inspection to enforce them. The necessity for some general law to watch over the erection of the humbler class of houses, the space in front of them, and the conveniences belonging to them, seemed also admitted. The expense, difficulty, and delay of obtaining local Acts for any of these purposes, and others of a similar nature, was often complained of. It must be evident that an efficient drainage must be the first step to the sanitary improvement of these populous places. But in none of them, except Birmingham, have we found any system of levels from a common datum or point laid down; and in few any effective and comprehensive plan acted on; very seldom is any skilful civil engineer employed, and the discoveries of modern science (as applicable to this subject) are generally entirely neglected; by which means the work performed is much more costly, and worse done than would otherwise be the case. In various places, and in several parts of London, the rules laid down as to the junction of drains from the humbler class of houses into the main sewers, are very unjust and impolitic, and virtually act as a prohibition. In some towns the Sewer Rate is laid on without reference to any benefit derived; and in others, the lower class of houses, requiring only a cheap drain, two or three feet in depth, are equally taxed with houses having underground rooms or cellars requiring deeper and much more costly sewerage. An effective sewerage seems greatly dependent on and connected with a good supply of water; these two important departments should either we think be under the same authorities, or there should be established a complete understanding between them. From what I have learnt, I feel convinced that if a general Act were passed, giving proper powers and facilities for the establishment of water-works, either by individuals, companies, or public bodies in populous places; that a useful investment of capital would be opened, and a considerable source of employment furnished.

Some suggestions as to remedial measures were furnished in the Report of the Committee of the House of Commons on the Health of the Poorer Classes in Large Towns in 1840; and in the Report from Mr. Chadwick on the Sanitary Condition of the Labouring Population in 1842. The consideration of this subject will form one of the most important duties of the Commission.

We learn by the Report of the Registrar-General\* that in some neglected districts of London, the annual mortality approaches four per cent. on the population, while in others it is only half that amount or less; the same frightful contrast is found between the state of many of our large towns.†

The result of inquiries shows that the same difference in the rate of the pace of death exists often between different parts of the same town, and this chiefly owing to the neglect of sanitary measures within our power. Let us pause for a moment to consider this difference and its consequences, between portions of a city, one with a mortality of two per cent., and the other four per cent. In one there will be twice as many deaths, twice as many funerals, double the suffering, double the illness, double the grief of parting friends, double the sorrow of sad survivors. There will be twice as many widows, twice as many orphans; twice as many who have been cut off in their days of strength and usefulness, before they could repay to those around them the cost and care of their early rearing.

In the one case death arrives gradually in almost its natural course when the years are told out, and the task of life is nearly over; in the other it suddenly seizes its victims in their opening youth, in the strength of their days, or wastes them down to nothingness by varied forms of pestilence (the offspring of neglect).

What are the consequences of this difference. We shall find the rate of mortality one great criterion of comfort, therefore of contentment, of good conduct, of moral habits, of intelligence, docility, usefulness, and value.

In the one case we shall find a population having little to complain of, ready to attend to advice, having had time to learn and to think, having experience from lengthened life, and being valuable subjects, docile and industrious, possessing that chief safeguard against tumults or disorders, "the hope of improving their condition." In the other will be found a body consisting in great measure of the young, who cannot repay their support; a large proportion of the rest will be inexperienced, untaught, untried, having had no time to learn or to think. All will be more or less reckless and hard in mind and conduct; they have been formed by the constant course of circumstances around them; poison to the mind and to the body, has been the course of their only education. Their maxim will be the heathen maxim of old, "Eat and drink, to-morrow we die;" forced by their necessities to labour, experience and docility will be wanting; they will not husband their wages, but seek for excitement in intemperance, or low sensual indulgences; their consumption of spirits will be ten times that of the happier class. The gratification of their animal passions will be their chief object; illicit connections will be formed; early, ill-assorted marriages will take place without any chance of a provision for offspring: thence will arise multitudes of sickly and neglected children, pressing into the places of those early victims just departed, and to be cut off by the same melancholy process; and thus the scene revolves. This class will eagerly join in riots or disturbances, partly for the sake of excitement, and because they have not that best security for good conduct,—the hope of improving their condition.

To one or other of these classes, or to some gradation between them, the great mass of our labouring people "in populous cities pent," belong. From the concurrent testimony of all thinking persons it is now known, that the circumstances which chiefly influence in

\* Appendix to Fifth Annual Report, page 233.

† Vide ante, p. 16. The mortality of the poorer classes in the worst districts of some of our undrained and crowded towns must amount to 5 per cent.

APPENDIX.  
Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

APPENDIX.  
Report on  
Birmingham  
and other Towns, by  
R. A. Slaney, Esq.

these points their "weal or woe," are within reach of well devised legislation duly enforced by benevolent superintendence; such a course seems called for alike by humanity and true policy.

In concluding this Report, I cannot but express my earnest conviction that the evils described are most extensive and increasing; that they tend to depress and degrade very large bodies of the humbler classes, and will go far to account for the lamentable increase of commitments for crime of late years.

R. A. SLANEY.

January, 1844.

RETURNS in reply to QUESTIONS issued by the COMMISSION, 1843, from Committees, headed by—

BIRMINGHAM . . . . .	The Mayor, James James, Esq., and a Committee.
WOLVERHAMPTON . . . . .	D. Hill, Esq., J.P., and Committee.
DUDLEY . . . . .	— Fletcher, Esq., and Committee.
KIDDERMINSTER . . . . .	T. Hallen, Esq., Town Clerk, and Committee.
BILSTON . . . . .	James Loxdale, Esq., the Vicar and Committee.
WEDNESBURY . . . . .	Rev. — Cartwright, and Committee.
WALSAL . . . . .	The Mayor and a Committee.
BURSLEM . . . . .	Mr. D. Ball, and Committee.
SHELTON and HANLEY . . . . .	From a Committee of Inhabitants.
LONGTON . . . . .	— Young, Esq., and Committee.
NEWCASTLE-UNDER-LYME . . . . .	H. Hall, Esq., Mayor.
CHESTER . . . . .	The Mayor, Dr. Davies, and Committee.
WREXHAM . . . . .	Rev. — Cunliffe, J. P., and Committee.
SHREWSBURY . . . . .	The Mayor, J. J. Peele, Esq., Town Clerk, and Committee.
WEST BROMWICH . . . . .	Mr. Sweeting, Inspector of Police.
GLOUCESTER . . . . .	The Mayor and a Committee.
DROITWICH . . . . .	Medical Men and Commissioner's Notes.

	Population in 1841.	Mortality, per Cent.	Excess over 2 per Cent. in 3 Years.	Local Return.	
				Population.	Mortality, per Cent.
Birmingham . . . . .	138,187	2.7	2,728	..	..
Aston . . . . .	50,928	2.2	..	..	..
Wolverhampton . . . . .	80,722	2.8	1,846	..	..
Dudley . . . . .	86,028	2.6	1,488	..	..
Kidderminster . . . . .	29,048	..	..	Borough and Foreign, separate.	3.4
Bilston . . . . .	..	..	..	..	..
Walsal . . . . .	34,274	2.6	2,056	{1831— 8,500}	2.8
Newcastle-under-Lyme . . . . .	..	..	..	{1841—10,000}	2.8
Chester . . . . .	..	..	..	{Incr. 16 per Cent.}	715 near 3 per cent.
Shrewsbury . . . . .	18,285	2.6	373	..	..
Gloucester . . . . .	14,152	2.8	..	..	..

The following Table has been transmitted from the Registrar-General's office:—

RETURN of the Population in 1831 and 1841; Annual Increase of Population per Cent; the Deaths in 5 Years, and the Annual rate of Mortality.

Sub-districts.	Population.			Deaths in 5 Years, 1838-42.	Mortality.	
	1831	1841	Annual Increase per Cent. 1831-41.		Annual Rate per Cent.	One Death in
Shelton (parish) . . . . .	9,267	11,955	2.6	1,660	2.844	35
Longton, Lane End, and Botteslow . . . . .	9,673	12,425	2.5	1,667	2.747	36
Wednesbury (parish) . . . . .	8,437	11,625	3.3	1,432	2.538	39
Burslem (parish) . . . . .	12,714	16,091	2.4	1,937	2.461	41
Hanley (sub-district) . . . . .	8,001	9,621	1.9	1,149	2.430	41
Wrexham (ditto) . . . . .	10,656	11,960	1.2	1,435	2.426	41
Stourbridge (ditto) . . . . .	13,874	17,597	2.4	2,067	2.402	42
West Bromwich (parish) . . . . .	15,327	26,121	5.5	2,966	2.386	42
Dudley (ditto) . . . . .	23,043	31,232	3.1	3,614	2.381	42
Kidderminster (town) . . . . .	17,913	17,741	..	1,916	2.160	48

# QUESTIONS for CIRCULATION in POPULOUS TOWNS and DISTRICTS.

APPENDIX.

1. State the position of the town or district, and how it is situated with reference to the surrounding country?
2. What is the geological character of the country? Describe the nature of the surface-soil, and of the subsoil and substrata, and the facilities for, or impediments to, drainage?
3. Is the town or district liable to be flooded; and if so, to what extent?
4. Are there any obstructions to the natural drainage, or to the free flow or escape of the flood-water?
5. Is there any public survey of the town or district comprehending a system of levels from any common datum, for the proper regulation of private or public drainage, for the information of builders, or the regulation of new buildings, or for any other structural arrangements necessary for the protection of the public health and convenience?
6. What are the regulations for draining the town or districts? Are the streets, courts, and alleys laid out with proper inclinations for the discharge of surface-water, or are they uneven and unpaved, and favourable to the retention of stagnant moisture, and accumulations of refuse thrown from the houses? Are there any stagnant pools or open ditches contiguous to the dwellings, or in the vicinity?
7. Are there any arrangements for under-drainage, and are they efficient or defective? Are there any sewers or branch-drains in the streets?
8. Have the houses proper necessities? Are they so arranged as to empty into drains or into cess-pools, or in what manner are they cleansed? Are there any public necessities; and if so, in what state are they kept, and under what regulations?
9. Are the house-drains properly cleansed by water or other means, or does the refuse accumulate in them so that they become choked and emit offensive smells?
10. Are the public sewers so constructed as to act without occasioning deposits or accumulations of decomposing refuse? Are they trapped so as to prevent the escape of offensive smells into the streets or houses, or are there any means used to prevent the formation of, or to remove such accumulations?
11. Are there any local regulations in force for the systematic drainage of the districts, streets, or houses, or for the amendment of those drains and sewers which are defective, and occasion accumulations of refuse and emit offensive smells?
12. Is a large proportion of the liquid refuse of the town thrown into the water-courses, or is it allowed to soak into the subsoil, or remain stagnant on the surface?
13. What is the sectional form of each description of sewer and branch house-drain, and what is the average cost of each per running foot?
14. How are the public sewers cleansed, and at what annual expense?
15. Is there any, and what service of scavengers for cleansing the streets, and how often and at what expense are these cleansed?
16. Are those courts and alleys which are inaccessible to carts and inhabited by the poorer classes cleansed by appointed scavengers, and how frequently and in what mode is refuse removed from such places, and at what expense?
17. Are the houses provided with dust-bins for the reception of refuse, and how frequently, and in what mode are they cleansed?
18. What places are used for the deposit of the refuse of the town, and to what extent is it sold for productive use as manure?
19. Is there any local authority vested with adequate powers, and duly responsible for their regular and impartial exercise, for the enforcement of cleansing, and the prevention of all public nuisances within the town or district?
20. In respect to the sites of the houses, are they laid out in wide streets; or are they built in narrow courts and alleys? Are any of the houses built back to back; are the courts closed at the end; are there any, and what arrangements for cleansing?
21. Are there any, and what proportion and description of cellar-dwellings; how are they lighted, drained, and ventilated; are they provided with fire-places?
22. Is there any local Act or provision to prevent the ends of streets being closed up, or crossed by new buildings, or to relieve the overcrowding of districts by promoting the regular extension and most advantageous disposition of suburbs, with proper reservation of open spaces?
23. Are the school-rooms for the labouring classes favourably constructed in respect to site, drainage, light, warmth, and ventilation? Are there proper necessities attached to them? Have they any play-grounds?
24. Are there any open and convenient spaces for exercise, or are there any public parks, gardens, or walks, and in what state are they kept, and under what regulations?
25. Are there any proper open bathing-places or public baths?
26. From what sources is the town supplied with water?
  - a. For domestic use?
  - b. For watering or cleansing the streets?
  - c. For the prevention of fires?
27. What are the qualities of the water supplied, and has there been any analysis of the water in general use? If so, annex it; if not, describe the qualities of the spring or river water, or rain water, and any complaints made, or evils experienced in respect to them?



APPENDIX  
Questions for Circulation.

28. Describe the several modes in use for the distribution of water?
29. Is the distribution by a private individual, by joint stock company, or by public officers?
30. What is the number of houses in the town and suburbs?
31. In how many houses is the water laid on, and have such houses each a separate tank?
32. Are the poorer classes supplied from stand-pipes placed at particular stations, from pumps, or draw-wells, or are they in the habit of begging water from tradespeople with whom they deal; or how otherwise do they obtain it?
33. Have there been complaints of the mode in which the water is at present supplied to the population, as to the quantity, quality, or price?
34. What is the present annual charge for water laid on in the several classes of houses?
35. What is the quantity supplied for the different sums?
36. In case of the price being unduly enhanced, or of the supply being deficient in quantity or inferior in quality, are there any means of redress to the private individual, or to the public at large?
37. In respect to any deficiencies of supply in quality or quantity, what are the powers deemed requisite to remedy them?
38. Are filters extensively in use in private houses?
39. Is the water kept on constantly night and day, or how often is it kept on?
40. Is there any system of stand-pipes in the town, from which the water may be used for cleansing the pavements and the fronts of the houses?
41. Is it kept on constantly in the mains, so as to be at all times in readiness in all parts of the town in case of fire; is it kept on at high pressure, so that it may be thrown over the highest edifices in such a case?
42. In case of fire, how long is it usually before a full supply of water can be brought to bear on the premises?
43. What are the arrangements in respect to supplies of water for the protection of churches or public buildings, or warehouses, or large private buildings, against fire?
44. What is the average number of fires in the year, and what are the prevailing causes?
45. Are any houses or large ranges of buildings unprotected by party walls from the extension of fire?
46. Are there any well-appointed and practised engines, and service of firemen for the prevention of the extension of fires?
47. What is the general condition of the town or district with respect to health?
48. What is the state of the worst parts of the town, and especially those where, as appears from the mortuary registers, there is the highest rate of mortality, and where fever and other epidemic diseases are the most prevalent amongst the children or the adults?
49. What is the average duration of illness among the working classes throughout the year?
50. What is the general structure and condition of the dwellings of the poorer classes?
51. What number of families of the poorer classes, on the average, inhabit each house? What number of persons live in one room, and what is the general size of such room?
52. What is the general state of the air in the habitations of the poor? Are any arrangements introduced for ventilation?
53. Are the habitations of the labouring classes comfortably warmed in winter? What is the form and construction of the fire-place, and what is the nature of the fuel in common use?
54. Is gas-light generally introduced in the shops or dwelling-houses, and is any escape provided for the bad air which it produces?
55. What is the state of the lodging-houses for the poorer classes, and are there any police or other regulations with regard to them?
56. What proportion of the losses of rent and rates from the poorer descriptions of tenements are caused by interruption in the employment of the inmates, and expenses occasioned by sickness and mortality?
57. What is the extent of parochial or charitable relief given in aid of sickness in the districts where the average duration of life is the lowest?
58. To what extent is medical advice or assistance sought for by the poorer classes, and how far is it afforded to them gratuitously or otherwise?
59. Are there any hospitals or dispensaries in the town or district? What regulations are they under? What is the average number of patients?
60. To what extent and in what manner are the public buildings ventilated?
61. Are there any common lauds belonging to the town, and of what extent and description?
62. Are there any powers under local Acts for enforcing regulations upon any of the above subjects? If so, furnish a copy.

## REPLIES to QUESTIONS for CIRCULATION in POPULOUS TOWNS and DISTRICTS.

## BOROUGH OF BIRMINGHAM.

## REPLIES BY THE MAYOR AND A COMMITTEE OF INHABITANTS.

The following answers respecting the town and district of Birmingham have reference to the Parliamentary borough of Birmingham, incorporated by Royal Charter, dated October, 1838, which comprises the entire parishes of Birmingham and Edgbaston, and part of the parish of Aston, viz., the hamlets of Deritend and Bordesley and Duddeston cum Nechells.

As respects lighting, paving, cleansing, &c., the borough is under the management of three distinct bodies of Commissioners, having jurisdiction under the following local Acts of Parliament, and four distinct Boards of Surveyors, appointed and acting under the provisions of the General Highway Act, 5th and 6th Will. IV., cap. 50.

*As to the Parish of Birmingham.*

An Act of the 9th Geo. IV., cap. 54, intituled, "An Act for better paving, lighting, watching, cleansing, and otherwise improving the town of Birmingham, in the county of Warwick, and for regulating the police and markets of the said town."

*As to the Hamlets of Deritend and Bordesley.*

An Act of the 31st Geo. III., cap. 17, intituled, "An Act for cleansing, lighting, and watching, and levelling the surfaces of the streets and other public places within the hamlets of Deritend and Bordesley, in the county of Warwick, and for removing and preventing nuisances, obstructions, and incroachments, and regulating the driving of carts and other carriages used for carrying goods, wares, and merchandises therein," and two Boards of Surveyors, one for Deritend and the other for Bordesley, appointed under the provisions of the General Highway Act of the 5th and 6th Will. IV., cap. 50.

*As to Duddeston cum Nechells.*

An Act of the 10th Geo. IV., cap. 6, intituled, "An Act for lighting, watching, cleansing, and otherwise improving and regulating the hamlets or liberties of Duddeston cum Nechells, in the parish of Aston, near Birmingham, in the county of Warwick," and a Board of Surveyors of the Highways for these hamlets, appointed under the General Highway Act.

*As to the Parish of Edgbaston.*

(A most important part of the borough.)—There is no local Act, and in that parish surveyors are annually appointed under the provisions of the General Highway Act.

There being no co-operation or uniformity of proceeding as to paving, lighting, cleansing, &c., between the eight distinct local authorities within the borough, many of the questions put by the Commission for Inquiry into the Health of Towns do not, therefore, admit of such general answers as might have been expected had the whole borough been under one general system of management; and it has been found necessary to submit many of the answers so arranged as to correspond with the districts under separate management and distinct Acts of Parliament.

1. In the north-western extremity of the county of Warwick, 110 miles from London, 20 from Warwick, 26 from Worcester, 29 from Stafford, 40 from Derby, and is 468 feet above the level of the sea; the principal part of the town is situated on a hill nearly in the shape of a horse-shoe, and rises on the south-east side from the river Rea 115 feet in 1000 yards, and from the Brook on the north side 70 feet in 2000, and from the toe to the heel 165 feet in 4000 yards.

2. A dark sandy surface-soil, naturally poor; subsoil clay, sand, and gravel intermixed, and gravel and marl mixed; substrata red sandstone. See also Answer No. 4. The position of the town on the sides of a hill, and the porous nature of the substrata are very favourable to drainage.

3. Not much so, but the fall being rapid towards the south-east some portions of the borough, which lie adjacent to the valley of the Rea, are occasionally flooded in very heavy storms.

4. Until recently there were four. The attention of the Commissioners of the Birmingham Act has been, for several months past, directed to such of these obstructions as exist in the parish of Birmingham. The floodgates at Deritend Mill are already removed, and there is great reason to believe that the weir near Moseley-street Bridge, and some

## APPENDIX.

*Borough of Birmingham.*

Replies by the Mayor and a Committee of Inhabitants.

## APPENDIX.

Borough of  
Birmingham.Replies by the  
Mayor and a Com-  
mittee of Inha-  
bitants.

temporary minor obstructions recently made, will shortly be removed: but the greatest obstruction of all is Duddeston Mill, which backs up the water in the river for about a mile, and causes it to be stagnant and dead. Into this stagnant water the main-drainage of the borough empties itself, and remains to ferment, presenting a pestiferous surface of white scum, from which a noxious effluvia is exhaled. No power exists in either of the local Acts to remove the obstruction at Duddeston Mill.

5. An actual survey was published by Mr. Piggott Smith, the present surveyor of the Birmingham Street Commissioners, who has also made two sections from levels running through the town, crossing each other in the centre nearly at right angles, and serving as a datum, from which new culverts are laid: he has also a large map of the town, on which he has laid down the whole of the drainage; but the districts of Edgbaston, Deritend and Bordesley, and Duddeston cum Nechells, are defective in such respects.

6. There are about 40 miles of main culverts in the parish of Birmingham, consequently the greater part of that parish is well drained, and the public are compellable by the local Act to carry off the drainage of their several premises across the public footpaths by underground branch culverts into these mains. With few exceptions, the streets have good inclinations, and are Macadamised, and have paved side-channels, and are the very reverse of being favourable to the retention of moisture. There are no stagnant pools, and but few ditches near dwellings.

Many of the courts in the parish of Birmingham have both underground and surface-drains, others are different in these respects, and there are no powers in the local Acts to enforce salutary regulations within courts or alleys.

The above answer, however, is not applicable to the parish of Edgbaston and the hamlets of Deritend and Bordesley and Duddeston cum Nechells, which are defective in many respects.

7. As before stated, there are about 40 miles of main culverts in the parish of Birmingham, into which the surface-water is carried by underground branches. These mains average 5 feet deep, are circular in form, 18 inches to 5 feet in diameter.

The arrangements in the parish of Edgbaston and the hamlets of Deritend and Bordesley and Duddeston cum Nechells are defective in this respect.

See also Answer to No. 6.

8. Superior houses have water-closets emptying into the street-mains; and all classes of houses have receptacles for dust and ashes, and necessaries adjoining the same; these places are emptied by nightmen, and the soil removed into the country as manure. No regular plan is adopted for emptying necessaries, nor is there any summary power in any of the local Acts to enforce salutary regulations relating to this matter, consequently many of the necessaries are frequently in a very offensive state. There are no public necessaries.

9. Many of the house-drains are properly cleansed; if suffered to remain choked up, the parties may be summoned under the local Act and fined.

10. There is a cesspool to each public grate in the parish of Birmingham, and men are daily perambulating that parish to examine and keep them clean; they are not trapped, but arrangements are being made to do so.

This answer, to the extent of their respective limited drainage, is applicable to the other parts of the borough.

11. In the parish of Birmingham there are for the public streets and roads, under the before-mentioned local Act of 9th Geo. IV.

12. It is mostly carried off by the main culverts in Birmingham parish; where there are no mains it is carried off by the side channels.

See No. 6; and to a great extent this answer applies to other parts of the borough.

13. The mains are circular. No regular form of branch-drain is enforced. The cost of branch-drains is from 10d. to 1s. 6d. per foot, two-feet culverts 2s. 4d., laid five feet deep. Branch-drains are frequently made square by placing a brick on edge.

14. In the parish of Birmingham, by men employed for that purpose, at a cost of about 450l. per year.

In the other parts of the borough no specific provision is made for this purpose.

15. There is a regular scavenger department in the parish of Birmingham; the streets are cleansed on an average twice per week at an annual cost of about 3500l.

In the hamlets of Duddeston and Nechells 179l. was expended last year for cleansing streets.

In the other parts of the borough the "service of scavengers" for cleansing the streets is not a separate department.

16. Courts and alleys not being public thoroughfares are not regularly cleansed by appointed scavengers, nor is there any authority to compel the owners of such property to submit to regulations of the Street Commissioners with respect to cleansing. Such courts and alleys are frequently found in a very filthy state.

17. See Answer No. 8.

18. There are three wharves used as depôts for refuse removed from the parish of Birmingham; and one in the hamlet of Duddeston and Nechells, which is purchased by farmers, and removed by canal—the charge is 1s. 6d. per ton.

In the parish of Edgbaston, and the hamlets of Deritend and Bordesley, there are no such depôts.

19. It will be seen, by the local Acts herewith sent, that the powers of the several Boards of Commissioners are extensive, but in many respects inadequate.

20. There are some (but very few) narrow streets in the old parts of the parish of Birmingham. By far the greater part of the town is composed of streets 42 feet wide and upwards, 42 feet being the minimum width allowed by the local Act in all new streets.

There are comparatively few narrow courts, back-houses being generally erected in square courts; some are well ventilated, others badly; most of them are approached by entries covered over, many of them are back to back; but there are not sufficient powers to enforce the cleansing of the courts.

21. There are no cellar dwellings in the borough.

22. The powers contained in the several local Acts are inadequate for some of the purposes referred to.

23. The drainage, warmth, and ventilation in some of the schools are susceptible of great improvements; others are well ventilated, and have proper necessaries, and playgrounds attached.

24. None, in the sense in which this question is put. Too much importance cannot be attached to so serious a defect in a densely populated district like Birmingham.

25. None. As in the answer to the last question, too much importance cannot be attached to this defect.

26. By a water company established by Act of Parliament, and by pumps.

a. See answer to 26.

b. From the water company for watering only.

c. From the water company, as directed by their Act.

27. The town in general is amply supplied with water of excellent quality. The courts and alleys, however, derive their chief supply from pumps communicating with wells, which are not provided with any means of security against the infiltration of decomposing matter from drains, and deleterious substances from manufactories.

## APPENDIX.

The principal sources from which wholesome water is supplied to the town are the "Lady Well," and several springs situated in Digbeth, Jamaica-row, and Allison-street respectively; but by far the largest supply is derived from the river Tame, and distributed through the town by the "Water-works Company."

Some of the above springs are remarkable for their purity, as will be seen from the following table of their specific gravity:—

Lady Well	= 1000.403
Digbeth	= 1000.480
Jamaica-row	= 1000.520
Allison-street	= 1000.570

Thus the quantity of foreign matter is so small as to be quite unimportant, so far as the question of the wholesomeness of the water is concerned.

The water from the well in Jamaica-row is remarkable, as containing no trace of sulphates in its ordinary state.

Notwithstanding the purity of the water from the above sources, no precaution has been taken, in the construction of the wells, to prevent the chance of impure solutions infiltrating through the soil: an event which would certainly occur if any large manufactories or chemical works should be established in their vicinity.

Some of the water obtained from private pumps is of the most impure description, and unfit for ordinary culinary purposes. One specimen contained a considerable quantity of protoxide of iron, in addition to sulphates of lime and soda, and carbonate of lime, the specific gravity was so high as 1002.15.

The chief supply of water in the town is derived from the river Tame, and distributed by the Water-works Company.

Previously to obtaining an Act of Parliament in the year 1825, analyses of the water were made by Mr. Southall and Professor Phillips, the result of which was considered decisive as to its wholesomeness and general adaptation to the wants of the town.

As the water analysed was that derived from the river, and that distributed through the town, first received into a reservoir, it became a subject for inquiry, whether the works constructed by the Company are of such a nature as to impair its purity.

In order to be able to lay before the Commission a correct statement, it appeared desirable to obtain answers to the following queries from the responsible agent of the company:—

What is the number of superficial square feet of the reservoir?

In what year was it erected, and how often has it been cleaned out since its completion?

What was the depth of the deposit when cleaned out?

Is the water pumped from the main reservoir into another of higher level; and if so does the water in the second reservoir receive any other supply than from the first?

To what extent is lead made use of in the conduit pipes?

The answers obtained were,

1st. That the extent of surface of the reservoir is about 747,000 square feet.

2nd. That it was built in the year 1831, and has been emptied twice, but on neither occasion did the deposit exceed one-eighth of an inch.

3rd. That the water is pumped into another reservoir of higher level in order to meet the demands of certain parts of the town, but that a portion is allowed to run off for the lower parts of the town without being conveyed to the higher reservoir. No other water, however, is admitted than that obtained from the main reservoir.

4th. The conduit-pipes are all of iron; the pipes which convey the water into the houses, and the leaden tanks are private property.

## APPENDIX.

Borough of  
Birmingham.Replies by the  
Mayor and a Com-  
mittee of Inha-  
bitants.



## APPENDIX.

Borough of  
Birmingham.Replies by the  
Mayor and a Com-  
mittee of Inha-  
bitants.

On inspecting the works it was also found that great care has been taken by filtration through large canvass strainers to prevent any coarse weeds or other matters obtaining ingress to the works. It should also be stated that the water is admitted from the river into the main reservoir only under favourable circumstances, when the river is foul through floods, the water is not admitted, but when all the grosser particles have subsided, the opportunity is embraced of increasing the supply.

From the above answers it will be seen that a mere chemical analysis, however ably conducted, is not sufficient to furnish a satisfactory report as to the state of the water, as so many physical circumstances are in operation.

The results of the analysis of the water obtained immediately from the reservoir are as follows:—

Temperature on the 25th of August, 1843=60° F.	
Specific gravity 1000·68.	
100 parts of the solid matter obtained by evaporation, consisted	
of chloride of calcium, with traces of chloride of magnesium . . . . .	11·42
Sulphates of lime and soda, with a trace of sulphate of magnesia . . . . .	37·14
Carbonate of lime . . . . .	45·24
Silica with a slight trace of organic matter . . . . .	6·20
	<hr/> 100·00

The water obtained from several private pumps has also been partially examined, but for the reasons stated above, no uniform results could be obtained.

Queen's College, Birmingham, October 2, 1843.

GEORGE KEMP, M.D.

28. By tanks supplied from the mains (of which there are 80 miles) to each house; in courts by tanks accessible to all the court, or by pumps.

29. By a joint stock Company, 7 Geo. IV.

20. The number of houses in the Borough of Birmingham according to the census of 1841, 40,281.

31. About 8000 houses have a separate tank. Some of the courts have tanks accessible to all the houses in the court.

32. There are no stand-pipes for the gratuitous supply of water to the poor, and only two public pumps. The poor are generally supplied from the water-works or from private pumps in their respective courts.

33. None.

34. First rate houses, from 40s. to 60s. Second rate, from 20s. to 40s. Third rate, from 10s. to 20s. Small tenements, 9s.

35. There is no restriction except as to waste.

36. The price is fixed by the Act, which also affords redress to private individuals.

37. See answer to No. 36.

38. Not extensively.

39. Two 90-horse power engines work daily, and lift the water into a reservoir 252 feet above the spot, from whence the supply is obtained through a main artery, running through the centre of the town to the said reservoir, which is two miles distant. On the engines stopping, the water in this reservoir acts as a pressure on the main artery, which is consequently always full, and the pressure is sufficient to throw a jet of water 50 feet high, except in the extreme high level of Edgbaston.

40. There are in the parish of Birmingham, for the purpose of laying the dust in the streets only, but not in the other parts of the borough,

41. See answer to No. 39.

42. A short time, the turncocks being in the service of the fire companies, and accompanying the fire-engines.

43. None, except the free school in New-street.

44. Very few; on an average about 50, mainly arising from carelessness.

45. Very few unprotected.

46. There is a town engine, and three of the fire offices in the town, viz., the Birmingham, the District, and the Norwich Union, have well-appointed fire-engines, firemen, and other necessary establishments; but there is no united fire-brigade.

47. Very good, as shown by the report of the medical gentlemen, published in 1841, and herewith sent.

48. There is no one part of the borough which can be considered more unhealthy than another, this view of the case is sustained by a reference to the mortuary registers.

49. No satisfactory answer can be given to this Question.

50. Generally convenient, having a cellar for fuel, &c.; a living-room, averaging from 12 to 15 feet square, and a chamber and attic over, the same size.

51. Almost every poor family have a house to themselves.

52. The state of the air in the habitations of the poor is in general sufficiently good. During the summer the air is hot and close in the upper apartments of small houses situate in the narrow and more confined courts. There are no arrangements introduced directly for the purpose of ventilation; but there is in almost every room an open fire-place and chimney, besides a window capable of being opened: the staircases are very commonly uninclosed.

## APPENDIX.

Borough of  
Birmingham.Replies by the  
Mayor and a Com-  
mittee of Inha-  
bitants.

53. Generally they are: the fire-place generally contains a grate 3 feet 6 inches by 1 foot 6 inches, having an oven in it; the fuel is coal.

54. Yes, generally in the shops, and some few houses: no particular escape is provided for.

55. There are no police or other regulations with regard to lodging-houses within the borough. The medical report before alluded to contains at pages 6 and 7 a correct description of those houses.

56. No definite and satisfactory answer can be given.

57. It will be seen, on reference to No. 48, that a specific answer cannot be given to this question.

58. Medical advice is extensively sought and obtained gratuitously by the poorer classes. (1.) As in-patients of the General Hospital, Queen's Hospital, and the Town Infirmary (attached to the workhouse), where they are boarded and lodged.

(2.) As out-patients attending at the General Hospital, Dispensary, the Queen's Hospital, Town Infirmary, Institution for Bodily Infirmities, Lying-in Hospital, limited to diseases of women and children, Eye Infirmary, and in the Edgbaston and Aston portions of the borough at the houses of the medical officers, who attend the paupers of the respective parishes, where they are found in drugs, &c.

(3.) At their own dwellings, where they are visited by the medical officers of the Queen's Hospital, the General Dispensary, the Town Infirmary, the parishes of Edgbaston and Aston, and the Lying-in Hospital, who afford advice and assistance in medical, surgical, and midwifery cases, and order drugs, &c., at the expense of the respective establishments.

(4.) As free patients attending at the houses of different physicians and general practitioners at certain hours and days, the patients purchasing their own drugs from a druggist; in some instances advice is thus given to a very great extent.

(5.) The poorer classes are also constantly in the habit of seeking the advice of druggists, who prescribe across the counter, and sometimes even visit the sick at their own houses: this is carried on to an enormous extent; sometimes the druggists will recommend the applicant to obtain a gratuitous prescription from a physician or surgeon; but in the great majority of cases prescribes, and too often great injury to the health is the result.

(6.) There are two institutions styled Self-supporting Dispensaries, the medical officers of which engage to attend a case for six weeks for a sum of 3s. 6d., and find the patients in drugs, &c. These 3s. 6d. tickets are purchased for a person already ill, and not on the principle of insurance.

(7.) There are numerous friendly societies, both male and female, to each of which a medical man is attached, who engage to attend the members in illness, and supply them with drugs: the remuneration is generally very small.

59. Yes: viz.—

The General Hospital,  
The Town Infirmary,  
The General Dispensary,  
The Queen's Hospital,  
The Eye Infirmary,  
The Bodily Deformity Institution,  
The Lying-in Institution.

A copy of the laws regulating each of these charities is annexed, with the exception of those relating to the Town Infirmary, which, being a parochial institution, is governed by the Board of Guardians of the parish of Birmingham and the Lying-in Institution.\* The number of patients attended during the past year as follow:—

General Hospital—in-patients 1627, out-patients 10,055 . . . . .	11,682
Queen's Hospital—in-patients 766, out-patients 2,000 . . . . .	2,766
† Town Infirmary—in-patients 1,170, out-patients 5,818, and 3,828 } visited at home . . . . .	10,816
‡ General Dispensary—sick patients 2,653, midwifery 771 . . . . .	3,424
Eye Infirmary—in-patients 12, out-patients, 2,459½ . . . . .	2,471½
Bodily Deformity Institution—out-patients . . . . .	153
Lying-in Institution—out-patients . . . . .	350
	<hr/> 31,662

60. The public hospitals and some other public buildings are well ventilated, others imperfectly; the modes adopted are various.

61. None.

62. 9th Geo. IV., Sess. 1828; Commissioners' Act, 7th Geo. IV.; Water Company's Act; Gas Company's Act.

\* The laws of the Lying-in Institution not published, but in the press.

† Vaccinated 866 at the stations, in addition to those vaccinated at the town infirmary.

‡ Vaccinated also, 1614.

## APPENDIX.

Borough of  
Birmingham.

Letter addressed to Mr. Slaney on the State of the Courts.

Birmingham, November, 1843.

DEAR SIR,

My principal motive for now addressing you is to point out the necessity for the extension of salutary powers to the state of the level and repair of the courts as well as their drainage. Since I had the pleasure of seeing you in Birmingham I have visited 167 of the courts, with the view of ascertaining their condition in these respects; and the result of the observations taken and recorded on the spot is that, out of that number, 88 are bad, both as regards their level and drainage; 120 are quite out of repair; 44 are good as to their level; but bad as to their drains; while 30 are good as to their drains, but defective in their level, while 23 only may be said to be in a perfect state. Against many I have written the word disgraceful, and a few I have the pleasure of recording as excellent. Thus you will perceive that a court may be well supplied with drains, but these may be rendered of no avail by the court being badly levelled; other courts will be well laid, but their drains will be defective; while both the level and the drainage may be good, but rendered ineffectual by the state of repair, permitting large pools of stagnant water to remain after heavy rains, from whence exhalations proceed which mix with the atmospherical air, by which the dwellings of the work-people are supplied.

The destructive influence to health of air impregnated with these exhalations is pointed out by all medical writers, but it is particularly noticed by Sir John Pringle in his work on diseases of the army, and also by Sir Gilbert Blane in his observations on the Walcheren fever: in these instances the fatal poison was inhaled in its most concentrated form; when taken in a more diluted form its effects are less severe, as witnessed in the ague, which formerly prevailed in a very severe form in our fenny districts, but which is now become almost extinct by the superior and more effectual drainage employed. Now, although these effects are not so visible, or so immediately injurious to health in the badly-constructed courts, I cannot have any doubt in my mind but that it does produce an effect more or less injurious to health.

R. A. Slaney, Esq.

I remain, dear Sir,  
Your obedient servant,  
JAMES RUSSELL.

A STATISTICAL REPORT of a SURVEY, made with the view of ascertaining the state as to Level, Drainage, and Repair, of 202 Courts, situated in the Streets lying between Summer-row and Snow-hill, being a portion of the older part of Birmingham.

	Number of Courts Visited in each Street.	Defective in proper Level, many with good Drains.	Insufficient Drains, but many well Levelled.	Effective both in Level and Drainage, but out of Repair.	In bad state of Repair.	Excellent both as regards Level, Drainage, and Repair.	Disgraceful Courts.
Bread-street . . .	10	4	4	3	4	..	..
Newmarket-street . .	1	1	1	..	1	..	..
Great Charles-street .	12	5	2	4	7	1	..
Edmund-street. . .	19	8	8	9	14	1	2
New Dale-street . .	4	1	1	2	1	..	..
Mount-street . . .	8	4	3	3	4	..	..
Mary Ann-street . .	6	2	5	1	4	..	..
Water-street . . .	8	5	5	2	6	..	..
Ludgate-hill . . .	7	5	4	..	6	..	2
Church-street . . .	9	5	4	6	7	..	..
Lionel-street . . .	24	12	14	9	22	1	2
Livery-street . . .	47	17	18	8	26	11	6
Henrietta-street . .	10	6	6	2	6	2	..
Little Charles-street .	16	11	11	3	13	2	1
Ann-street . . .	4	1	2	2	4	..	1
Conegreve-street . .	1	1	1	..	1	..	..
Fleet-street . . .	11	7	6	3	10	..	..
Charlotte-street . .	5	1	2	2	3	1	1
Total . . .	202	96	97	59	139	19	15

The following table exhibits the ratio of mortality to population in the several registrar's districts in the borough of Birmingham, in the years 1841 and 1842:—

## APPENDIX.

Borough of  
Birmingham.

Name of District.	Mortality per Cent. to Population.		Parish.
	1841.	1842.	
All Saints . . . . .	2.15	1.96	In parish of Birmingham.
St. George* . . . . .	2.62	2.56	Ditto.
St. Mary† . . . . .	2.69	2.39	Ditto.
St. Paul . . . . .	2.23	2.02	Ditto.
St. Philip . . . . .	2.4	2.49	Ditto.
St. Peter . . . . .	2.56	2.55	Ditto.
St. Martin . . . . .	2.61	2.3	Ditto.
St. Thomas . . . . .	2.17	2.66	Ditto.
Lady Wood . . . . .	1.82	2.1	Ditto.
Deritend and Bordesley . .	2.13	2.15	Part of Aston parish.
Duddeston and Nechells . .	2.5	2.42	Ditto.
Edgbaston. . . . .	1.51	1.43	Whole of parish of Edgbaston.
Borough of Birmingham .	2.45	2.48	

## Observations on the preceding Statement.

The districts used for the purposes of registration of births and deaths, in Birmingham, are arbitrary divisions, originally formed for collection of poor rates. They are not co-extensive with any parishes of the same names.

\* The district of St. George includes the general hospital and the infant asylum, a branch of the Birmingham workhouse.

† The district of St. Mary includes the Birmingham workhouse.

The above mentioned establishments are *not* included in the statement of *mortality in districts*, as it would lead to erroneous conclusions as to the comparative salubrity of the districts, but the whole is included in the statement as to the borough of Birmingham. The low rate of mortality in the parish of Edgbaston, is doubtless attributable to a generous supply of food and clothing amongst a comparatively wealthy class, as well as to locality.

HENRY KNIGHT.

Extract from a Letter, dated 29th December, 1843, from Thomas Weston, Esq., Mayor of Birmingham, addressed to the Secretary of the Health of Towns' Commission.

"Although in this borough much has been done in the process of improvement, yet much still remains to be done; we have still many crowded, narrow and inconvenient streets and passages, unfavourable alike to the health and convenience of the inhabitants; and, I believe, other large manufacturing boroughs must be in a similar situation.

"The greatest obstacle to improvement is the trouble and expense of obtaining a separate Act of Parliament for each occasion; but if an Act were passed enabling all town councils to effect improvements, and regulate newly-projected streets, under the sanction of Her Majesty's Secretary of State for the Home Department, or of a Board of Commissioners named for that purpose, I feel persuaded that the progressive improvement of towns would be much facilitated, and the general health of the inhabitants increased."



## BOROUGH OF WOLVERHAMPTON.

## APPENDIX.

Borough of  
Wolverhampton.Replies by J. Hill,  
Esq., J.P., and a  
Committee of  
Inhabitants.

## REPLIES by J. HILL, Esq., J.P., and a COMMITTEE of INHABITANTS.

1. Stands high, with a fall in every direction. The canals lock downwards towards the neighbouring rivers.
2. Stands chiefly on the new red sandstone, broken and dislocated; on the south and east lies the Staffordshire coal-field. For drainage see No. 1.
3. No.
4. No.
5. No.
6. None. The old streets are, the new streets are not, there being no controlling power before the houses are built. There are such pools and open ditches in some of the streets; the sewers empty themselves close to the town in some instances.
7. There are sewers and branch-drains in the old parts of the town, not in those new streets which are composed of small houses.
8. Very deficient in number. They usually empty into open ash-holes, and, when full, the ashes and filth are carried out together. None.
9. Not generally in the best streets, and very deficient in the others.
10. There are wells under the grates in the streets, in which the water deposits its sediment, and which are regularly emptied, which prevents accumulation in the sewers. Not trapped.
11. No.
12. Such refuse lies on the surface in the poorer streets.
13. They are generally cylindrical, from 9 to 30 inches; brickwork cuts from 1s. to 4s. per foot.
14. They are cleansed by men employed for that and other purposes by the Commissioners under the Wolverhampton Town Act.
15. See 14.
16. Not done at all.
17. See 8.
18. Deposited in open spaces in the town not built upon. Does not sell for cost of getting together.
19. There is a local Act, but not very effective.
20. Some wide, some narrow, built in some instances in courts and alleys; some built back to back; some courts closed. No arrangements for cleansing.
21. None.
22. The local Act does not provide for these things.
23. All suitably arranged in these particulars.
24. None.
25. None.
26. Private, and a few public pumps. Supply very deficient, and altogether inadequate for the prevention of fires.
27. The water clear and good. No chemical analysis. Contains carbonate of lime.
28. None.
29. None of these.
30. The township of Wolverhampton comprises about 6600 dwellings.
31. None.
32. No stand-pipes for the poor. Supplied from pumps.
33. No complaints; quantity not abundant.
- 34—41. No.
42. The supply is very deficient.
43. None.
44. Very few.
45. Scarcely any party-walls.
46. Two large town-engines, and one by the Birmingham Fire Office. Three firemen, aided by police.
47. Generally good.
48. Fevers are not prevalent, but occur in those parts of the town where the sewers are imperfect or not introduced at all.
49. About 17 days.
50. Some good; the greater part built without any regard to comfort or cleanliness.
51. Lately more than one family is crowded into one house; the average has been  $5\frac{1}{2}$  in each house; but as 1200 houses out of 6600 are at present uninhabited, its average must now be about  $6\frac{1}{2}$ .
52. Ventilation good in consequence of the abundance of fuel.
53. Comfortably warm. No regular form of fire-place. Coal.
54. It is introduced into shops, not houses. Means of escape sometimes used.
55. Very bad. No police regulations.
59. A dispensary, with casualty ward; supported by voluntary contributions; relieves about 2000 annually.
61. None.
62. A copy of Town Act sent herewith.

## DEATHS in the Wolverhampton Union for the Three Years 1840-42.

Township.	1840	1841	1842	Average on 3 Years.	1841 Population.	1841 Population.	Per Centage on 1841 Population.	Remarks.
Wolverhampton	1,110	1,006	1,090	1,068 $\frac{2}{3}$	24,710	36,382	2.9	The Union House being in Wolverhampton increases the average of mortality against Wolverhampton.
Bilston . . .	652	613	620	628 $\frac{1}{2}$	14,492	20,180	3.1	
Willenhall . .	189	229	250	222 $\frac{2}{3}$	5,834	8,695	2.5	
Wednesfield .	70	70	108	82 $\frac{2}{3}$	1,879	3,168	2.6	
	2,021	1,918	2,068	2,002 $\frac{1}{2}$	46,915	68,425	2.8	

Sedgley in the borough of Wolverhampton, but within the Superintendent Registrar's district, the Dudley Union.

## APPENDIX.

Borough of  
Wolverhampton.Replies by J. Hill,  
Esq., J.P., and a  
Committee of  
Inhabitants.

## TOWN OF WEDNESBURY.

## REPLIES by the Rev. J. CLARKSON and a COMMITTEE of INHABITANTS.

Town of  
Wednesbury.Replies by the Rev.  
J. Clarkson and a  
Committee of  
Inhabitants.

1. Wednesbury is a market-town in the county of Stafford, and mostly built on the decline of a hill, falling into a branch of the river Tame. Population in 1841, 14,627. Eight miles from Birmingham, three from Bilston, three from Walsall, four and a half from Dudley.
2. The surface is very various. On the hill the subsoil is gravelly; on the lower part of the town clayey. The facilities for drainage are remarkably good. There are mines of coal and iron-stone in the parish.
3. No. Sometimes the river Tame, after a great fall of rain, overflows the meadows.
4. We are not aware of any.
5. No.
6. We have no regulations for the drainage of the town. The public streets are generally laid out and paved with channels for the water; the back streets, courts, and alleys are not laid out with proper inclinations; they are, for the most part, uneven and unpaved, and, to a considerable degree, are favourable to the retention of stagnant moisture and accumulations of refuse thrown from the houses. Yes.
7. There are not any public drains; such drains are very desirable in this parish.
8. By no means; and even for those which are built there are no arrangements made to empty them into drains or cesspools. They are, for the most part, cleansed by farmers, who move the night-soil in barrows down the entries, and, in some instances, through the houses into the streets to load into their waggons or carts. There are no public necessities.
9. There are no house-drains.
10. We have no public sewers.
11. We have no local regulations.
12. Not having any water-courses, the liquid refuse is generally thrown away promiscuously, and allowed to soak into the subsoil, or to remain stagnant, according to the nature of the ground.
13. The surveyors of the highways cleanse the streets, so far as concerns those which belong to the public, by labourers employed for that purpose.
14. No; consequently they are in a filthy condition. For the mode of cleansing, see answer to Question 8.
15. Generally not.
16. There are no places for this purpose.
17. No.
18. They are not laid out in wide streets, and are generally badly arranged. Few back to back. There are narrow courts and alleys, and some few closed at the end. There is no arrangement for cleansing.
19. There are not half a dozen cellar dwellings in the parish.
20. We have no local Acts.
21. Yes; yes. Very little.
22. None whatever.
23. None, except canals or pools.
24. From private and public wells, but most from the river Tame by water-carts or pails.
- a. Badly supplied from wells.
- b. c. No supply.
25. There has been no analysis of water. The water from the wells is tolerably good, but not a plentiful supply. We know of no complaints, except as it respects the want of a greater and more easy supply.
26. There is no public mode.
27. About 2300 in the parish. The adjoining parishes are very populous.
28. By carrying it from public or private wells, or from the river.
29. No.

APPENDIX.

Town of  
Wednesbury.

Replies by the Rev.  
J. Clarkson and a  
Committee of  
Inhabitants.

40. No.
43. None.
44. Fires very rarely have occurred.
45. Yes.
46. Not in the parish, nor within two miles.
47. Tolerably good.
48. Having no separate districts we can only say, that the lower parts of the town are more subject to fevers, and the mortality appears greater. This was particularly observable at the time of the cholera.
49. From nine days to a fortnight.
50. Very bad.
51. The houses are small, and generally occupied by single families. In bad times two families often reside in the same house. A house is generally about 11 feet square, with a room above.
52. Bad. A great want of arrangements for proper ventilation.
53. Yes; a stove-grate and coal is their constant fuel.
54. It is only introduced into shops, and we are not aware of any escapes for bad air.
55. Very wretched. No.
56. Upon a moderate calculation, we should think about 20 per cent.
57. About 3s. per week.
58. There is no gratuitous medical advice, except what is supplied by the parish.
59. None.
60. There is no ventilation except by casements.
61. There is about 16 acres of common land two miles from the town. There is a large extent of lammas land; but, in some instances, the proprietors have built upon it, and in others inclosed it.
62. There are none.

Letter to the Com-  
missioners respect-  
ing water.

SIR,

I THINK it right to inform you that the three wells, mentioned at the meeting on Thursday as affording a sufficient supply of water, I visited after the meeting was over.

One well had *not a gallon* of water in it: the other two (fully three-quarters of a mile from the town) have not had any water in the nearest for two months, and is quite dry; at the other, an old woman was endeavouring to get about the full of a tea-cup at a time from among the rubbish at the bottom.

Mr. ——— I understand has a good well on his own premises, and as parties so circumstanced generally sell water, he may not be altogether a disinterested witness.

He informed me since, he "would oppose any measure for a supply of water," as he did "not consider it required, and the people had enough to pay already."

I remain, sir,

Your obedient servant,

R. A. Slaney, Esq.,  
&c. &c.

Wednesbury, August 28, 1843.

TOWN OF WALSALL.

REPLIES by a COMMITTEE of INHABITANTS.

Town of Walsall.  
Replies by a Com-  
mittee of Inhabit-  
ants.

1. Walsall is situated on an elevation, decidedly higher than the surrounding country, the canal level being 500 feet above the sea. The brooks are sources of the Trent.
2. The limestone fault of the Great Staffordshire coal basin crops out here its highest point, except Dudley. The surface is generally loamy; subsoil gravel. Lime-rock underneath, affording every facility for drainage; the Walsall brook flowing through the town, and affording a fall of six feet.
3. The lower parts of the town and meadows are flooded very seldom, and to no great extent by heavy rains, the flood passing off in a few hours.
4. There is a weir in the town to supply water from the brook for mill power; but in floods the escape of the water takes place rapidly and easily over it and the brook banks, which are low. The weir cannot be considered injurious.
5. None.
6. There is no system of drainage. The courts and alleys generally are naturally favourable for the discharge of surface water, but the surface being uneven and unpaved, and without courses, the stagnant moisture and accumulations of filth are considerable. There are many stagnant ditches and open cesspools about the town.
7. No system of under-drainage exists. But few of the streets have public sewers; these are, however, being built as opportunity offers. Branch drains are laid in where public sewers exist.
8. Each house has, generally, its own necessary, which is arranged to empty into open ash-pits, the contents being carted off and sold when full, for which the Commissioners have powers given them in the Town Act. There are no public necessities.
9. No complaints are made of the house-drains emitting smells. House-drainage (and entirely in the poorer districts) is generally by means of surface gutters.

APPENDIX.

Town of Walsall.

Replies by a Com-  
mittee of Inhabit-  
ants.

10. The public sewers are constructed with cesspools to collect deposits, being bricked or flagged over; they are *not* trapped. The cesspools are emptied by the scavengers when necessary.

11. The Town Act, under the following title: "An Act for Paving, Lighting, Watching, Cleansing, Widening, Regulating, and otherwise Improving the Town of Walsall and the Neighbourhood thereof, within the Parish of Walsall, in the County of Stafford;" but no clause in this Act goes to *enforce* any system of drainage, public or *private*.

12. Some of the sewers open into the brook above and some below the weir, and one or two into the meadows below the town, which latter soak into the soil as manure; but a large proportion of the liquid refuse running along the surface gutters, soaks in or evaporates.

13. The sewers are circular, from 18 to 24 inches diameter, at about 5s. per running yard cost; the branch drains usually 9 x 6 inches.

14. By the rush of water during heavy rains. The cesspools are cleaned by the scavengers at a small annual expense.

15. Two scavengers are constantly employed by the Commissioners under the Act, who (occasionally assisted by others) cleanse *each* street about *once* in each week, at an expense of about 100l. per annum.

16. No, being considered as private yards, and not under the jurisdiction of the Commissioners, the refuse (in many cases) is allowed to accumulate to a great extent by the poor inhabitants for the use of their gardens, or is sold to farmers.

17. See Answer to 8th respecting the dust-bins or ash-pits.

18. There are no public places of deposit, it being swept up and carted away at once by a person who takes it for his trouble.

19. The town Act. See Answer 11.

20. The streets are generally spacious and well-built, having alleys leading into courts, many of which are closed at the end; there are but *very few* houses built back to back; the arrangements for cleansing are at the option of the inhabitants, as stated in Answer 16.

21. There are no cellar dwellings in this town.

22. The town Act would of course prevent any interference with the *present public* streets; but the laying out of *new* streets, and arrangement of buildings, depends entirely on the terms agreed upon by the parties concerned.

23. Yes; yes; although there are no private attached play-grounds, the open spaces in the neighbourhood afford ample scope for healthful exercise for the scholars.

24. None but the roads and lanes, or those fields which footpaths cross, and where, consequently, *much* trespass is committed. The only public space is the race-course, which is called lammas land. The freehold of this land vests in the Lord of the Manor, (the Earl of Bradford,) subject to a right of pasturage of neat cattle belonging to freeholders only, for the winter six months. The extent is 19A. 3R.

25. None, it being a trespass to bathe in those pools in the neighbourhood, and which are *dangerous*, being old lime pit-holes. The brook and mill-stream are too shallow, the former in summer being generally stagnant. The Company by their Act forbid bathing in the canal.

26—41. There are eight or ten public street-pumps, and usually one in each court for the poor, the better houses having each their own. From these sources the supply is abundant, excepting in the locality of Park-street, where latterly the water has failed from the drainage of the mines sunk in that neighbourhood. This subject has frequently occupied the attention of the municipality, but want of funds has prevented any project from being entertained. The quality of the water is wholesome, although impregnated with lime, and sometimes iron.

42. There being no supply from pipes; in most localities, the supply is only to be obtained from pumps, and consequently conveyed by hand.

43. There are no arrangements for any of these purposes.

44. This has been about one in each year, negligence being the prevailing cause.

45. Yes, whole streets; there being, in fact, no proper party-walls to resist fire.

46. There are two well-appointed and manned engines, belonging to the Norwich and Birmingham offices.

47. Very good, as shown from the abstract from the Mortuary Register; the average of deaths during the last five years, in a population of 16,058, being 416; being about 1 in 38½, or about 2.6 per cent.

48. Built in narrow streets and closed courts without sewerage, and subject to constant exhalations from accumulations of filth and surface water.

49. This depends so much on the condition of this class, as to its supplies of food and clothing, (as affected by the state of trade), that none but a general average can be given. But upon the whole, from 20 to 40 days.

50. Brick and tile, wooden stairs; being superior in their accommodation to those in many other manufacturing towns.

51. In general, one family in each tenement of two stories; but at present, owing to the great depression of trade, and to save poor's rates and other levies, many cases are found of two families in one tenement. The rooms vary from 10 to 12 feet square, one and two beds in a sleeping-room, averaging three inmates in each room.

52. Heated by crowded rooms and constant fires, (from the abundance of coal,) doors and casements afford abundant means of ventilation.

53. They are. The fire-places are open with wide chimnies, and coal is abundant.

54. Gas is universal in the shops, and is used in a few of the halls and lobbies of dwelling-houses; no accumulations of bad air are known of.

55. Bad, both in their moral and social condition; crowded; many beds in one room; and



## APPENDIX.

## Town of Walsall.

Replies by a Committee of Inhabitants.

these occupied, in many instances, by persons of either sex. There are no police regulations that affect them.

56. This cannot be ascertained from any information accessible at present.

57. The relief afforded by the Guardians embraces all necessary food, clothing, and medicines, with wine upon the surgeon's requisition, at an expense to this parish, say, of about 100*l.* per week for the whole. Of this, one-tenth at the least, may be given in aid of sickness. There are no data by which to ascertain the proportion of relief given to the worst districts, nor the amount of private charity.

58. It is freely sought and supplied to all cases deemed fit subjects for pauper medical relief; there being three medical officers for Walsall district, independent of the voluntary assistance of the medical profession generally.

59. None; a self-supporting dispensary was given up, in consequence of the improved and extended pauper medical relief afforded by the Union.

60. Churches and schools are well ventilated, the Union workhouse particularly so, by sliding ventilators into the lobbies and ceilings.

61. None but the race-course, as described in reply to Query No. 24.

62. None but the Town Act, the title of which is set forth in reply to Query 11.

N.B. Walsall appears as a town unusually free from those severe forms of disease prevalent in populous towns; typhus being of rare occurrence; ague almost unknown; but pulmonary disease is common.

## TOWN OF BILSTON.

## REPLIES by a COMMITTEE of INHABITANTS.

## Town of Bilston.

Replies by a Committee of Inhabitants.

1. Bilston is situate  $2\frac{1}{2}$  miles south-east of Wolverhampton,  $1\frac{1}{2}$  miles north-west of Willenhall, 2 miles west of Darlaston,  $2\frac{1}{2}$  miles west of Wednesbury,  $4\frac{1}{2}$  miles south-west of Walsall, 5 miles north of Dudley,  $10\frac{1}{2}$  miles north-west of Birmingham. The upper town of Bilston lies high, and possesses every facility for drainage, there being a rapid fall to the brook. The lower town lies nearly upon a level, with a slight fall to the brook. In fact, there is a gradual descent all the way from the high part of Wednesbury to Bilston Brook, at the lowest part of which the lower town is situate. Bradley, a hamlet of Bilston, is high, and might be easily drained.

2. The geological character of the country is that of the coal-measures overlying the Wenlock limestone. The only peculiarity is the presence of porphyritic greenstone, and occasionally compact basalt. The soil of Bilston, where collieries have not been opened, has a preponderance of aluminous earth. The subsoil is generally brick earth. The sandstone is rather an important feature in the geology of Bilston, on account of its compactness and great thickness.

3. It is not liable to be flooded.

4. There are not any obstructions to the natural drainage, or to the free flow or escape of the flood water, except such as arise from obstructions by buildings in the brook course.

5. No.

6. There are not any regulations for draining the town or district. The main streets are laid out with proper inclinations and paved channels; but many of the courts are under the level of the streets. The streets are Macadamized, and in good order. The courts and alleys are unpaved and uneven, and favourable to the retention of stagnant moisture, and the accumulations of refuse, &c., thrown from the houses. The brook, in passing through the town, accumulates great quantities of filth, and becomes very offensive; possibly it might be amended by filling up the parts below the level. There are open and stagnant ditches in various parts of the town, viz., Wynn's-fold, Birch's-buildings, Workhouse-fold, Wolverhampton-street, &c.

7. A main-drain was made a few years ago through nearly the whole of High-street, and thence through Church-street and Lichfield-street down to the brook, and cross-drains in two instances only have been made from adjoining streets into the main-drain. This is the only drainage for the upper town. In the lower town there is a main-drain emptying itself into the brook; the fall is not rapid, and no cross-drains run into it.

8. The houses in general have not proper necessities; the landlords now provide them in some instances. They are not so arranged as to empty into drains or cesspools, but into the ash-hole or dust-bin, and, when that is full, the neighbouring farmers come and carry it all away. There are not any public necessities.

9. The house-drains are not properly cleansed by water or other means; the refuse accumulates in them and emits offensive smells. A great majority of the small houses have not any drains.

10. The public sewers are not so constructed as to prevent the accumulation of decomposing refuse; nor are they trapped; accumulations are from time to time removed by the Commissioners of Turnpikes. The main-drain gives relief to a very small portion of the town, as will be seen by a reference to the map, on which the line of the main-drain is marked in red ink.

11. No.

12. A large portion of the liquid refuse is thrown into the water-courses, and a large portion is allowed to sink into the subsoil.

## APPENDIX.

## Town of Bilston.

Replies by a Committee of Inhabitants.

13. The sectional form of each description of sewer is about three feet horizontal diameter, and four feet perpendicular.

14. The existing sewers are cleansed once a-year by and at the joint expense of the Commissioners of Turnpikes and Surveyors of Highways; the expense is trifling, the main-drain from the upper town cleansing itself, in great measure, by its rapid fall.

15. The streets are cleansed weekly by scavengers employed by the Commissioners of Turnpikes and Surveyors of the Highways, each in their respective jurisdictions, and the expense defrayed out of their general funds; but neither party is compelled to do this, and may cease if they think proper.

16. Those courts and alleys which are inaccessible to carts, and inhabited by the poorer classes, are not cleansed by appointed scavengers; the refuse is removed at the expense of the tenants or landlords, but generally inefficiently.

17. Answered by No. 8.

18. None.

19. None.

20. The greater proportion of the sites of houses is in narrow lanes, courts, and alleys. Several streets are wide and open. Many houses are built back to back. The courts are generally closed at the end. There are not any arrangements for cleansing. Small houses are built without any regard to regularity in general.

21. There are not any cellar dwellings.

22. No.

23. The school-rooms for the labouring classes are in some instances favourably constructed in respect to site, drainage, light, warmth, and ventilation; in others not: proper necessities are attached to them. In some instances there are play-grounds, but by no means large enough.

24. No.

25. No.

26. The town is supplied with water from various sources:—For domestic use, from a few private pumps or wells, private rain-water tanks, and by the Dudley Water-works Company, and hired water carts. For watering the roads in dry weather, by the Commissioners of Turnpikes, from the brook. For the prevention of fire, from the mains of the Dudley Company.

27. The water supplied by the Dudley Company is what is termed *hard*, in a medium degree. The reservoir at Coseley is supplied by land-streams which flow over beds of limestone, with which it becomes impregnated. The only ill effects known to follow its use are cutaneous eruptions, which are attributed to the new lead service-pipes.

28. Water is distributed chiefly by the mains of the Dudley Company, water-carts, and pails carried by women, often from long distances.

29. By all three, as stated in the foregoing answers.

30. Four thousand one hundred and fifty-one houses.

31. Three hundred and thirty-four houses; about twenty houses have a separate tank.

32. The poorer classes are supplied chiefly from pumps or draw wells, and by supplies fetched in pails from the water-engines in the different collieries, often at a considerable distance, and by begging.

33. In cases where the Dudley Company supply water there are no complaints; but in those where there is no such supply, which is mainly the case, complaints are universal as to the want of water, its dearthness, and its quality.

34. To landlords farming small tenements 10*s.* each, private houses from 20*s.* to 60*s.* each.

35. A full supply by the company to all parties, without limitation of quantity.

36. Yes, under the provisions of the Act of Parliament 4 Will. IV., entitled "An Act for supplying the Borough of Dudley, in the County of Worcester, and the Neighbourhood thereof, with Water."

37. Special power is given by the Act to enforce a proper supply under specific penalties.

38. No.

39. The water is kept on—on Monday, one hour; on Tuesday, four hours; on Thursday, four hours; on Saturday, four hours.

40. No.

41. Yes.

42. A supply of water may be had at any time.

43. None.

44. Fires are of very rare occurrence; on an average, not more than one annually.

45. No.

46. None.

47. Bilston is not generally an unhealthy town; its situation is rather elevated, and the soil is dry. The high ratio of mortality shown by the registers is presumed to be occasioned by the unhealthiness of specific localities, such as Birch's-buildings, Workhouse-fold, Wynn's-fold, Wolverhampton-street. The fact may be ascertained by extracts with reference to these particular localities from the registers, through the medium or under the direction of the Registrar-General, or the superintendent of the district, and it would be satisfactory to have such facts ascertained by the Commissioners under the Health of Towns Commission, as perfectly disinterested parties.

48. The houses in some parts of the town or district are in a bad state of repair, especially some in the Workhouse-fold, Birch's-buildings, Quarry-lane, the Bury, and Ettings-

## APPENDIX.

## Town of Bilston.

Replies by a Committee of Inhabitants.

hall-lane, which parts are densely crowded, very filthy, and without any drainage or cleansing. Fever generally prevails, to a certain extent, in one or more of these parts.

49. The average duration of illness among the working classes is from 10 to 14 days.

50. A large proportion consists of one room of bricks and tiles, of 10 or 12 feet square, with a bed-room over it. Many of the old hovels on coal-pit banks are used as dwelling-places by the very poor or improvident. These consist of a conical-shaped building about 10 or 12 feet in diameter.

51. Generally speaking, one family, consisting of about five persons, occupies each house. There are many, however, in Hall-street, Hall-fold, where each room is occupied by a separate family, the size of such rooms ranging from 7 to 14 feet square and from 6 to 8 feet high. The average number of occupants of such rooms is from three to six.

52. The rooms of the poorer classes are generally very close, in many instances filthy, and only ventilated by the windows or chimney. The windows are seldom opened, and, like the chimney, are often stopped with rags.

53. The habitations of the labouring classes are in general comfortably warmed in winter; the form and construction of the fire-place is a stove-grate, and the fuel used is coal.

54. Gas is generally introduced both in shops and dwelling-houses by the upper and middle classes, but no escape is provided for the bad air which it produces.

55. The lodging-houses are generally crowded, and very dirty; there are not any police or other regulations with regard to them.

56. The average proportion of loss of rent from interruption in employment, and expenses occasioned by sickness and mortality, does not exceed one per cent.—a circumstance owing to the rent depending generally upon the earnings of several rather than of one individual member of a family.

57. The committee are unable to ascertain, with any degree of certainty, the extent of parochial or charitable relief given in aid of sickness in the districts where the average duration of life is the lowest; nor are they able to devise any means by which they could ascertain the extent of such relief.

58. Great numbers apply to druggists for advice; the men are chiefly in clubs; and parish relief is furnished to all whose circumstances do not enable them to pay for medical advice. There are not any public charities in the town. A great cause of the mortality among children may be traced to the indiscriminate use of popular medicines, such as Godfrey's cordial, and others containing opium, as well as deleterious medicines administered without proper medical advice.

59. None.

60. The churches and chapels are tolerably ventilated.

61. None.

62. None.

*Copy of the Return of the Registrar for the Bilston District to the Registrar-General.*

1. Wolverhampton-street, Workhouse-fold, Birch's-buildings, Wynn's-fold, Quarry-lane, Bowen's-fold, Temple-street, Bury, Bridge-street, some courts in Oxford-street, and High-street.

2. Fatal cases of small-pox and measles now rare, though, before vaccination became general, small-pox very destructive in the above-mentioned places. Scarletina in the summer frequently prevails in the same localities, though not exclusively confined to them. Deaths from hooping-cough seldom. Diarrhoea and dysentery most prevalent in the autumn among young people in the same places. No cholera since 1832, when nearly 800 died under six weeks. Influenza not confined to any particular locality, only one death this nine months. Typhus does not extensively prevail, though a few bad cases have occurred in the above-mentioned places. Epidemics prevailing mostly in the same places.

3. One case of typhus, of malignant character, in a court of Oxford-street; confined yard, with wash-tubs and pig-sties. One house in Workhouse-fold, where four persons were afflicted with it. One woman and two children died with typhus in Quarry-lane. One house in the Birch's-buildings where all were ill, and one died. Not having the whole of the register-books in my possession, I cannot state with accuracy these points.

4. Front streets wide, some of the back very narrow and dirty; many of the courts and folds very confined and unhealthy. One court in High-street with building opposite within six feet, excluding almost light. There are many with 10, 20, and in one 50 houses, where free currents of air are almost impossible. The majority of the courts I conceive to be unhealthy. The streets are now drained, but the courts and folds are filthy, the drainage lying in the centre, together with many wash-tubs and pig-sties. In some of these places the cholera was most malignant in 1832. Bad supply of water; the water-works have lately introduced it into the town, but the expense prevents it from being available to the poor. The people are generally cleanly, but would be more so if water were more prevalent. The population very dense, 20,000 in the township upon 600 acres. "Occupation," miners, jannners, and those engaged in iron-works. Earnings low and irregular, averaging 8s. or 10s. per week, with three or four days employment. "Food" consists of bread and potatoes, with occasionally bacon, rarely butchers' meat. Diet much inferior to the poor in the Union house. Plenty of coal for firing, using it in their rooms in the winter as a substitute for clothing. Habits temperate, though formerly very much otherwise. Lichfield-street, Mount-pleasant, Bride's-row, front houses of Oxford-street

and a few other places, are the most healthy, the deaths in these localities being no more than in many other towns, while in the places above referred to I consider them one or one and a half per cent. more.

JOHN FELLOWS, Registrar for the Bilston District.

## APPENDIX.

## Town of Bilston.

## TOWN OF DUDLEY.

REPLIES by a COMMITTEE of INHABITANTS.

## Town of Dudley.

Replies by a Committee of Inhabitants.

1. The town of Dudley stands upon the summit of a ridge of high land, occasionally rising into hills from 900 to 1000 feet above the level of the sea, which may be traced from the northern part of Wiltshire, running in a northerly direction through the counties of Gloucester, Worcester, Stafford, Chester, and Lancaster. This ridge divides the rivers of England, those on the one side taking an easterly direction, and discharging their waters into the German Ocean; and those on the other side taking a westerly or southerly direction, and discharging their waters into the Irish Sea and St. George's Channel. That portion of the ridge on which the town of Dudley stands is from 600 to 700 feet above low water mark at Liverpool, and divides the springs and rivulets which rise on the eastern side, and flow into the valley of the river Tame, and thence by the Trent into the German Ocean, from those on the western side, which flow into the river Stour, and thence by the Severn into St. George's Channel.

A line may be drawn running along the top of the ridge from the Rowley-hill on the south east of the town, down Hall-street to the corner of High-street; from thence up the High-street to St. Thomas's church, and then down Mill-street and Stafford-street, Eve-hill, and the road to Wolverhampton, which will accurately divide the drainage of the town into the two different valleys. The general direction of this line through the parish is about north-east, and divides it into two unequal portions.

The northern part, being about one-sixth of the parish, lies in the valley of the Tame, and the southern part, being five-sixths of the parish, lies in the valley of the Stour.

2. That portion of the ridge of land which runs in a northerly direction from Dudley to Wolverhampton, consists of a range of hills of limestone of the Wenlock and Aymestry formations in the Silurian system, whilst that which runs in a southerly direction from Dudley to Rowley, is a range of basaltic hills. These two ranges are continuous, and form a line nearly due north and south; but where it crosses the parish of Dudley, there is a slight bend, and its direction is about north-east. On each side of these hills, alternating strata of coal, ironstone, and clay recline at various angles, according to the distance from the hills. The soil on the limestone, coal, and iron-stone formations, is of a strong cold clayey nature; and on the basaltic formation it is a light brown earth, well suited for pasture. The subsoil is of the same character, clay being the substance which predominates throughout the different strata. Although the soil, from the quantity of clay it contains, has a strong tendency to retain moisture; the fall of the land from the tops of the hills is so great, that the country is naturally drained.

3. From the answers to the previous queries, it is obvious that the town is not liable to be flooded in the least.

4. There are no obstructions to the natural drainage.

5. There is no public survey for the regulation of public or private drainage.

6. There are no general regulations for draining the town or district. The streets are well paved, and laid out with proper inclinations for the discharge of surface water. Some of the alleys and courts are paved, but few of them are properly drained, and many of them contain both stagnant moisture, and accumulations of refuse. In a few instances there are stagnant pools and open ditches, contiguous to the dwellings.

7. There are no general regulations for under drainage, and though there are a few public sewers in the main streets, they are in some degree inefficient in not being sufficiently deep to drain the cellars of the contiguous houses. There are branch drains to many of the principal houses, constructed at private cost. There are no public under-drains in the small side streets, or from the alleys or courts.

8. Few of the houses of the poorer class of inhabitants have proper necessities as they are usually allowed to remain in a filthy state, with the contents overflowing the contiguous portion of a yard or court, so as to present a mass of filth. Many are without doors. Few are arranged so as to open into drains. They are cleansed at private expense, and the contents frequently carried away in the day time, as the clause in the private Town Act to the prevention of this nuisance is not properly enforced.

9. The house drains are not cleansed by water or otherwise, and are occasionally very offensive.

10. In consequence of the excellence of the fall of drainage, the public sewers seldom become choked, although no precautions are taken to prevent such an occurrence. They are not trapped so as to prevent the escape of offensive smells into the streets or houses.

11. There are no local regulations in force for the systematic drainage of the town, its streets or houses, and as there are no funds applicable to the extension or repair of public sewers, they are sometimes constructed or repaired at private expense.

12. Much of the refuse of the town is allowed to sink into the subsoil, or lie stagnant in the small courts. The mouths of the sewers open too near the town.



## APPENDIX.

Town of Dudley.

Replies by a Committee of Inhabitants.

13. The form of the sewers and branch drains is cylindrical; they vary from 18 to 30 inches in diameter, and the average cost per foot is about 3s.

14. There is no mode of cleansing the public sewers; the cesspools are cleansed where found to be stopped up.

15. The streets are cleansed under the directions of the Board of Highways at an annual expense of about 300l.

16. The courts and alleys are not cleansed by appointed scavengers. The inhabitants may, if they please, place the sweepings of such courts by the road side, from whence they are removed by the scavengers.

17. The houses are not provided with dust-bins.

18. Open spaces are appointed for the reception of the dust and sweepings of the streets. It is not sold, being considered of little or no value since the introduction of Mr. M'Adam's system of road-making.

19. The Commissioners under the local Act are invested with certain powers, but they are inadequate for the efficient cleansing, and for the prevention of nuisances within the town. They have no control over the nuisance created by the smoke arising from mills and steam-engines within the town, nor power to remove accumulations of filth from the courts and alleys, or to remove privy manure; or to prevent the building of pig-sties and slaughter-houses in the courts, and contiguity of the streets.

20. Many of the houses are laid out in wide streets; some are built in narrow courts and alleys. A few houses are built back to back: some of the courts are closed at the end. There are no general arrangements for cleansing.

21. There are no cellar dwellings.

22. There is no local Act for building, or power to interfere with the arrangement of buildings.

23. The school rooms for the labouring classes are considered to be for the most part favourably constructed with regard to site, drainage, light, warmth, and ventilation, although the recent improvements for ventilation have not been introduced. Some of the school rooms are placed under dissenting chapels, and are very deficient in the requisites above-named. There are usually proper necessities attached to the school-rooms, and many of them have play-grounds.

24. There are no convenient open spaces for exercise, except the limited use of the walks on the Castle Hill, which is the private property of Lord Ward's trustees. There are no public parks, walks, or gardens.

25. No public baths or bathing places. A canal within the distance of a mile is used to a very limited extent.

26. The town is partially supplied with water from the public water-works, which could afford an unlimited supply. It is also in part supplied by wells.

a. The supply for domestic use is from the source above stated.

b. By carts, with water purchased from the Waterworks Company.

c. From the Company's mains without charge.

27. The supply afforded by the Waterworks Company consists of spring water and land drainage. After floods, complaints are sometimes made of the taste and smell of the water, which at other times is usually considered very excellent. No analysis has been obtained.

28. Water is supplied by wells and pumps, and also by the Company's pipes, which convey it into the houses of their customers.

29. By a joint stock company, authorized by a private Act of Parliament; 4 William IV.

30. The number of houses is 5828.

31. The number of houses supplied by the Company is about 700. Some of the houses have tanks, and in some cases several houses are supplied from one tank, but the expense is usually such an obstacle that in the houses of the poorer classes, the supply is collected in tubs and vessels belonging to the inhabitants.

32. There are no stand pipes, but the poorer classes are chiefly supplied by wells, and complaints are in such cases made of the quality of the water, as in consequence of the defective state of the drainage, much surface water finds its way into the open wells, which are usually shallow. Some are supplied from springs at a distance, and frequently are compelled to carry water from the spring or other source of supply, at the distance of half a mile from their houses. Some obtain it from tradespeople, and there are a few public pumps belonging to the town, the supply from which is soon exhausted.

33. Complaints have been made by the poorer classes as to the mode in which water is supplied, and also as to the quantity, quality, and cost of the supply.

34. The following are the terms of the Company:—

## "DUDLEY WATER WORKS.

## "Scale of Prices for Domestic Purposes.

## "PER ANNUM.

	£.	s.	d.	
"Tenements in courts farmed by landlords for a term of years, not less than seven, two rooms . . . . .	0	12	0	
"Ditto three rooms . . . . .	0	14	0	
"Front tenements farmed as above, three rooms . . . . .	0	16	0	
"Ditto four rooms . . . . .	1	0	0	
"Houses rented, not exceeding £12 per annum . . . . .	1	5	0	
"Above £12 and not exceeding £15 per annum . . . . .	1	10	0	
"Above £15 ,, £20 ,, . . . . .	1	15	0	

20 per cent.  
off these prices.

## APPENDIX.

Town of Dudley.

Replies by a Committee of Inhabitants.

	£.	s.	d.	
"Above £20 and not exceeding £25 per annum . . . . .	2	0	0	
"Above £25 ,, £30 ,, . . . . .	2	5	0	
"Above £30 ,, £35 ,, . . . . .	2	10	0	
"Above £35 ,, £40 ,, . . . . .	2	15	0	
"Above £40 ,, £45 ,, . . . . .	3	0	0	

20 per cent.  
off these prices.

"And so on at the rate of 1s. 6d. in the pound on all above £45.

"\* \* A discount of 10 per cent. will be allowed to landlords farming houses, empty or full for seven years and upwards.

"In principal streets, where the shop fronts add to the value of the house, an allowance will be made from the annual value.

"The above prices are for a supply delivered to a height not exceeding 6 feet 6 inches above the foot path. All above that height to be paid for extra, in proportion to the lift.

"Maltsters, innkeepers, and trades, served by estimate. Water-closets, stabling, and carriages, or other than domestic purposes, supplied by contract.

"The conditions and regulations for the supply of water may be seen on application at the Company's Office; where every information will be given relative to the best mode of arranging for the supply.

"Water-works Office, Dudley, August, 1835.

"BY ORDER OF THE DIRECTORS."

35. The service pipes of the Company are of three quarters of an inch in diameter, according to a clause in their Act, and they can compel their customers to use a proper cistern, regulated by a stop-cock; there is no other limit to the quantity supplied, except the time prescribed for the mains to be open. The quantity supplied is ample if the Company's regulations are observed.

36. The Company's Act provides that they may not charge more than 16s. per annum, for supply to a private dwelling house where the rent does not exceed 6l. a year, and they cannot be compelled to furnish it at a lower rate. The price varies in proportion to the rent of the premises supplied with water until it reaches the maximum rate of charge, 12l. The Act imposes a penalty of treble the amount of water rate, in case the Company refuse to supply water (they being enabled to supply without lessening the supply to their other customers but not otherwise) and an additional penalty of 20s. per day during neglect or refusal; but there is no redress provided in case of the supply being of inferior quality.

37. The Company's means of supply being considered ample, no deficiency is apprehended. A power of compelling the use of a filter might improve the quality.

38. Filters are seldom used in private houses: the poor are unacquainted with their use.

39. The water is kept on the service mains four hours a day on Monday, Tuesday, Thursday, and Saturday in each week.

40. There is no such system of stand pipes.

41. By the Act establishing the Waterworks Company, it is provided that water shall be kept constantly in the mains, and shall be furnished free of charge in case of fire.

42. The absence of fires has rendered it impossible to give the result of experience, but it is believed that the supply would be immediate, as fire plugs are provided in the streets.

43. Fire plugs are generally placed near the principal buildings of the town, and in some cases private fire plugs are laid down.

44. Fires are of rare occurrence in the town of Dudley. The average is less than one in a year.

45. There are no party walls for the prevention of the spread of fire.

46. The engines of two insurance companies are well appointed and practised, and the service of firemen very efficient. In consequence of the rivalry between them great activity is displayed in case of fire.

47. The general state of health among the inhabitants is highly favourable. The population is 32,000 and the mortality about 800, out of which the number of cases of sudden and violent deaths on which inquests have been held is 60.

48. The registrars and public officers state that the worst parts of the town being usually on the outskirts, they have been able to ascertain that the rate of mortality is higher in one portion of the town than another.

49. The average has not been ascertained, but the duration of illness is short.

50. The general structure of the houses of the poorer classes is good, but the floors are generally formed of quarries laid on the subsoil of clay, which retain a considerable quantity of water, and are seldom dry. The entries to many of the courts are very narrow and inconvenient.

51. Each house is usually inhabited by a single family only.

52. No arrangements are made for ventilation beyond the use of casement windows. The houses are usually well ventilated.

53. From the abundance of fuel the houses are well warmed in winter. The fuel in common use is coal, which is consumed in open fire-places.

54. Gas light is generally used in shops, and sometimes in the halls of the better class of houses. No escape is provided for the bad air it produces.

55. The state of the lodging houses for the poorer classes is very wretched, and there are no police regulations on the subject. A single instance may suffice. A short time ago a clergyman was called upon to visit a sick person in a lodging house, and found in the room in which the invalid was lying, 14 beds almost touching each other at the sides, with only a narrow passage between the foot of each bed, and a single window. It was stated that two or more persons occupied each bed during the night. It need hardly be added that the state of the atmosphere was almost intolerable.

## APPENDIX.

## Town of Dudley.

Replies by a Committee of Inhabitants.

56. More than one fourth of the last rate was lost, and the common grounds of excuse were sickness and poverty.
57. The relieving officer states that he cannot answer this query, as no distinct account has been kept of relief given in sickness; and there being no particular district in which the average of life is very low.
58. Medical advice and assistance are largely furnished to the poorer classes. Many of them are members of clubs or benefit societies, and obtain advice and medicine from the medical officers of such clubs, but assistance is gratuitously afforded by the respectable and benevolent medical gentlemen daily, on a large scale.
59. There is no hospital or dispensary.
60. The churches, schools, and public buildings are usually lofty, and sufficiently ventilated by air from open windows.
61. There are no common lands of any description. About half an acre of land at Netherton was awarded on the inclosure to the inhabitants for the purpose of a stone quarry, but this land is covered with spoil and refuse, and can hardly be identified.
62. The local Town Act, 31 George III., contains powers which might be worked with great advantage to the town, but partly from the inadequate amount of rate authorized to be levied for police, cleansing, and other purposes, and partly from other causes, its regulations have not been properly enforced. The Act is out of print.

## TOWN OF WEST BROMWICH.

## Town of West Bromwich.

Replies by Mr. Sweeting.

REPLIES by Mr. SWEETING, Inspector of Police.

1. West Bromwich; situated in the southern division of Staffordshire; five miles north-west of Birmingham.
2. Soil generally rich; sub-soil sandy; strata coal. No impediments for draining.
3. No.
4. No.
5. None.
6. The streets are generally laid out well; but the surface very uneven, and many stagnant pools contiguous to dwellings, and accumulations of refuse in the low neighbourhoods where the poorer class resides.
7. None.
8. In courts among the poorer classes there are generally one necessary to five or six houses; they are emptied by parties who sometimes give a trifle for it as manure.
9. In the low neighbourhoods the refuse accumulates in the drains, and cause offensive smells.
10. There are none.
11. None.
12. A large portion of the liquid is thrown into the water-courses and soaks into the soil, and in many instances remains stagnant on the surface, which is very offensive.
13. None.
14. None.
15. None.
16. Generally by parties who take the manure, as there are no public scavengers.
17. None.
18. Persons make a living by going round at different periods and removing it, and selling it to the farmers; and the whole is readily sold.
19. None.
20. The streets are generally wide; but in some courts the houses are built back to back, but few of the courts closed at the end. No arrangements for cleansing.
21. None.
22. None.
23. In respect to site good; drainage, light, warmth, and ventilation, in most schools rather indifferent; necessities generally bad: some have small play-grounds.
24. There are about four acres of land, inclosed with a wall, belonging to the Earl of Dartmouth, which his lordship gives to the public for all public sports and amusements.
25. None.
26. Wells.
  - a. Wells.
  - b. Wells.
  - c. Wells.
27. The water is generally supplied from wells connected with the houses, &c. I am not aware of it having been analyzed; it is generally supposed very good.
28. None.
29. None.
30. Five thousand.
31. None.
32. From the wells and pumps.
- 33—41. No.

## APPENDIX.

## Town of West Bromwich.

Replies by Mr. Sweeting.

42. The wells are generally convenient.
43. None.
44. There has been one during the last 12 months.
45. No.
46. There are two small engines, but no practised firemen.
47. Generally good.
48. In those parts of the parish where land has been laid out for building without the streets being properly formed, there is not a regular drainage for the filthy water, which is frequently very offensive. Typhus and scarlatina are often very fatal.
49. Difficult to answer, sufficient attention not having till recently been paid to the duration of disease.
50. Generally small houses in courts, one story high; from two to four rooms.
51. Generally one family.
52. Very bad in the tenements under 6*l.* per annum; generally in many instances only one outer door, and no window that will open.
53. The houses above 7*l.* per annum generally comfortable; under that very uncomfortable. The grates in general use are cast iron, in close fire-places.
54. In the principal streets there is gas, and in some instances escapes are provided for bad air.
55. Generally good. There are the county constabulary.
56. From 10 to 15 per cent.
57. Parochial relief generally liberal. Charitable relief from private sources not very extensive.
58. Medical relief in destitute cases is afforded by the Board of Guardians and the Benevolent Society.
59. None.
60. There are no public buildings except churches, chapels, and schools.
61. None.
62. None.

## TOWN OF KIDDERMINSTER.

REPLIES by the TOWN CLERK and a COMMITTEE of INHABITANTS.

## Town of Kidderminster.

Replies by the Town Clerk and a Committee of Inhabitants.

1. The town is situated in a basin-shaped valley on its bottom and sides, with the river Stour dividing it nearly equally.
2. New red sandstone and diluvial gravel, with frequent drift-beds of pure fine sand.
3. Mill-street, Pitt's-lane, and meadows surrounding the town, are liable to be flooded; and one great occasion of that in Mill-street is believed to be occasioned by a brick and stone aqueduct, erected some years ago over the river Stour by the Staffordshire and Worcestershire Canal Company.
4. None to the natural drainage, and a few to the artificial drainage; as Daddle Brook, for instance, which, owing to the great increase of the town, has been covered over with building, and powers are much wanted to scour and cleanse the same.
5. No.
6. There are regulations under a local Act, a copy of which has been supplied to the Commissioner. Generally speaking, the principal streets are laid out with proper inclinations for the discharge of surface-water, and are paved and even; but, as to the courts and alleys, they are very much the reverse, and favourable to the retention of stagnant moisture, &c. There are some stagnant pools, &c. contiguous to the dwellings.
7. There are arrangements under the powers of the Act above-mentioned, but they are inefficient and defective. In the principal streets there are sewers and branch drains.
8. The necessities are usually common to many houses; they open into cesspools, uncovered, and are a constant source of putrid exhalations, the frequent cause of fever, and some of the greatest nuisances in the town. They are cleansed by contract with persons who sell the manure.
9. There are usually in courts, and even in houses, open drains which cause most offensive smells.
10. No.
11. There are local regulations under the before-mentioned Act, but no systematic drainage. Such as the drainage is, it is defective, and this occasions accumulations of refuse and emission of offensive smells.
12. In the principal streets it is thrown into the water-courses; but in courts, alleys, and inferior streets, it is allowed in many cases to remain on the surface; and it should be here observed, that it is a very common thing to have slaughter-houses and hogsties in and near the streets, to the great nuisance of the inhabitants, and to the great prejudice to their health.
13. All round culverts, from 3 feet diameter to 12 inches. The charge made to the Paving Act Commissioners for culverts and drains is—for culverts, 9 inches to 13 inches in the clear, is 6*d.* per yard; 14 inches in the clear, 1*s.* 6*d.* per yard, exclusive of expense for excavating soil and filling up again, which is about 1*s.* per yard.



## APPENDIX.

Town of  
Kidderminster.Replies by the  
Town Clerk and a  
Committee of In-  
habitants.

14. The public sewers are not regularly cleansed, and may be said to be left to cleanse themselves.
15. A contractor takes the sweepings, under the local Act, and the streets are cleansed at his will.
16. Never done, and no appointed scavengers; if cleansed, it is done at the expense of the owners or occupiers of adjoining houses.
17. None are provided, but the refuse is indiscriminately thrown into the open privies.
18. One or two places near the town on the waste; the sweepings of the streets for manure, are sold at 1s. 6d. per yard; night-soil and ashes 2s. 6d.
19. Under the Act (a copy of which the Commissioner has) powers ineffective, but not sufficiently acted upon. The Commissioners under this Act, it is apprehended, are responsible for the due performance of their office.
20. Some houses are built back to back, as in Pantile-row, for instance; and some, both streets and courts, are closed up at the end.
21. None.
22. None.
23. They are not, generally speaking. There are necessities attached, but in most cases open. There are no play-grounds.
24. None.
25. None at all.
26. From wells generally.
  - a. From rivers in lower parts, and there indifferent.
27. Good, but no analysis.
28. From pools and running streams.
29. None.
30. Three thousand one hundred.
31. No water laid on; no public or other water-works.
32. From pumps generally, and tolerably well supplied.
- 33-37. See answer to 31.
38. Very rarely.
- 39-41. See answer to 31.
42. It can only be obtained from pumps, the river Stour, or the canal.
43. See last answer.
44. Two or three; prevailing causes accidental.
45. No provision for party-walls.
46. There are well-appointed engines, but no service of firemen effectually to work them.
47. Generally speaking, good.
48. In the worst parts of the town, as, for instance, in Queen-street, the courts off Mill-street, the Battery, Cassfield, Churchfields, Worcester-street, Blackwell-street, &c., disease is much more prevalent than in more open parts, more particularly amongst children.
49. No data to judge by.
50. The better part good; but among narrow courts bad.
51. One family; 8, 9, or 10 in a room; size generally 12 feet by 9, in the most densely populated parts.
52. Generally bad; no ventilation.
53. Generally pretty well warmed. In new houses the grates are good; in old ones indifferent. Coal is commonly used.
54. Chiefly in shops; seldom in houses: no escape for bad air.
55. The lodging-houses are generally crowded, excessively dirty; and there are no police regulations respecting them.
56. From 15 to 20 per cent.
57. It is believed to be considerable.
58. Extensively sought for, and liberally given.
59. No hospital but that attached to the Union workhouse. There is a Dispensary and lying-in charities: about 1200 patients through the Dispensary only annually.
60. They are not ventilated.
61. None.
62. The copy furnished; the Commissioners will answer this.

## TOWN OF STOURBRIDGE.

REPLIES by Mr. ACKROYD.

Town of  
Stourbridge.Replies by  
Mr. Ackroyd.

1. On a hill, the highest point being south-east of the town, which extends to the river Stour on the north and north-west. Within a short distance of the town are hills of greater altitude than that on which it is built.
2. On the east and north of the town are mines of coal; south and west the red sandstone rock prevails, with from two to three feet of gravel. The surface is a light soil. This remark applies to the township.
3. A very small portion of the lower part of the High-street is sometimes flooded, perhaps on an average once a-year, for a few hours only.

## APPENDIX.

Town of  
Stourbridge.Replies by  
Mr. Ackroyd.

4. A weir across the Stour at a spade forge; but the flood-gates are drawn in heavy rains.
5. No.
6. Owing to the declivity on which the town stands, the water does not lie on the surface. There are no stagnant pools in the township.
7. The drainage has lately been much improved, and is now in good order; there are sewers in all the streets.
8. The necessities empty into bins, into which are thrown the ashes and refuse from the houses; the whole is purchased and drawn away in carts for manure. There are no public necessities.
9. The town is well supplied with water, and no inconvenience is felt.
10. The sewers a plain, without traps; the fall is sufficient to prevent accumulations.
11. A local Act.
12. Thrown into the water-courses.
13. The carriage-way of the two principal streets are cleaned at the charge of turnpike trustees; the remainder (imperfectly) by the watchmen employed by the Town Commissioners.
14. No; the refuse is removed by the farmers. See No. 8.
15. Yes, when full, or when the inhabitants are inclined to sell.
16. None; the price paid to individuals by the farmers for the contents of the bins is about 2s. 6d. per cart load.
17. No. Occasionally a person is appointed by the Commissioners to lay information against parties who permit nuisances.
18. The houses are built generally in streets of tolerable width (from 18 to 30 feet); there are but few courts, some open, some closed. Very few houses built back to back.
19. Only two cellar dwellings in the town; and wretched holes they are.
20. The Commissioners never interfere with parties laying out land for sale. The new streets are generally open at both ends, only two exceptions, and should the demand for houses increase, they will be extended.
21. Yes. Yes. There is great want of play-ground for the children; the want of it forces them into the thoroughfares, and to trespass on private property.
22. None.
23. No.
24. Wells, in which pumps are generally placed; the wells are from 10 to 25 yards deep.
  - a. Same.
  - b. Same.
  - c. Same.
25. Various, some hard, other soft; where the former, the inhabitants buy for tea, washing, &c. Soft water is carried about in carts, and sold at a halfpenny per can of five to six gallons.
26. Rain-water is collected in large casks, cisterns, &c.
27. Private.
28. The township contained at the census 1841, 1,498 houses and a population of 7,474. The whole parish of Oldswinford, in which Stourbridge is situate, contains 3,485 houses and 17,481 inhabitants.
29. A very few dwellings are without wells; but the inhabitants have access to the river Stour.
30. Generally two rooms on the ground-floor and two chambers, also a cellar; others are of a worse description.
31. One.
32. In the houses having two rooms on the ground-floor, one almost invariably contains an oven grate; the fuel is coal.
33. In shops, but not generally in dwelling-houses.
34. Miserable places, where tramps lodge. No.
- 35, 36. There is a dispensary, supported by subscription. The Union surgeon attends paupers. There are many clubs which appoint a surgeon.
37. None.

## TOWN OF BURSLEM.

REPLIES by Mr. D. HALL, Chief Constable, and a COMMITTEE of INHABITANTS.

Town of Burslem.

Replies by Mr. D.  
Hall, and a Com-  
mittee of Inhabit-  
ants.

1. The parish of Burslem comprises the town of Burslem, standing on an eminence, with a rapid descent from three sides, and the vills or suburbs of Dale Hall, Longport, Cobridge, Hamell, Hotlane, and Sneyd Green, distant from the town from a quarter of a mile to three-quarters of a mile. The answers will apply principally to Burslem, Dale Hall, and Longport.
2. The surface soil is of a stiff marly nature; under this are brick clay, potter's marl, coal, and ironstone. There are no particular impediments to drainage.
3. No, except a small part of Longport, and this not often, nor to any great extent.
4. No.
5. No.

## APPENDIX.

## Town of Burslem.

Replies by Mr. D. Hall, and a Committee of Inhabitants.

6. The drains are under the care of the Surveyors of Highways. The principal streets are well paved and drained, but many of the courts and alleys, such as High-street, Daniel's-row, Flasher Greetings, Old Bag-street, Dale-hall, Hole-house, Kilneroft, Commercial-street, and Ball-bank, are uneven and partially unpaved, and are favourable to the retention of stagnant moisture, &c.; and in several of these places there are stagnant pools and open ditches.
7. There are sufficient sewers in the principal streets, and many of the branch streets; but they are defective in some of the streets, as will appear from the last answer.
8. They have; they empty into cesspools, which are covered generally. They are emptied from time to time by night-men, but there is no public authority, except to restrain them from doing this in the day-time. There are no public necessities.
9. The house drains are generally conducted into the public sewers, and do not emit offensive smells, except in some few of the smaller courts and alleys. (Answer 6.)
10. They are. They are regularly cleansed, under the direction of the Board of Surveyors.
11. None, except the regulation of the Highway Act; but there is little accumulation of refuse, except in the smaller and closer streets and alleys, as before mentioned. (Answer 6.)
12. The liquid refuse of the town is thrown into the water-courses, and carried off by the public sewers.
13. The large drains are of brick, four feet in diameter; cost not known.
14. By the Board of Surveyors, when necessary. Cannot state at what expense, but should think not much.
15. The Market Trustees employ a scavenger for the market-place. The other streets (except some of those before mentioned in answer 6) are cleansed by the Surveyors of Highways.
16. They are not often cleansed, but when they are, it is done at the expense of the inhabitants of them.
17. They are provided with dust bins generally; but there is ample room for the reception of all sorts of ashes and dust in the outskirts of the town, where the ground wants raising for building upon.
18. The Velvet-croft is the general receptacle for the liquid refuse. The ashes, &c., are disposed of as mentioned in the last answer, except such as are proper for manure, which are generally mixed with night-soil and carried off, as mentioned in Answer 8.
19. We have a local Act of Parliament, 6 Geo. IV. sess. 1825, and are subject to the General Highway Act; but these are not perfectly adequate for the purpose mentioned.
20. The principal streets are wide, but many of the courts and alleys mentioned in Answer 6 are narrow. Very few are built back to back. The courts are all open at one end, and some at both.
21. None.
22. No.
23. Yes to all the three queries, except as to that part of the first which relates to ventilation. Few, if any, are possessed of any ventilation, except the doors, windows, and fire-places.
24. None, except the fields near the town.
25. No.
26. From two reservoirs, one at Hanley, two miles distant, the other in Burslem. The water is conveyed in pipes, and may be had by all who choose to pay for it. There are also several springs in the vicinity, from which the inhabitants fetch water.
27. Generally good for all purposes, being raised from springs which lie a considerable depth under ground; the water contains a small portion of lime. No complaints have been made, or evils experienced.
28. As stated above.
29. By private individuals.
30. The number *inhabited* at the last census was 3,013.
31. About 2,000. Many of them have a separate tank.
32. Those who choose to pay for the water are supplied from taps placed a short distance from their dwellings, and many who do not pay for water obtain it in the same way.
33. There were frequent complaints of a deficiency of supply during the summer months, until the Burslem water was laid on; but this is now remedied by the addition of that water.
34. Ten shillings for small houses; larger ones higher in proportion.
35. Each has as much as he chooses to consume.
36. No.
37. Complaints to the proprietors, and a stoppage of payment.
38. No.
39. Night and day.
40. No.
42. Almost immediately.
43. There are none, unless those before mentioned may be found applicable for such purposes.
44. The average is not one in a year.
45. No such provision is made against fire.
46. Yes; three engines and a set of firemen to each.
47. Generally good. Assuming the population to be as taken at the census of 1841, the deaths for a year ending August 21, 1843, was less than 2.4 per cent.
48. The parts of the town, and state of those parts, where disease most prevails, will be found on referring to Answer 6.
49. Cannot say.
50. Brick and tile. They are generally very comfortable, or if not so the fault may be laid on the occupier.

## APPENDIX.

## Town of Burslem.

Replies by Mr. D. Hall, and a Committee of Inhabitants.

51. Each family has a house to itself generally.
52. Tolerably good. The doors and windows are the principal ventilators.
53. Yes, except in a bad state of trade, when subscriptions have hitherto supplied the deficiency. Their fire-places are from 3 to 3½ feet square, with cast-iron grates. Good coals may be obtained at the pits close to the town at about 7s. per ton.
54. Yes, into most shops and some dwelling-houses. They are generally provided with escapes.
55. There is a very efficient police force, who, we believe, pay proper attention to the lodging-houses.
56. Perhaps about one-third.
57. Parochial relief is 1s. 6d. per head, with any addition ordered by the medical officer.
58. It is sought for in most cases, except on trivial occasions. It is afforded to all the really necessitous, whether on the parish or not.
59. The North Staffordshire Infirmary is distant about a mile; it has a dispensary attached to it. The patients are admitted on the recommendation of subscribers. During the last year there were in-patients 799, out-patients 3,235.
60. The windows, doors, and chimneys, are generally the ventilators.
61. No.
62. Yes. See Answer 19.

## THE TOWNSHIPS OF HANLEY AND SHELTON.

## REPLIES by a COMMITTEE of INHABITANTS.

## The Townships of Hanley and Shelton.

Replies by a Committee of Inhabitants.

1. The united townships of Hanley and Shelton are situated upon an eminence of considerable elevation. The lowest lines of drainage in the adjoining valleys are about 370 feet above the Mersey at Liverpool, and the hill upon which the towns are built rises about 250 feet higher. Hanley stands upon the western slope, and Shelton upon the southern side of the hill, and overlook the surrounding country.
2. The Pottery Coal-field extends to a considerable distance round the coal metals; sandstone and fire-clay form the entire mass of the hill; and as the coals have been worked out to a great extent, and underground-drainage has been thereby formed, which has carried off all the springs with few exceptions. The surface-drainage, in consequence of the inclination of the site, is free from obstruction, and affords the greatest facility for conveying off the wash without much expense. The surface-soil is clayey, very wet, and very little drained in the adjoining district.
3. For the reasons above stated, floods cannot reach the towns, though the adjoining valleys are frequently inundated.
4. None.
5. There is a good map of the Pottery district, but no survey of the kind here referred to.
6. The principal streets are drained under the Highway Act only; there are no regulations for the draining of the back streets, courts, or alleys. The drainage in these situations defective. Behind the dwellings of the poor there are generally open drains to carry off the surface-water and refuse from the houses, which the adjoining occupiers of land use for manuring the meadows. This occasions bad smells, and is a great nuisance. Several of the back streets are unpaved. Stagnant pools exist near almost every manufactory, either for a steam-engine or for crate-makers to soak the crate-wood in.
7. The under-drainage by sewers is very defective, excepting in the principal front streets, the grates of which are frequently filled and clogged. If the surface-drainage was not so rapid this nuisance would be intolerable.
8. All the houses have these accommodations, mostly with small cesspools. There is no public provision for cleaning them. The farmers take the night-soil for manure: it is required by the Police Act to be removed at night; public necessities are, therefore, not needed.
9. The house-drains are very imperfect, being too small; they are often choked, and sometimes remain so for a long time.
10. The public sewers are only such as have been laid down from time to time, as necessity urged; there is no order in the construction of them; they are not in any instance trapped; and would be continually choked were it not for their inclination or dip, which gives the water such force to cleanse them at times of heavy rain that they are scarcely ever opened for that purpose.
11. There are no regulations except those embodied in the Highway Act and Police Act; but these do not afford the powers to any but the principal front streets.
12. The refuse from the houses and necessities is allowed to accumulate in open drains at the back of the back streets.
13. The sewers or culverts are generally circular, and the house-drains square.
14. If any stoppage takes place it is removed by the surveyor of the highways, but the instances are so rare that we cannot estimate the annual charge.
15. When by frost the roads are broken up, the surveyor has them scraped; but the only regular scavenger is the rain, except in the market-place, which is swept twice a-week.
16. There are no regulations for the purpose, all such things are left to the occupiers.
17. Very few accommodations of this kind in the small houses; the consequence is, that wherever a waste corner is found it is soon filled with ashes and dust.



## APPENDIX.

*The Townships of Hanley and Shelton.*

Replies by a Committee of Inhabitants.

18. There is no place of deposit for the refuse of the town, it is at once delivered to the farmers as manure.

19. The Commissioners of Police have power to remove certain nuisances enumerated in their Acts, 6 Geo. IV., c. 73, and 9 Geo. IV.

20. The leading streets are of sufficient width, and there are but few alleys or courts. The altitude of the town exposes it to the purifying influence of every wind. There are many of the houses in the back streets built back to back, with small yards to each, containing *open ash-pits*, and the accumulations from the necessities open into them.

21. There are no cellar-dwellings whatever.

22. None.

23. The public school-rooms are all tolerably good; there are no play-grounds attached to them. The ventilation might be improved. There are no provisions for washing or cleaning the children in any of them.

24. None; such accommodation for the people in hours of relaxation is greatly wanted. There are some places in the immediate vicinity of the towns well adapted for the formation of public gardens.

25. None; in hot weather the Trent is often very foul and unfit for bathing, being a mere ditch. Children resort to the canal; but bathing therein is illegal. There is great facility in the very centre of the town for the formation of both hot and cold baths.

26. From an old coal-works in the adjoining valley, from which the water is forced by an engine to a reservoir on the top of the hill, from which it descends by service-pipes for domestic use. There is no provision for watering the streets, nor any plugs for supply in case of fire, though such are projected by the Commissioners of Police.

27. The water is of very indifferent quality, containing about 30 grains of carbonate and sulphate of lime in a quart; the rain-water is also very impure, and falls saturated with carbonaceous and sulphurous matters from the smoke of the pot-works. Good water is greatly wanted, and might be had from a pure spring at *Washerswell*, on a hill on the opposite side of the valley of the Trent, at a distance of  $2\frac{1}{4}$  miles.

28. The water is distributed by pipes to the houses; a purer water and more fit for drinking is hawked about the town in water-carts, (it costs the consumer one halfpenny each pailful;) it is obtained from a spring on the hill-side called "*Washerswell*," but the supply is limited.

29. The distribution is by an individual who holds the water-works on lease from the original proprietor.

30. There are about 4663 houses in Hanley and Shelton.

31. About 1200 houses are supplied. The landlords of some of the small houses place one tap for the supply of several houses, and make a charge upon each tenant.

32. The lessee of the water had so much trouble in collecting the rent from the tenants of small houses that he will only supply it where the landlord will pay for it; for this reason, the poor are, in many cases, greatly in want of water: they buy from the hawkers for drinking, and fetch it from the pools, or collect the rain-water for washing and other domestic purposes.

33. Frequently in all these respects.

34. Twelve shillings per annum for small houses, and from 16s. to 21s. for the larger.

35. There is no limitation while the water is turned on.

36. None whatever.

37. The only remedy would be to resort to the source of supply explained above at No. 27.

38. Filters are rarely used; never by the poor.

39. It is turned on three days in the week.

40. No.

41. No. In cases of fire we are dependent on water brought in buckets, or drawn from the tanks on the manufactories.

42. We have so few fires that it is difficult to say how long.

43. None.

44. About one in three years, and those have not been very destructive; principally occurring in manufactories, and occasioned by the overheating of the flues from the stoves. A bad practice obtains here of firing the chimneys to remove the soot from them.

45. Yes. Continuous roofs, without any separation, often cover a number of houses, and endanger the whole range.

46. There are 2 engines and 24 firemen, who are paid a small salary amounting to about 15*l.* per annum; they are supplied with uniform clothing.

47. The general condition of the town must be regarded as healthy; seldom any malignant epidemical diseases prevail amongst the adult population.

48. Very defective with respect to cleanliness, drainage, and ventilation. The epidemical diseases of children are very prevalent and very fatal in such localities.

49. The average duration of illness appears to be about 12 or 13 days.

50. The greater number of the small houses consist of a ground-floor paved with "quarries" or bricks, and an upper story with two sleeping-rooms. The houses generally have four rooms in all; but some of the older houses have only two rooms: all are built of brick and covered with tiles.

51. Except in a few localities; and in times of great commercial depression most families have a house to themselves. It is not often that more than two families occupy one house. There are few places in the kingdom in which the poor have such ample house-room.

52. In general the houses are not deficient in the means of ventilation; but the inhabitants, being for the most part engaged in warm manufactories, are too much afraid of cool air in their dwellings.

53. For the last five or six years the labouring classes have suffered great privations in the

article of fuel, as of other sources of domestic comfort. The fuel consumed is coal burnt in an open grate. The chimneys and grates badly constructed; the habitable rooms generally filled with smoke, in consequence the door is obliged almost always to be kept open, which occasions rheumatic and chest diseases. The fire-places, which are only in the front sleeping-rooms, are also, for the reason above stated, generally closed up to prevent the smoke descending from the chimney of the lower room.

54. It is but little used in dwelling-houses, but almost universally in shops, and, in some instances, in manufactories. There is no provision for the escape of bad air, and the health of the persons in large draper and other shops suffers considerably.

55. The public lodging-houses are generally situated in back streets and in courts, and are therefore badly ventilated; they are often very crowded, but are kept tolerably clean. There are many open drains in their vicinity; there are no police regulations with regard to them. The sleeping-rooms sometimes contain from 9 to 12 beds, occupied by two and sometimes three persons each.

56. About 10 per cent. in ordinary times.

57. The parochial medical relief is at present with difficulty obtained. The assistance of medical or other attendants in cases of childbed can only be procured by seeking admission into the workhouse, which, with poor married women with families, amounts to a denial of assistance; the consequence is that many women die in childbed, and the diseases of females are very frequent and very fatal. There are no lying-in charities in the neighbourhood.

58. The poorer classes anxiously seek medical assistance from the chemists in the earlier stages of illness, or until their pecuniary means become exhausted, then to the medical men for gratuitous aid, and in chronic cases to the North Staffordshire Infirmary.

59. The North Staffordshire Infirmary, the only medical charity in the district, is under the management of a committee chosen annually from amongst the governors. It contains about 100 beds, 20 of which are set apart for fever cases. It is supported partly by voluntary subscriptions, and partly by weekly payments of the workmen of some of the manufactories. The average annual number of patients admitted for the last seven years appears to be of in-patients 577, of out-patients 2048. The annual average number of fever cases admitted has been for the same period 75.

60. The public buildings, such as churches and chapels, generally have no proper means of ventilation. The work-rooms in the manufactories, where great numbers of men and women are employed, stand in great need of the means of thorough ventilation.

61. None whatever.

62. None, excepting the Police Acts referred to at Query 19.

## TOWN OF LONGTON.

REPLIES by the CHIEF BAILIFF and a COMMITTEE of INHABITANTS.

*Town of Longton.*

Replies by the Chief Bailiff and a Committee of Inhabitants.

1. Town of Longton, containing a population of upwards of 12,000, situate at the south-eastern extremity of the Staffordshire Potteries, and on a gentle acclivity favourable for drainage.

2. Surface soil stiff argillaceous, subsoil clay calculated for the making of red and white brick, substrata ironstone and coal.

3. No.

4. No.

5. No.

6. None, except those possessed by the Surveyors of the Highways under the General Act. No; every proprietor making erections agreeably to his interest or inclinations, regardless of public health or convenience, and consequently some of the back streets and alleys are favourable to the accumulation of filth. In some instances, which might be remedied at a moderate expense.

7. None. In some of the main streets.

8. Generally. No. Cleansed under the control of the owners. No.

9. No public attention is paid to this point, but owing to the town being well supplied with water, and its position favourable to drainage, effluvia are not generated to any great extent.

10. No precautions are taken in this respect, except such as the preservation of the roads may require.

11. No.

12. A large proportion is thrown into water-courses, but in many instances it either soaks into the subsoil, or remains stagnant on the surface.

13. Culverts from 12 to 18 inches in diameter, and cost from 1*s.* to 1*s.* 6*d.* per foot.

14. No necessity generally for cleansing them, on account of the declivity of the ground.

15. No public scavengers.

16. No.

17. Not generally, and where they exist the cleansing of them is not under public control.

18. No provision in this respect.

19. Powers are given by a local Act, but not hitherto enforced.

20. Generally in wide streets; few narrow courts and alleys. Very few back to back, and no arrangements for cleansing.

21. None.

22. There is no Act giving such powers.

## APPENDIX.

## Town of Longton.

Replies by the  
Chief Bailiff and a  
Committee of Inha-  
bitants.

23. Yes. Yes. Defective as to play-grounds.
24. None.
25. None.
26. From reservoirs belonging to the Duke of Sutherland.
27. An excellent quality of soft water, issuing from a bed of silicious gravel and sand, about a mile distant from the town.
28. Conveyed through iron mains and leaden service pipes, the former being placed under the surface.
29. By the proprietor the Duke of Sutherland.
30. Upwards of 2,000.
31. Nearly all; but either the landlord or the tenant provides the receptacle.
32. See last answer.
33. No.
34. From 7s. to 10s. per annum to private houses.
35. Unlimited.
36. No; but the inhabitants have not reason to complain in this respect.
37. None.
38. No; the quality of the water rendering such apparatus unnecessary.
39. Constantly; but some parts of the town can only be supplied during certain hours.
40. No.
41. Constantly in the mains, and with a proper apparatus might be thrown over the highest building.
42. In a short time.
43. None.
44. Very few, and accidental.
45. No regulations.
46. One engine belonging to a public fire-office, under the direction of the Company's agent.
47. Good, as a manufacturing town.
48. There are no localities very remarkable in this respect.
49. From a few days to a fortnight, except in chronic cases, fever or consumption; the last of which is very prevalent.
50. Tolerably good.
51. Generally not more than one family.
52. Tolerably good. No particular arrangements for ventilation.
53. Yes. An iron open grate. Coal.
54. Yes. No.
55. Indifferent. No.
56. Parochial assistance.
61. None.

## TOWN OF NEWCASTLE-UNDER-LYME.

## Town of Newcastle-under-Lyme.

Replies by G. H.  
Hall, Esq., and a  
Committee of In-  
habitants.

## REPLIES by G. H. HALL, Esq., Mayor, and a COMMITTEE of INHABITANTS.

1. Newcastle is situated in the north of Staffordshire, at the commencement and at the foot of the chain of hills and mountains which run through the centre of the kingdom, direct north into Scotland; although not occupying a high altitude, yet it is located upon a hill which slopes gradually into the vale of the Trent southerly, and possesses a steep declivity on the west towards the bed of a branch of the Trent.
2. The central, southern, northern, and western portion of the town are on the old red sandstone formation, extending into Cheshire and Shropshire; the eastern lies upon a strong mine of clay, extending into the coal formation of the Pottery district. There is every facility for drainage.
3. The town is not liable to be flooded, but the vale of the Trent below is.
4. None.
5. None.
6. There are no fixed regulations for draining the town or district, consequently many portions of it are unpaved, without public sewers; the filth allowed to accumulate in courts, alleys, &c. The ditches remain open in many parts, without sufficient current of water to carry off the filth.
7. There are no arrangements for under-drainage beyond the main sewers in the principal streets, and these are efficient. There are partial branch drains into them, but the execution of the latter are dependant upon the owners of the property.
8. They have. In some parts they empty into drains and cesspools; but generally they have confined receptacles behind them, and require frequently emptying and carrying away. In the courts and lower parts of the town there are no public necessaries. There are some which are used in common by the inhabitants of certain courts, and are in a filthy neglected state.
9. The house-drains generally carry off the slops and not the filth from the necessaries, so are not subject to that accumulation which would otherwise occur.
10. They are not so constructed but that accumulations occur occasionally. They are

## APPENDIX.

## Town of Newcastle-under-Lyme.

Replies by G. H.  
Hall, Esq., and a  
Committee of In-  
habitants.

- not trapped, and when obstructions take place they are compelled to break open the culverts.
11. None.
12. In the modern built portions of the town, where no public sewers have been as yet constructed, the refuse or slops are thrown into the water-courses, and either soak into the subsoil, or it remains stagnant on the surface.
13. The main sewers are circular, but the branch sewers are either square or else made of pipes. We have no data from whence to furnish the average cost of each per running foot.
14. They cleanse themselves from the altitude of the town and its various declivities.
15. They are cleansed twice a-week for 20l. per annum, and the surveyor takes the manure, equal to 20l. more, making the best of it on his own private account.
16. The courts and alleys inhabited by the poorer classes are not cleansed by public scavengers; the refuse and filth is carted off at the capricious pleasure of the occupants or landlords.
17. No; their refuse is flung into one promiscuous heap, contiguous to each property, and removed when incapable of receiving more. The general mode is to give it to any one who will cart it away, the parties employing it for agricultural purposes.
18. There is no place as a general deposit for the filth and refuse of the town, except for the sweeping of the streets.
19. There is, consisting of Commissioners, viz., the mayor, justices, and corporation, appointed under a local Act.
20. No provincial town has better and wider streets; but still it has its objectionable courts and alleys, the courts being closed at one end, and in some localities the houses are built back to back. There are no arrangements for cleansing.
21. We have no cellar dwellings.
22. None.
23. They are well situated, light, warm, and tolerably well ventilated, with the exception of the infant school, which is badly located for draining; they have necessaries attached to them and play-grounds. There is no draining from them.
24. We have public walks, kept in good order, and well regulated and tastefully planted.
25. We have no public baths; but there are every facilities for public bathing in our canals, without being a nuisance.
26. The town has a great command of good water from its water-works, its pumps, and wells, for all general purposes.
27. The water springing from the old red sand-stone formation, is very excellent, slightly hard, from containing some small portion of carbonate of lime. That in the eastern portion of the town is much more hard, from its greater quantity of carbonate of lime.
28. The water from the water-works is forced up into a reservoir, situated in the higher part of the town, by a forcing pump attached to a steam-engine; it then is distributed to the various dwellings, by finding its own level through cast metal and wooden pipes.
29. By a private individual, who rent them along with a flour-mill.
30. Two thousand and thirty-nine.
31. Two hundred and fifteen houses, each having its own tap; and there are also 14 stand pipes in different streets for the accommodation of the poor, averaging 12 houses to each stand pipe, and paying one penny each per week.
32. They are generally supplied by pumps, and from open shallow wells as well as stand pipes. There are also 17 good public pumps.
33. There are sometimes complaints as to the supply being short, from the pumps being out of order; and, as many are private property, the authorities cannot interfere with them. It is also short and irregular from the water-works, the spring not furnishing a proper supply.
34. From 5s. to 21s. per annum to private houses, and up to 4l. to public-houses and hotels. They are not limited to the number of taps to each house.
35. They may use what they like.
36. On application to the Commissioners.
37. The Commissioners can remedy it.
38. Not at all.
39. Only in the day, from 9 A.M. to 3 P.M.
40. None.
41. No; it is kept on at high pressure, but not powerful enough to lift it into edifices without a fire-engine.
42. Immediately, as the pumps are numerous. There are also four fire-plugs.
43. None, except the very few fire-plugs.
44. There have only been three small fires in five years, arising from accidental causes.
45. The houses, with few exceptions, are constructed with partition walls.
46. There are two well-appointed and practised engines, with a brigade of 24 firemen, under the able superintendence of Mr. Cottrill, our chief constable.
47. Although the town has always ranked healthy, yet from the operation of extraneous unfavourable causes, capable of being remedied, our registers exhibit a rate of mortality rather higher than 2½ per cent. per annum.
48. The state of these parts of our town, where fever, &c., prevails, is want of sewerage and drainage, great and neglected accumulations of filth and refuse, dirty habits, and an



## APPENDIX.

*Town of Newcastle-under-Lyme.*

Replies by G. H. Hall, Esq., and a Committee of Inhabitants.

over-crowded state of lodging-houses, where men, women, and children are huddled together indiscriminately upon straw, or in five or six beds packed together in one room.

49. Fourteen days.  
50. Of brick, and generally are comfortable dwellings.  
51. Only one family (low lodging-houses excepted); but some few, about 50 or 60 housedwellers, take one or two lodgers, which enables them to pay their rent. Each house has generally two rooms, 10 to 12 feet square; on the average five occupy each house. There are not less than 800 houses in the town, at or under 1s. 6d. per week rent.  
52. The houses are not confined, but they possess no particular arrangement for ventilation.

53. Yes, the fire-places are of the ordinary construction, and coal being cheap, is the fuel employed.

54. Gas-light is generally introduced into shops, and partially into private dwelling-houses; but escapes to carry off bad air are only partially adopted.

55. The lodging-houses are generally dirty, wretched, and crowded, from being occupied by the Irish, of whom we have 600 of the lowest order. The police occasionally visit them, but have no fixed regulations.

56. The proportionate loss upon the poor-rate is 10 per cent., or 2,600l. upon the gross rental of the parish. This is not a large loss, considering that our population are only half employed and half starved from having nearly lost the hat and shoe trade. Losses of rates and rents from sickness we cannot ascertain.

57. Relief is given to all suitable objects. One-half of the relief which is afforded is bestowed upon that part of the population occupying Lower-street, Holborn, Green, and the Higher-land, where we find from June the 1st, 1842, to June 1st, 1843, 125 deaths; whereas out of the population of 2,010 in the central and more healthy portions of the town, there were only 40, and out of a population of 1,800, in the eastern portions of the town, the deaths were 42. Gross number of deaths in the parish, 1842-3, 259; of which 136 were children under five years of age.

58. From the facilities afforded in obtaining medical advice and assistance, it is much sought after and obtained.

59. There is the North Staffordshire Infirmary, within a mile and a half. There is also a medical relief fund just formed, and a lying-in-charity for securing attendance upon poor lying-in women and destitute sick, in the town.

60. No regular system of ventilation.

61. There are no common lands now, having been enclosed under an Act of Parliament, with a reserve of right to the burgesses of about 205 acres, including six acres devoted to public walks.

62. Yes, there is a local Act, with powers to a certain confined extent, viz., 59 Geo. III., 1819, intituled, "An Act for Paving, Lighting, Watching, Cleansing, Regulating, and Improving the Borough of Newcastle-under-Lyme." By virtue of the Municipal Corporations Act, 5 and 6 Wm. IV., chapter 76, section 72, the Town Council of the borough now act as Commissioners for carrying the said Paving and Lighting Act into effect.

## THE CITY OF CHESTER.

## REPLIES by the MAYOR and a COMMITTEE of INHABITANTS.

## City of Chester.

Replies by the Mayor and a Committee of Inhabitants.

1. Chester stands on high ground, and is partially surrounded by the river Dee.
2. The substrata, a new red sandstone, with marl and sand occasionally lying upon it, the surface-soil being of a light porous nature.
3. The town never; the meadows in the neighbourhood occasionally.
4. There is no natural obstruction.
5. Not any.
6. The Commissioners of Police have certain powers, which are seldom enforced. The inclinations are generally favourable. The streets are indifferently paved, and, in some places, they retain stagnant moisture; there are also open ditches and stagnant pools contiguous to dwelling-houses in certain districts.
7. The powers vested in the Commissioners of Police are sufficient, but they are not enforced from want of funds, other local assessments being heavy. A portion of the principal streets is without under-drains, and nearly the whole of the cross-streets.
8. Yes, but generally open; the soil is removed during the night. There are no public necessities, except such as are used in common by the inmates of courts and alleys.
9. They are open, and traverse the surface of the streets, except in some few cases, where they are connected with under-drains and sewers, which are only efficiently cleansed by heavy rains.
10. They do not retain a large amount of decomposing refuse; they are not trapped.
11. There are some local regulations, but they are not systematically enforced.
12. The liquid refuse generally flows into water-courses, but sometimes, from various causes, it remains stagnant on the surface.
13. The brick-made drains are circular, from 30 to 36 inches in diameter; the expense averages 4s. per foot. Very few houses are under-drained.

## APPENDIX.

*City of Chester.*

Replies by the Mayor and a Committee of Inhabitants.

14. There are no special means for cleansing the public sewers; the cesspools formed in them are cleansed periodically at an expense of about 10l. annually.

15. They are cleansed at irregular intervals by pauper scavengers, the exact expense of which cannot be estimated.

16. The courts and alleys are never cleansed by public scavengers, and seldom by their occupants.

17. No; the refuse is thrown into open spaces behind the privies.

18. There is a depôt for the sweeping of the streets; and the sum for which the manure is sold is applied in liquidation of the expense of the labour.

19. There are powers in the Police Act, which are seldom enforced, so that many nuisances are allowed to remain unabated.

20. There are four wide streets, which intersect at right angles. The majority of the houses of the poor are built in narrow courts and alleys; in some instances the houses are built back to back, but not generally; many of the courts are closed at the end; and the arrangements for cleansing very deficient.

21. There are very few cellar-dwellings; these are badly lighted, drained, and ventilated, but are provided with fire-places.

22. There is none.

23. Generally so. Yes, usually open. Most of them.

24. The public walks are numerous and spacious, including a field of nearly 100 acres in pasture by the river-side, accessible at all times, and in good order.

25. The river and canal are used for bathing-purposes; and there are no public baths except at the infirmary and poor-house, which are accessible only at high charges.

26. Principally from the river Dee, partially from springs, and some of the inhabitants living near the canal supply themselves from that source.

b. From the river.

c. From the river.

27. There is no correct analysis. The river and spring-water contains a very small portion of lime in solution.

28, 29. The river-water is supplied by a joint-stock company incorporated by Act of Parliament, and is conveyed by means of iron main-pipes, with small lead-branches, to private houses.

30. Inhabited houses,	4,800
Uninhabited houses,	406

5,206

31. About 2000 houses have distinct pipes, with a tank or cistern in each house. About 500 houses in courts or entries are supplied by a pipe placed in each court or entry, averaging 10 houses to each pipe; these have no tanks.

32. There are not any public stand-pipes for the supply of the poor, in some instances they obtain water by begging from their neighbours, and a large number of them carry all they require from the river, the canal, or from springs.

33. There have been occasional complaints of the quantity; as to the quality see Answer No. 27; the price is considered high.

34. The Act empowers the company to charge from 5 to 7½ per cent on the rent, varying according to the amount; the actual charge is from 4 to 6 per cent.

35. When large quantities are required for breweries, or other establishments, the charge is 3d. per ton, with a discount of 20 per cent.: in private houses the quantity is not limited.

36. The Act provides a remedy on application to the magistrates.

37. See Answer 36.

38. They are used in the higher class of houses, but not very extensively throughout the city.

39. The water is kept on in some districts three, four, and five days a-week, three hours each day on which it is supplied.

40. There are stand-pipes, which are used in case of fire only.

41. The engine is at work during the day only. There are two reservoirs which supply the city with water in case of fire, at all times; there is no power of raising it to any considerable elevation.

42. About a quarter of an hour.

43. No other than those mentioned in Answer 41.

44. In the last three years the number has been from 10 to 15 per annum, none of which have been of a serious nature.

45. There are but few.

46. There is a very efficient establishment.

47. As regards the health of the higher and middle classes very good.

48. The poor suffer severely in the worst parts of the town from fever, arising from over-crowding and the want of ventilation. The rate of mortality, from fever and other epidemic diseases, is greater among children than adults.

49. About a month.

50. The houses of the poor are brick and slate, and generally consist of one ground-floor and two bed-rooms; they are, for the most part, in a neglected and dirty condition.

51. One family to each house; but where the tenements are larger, single rooms are often let out to separate families. The average number in each room is about five; the rooms are from 7 to 8 feet high, and have from 10 to 14 square yards of flooring.

APPENDIX.  
City of Chester.Replies by the  
Mayor and a Com-  
mittee of Inhabi-  
ants.

52. Bad and impure; and no special arrangements for ventilation.
53. They are tolerably well warmed, coal being cheap. The fire-place is the common open-barred grate.
54. Gas is generally used in the shops and in a few dwelling-houses. No artificial means used to carry off the bad air.
55. Very miserable and wretched; many have no bedsteads, and some not even beds; the people lie down upon straw, and huddle together to keep themselves warm. It is in the lodging-houses of the worst class, and where the occupants are numerous with no ventilation, that fever generally first presents itself. There are no police or other regulations respecting them.
56. Cannot be satisfactorily ascertained.
57. No accurate information in reply to this question.
58. Extensively sought, and gratuitously afforded.
59. There is a general hospital, which will contain 100 beds, to which is attached a dispensary: a copy of the regulations is herewith sent. The average number of patients is 630 per annum.
60. The public buildings, including churches and chapels, and also the town-hall, are indifferently ventilated.
61. Two pieces of land, but of small extent.
62. There are certain powers under the Police Act, a copy of which is sent. A copy of the Water-works' Act is also forwarded.

POPULATION in the Year 1841, and Deaths for Three Years ending June, 1843.

POPULATION IN THE YEAR 1841, AND DEATHS FOR THE YEARS ENDING 1841, 1842, AND 1843.									
	Population, 1841.	Houses		Number of Deaths for the Years ending			Total of 3 Years.	Average.	
		In- habited.	Unin- habited.	June, 1841.	June, 1842.	June, 1843.			
CATHEDRAL DIVISION.									
St. Oswald's Parish . . . . .	5,930	1,221	59	183	127	157	467	156	
Precincts of Cathedral and Abbey Court . . . . .	329	74	4	..	..	..	..	..	
Parish of St. Peter . . . . .	847	161	29	39	20	11	70	23	
Parish of St. Bridget . . . . .	675	140	23	23	15	17	55	18	
Parish of St. Martin . . . . .	459	103	6	15	14	11	40	13	
Parish of Holy Trinity . . . . .	2,960	592	43	84	75	64	223	74	
	11,200	2,291	164	344	251	260	855	284	
INSTITUTIONS.									
Collegiate College . . . . .	25	..	..	..	..	1	5	2	
City Gaol . . . . .	59	..	..	4	..	..	..	..	
Workhouse . . . . .	298	..	..	69	53	54	176	59	
Infirmary . . . . .	73	..	..	49	52	26	127	42	
	11,655	..	..	466	356	341	1,163	387	
CASTLE DIVISION.									
Part of Great Boughton (exclusive of County, 198) . . . . .	751	160	29	28	23	16	67	22	
Parish of St. John (including Spital Boughton) . . . . .	6,929	1,465	94	219	198	156	573	191	
Parish of St. Mary . . . . .	2,975	647	87	94	101	76	271	90	
Parish of St. Michael . . . . .	624	129	16	15	21	16	52	17	
Parish of St. Olave . . . . .	430	108	16	16	11	7	34	11	
	11,709	2,509	242	372	354	271	997	331	
INSTITUTIONS.									
Female Penitentiary . . . . .	14	..	..	..	..	..	..	..	
Chester Castle . . . . .	436	..	..	10	3	16	29	10	
	12,159	..	..	382	357	287	1,026	341	
Totals { Cathedral Division . . . . .	11,655	..	..	466	356	341	1,163	..	
{ Castle Division . . . . .	12,159	..	..	382	357	287	1,026	..	
	23,814	..	..	848	713	628	2,189	729*	

October 4, 1843.

THOMAS PARRY, Superintendent Registrar.

\* This annual mortality exceeds 3 per cent. on the population, showing a very high rate, and pressing heavily on the working and poorer classes.—R. A. S.

## THE TOWN OF SHREWSBURY.

REPLIES by the MAYOR and a COMMITTEE of INHABITANTS.

APPENDIX.  
Town of  
Shrewsbury.Replies by the  
Mayor and a Com-  
mittee of Inhabit-  
ants.

1. The town of Shrewsbury stands upon a peninsula formed by the river Severn, which flows all round the town, except a narrow neck of about 300 yards. Its site is a low hill of about 100 feet in elevation, placed in the middle of an extensive and rich plain. There are three suburbs on the north, north-western, and eastern sides of the town, extending themselves on the plain.
2. The town of Shrewsbury stands upon the lower new red sandstone of geologists. The soil varies of course with the nature of the surrounding rocks, but in this vicinity it is chiefly a light, reddish, sandy soil, below which are found sand or gravel. There is no difficulty in drainage.
3. Portions of the three suburbs of the town are occasionally liable to be flooded by the river Severn, viz. a considerable portion of Coleham, a small portion of Castle Foregate, the lower parts of Frankwell, and parts of the Abbey Foregate.
4. Not that we are aware of. In Coleham the flood-water does not retire rapidly.
5. None whatever.
6. There are no general regulations for draining the town, and none whatever as to the suburbs. The authority of the Street Act does not extend to them, but only to that part of the town which the river encompasses. The streets are generally laid out with proper inclinations for the discharge of surface water; but the courts and alleys are very uneven, and in the town they are principally paved, though in the suburbs some are unpaved. Many of the courts and alleys both in the town and suburbs are favourable to the retention of stagnant moisture, which, with accumulations of refuse of various sorts, renders the residuum therein disagreeable, and probably unhealthy. There is one large stagnant pool within the borough, near St. Austin's Friars, and adjoining the river, into which many of the drains of the town empty themselves, and of the mud collected therein a profit is made by the owner; proceedings are now being commenced to compel its removal. There are several open ditches in the suburbs from which noisome smells arise.
7. The suburbs of the town are not under-drained, as also portions of the town, viz. part of Mardol, Belmont, Claremont-street, &c. There are sewers or branch-drains in the streets. In the suburbs there are no efficient arrangements for under-drainage.
8. Very many of the dwellings of the poorer classes have no necessities; and it is a source of very great discomfort to the poor, injurious to their habits and feelings, and occasions a great public nuisance. Even the better kind of houses are inefficiently supplied. Seldom, if ever, the necessities empty themselves into cesspools or drains, but the contents are generally removed at the expense of the occupier in the best way they can. There are no public necessities; they would, if properly regulated, be a great accommodation to the poorer classes.
9. In the town they are in general sufficiently cleansed. In the suburbs there is not unfrequently cause of complaint on this head of inquiry.
10. Such of the public sewers as have been constructed in the town act without occasioning deposits, except small quantities near the openings, which are easily removed. The sewers are not effectively trapped.
11. No.
12. In the town, it is thrown principally into the water-courses; in the suburbs, it is generally allowed to sink into the subsoil, or remain stagnant on the surface.
13. There are six descriptions of sewers, viz.—
- No. 1. The section of which is oblong, forming a semicircle top and bottom, cost 7s. 10d. per foot lineally.
- No. 2. The same, which cost 7s. 3d. per foot lineally.
- No. 3. The same, which cost 5s. 3d. per foot lineally.
- No. 4. The section circular, which cost 4s. 11d. per foot lineally.
- The above are of 9-inch brick-work.
- No. 5. The section circular, which cost 2s. 8d. per foot lineally.
- No. 6. The same, which cost 2s. 3d. per foot lineally.
- Nos. 5 and 6 are of 4½-inch brick-work.
- House-drains are of various forms and various prices.
14. No regular cleansing is necessary; occasional deposits.
15. There is a service of scavengers in the suburbs, who cleanse the streets within the walls twice each week, at an average cost for the last eight years of 314l. 9s. 6½d. per annum. The scavengers do not go into the suburbs.
16. The appointed scavengers do not enter the courts and alleys, but will receive from the inhabitants of such courts and alleys their refuse when brought, which is very seldom; what refuse is removed is done by the inhabitants, but not according to any system or regularity: the expense cannot be ascertained. This answer applies only to the town, as in the suburbs there are no scavengers.
17. No.
18. A field is rented by the trustees of the streets, near one of the suburbs, for the reception of refuse, which is sold for manure, and produces about per ton. This answer applies



## APPENDIX.

## Town of Shrewsbury.

Replies by the Mayor and a Committee of Inhabitants.

only to the refuse of the town; in the suburbs it is removed, if removed at all, by the inhabitants.

19. Within the town the Committee of Management under the Street Act have considerable powers, as will be seen by a copy of their Act; but with respect to the removal of nuisances, they are not adequate, as a fresh notice is required upon every renewal of a nuisance, by which means it is not effectually repressed; they are irresponsible under the bye-laws, which extend throughout the borough (a copy of which is left herewith). Penalties are provided for the enforcement of cleansing and the prevention of public nuisances, and the police-officers are appointed to carry them into effect. Whether this arrangement will be found effectual, we have not sufficient experience yet to ascertain.

20. Shrewsbury being an ancient town, some of the streets are very narrow; the principal streets have recently been much widened. Some of the houses are built back to back, and some of the courts closed at the end. The arrangements for cleansing have already been alluded to—see 15 and 16.

21. There are no cellar dwellings.

22. Within the Street Act the streets cannot be closed up; there are no provisions as to the suburbs.

23. Yes; though probably the ventilation may in some respects be improved. Yes. Very partially.

24. There is a delightful walk on the banks of the Severn, called "The Quarry," kept by the corporation, and to which the public have access at all times. There is also a fine spot of ground near the town, called "King's Land," upon which the ancient burgesses have a right to go "upon horses, coaches, and on foot" for air and exercise. The walks and public land in the Quarry is 20 acres; King's Land 27 acres.

25. No; if there were, it would be a great comfort and convenience to the labouring classes.

26. *a.* Within the town, with hard water from conduits placed at the expense of the corporation, brought by pipes from a spring about 1½ mile from the town; and with soft water from the river Severn, supplied by the Water-works Company. There are also some few private pumps.

*b.* In the town, from the pipes of the company; in the suburbs it is not done.

*c.* About 50 small plugs, or tanks, and 10 of a larger size, have been laid down in the town at the expense of the Salop Fire Office; but it is believed that these would not be sufficient in case of any serious fire. The committee understand that the subject is now under the consideration of the local fire offices and of the Water-works Company.

27. The water supplied by the conduits is an excellent hard spring water, that by the company soft river water; there has been no analysis, and no complaints of the quality.

28. See above, No. 26.

29. See above, No. 26.

30. According to the last Census, about 4029.

31. About 1500. Each occupier provides such receptacles for water as he thinks fit. In some cases, when the landlord of small houses rents the water from the Water-works Company, it is received into a tank, from which each tenant supplies himself.

32. In the town, the poorer classes obtain water from the public conduits; and where they reside near the river, from that source also. In one of the suburbs there are two public pumps, in the other suburbs they obtain it from the river or from parties having pumps. River water is also sold in barrels.

33. There have been complaints of irregular supply by the Water Company, but not as to quality or price, by the renters under the company; but among the poorer classes, who are unable to rent water either from poverty or situation of dwelling, there are many complaints of want of water, and an ample supply would doubtless add greatly to their comfort, health, and cleanliness.

34. About 10s. in the pound on the annual value.

35. The parties are at liberty to take as much as they can during the time the water is "on" in their district, which ought to be about three hours for three days in the week.

36. None.

37. It would be desirable to vest in the chief magistrate, or some other public officer, a power to enforce a good and sufficient supply of water.

38. No.

39. The water is not kept on at night, and is turned on in each district in the town for three hours for three days in the week.

40. There are no stand-pipes, but there are tanks, from which the trustees of the streets are at liberty to take water free of cost for watering the streets. There is no provision as to cleansing the fronts of houses.

41. No: but the company have a reservoir, which may be improved so as to provide a sufficient supply at all times.

42. This depends entirely upon the situation of the premises, and whether the fire takes place in the night or day time. In most cases the water can be brought to bear upon the premises immediately, and the greatest delay that could take place would be about twenty minutes or half an hour, except in cases of hard frost.

43. There are none, except in the Salop Infirmary, on the top of which there is a very large reservoir.

44. The fires in Shrewsbury have been very inconsiderable in number and extent, not exceeding two in the course of a year.

45. Yes, with very few exceptions.

46. Yes; there are three engines belonging to the Salop Fire Office, and one of the Shrop-

shire and North Wales Fire Office, now stationed in the town. There is a sufficient service of firemen.

47. Judging from the number of deaths, it is supposed to be rather under the average of the mortality of the kingdom, being 2·6 per cent., including the deaths in the gaol and infirmary, a large proportion of which are not inhabitants of the borough, and which deaths, being included in the average, considerably increase the proportion in St. Mary's parish, being 2·9 including the gaol and infirmary, and 2·2 exclusive thereof.

48. In the worst parts, viz. Castle Foregate, Ronshill, and Frankwell, the poorer classes live much crowded together, and suffer much from want of cleanliness, proper ventilation, and sufficient food, though the mortality amongst them is, in proportion, less than in Coleham, where the poor are less crowded, and more cleanliness is observed, and, owing to private charities, more comfort is enjoyed.

49. About three weeks.

50. They consist generally of two rooms only. Condition various, depending upon the habits and means of the occupiers.

51. In one of the suburbs of the town one-half of the poorer classes have two or more families in each house, and one-fourth have a lodger or two. From three to six persons lodge in one room. Many live and sleep in the same apartment. The average size of rooms is 13 feet by 11. But in the suburbs and the town generally only one family inhabit each house.

52. The general state is bad, and no arrangements are introduced for ventilation.

53. This depends entirely upon their means for purchasing fuel. The fire-places are generally constructed of bricks and common bars. Great economy in the consumption of fuel may possibly be effected by the adoption of some cheap and well-constructed grate. The fuel in use is coal.

54. In the shops generally, in the private houses partially. We are not aware of any provision for the escape of bad air.

55. *Very bad*, and no police regulations with regard to them. The general size of the rooms are 14 feet by 12 and 16 feet by 9, with 5 or 6 beds in each room, and occupied by 12 or more persons at one time.

56. The large proportion is caused by interruption of employment more than by sickness.

57. We cannot answer this query from any accurate or authentic details.

58. Medical advice is much sought for by the poorer classes, and is afforded to them most liberally; and also see next answer.

59. The Salop Infirmary and the Eye and Ear Dispensary. The regulations of the infirmary have been carefully prepared, and a printed copy will be supplied. The average number of patients are—

In-patients . . . . .	1228
Out-patients . . . . .	3241

Total . . . . 4469 in a year.

Of the in-patients the town supplied about one-fourth and of the out-patients two-thirds.

60. Some improvements may be effected in this respect.

61. No.

62. Yes, as will be seen by a copy of the Act and of the bye-laws.

## THE TOWN OF WREXHAM.

## REPLIES by SIR J. LLOYD, and a COMMITTEE of INHABITANTS.

## Town of Wrexham.

Replies by Sir J. Lloyd and a Committee of Inhabitants.

1. The town of Wrexham, consisting of the townships of Wrexham Regis and Wrexham Abbott, and an insulated portion of the township of Eslusham Below, is situated on two slopes, meeting in a narrow valley, through which a small brook runs from west to east. The surrounding country is of an undulating nature, terminating in a mountain range, to the west, north-west, and south-west, distant from four to seven miles.

2. The surface-soil is light loam; the subsoil consists of gravel and sand; the substrata stiff clay, or rammel. The facilities for drainage are great, from the sloping nature of the ground.

3 and 4. The town is not liable to be flooded, excepting in cases of long-continued heavy rains, when the brook overflows to a small extent, but soon passes off. The bed of the river flowing through the town has been allowed to accumulate gravel and rubbish, raising it many feet above its original channel, thereby obstructing the passage of the water, and flooding the neighbouring cellars and main drains to a considerable extent. Several of the sewers opening into the river are thus completely choked up. This obstruction is chiefly to be attributed to five dams erected within the township within the last 40 years, and it is daily increasing. Many of the openings to these sewers are now remembered to have been from 5 to 6 feet above the bed of the river.

5. No.

6. No regulations for drainage, excepting those vested in Surveyors of Highways, whose authority does not extend to private courts and property; which is the cause of the retention of much stagnant moisture and accumulations of refuse, &c., contiguous to the dwellings. The whole of the filth on one side of the town is conveyed into a meadow in the town, where

## APPENDIX.

Town of  
Wrexham.

Replies by Sir J.  
Lloyd, and a Com-  
mittee of Inhabit-  
ants.

large open ditches are cut for its reception and retention in a stagnant state, and from which an abundant exhalation of miasmata arises.

7. There are under drains in a few of the main streets, inefficient and defective, and scarcely any branch drains.

8. There are no proper, decent necessities belonging to the houses of the lower classes, and the state of those which do exist is most disgraceful and offensive. These are only partially cleansed by carrying out the contents when they become insufferable. There are no public necessities.

9. Generally very defective, even in the better class of houses, where alone they are to be found.

10. No.

11. Only the general powers vested in the Surveyors of Highways.

12. Thrown principally into the water-courses on the surface.

13. Generally square.

14. When they are cleansed it is by the Surveyors of Highways.

15. None.

16. No. (Vide No. 8.)

17. Many of the lower classes collect dung and filth from the roads and streets, and heap it up against their houses for sale, which is only removed once a year.

18. None.

19. No.

20. All the main streets are wide; several narrow courts and alleys; some houses built back to back; several courts enclosed at one end; no arrangement for cleansing.

21. None.

22. No.

23. Site, drainage, light, and warmth good; room for improvement in ventilation; proper necessities attached to them.

24. None.

25. None.

26. a. Private pumps, a single public well, and public pump.

b. Brook.

c. Private pumps.

27. Hard, containing a large portion of selenite.

28. None.

29. None.

30. None.

31. None.

32. None. (Vide No. 20.)

33. Only as to quantity.

34. No charge.

35. None.

36. No.

37. No.

42. According to the respective situations of the private pumps and places on fire, often causing most serious delay and consequent loss of property.

43. None.

44. Six fires in two last years, all supposed to have been intentional.

45. Most of them unprotected.

46. Good engines, but no regularly appointed firemen: *the want of this appointment is greatly felt.*

47. Good; 23 in 1000.

48. Amongst the lower classes, and taking the line of the brook.

50. Some wretched; generally good; a spirit of improvement prevailing.

51. Generally a single family occupies each house.

52. Impure for want of ventilation.

53. Coal being abundant and cheap they are tolerably so; small common grates in general use.

54. Gas generally used in the shops, but not common in the dwelling-houses. No particular escape provided for the bad air.

55. Wretched in the extreme, both in morals and cleanliness; no police regulations regarding them.

56. The town is not liable to any losses, not being a manufacturing one.

58. Between the Union, the dispensary, and the self-supporting branch of it, town and neighbourhood is able to obtain immediate relief in case of sickness.

59. One infirmary and dispensary united, supported by voluntary contributions, for the benefit of labouring mechanics, their wives, and children, and all poor persons not entitled to parochial relief. Such poor persons as the Committee deem able to pay 1*d.* a-week are required to pay that sum to the self-supporting department. Average amount of patients 1135.

N.B. It would be very desirable in case of any Act of Parliament being passed for the regulation of the Health of Towns, that no person should be disqualified from becoming inspectors who may be proprietors or shareholders of any public companies, such as gas-works, waterworks, &c.

60. Very indifferently.

61. None.

62. None.

## THE CITY OF GLOUCESTER.

REPLIES by A. H. JENKINS, Esq., Mayor, and a COMMITTEE of INHABITANTS.

1. The city of Gloucester is situated in the vale of the Severn, on the eastern side of the river, on ground which rises gradually towards its centre to the level of about 50 feet above low-water; from thence the ground falls nearly equally in all directions. To the east of the city, distant 5 miles, is the range of the Cotswold Hills; and to the westward, at a distance of 12 miles, is the range of the hills of the Forest of Dean.

2. The vale is of the blue lias formation, with considerable alluvial deposits near the river. On the eastern side of the town the soil is a fine gravel and rich loam, gradually changing into a stiff clay towards the vale. The subsoil is clay, with some strata of gravel; on the eastern side is a stratum of gravel of great depth. The levels are advantageous for drainage, but the soil generally is impervious.

3. About one-twentieth part of the town being nearly on a level with the meadows is liable to inundations, the average duration of which does not exceed six days per annum. These meadows, which are on the western side of the city, and extend a considerable distance, say half a mile, are subject to frequent floods (occasionally even in the summer-season), varying from one to six feet in depth.

4. Yes; several in the meadows and Dockham ditches, which serve as a common sewer to large parts of St. Catherine, St. Mary de Lode, and St. Nicholas parishes, the most populous in the city: also in a brook that runs through the south side of the city, and generally in the ditches and drains intended to carry off the soil and liquid-refuse in the city and suburbs.

5. No.

6. None, as to draining. There are naturally good inclinations in the streets, but not in the alleys or courts, which, in many cases, are unpaved and uneven, and the gutters very imperfect. In many parts of the town there are several stagnant pools and ditches, the receptacles of filth and refuse of all sorts, very offensive to their respective neighbourhoods, and injurious to health in some of the most crowded parts of the city.

7. There is no general system of drainage.

8. In many parts of the town there are no proper necessities; frequently but one to ten or a dozen houses or more. They are emptied at night, and the soil carried off in carts or tubs; but they are frequently allowed to overflow. There are no public necessities.

9, 10, 11. See Answers to 7 and 8.

12. Yes.

13. None.

14. There is no general public sewerage.

15. Generally done by the parishes. The expense varies, and the cleansing is often imperfectly done. In a populous part of St. John's parish there is no scavenging.

16. In some parts the soil and refuse are brought out to the parish scavenger. In other parts, amongst a dense population, it is allowed to accumulate near the houses, and is afterwards sold for manure.

17. Not generally.

18. The scavengers (who go round and collect the refuse and ashes two or three times a-week) deposit the collection in various places in the outskirts of the town, where it accumulates until it is sold by them for manure.

19. Certain bye-laws have been made under the powers of the Municipal Corporation Act, and lately confirmed by the Secretary of State, which make some provisions for this. A copy of the bye-laws is sent herewith.

20. The principal streets are wide; but there are several narrow courts and alleys badly ventilated and without any thoroughfare. The houses in some cases built back to back, closed at the end, and without arrangements for cleansing.

21. None.

22. None.

23. Some of the schoolrooms are very unfavourably constructed for these purposes, and are without proper necessities, others have decent privies and play-grounds.

24. There are convenient footpaths by the sides of the roads, and through the fields round the town, but no public parks or gardens.

25. None, the river being too rapid for safety.

26. a. From wells and pumps in various parts of the town; from a public conduit; from the rivers Severn and Twyer, and from a water-company, who have capacious reservoirs at Robin's Wood Hill (about two miles from the city), in which spring and rain-water is collected in ample quantities, and at an elevation sufficient to force water to the highest house in the city.

b. No arrangement; but in summer the gutters are occasionally dammed up by the inhabitants, and the dirty waste-water which they contain is thrown over the pitching.

c. From the water-company's fire-plugs, which are fixed about 90 yards apart in every street where the pipes are laid; but in many of the bye-streets there are no water-pipes laid.

27. Generally speaking the water is good, but of various properties. In some of the

## APPENDIX.

## City of Gloucester.

Replies by A. H.  
Jenkins, Esq., and  
a Committee of  
Inhabitants.



## APPENDIX.

## City of Gloucester.

Replies by A. H. Jenkins, Esq., and a Committee of Inhabitants.

districts it is indifferent and scarce. No analysis has been made, and no serious evils experienced in respect of the qualities of the water.

28. By the pipes of the water-company; by one public conduit; and by private pumps and wells.

29. The water-company is a joint-stock company.

30. According to the census of 1841, 2702.

31. Three hundred and eight houses. In most instances each house has a separate tank, but sometimes one tank serves for two or more houses.

32. There are no stand-pipes. The poorer classes are very inadequately supplied in many parts of the city.

33. Few, if any, formal complaints appear to have been made on the subject.

34. The water laid on by the water-company is charged for as follows:—houses at and under 15*l.* a-year rental, 12*s.* to 15*s.* per annum; 15*l.* and under 20*l.*, 17*s.* 6*d.*; 20*l.* and under 25*l.*, 22*s.* 6*d.*; 25*l.* and under 30*l.*, 25*s.*; 30*l.* and under 40*l.*, 30*s.*; 40*l.* and under 50*l.*, 35*s.* per annum, and so gradually increasing after the same rate according to the additional amount of rental.

35. Unlimited.

36. Yes, under the provisions of the Act of Parliament, by which the water-company was formed. See Act; copy sent herewith.

37. There has been no deficiency in the supply, and the water is good; but *vide* Act as to the powers and remedies.

38. No.

39. The water-company's mains are kept charged night and day, and the water is turned on to the supply-pipes three times a-week.

40. No.

41. Yes.

42. Immediate, in the streets where the mains are laid.

43. The water-company's mains.

44. There have been very few fires.

45. There are but few buildings with party-walls.

46. Yes.

47. The number of deaths for the last six months, including those in the infirmary or general hospital for the city and county (but which lies within the city), and the Union workhouse, show an average of 2·42 per cent. per annum.\* The superintendent-registrar, not considering himself at liberty to furnish any information on this point, no further data can be given as to the general health of the town.

48. The worst parts of the town is, undoubtedly, in a very bad state; but epidemic diseases are, generally speaking, by no means prevalent.

49. This cannot be ascertained with any degree of accuracy.

50. In the old parts of the town the structure and condition generally bad; but in the new built parts, good.

51. Generally but one family in a house, but where that is the case there are frequently lodgers. In St. Nicholas and St. Mary de Lode, and part of St. John's parishes there are three or four families in a house, and the rooms, which vary in size, are crowded.

52. Generally speaking very impure, though with some exceptions. No arrangements for ventilation in any of the old houses.

53. Generally so. Coal is the fuel in common use, and the houses have open fire-places.

54. In the shops, but not in the dwelling-houses.

55. The wayfarer's lodging-houses are generally in a most filthy, crowded state, and of a very bad description; they are visited by the police, but there are no regulations with regard to them. The want of a duly-appointed reception-house for vagrants is a crying evil, which is daily increasing.

56. This cannot be ascertained with any degree of accuracy.

57. Nor this.

58. There is no deficiency of gratuitous medical advice or assistance for the poorer classes.

59. Yes, a general hospital for the county and city, containing 170 beds; a dispensary supported by voluntary contributions, and some lying-in charities. In the dispensary upwards of 1000 persons are relieved annually, and the general hospital is usually full. A copy of the rules is sent herewith.

60. The city-gaol is very badly ventilated.

61. The Town Ham, containing about 50 acres, subject to floods; used in summer for cricket and other games.

62. There are three local Acts: one, passed in the 17th Geo. III., 1777, intituled, "An Act for rebuilding the bridge over the river Severn at Maisemore, near the city of Gloucester; for raising, widening, and securing Over's Causeway, leading from the said city towards Maisemore aforesaid, and for enforcing the proper paving and cleansing of the several streets within the said city, and for removing nuisances and annoyances therefrom, and preventing the like for the future," by which provisions are made for the sweeping of the streets by the surveyors, and for preventing overhangings and nuisances in the streets. Another Act was passed in 1781, intituled, "An Act for erecting a new gaol, and for removing certain gateways in the city of Gloucester, and for amending the several Acts passed for the maintenance and support of the poor of the said city, and

\* The Return made by the Registrar gives the mortality at 2·76.

## APPENDIX.

## City of Gloucester.

Replies by A. H. Jenkins, Esq., and a Committee of Inhabitants.

lighting, paving, and regulating the streets there;" in which, after giving power to build a new gaol, the other chief provisions relate to the placing and widening of the pavements in the principal streets, and the removal of ashes, dirt, &c., by the scavengers. The last Act was passed, 2 Geo. IV., 1821, and is intituled, "An Act for establishing a proper place for holding markets and fairs for the sale of live-stock in the city of Gloucester and the suburbs thereof, and for opening convenient avenues thereto, and for watching and otherwise improving the said city." By this Act powers are given to Commissioners to purchase lands, houses, &c., with the consent of the owners, for widening and improving the streets, &c.; and provision is made for the prevention of certain nuisances and annoyances in the city: but from the mode prescribed for electing the Commissioners, the provisions of this Act are almost nugatory.

There is no spare copy of either of the above Acts, but they can, it is presumed, be easily obtained at the Queen's printers.

In no one of such Acts is there any power whatever for enforcing the sewerage or drainage within the city, or for regulating the mode of building, &c.

RETURN of the Number of Deaths Registered within the Borough of Gloucester\* during the Years 1840, 1841, 1842, and to 1st December, 1843, showing the Number of such Deaths that have occurred during those periods of Consumption, Epidemic, Endemic, and Contagious Diseases, and from other causes, with the Annual Ratio per Cent. of Mortality on the Population, according to the Census of 1841.

Year.	Number of Deaths.					Population.		Ratio of Mortality.			
	Under 5 Years of Age.	Total Number of Deaths.	By Consumption.	By Epidemic, Endemic, and Contagious Diseases.	Deaths from other Causes.	In 1831.	In 1841.	By Consumption.	By Epidemic, &c. Diseases.	From other Causes.	Total.
1840 . . . .	190	447	82	171	194	13,686	14,869	0·55	1·15	1·31	3·01
1841 . . . .	190	393	57	131	205			0·38	0·88	1·37	2·63
1842 . . . .	173	430	87	135	208			0·58	0·91	1·39	2·88†
1843 (to 1st Dec.)	135	351	63	99	189			0·45	0·72	1·37	2·54
Totals . .	688	1,621	289	536	796	..	..	..	..	..	..
Average Annual Mortality, &c. in 3 Years and 11 Months .	175·65	413·87	73·78	136·85	128·25	..	..	0·49	0·92	1·37	2·76

\* Comprising the parishes or places of St. Aldate, St. Catherine, St. John Baptist, St. Mary-de-Crypt, St. Mary-de-Grace, St. Mary-de-Lode, St. Michael, St. Nicholas, St. Owen, Holy Trinity, Littleworth, and so much of the hamlets of Barton St. Michael, Barton St. Mary, and South Hamlet as lie within the Parliamentary bounds of the borough of Gloucester.

† Exceeding 2·8 per cent. on the population on average of 3 years.—R. A. S.

Gloucester, December 7, 1843.

MY DEAR SIR,

Gloucester, November 23, 1843.

In compliance with your request, I beg to state briefly the result of my observations on the sanitary condition of Gloucester.

I would premise that the surest method of testing this condition would be to ascertain the rate of mortality, and the proportion of sickness, whether epidemic, endemic, or casual, occurring in the several districts and parts of the city. The duration of life, with reference to *locality* and *occupation*, might be learnt from an examination of the books of the *district registrars*. The amount of sickness, however, could not be determined with any exactness, partly because the statistics of our medical charities are very defective, and partly because a vast amount of disease among the poor does not come at all under medical observation or treatment.

Not being, therefore, prepared at present with this class of facts, in demonstration of our case, I will merely allude to the main causes of the *admitted* unhealthiness of the population.

1st. The defect of sewerage. There are, in this place, *no* common sewers. True, there are sewers belonging to two or three public buildings, and I will not assert that some private houses may not have taken advantage of these sewers, as others have of the old water-courses which permeate the city. But there is no *general* sewerage, and none at all in the worst part of the city. Yet Gloucester presents remarkable facilities for this most essential improvement. Elevated in the centre, the ground falls by an easy declivity on one side towards the Severn, and in other directions towards brooks and water-courses running into the Severn. Many of these water-courses, and all the ditches in the suburbs are in the most horrible state imaginable. Filled with black, stagnant, half fluid, half solid, contents, open to the eyes and noses of passengers, and constantly emitting miasmatic exhalations. I could point out ditches of this kind all round Gloucester. A traveller approaching this city in the summer, might detect it by its offensive smell, for some distance before entering its streets.

2nd. As a necessary result of the want of public drains, few even of the best houses contain water-closets; where there are any water-closets, either deep pits or cess-pools have been sunk at the back of the houses, or communications have been opened with some of the open ditches, or covered streams in the neighbourhood. The houses of the tradespeople, even in the principal streets are frequently without privies. Many, to my knowledge, have only tubs covered with seats, and kept in the cellars!

APPENDIX.  
City of Gloucester.  
Letter from  
H.W. Rumsey, Esq.

These tubs are carried out and emptied by night into a Severn, or an adjacent brook, as often as is thought necessary. The effect of such a nuisance in the house, on the health of the inmates, I need not add, is most deleterious; and the practice of carrying about the contents of these tubs, privies, and cesspools by night, contaminates the atmosphere of the whole city.

3rd. The dwellings of the poor necessarily suffer the most from this state of things. The closeness and filth of most of the alleys, lanes, and courts, baffle description; I would name especially those in the Island, Quay-street, Leather-bottle-lane, and the more modern streets and alleys in the neighbourhood of *Street-briar-street*, so called I suppose from one of the deepest, darkest, and most fetid open ditches in the city, which runs through half the extent of this street.

Most of the drains in these places are on the surface. In several courts there is only one privy common to all the inhabitants. I am told that in emptying one large pit, belonging to a court in Quay-street, soon after the cholera, three labourers lost their lives from the pestilential vapour.

The courts are for the most part closed at the farther extremity, and their openings into the street are small and not readily detected. Removed from observation, having no thoroughfare, without a possibility of ventilation, and frequently without a pump or any supply of fresh water, these courts contain, as in other towns, the dirtiest and most immoral characters. They are also, as might be expected, the foci of disease. The ravages of the cholera were almost confined to the localities I have named. At present struma in all its forms, diarrhoea, dysentery, and fever, are the prevailing diseases. An unusual number of children die of marasmus from mesenteric disease.

4th. An extensive district called *New Town*, in an open and airy part of the suburbs, consists chiefly of small wooden, or mud cottages, built on the stiff blue clay of the Severn valley, with one or two small rooms, all on the ground floor, and as elsewhere without drainage. These miserable huts are of course both cold and damp. Ophthalmia and intermittent fever are very prevalent here.

5th. The lodging-houses, especially in Leather-bottle-lane, are as bad as in any town which has undergone a statistical investigation. It requires strong nerves, and a strong stomach to examine them. I have seen a small room, in which 14 men, women, and children are allowed to lie at night, allowing only about 100 cubic feet to each inmate!

6th. Many of the smaller new streets are unpaved, unlighted, and impassable by carriages. The space between the houses is occupied with heaps of refuse, and pools of muddy water. I can at once call to mind eight or nine streets in this condition. In these streets, as in closed courts, the inhabitants are invariably in a degraded condition, morally and physically.

The paving throughout Gloucester is bad. The gutters and surface drains in all the more ancient and narrow streets are very imperfect, and the passenger is constantly liable to step into one of the small half-concealed collections of stagnant water which infest his path.

7th. The state of the grave-yards of this city is very deplorable. Two have recently been closed from the absolute impossibility of cramming any more corpses into them. One of these (St. Michael's) has been raised by the accumulated remains of centuries, to a level of six feet above the floor of the church! I could mention several facts relative to the burial grounds of St. John's, St. Mary de Crypt, and St. Mary de Lode, which show the necessity of putting a stop to *intra-mural* sepulture, except in existing vaults.

I beg to remain, dear Sir, respectfully and faithfully yours,

W. H. Hyett, Esq.

H. W. RUMSEY.

## REPORT on the SANATORY CONDITION of BRISTOL,

By Sir H. T. DE LA BECHE, and Dr. LYON PLAYFAIR.

ABSTRACT of the POPULATION, &c., of the Towns visited by Sir H. T. De La Beche, from the Census Returns.

Page.	Towns.	Population.		Number of Houses.			
		1831	1841	1831		1841	
				Inhabited.	Uninhabited.	Inhabited.	Uninhabited.
61 & 91	Bristol . . . . .	59,074	64,266	8,465	577	9,276	611
76	Clifton . . . . .	12,032	14,177	1,605	54	1,907	80
107	Bath . . . . .	38,063	38,304	5,063	382	5,191	584
122	Frome . . . . .	12,240	11,849	2,346	328	2,460	243
130	Swansea (Parish) . .	14,931	19,115	2,913	149	3,612	184
143	Merthyr Tydvil (Parish)	22,083	34,977	4,365	233	6,413	91
151	Brecon (Borough) . .	5,026	5,701	1,071	79	1,183	126

*Situation.*—Comprising Clifton, the Hotwells, Bedminster, and other suburbs, under the general head of this city, Bristol stands on ground of very variable elevation and form. From Clifton, on the west, where St. Vincent's rocks and other cliffs rise above the Avon, land of 200 or 250 feet in height ranges eastward to Kingsdown, presenting, as a whole, a somewhat tabular character. Clifton is chiefly situated on this table land, upon which also stands Berkeley-square and other buildings at the head of Park-street. At present Tyndal's Park separates this portion of the town from that which may be included under the general name of Kingsdown, but it is reported, that buildings may shortly be erected on this open space.

A somewhat sharp slope descends from the high ground to the southward, and upon this a large portion of the city is built, comprising a chief part of the Hotwells, and the lower parts of Clifton, Park-street, and the streets adjacent, with a large mass of buildings situate between the ground bordering the Frome river, and extending thence by the Horse Fair, to the southward of Stokes Croft.

A minor elevation keeps the line of Clare, Corn, and Wine-streets, and proceeds thence by Narrow Wine-street, and St. Peter's-street to Castle, Old Market, and West-streets. From this minor rise of land, the ground descends on one side to the Frome, and, on the other, to the old course of the Avon, now occupied by the Floating harbour. Another minor elevation occurs at Redcliff, supporting Redcliff church, and includes Redcliff-hill, with many adjacent streets, lanes, and courts.

The remainder of the town, comprising some parts of the Hotwells, a district around College-green, (itself on a slight elevation,) Queen's-square, the course of the Frome, a large block of buildings of the Temple district, with others in St. Philip's and St. Paul's, and a portion of Bedminster is on low, and, for the most part, flat grounds.

That portion of the Avon, a tidal river, which once divided Bristol into two unequal parts, was converted into a floating harbour, and a new cut was made for the passage of the river waters, the lower part of the Frome, one enlarged for the purposes of commerce at a former period, being included in this floating harbour. The waters of the Frome are conducted by means of a culvert under a long line of quay, and under the floating harbour, near Princess-street bridge, to the new cut, near the gaol.

The country to the southward of Bristol is formed of minor hills and undulating ground, rising gradually towards Dundry-hill, about 700 feet above the sea. The elevated land, upon which Clifton and the higher parts of Bristol are built, ranges westward to the Bristol Channel, at Clifden, the Avon flowing through the Clifton gorge, and cutting off the town in that direction.

Including Clifton, a large part of this city is on elevated land, or on a slope having a southern aspect, with a fair proportion on minor elevations, while an area of less extent than might at first be supposed is flat and low.

*Climate.*—This which necessarily has so much influence upon the structure of buildings for protection from it, requiring more or less provision against damp and cold, and often, according to its character, more or less aiding the injurious effects of stagnant filth, open drains and the like, is very variable, as will be best seen by the accompanying tables, showing the temperature of Bristol (as observed at the Institution in Park-street), from 1827 to 1842 inclusive, (16 years,) and of the fall of rain, and of the number of rainy days for the same period.

A knowledge of the annual mean temperature only, 53° Fahrenheit, at Bristol, conveys but a faint idea of the variations of temperature at this place, where we find a range

## APPENDIX

City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.



62 APPENDIX to SECOND REPORT of COMMISSIONERS of INQUIRY

APPENDIX.  
City of Bristol.

Report on its Sanitary Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

from a mean temperature for January, from 32° in one year (1838) to 47° in another (1834). As a whole, the climate cannot be termed cold, in comparison with many others in Great Britain, as the means for the following months, for the 16 years above named, will show.

January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
39°·2	41°·6	45°·4	56°·8	59°·4	65°·0	66°·8	65°·6	60°·0	53°·0	46°·0	43°·4

The fall of rain will be seen to be very variable, even the mean annual quantity for the year differing from 29·54 inches (in 1832) to 37·91 (in 1838). Yet taking the average mean at about 32·92 inches, it is evident that with care a great quantity of soft water may be tanked for domestic purposes, a mode of stowing soft water too much neglected in Great Britain, where so much might be thus rendered available.

In many parts of Bristol, the tanking, or otherwise stowing of rain water is not neglected, so that, to a certain extent, the rain water is turned to account. From the annexed tables it will be seen, that the fall of rain is distributed over many days in the year, varying in the 16 years from 141 to 184, the annual mean for that time being 161 days, or about four-ninths of the year. Including fogs and mists, rainy weather prevails for more than half the year, and the climate, as might be expected from its geographical position, is often damp at other times, so that the climate of Bristol may in general terms be characterised as mild and somewhat damp. The mildness of the climate is necessarily of great importance to the poor man, saving him that expenditure in clothing and fuel which the dampness may not require to be provided; but it will be evident that, in close ill-ventilated localities, such as many courts and lanes are, this kind of climate is one requiring well-ventilated houses and streets, with great attention to drainage, and the careful provision against slow moving open sewers and stagnant waters impregnated with filth. The prevalent winds, are from the west and south-west. These sweep through Clifton and the higher parts of Bristol freely, as, indeed, from the position of these localities, do most other winds. From the arrangements of the streets in the lower parts of the city, that portion of it has not equal advantages, so that in this respect, independently of differences in exposure to the sun, and of temperature from different heights, Bristol and its suburbs varies materially. The temperature recorded at the Park-street Institution would chiefly correspond with that of the lower portions of the town, and be higher than that experienced at Clifton, and in the more elevated localities of the city.

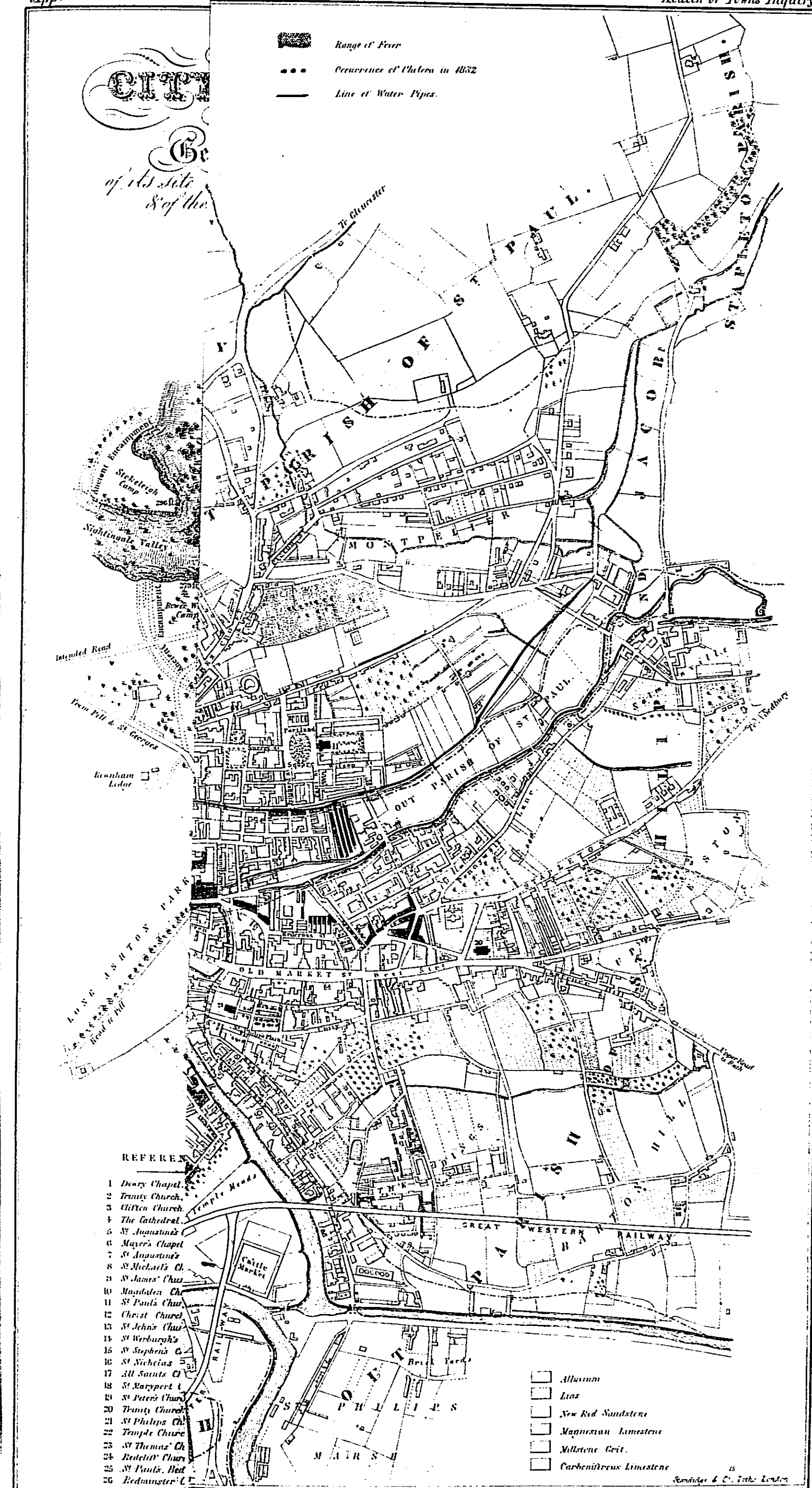
Though there are gas and some other works evolving noxious vapours, or much smoke, on the western parts of the town, the bulk of these is to the eastward, so that, regarded as a whole, Bristol may be considered as rather fortunate in the position of those manufactories which eject noisome vapours and great volumes of smoke into the air, the chief part of them being thus on the leeward part of the town, and the vapours and smoke carried away from it.

QUANTITY of Rain which fell in each Month, from the Year 1827 to 1842, 16 Years; Mean for each Year, each Month, and Mean of the whole.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean for the Year.
1827	1·39	0·52	4·65	1·35	1·82	1·60	3·57	2·60	2·72	3·58	1·87	5·26	30·93
1828	4·05	2·06	0·81	2·73	2·19	2·65	7·29	5·34	4·56	2·11	1·04	4·10	38·93
1829	0·55	0·92	1·10	3·39	0·09	2·73	5·90	5·06	4·95	1·91	1·50	0·29	28·39
1830	0·59	2·24	0·52	4·46	3·22	5·21	2·79	3·72	4·42	1·22	4·11	2·12	34·62
1831	1·66	5·11	2·68	2·18	1·90	2·84	2·51	1·67	2·57	3·78	5·45	5·15	37·47
1832	0·92	0·49	2·73	1·22	2·25	1·19	1·43	4·26	1·15	5·62	4·47	3·81	29·54
1833	0·81	6·95	1·12	2·03	0·45	3·77	2·52	0·43	2·00	2·46	3·44	8·64	34·62
1834	6·56	2·11	1·29	0·91	0·94	3·06	5·55	3·58	1·70	0·57	2·32	1·48	30·07
1835	1·28	4·19	3·47	1·14	2·26	1·55	0·91	0·98	1·18	4·40	4·27	1·07	28·78
1836	3·42	3·20	5·54	2·23	0·19	2·62	2·63	1·19	2·10	3·18	6·58	2·91	35·54
1837	3·35	4·38	1·00	0·87	1·29	1·24	1·31	4·69	2·32	3·32	3·14	2·73	29·64
1838	1·03	1·95	1·76	1·61	2·46	4·73	1·62	2·61	2·45	3·93	4·77	2·82	31·74
1839	2·72	2·75	1·88	2·17	0·43	5·33	4·27	3·00	4·27	3·95	3·99	3·15	37·91
1840	3·70	2·96	0·12	0·61	2·89	1·93	3·95	3·05	2·92	0·91	6·15	0·56	29·75
1841	1·93	1·89	2·93	1·36	2·74	1·40	2·19	3·53	6·04	4·63	4·41	4·62	37·69
1842	2·00	2·09	4·13	0·14	2·20	1·38	2·92	2·05	3·88	1·42	6·95	2·01	31·17
	2·25	2·74	2·24	1·77	1·71	2·70	3·21	2·79	3·08	2·81	4·03	3·17	32·92

App.

Health of Towns Inquiry





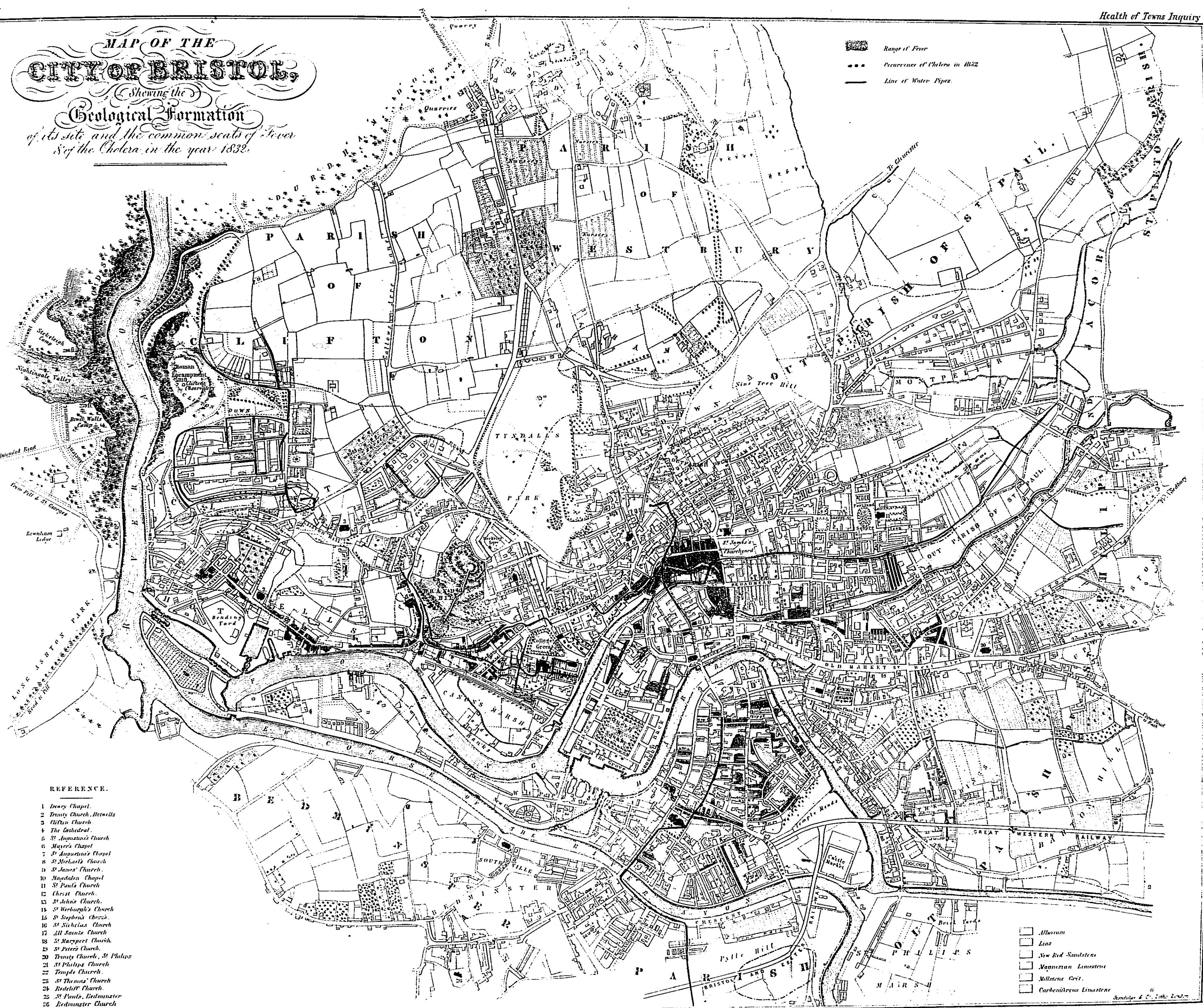
# MAP OF THE CITY OF BRISTOL, Shewing the Geological Formation of its site and the common seats of Fever of the Cholera in the year 1832.

Range of Fever  
Occurrence of Cholera in 1832  
Line of Water Pipes.

Alkmaar  
Lias  
New Red Sandstone  
Magnesian Limestone  
Millstone Grit  
Carboniferous Limestone

REFERENCE.

1. Leary Chapel.
2. Trinity Church, St. Philips.
3. Clifton Church.
4. The Cathedral.
5. St. Augustine's Church.
6. Mayor's Chapel.
7. St. Augustine's Chapel.
8. St. Michael's Church.
9. St. James' Church.
10. St. Mary's Church.
11. St. Paul's Church.
12. Christ Church.
13. St. John's Church.
14. St. Werburgh's Church.
15. St. Stephen's Church.
16. St. Nicholas Church.
17. All Saints Church.
18. St. Mary's Church.
19. St. Peter's Church.
20. Trinity Church, St. Philips.
21. St. Philip's Church.
22. Temple Church.
23. St. Thomas' Church.
24. Redcliff Church.
25. St. Paul's, Redmington.
26. Redmington Church.



other  
thers  
med,  
  
ember.  
  
3-4  
  
for the  
verage  
water  
ted in  
  
t neg-  
n the  
in the  
g 161  
revails  
phical  
terms  
ssarily  
d fuel  
n close  
is one  
nd the  
d with  
rough  
these  
r parts  
t, inde-  
fferent  
at the  
of the  
calities  
  
smoke,  
garded  
manu-  
the chief  
smoke

each

	Mean for the Year.
30	30.93
31	33.93
32	28.39
33	34.62
34	37.47
35	29.54
36	34.62
37	30.07
38	28.78
39	35.54
40	29.64
41	31.74
42	37.91
43	29.75
44	37.69
45	31.17
46	
47	32.92



MONTHLY and Annual mean Temperatures for 16 Years.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual mean Year.
1827	38.0	36.0	46.8	51.8	58.8	64.0	69.0	65.4	61.8	55.8	49.4	47.8	53.6
1828	44.6	45.6	48.8	53.4	60.6	67.0	65.6	65.0	62.6	53.8	50.2	48.8	55.4
1829	39.0	44.0	43.6	49.6	62.2	67.0	65.2	64.0	58.0	52.2	43.2	36.4	52.0
1830	33.6	37.8	48.4	53.4	60.2	61.2	68.6	63.0	58.8	54.6	52.2	39.6	52.6
1831	38.0	44.8	47.6	51.8	58.4	66.0	68.2	68.2	60.4	58.4	46.0	45.2	54.4
1832	40.6	39.2	46.0	50.8	58.4	64.8	68.0	65.4	60.4	54.8	46.2	44.6	53.2
1833	38.4	45.6	42.2	51.2	64.6	64.6	66.4	64.2	58.4	53.6	45.4	47.8	53.4
1834	47.2	44.6	47.8	51.2	62.6	65.6	67.6	65.8	62.2	55.4	45.6	45.6	55.0
1835	41.0	45.0	45.8	53.6	58.4	65.6	68.4	67.0	60.8	52.4	47.8	39.4	53.6
1836	42.0	40.4	46.0	50.8	59.2	65.6	66.6	66.2	57.2	50.8	44.6	42.2	52.8
1837	39.6	44.4	39.6	44.8	56.0	65.6	70.2	65.2	58.6	54.4	45.2	43.2	52.2
1838	32.0	35.0	44.0	48.0	56.0	63.0	67.0	64.0	58.0	54.0	43.0	42.0	50.0
1839	40.0	42.8	43.4	48.0	57.8	63.6	64.6	64.6	59.6	50.6	46.6	41.4	51.8
1840	42.0	40.6	41.6	52.8	59.0	65.2	64.4	66.6	57.0	48.4	46.2	36.0	51.6
1841	36.0	38.2	48.8	52.0	62.0	63.2	64.2	68.2	65.6	51.8	45.0	46.8	53.4
1842	36.8	43.2	47.4	51.4	59.0	69.6	66.2	68.2	60.8	48.4	44.0	48.8	53.6
	39.2	41.6	45.4	50.8	59.4	65.0	66.8	65.6	60.0	53.0	46.0	43.4	53.0

Mean Temperature from 1827 to 1842 inclusive (16 years), 53.0.

NUMBER of Days on which Rain has fallen, from 1827 to 1843, 16 Years.

	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842
January . . .	9	16	10	6	7	9	7	28	9	19	16	6	17	19	8	12
February . . .	4	23	11	9	11	7	26	21	23	15	13	12	14	13	9	12
March . . .	16	6	3	7	14	16	10	11	18	24	10	13	13	3	10	21
April . . .	8	13	18	14	12	12	21	6	10	12	9	12	10	6	11	3
May . . .	11	15	3	17	9	12	3	8	21	2	11	13	7	15	14	13
June . . .	14	12	11	21	13	13	22	14	10	15	6	19	16	14	11	8
July . . .	11	19	20	17	15	7	13	19	9	8	7	13	17	14	13	14
August . . .	13	13	21	23	13	17	4	18	9	10	14	12	11	11	18	8
September . . .	13	13	17	19	17	7	17	10	23	15	13	16	18	15	18	14
October . . .	13	11	15	9	27	15	15	10	16	14	11	12	16	9	20	6
November . . .	10	11	13	20	20	21	18	11	17	18	16	15	20	17	14	17
December . . .	19	18	7	15	22	21	28	7	6	16	13	14	13	6	20	12
	141	170	149	177	180	157	184	163	171	168	139	157	172	142	166	140

*Geological character of the ground on which the city and suburbs are built.*—Mr. William Sanders, F.G.S., being so intimately acquainted with the geology of the district, having indeed completed a very detailed and accurate map of it for the Ordnance Geological Survey of Great Britain, he was requested to supply us with an account of so much of the geology of Bristol as might be useful to the Health of Towns Commission, the character of surface, more especially as regards dryness, or damp, and wet, and the nature and supply of the spring waters being so intimately connected with the kind of rocks occurring beneath.\*

By reference to the accompanying map of Bristol it will be seen that Mr. Sanders has traced upon it the boundaries of the various rocks as they come to the surface, thus showing at a glance the geological character of the ground in the different parts of the town and suburbs. The mode in which these rocks occur beneath, relatively to each other, will be seen by the accompanying section, one taken in a line, crossing Clifton and Bristol, from Durdham Down, (near the Clifton-turnpike,) by Richmond-terrace, Berkeley-place, Brandon-hill, Great George-street, College-street, College-green, Trinity-street, Princes-street, Queen's-square, Redcliff-hill, Somerset-street, and the new cut to Pyle-hill.

The following is a brief account of the rocks upon which Bristol and its suburbs stand:—

*Mountain, or Carboniferous Limestone.*—Composed of numerous compact marble limestone beds, from a few inches to several feet thick, with some occasional shales, the upper portion containing grits or hard sandstones.

This rock is traversed by so many fissures, and the dip of the beds is so considerable, (as will be seen by reference to the section,) that the water falling on its surface readily finds a passage through and amid the beds, and is discharged at or near the sea level, along lines of the chief fissures, or of the fractures, technically termed faults, in the shape of copious springs.

\* The term *rock* is to be here understood in its geological sense, and therefore as including beds of sands, clays, and gravels, as well as the hard mineral substances usually so called.

APPENDIX.

City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

The intermixture of hard sandstones or grits, shales and limestones in the upper part of this rock, is favourable to the retention of water among the beds in some places, more particularly where the shale prevails; and it may be then obtained by wells.

**Millstone Grit.**—This name is given to a series, about 1000 feet thick, of sandstones or grits, chiefly hard, mingled with some beds of clay, found principally in the middle of the group, but more or less dispersed through it.

From the arrangement of the beds and their composition, water is retained among them, and sometimes thrown out as springs, as at *Jacob's Well*.

**Coal Measures.**—These consist of beds of sandstones, shales and clays, interstratified more or less with seams and beds of coal. From their mode of occurrence, these beds also hold water among them.

To these rocks, which, by reference to the section, will be observed to be tilted up at a considerable angle, succeed others which rest more or less horizontally upon them. The lowest of these is a mass of rolled or angular fragments of the subjacent rocks, cemented by a magnesian-calcareous cement, the whole known as *Magnesian Conglomerate and Limestone*. The map shows the areas occupied by this rock, a fair section of which is to be seen rising above the float, near St. Augustine's Church. The rain water easily percolates through these beds to those beneath, or is retained in minor cavities in them.

Red sandstones and marls, forming a part of the *New Red Sandstone Series*, as it is termed, occur in the ascending order of succession above the Magnesian limestones, and conglomerates, and indeed are much intermingled with them.

Hard rough sandstones prevail in the lower part of this series, as developed at Bristol, supporting softer red sandstones, which form the rock upon which a considerable portion of the city is built. Red marls prevail in the upper part of this series, but little of the town seems built upon them. The interstratification of the marls or clays, and sandstones, is highly favourable to the retention of water in these rocks, and accordingly it is abundantly obtained from them. The *lias*, a mixture of thin-bedded limestone and marls, constitutes so small a portion of the area under consideration that it may be neglected.

More modern drifted clays, sands, and gravels, chiefly known as *alluvium*, follow the course of the Frome and Avon, forming low grounds. Mr. Sanders ascertained, from wells or borings, that the alluvial drifts in Temple parish and Queen's-square consisted, in the descending order, of from 25 to 30 feet of dark-blue or gray clay, locally containing thin beds of peat; and that beneath this clay, sand, silt, and gravel, the latter occupying the lowest part, from 5 to 10 feet thick, were found.

The whole of the alluvial beds appear to be saturated with water. Wells, in the clay, interfere but slightly with each other, as there is not a free communication for water between distant parts in this substance; but the beds beneath (sands and gravels) are so porous, that the water in them may be regarded as forming one large sheet easily flowing among these sands and gravels.

Looking at the mode of occurrence, and the character of these various rocks, and at the form of the surface ground, the chief part of Bristol may be regarded as naturally dry. The low alluvial grounds following the courses of the Frome and Avon are the principal exceptions. Neither the nature of the rocks nor the character of the surface offers obstacles to an effectual drainage of the town and suburbs, more particularly as a considerable rise and fall of tide would prevent even the low flats from the accumulation of sewage. The greater part of the town may be regarded as extremely well situated for drainage.

**Floods.**—Although at extraordinary high spring-tides the waters of the Avon, when in flood, become checked beyond the new cut, and thus spread over the lower lands, this chiefly happens to those localities which are above the town, in the direction of St. Philip's Marsh, and the check being removed at the ebb, the waters, ponded back by the tide, are released. Thus such floods cannot long remain, and the check to their discharge is only temporary.

The discharge of the Frome in flood is not so easy, flowing as it does through alluvial lands at a somewhat higher level, until near the Floating-harbour. Passing into the town, its waters, in flood, meet with much obstruction, though there is an ingenious arrangement of gates to allow of such surplus waters of the Frome as cannot pass through a culvert into the new cut, to be discharged into the float. The consequence is that the lowest grounds near the course of the Frome suffer from floods, obstructions to the discharge of which are presented in the town itself.

**Sewerage and Cleansing.**—The paving, cleansing, and lighting of the city and liberties of Bristol are, by an Act passed in 1806, vested in the mayor and aldermen, who by warrants directed to the churchwardens of the several parishes, and to the guardians of the poor of the Castle Precincts, require such churchwardens and guardians to assemble the householders, rated to the church and poor, within their respective parishes, the householders to elect 10 persons in the respective parishes, (having either 40*l.* per annum real estate in the city and liberties, or 1000*l.* personal estate,) out of whom the mayor and aldermen select two for each parish and the Castle Precincts, who shall be the Commissioners for paving, cleansing, and lighting, for two years after their appointments.

The churchwardens, neglecting or omitting to return lists of householders, the mayor and aldermen: in General Quarter Sessions nominate and appoint at their discretion such householders within the parishes and Castle Precincts as may be duly qualified.

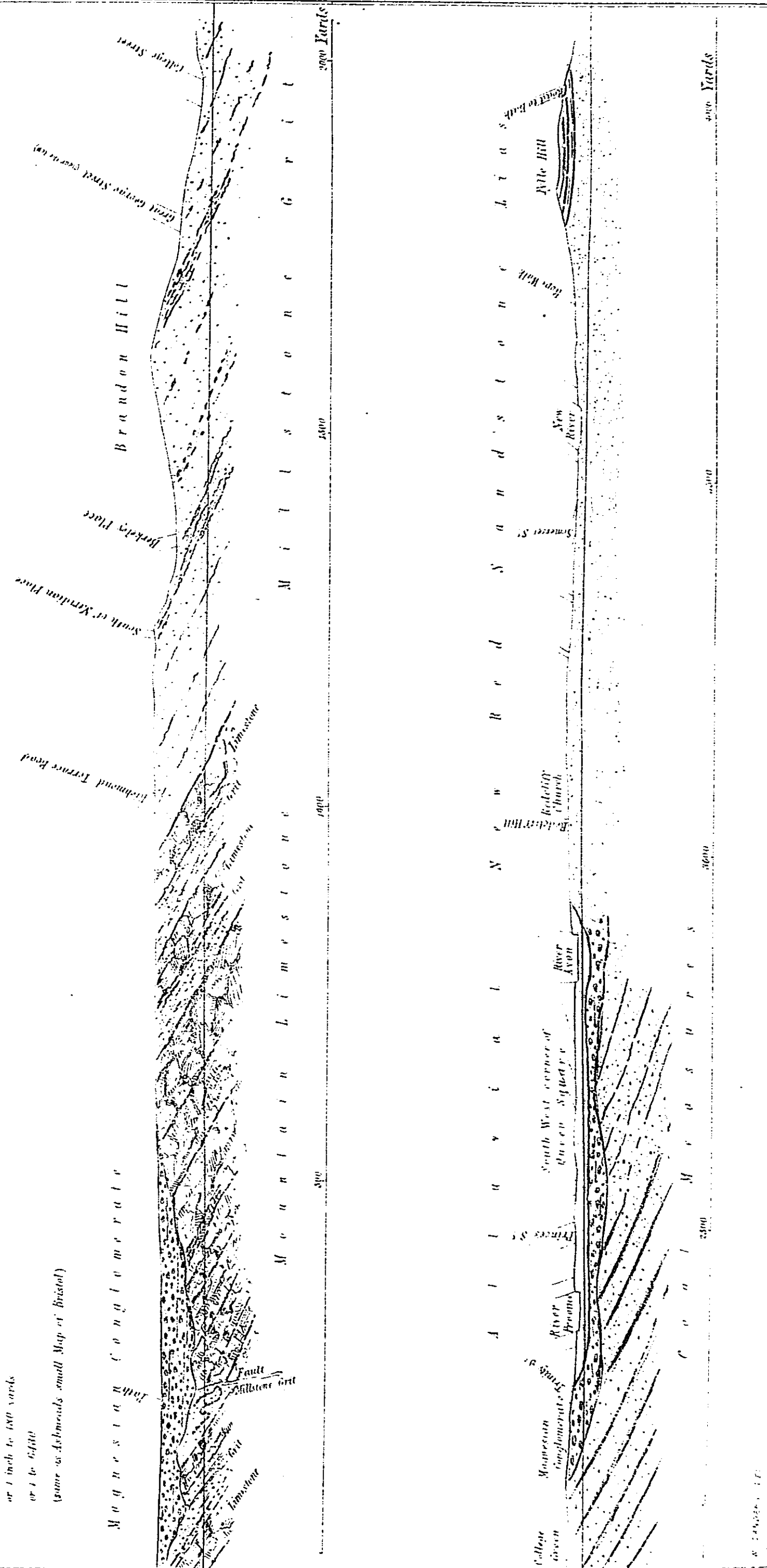
The Commissioners going out of office at the expiration of the time for which they are appointed are re-eligible, but not compellable, to serve for two appointments in succession: should they refuse to take the appointment upon them when first elected, they not

SECTION FROM DURHAM DOWN, OVER BRANDON HILL, ACROSS QUEEN SQUARE, OVER PYLLE HILL, TO THE RIVER AVON.

Scale: 3/4 inch to one mile  
or 1 inch to 1000 yards  
or 1 to 1000 ft

(same as Ashmole's small Map of Bristol)

Scale same for height as breadth. The level line corresponds with the mean level of the Sea.





only pay a penalty of 20*l.*, but are also liable to be again nominated and elected at the next ensuing appointment of Commissioners.

The Commissioners appoint a treasurer and such other officers as they may consider necessary, whose salaries are sanctioned by the justices of the city and county, and who are not allowed to receive fees.

The Commissioners possess the power to construct and alter such sewers and drains as they may think proper, excepting those which the directors of the Bristol Dock Company have authority, under the Act of the 43rd of George III., to form and alter; but they have no power to compel the owners of houses to drain into them. Persons wishing to deliver drains from their houses into the public sewers must do so at their own cost, and the drains must be constructed under the direction of the Commissioners, or their agent. Any person making private drains into the public sewers, without the knowledge or contrary to the directions of the Commissioners, or their agent, forfeits 20*l.* over and besides the expenses of altering and removing any such private drain, according to the direction of the Commissioners or their agent. Alterations or repairs of private drains are under the direction of the Commissioners, and made at the cost of the owners or occupiers of the lands or houses.

For raising money to carry out the objects for which the Commissioners are appointed, they certify yearly the sum that may be necessary to the justices in sessions, who are empowered to order and appoint such sum to be raised on all land, houses, &c., within the city. The mayor and aldermen proportion out the sum required upon each parish, and the Castle Precincts, according as the money is raised for the maintenance of the poor. The churchwardens and overseers of the poor of the Castle Precincts assess and collect the rates, and receive threepence in the pound on the money assessed and paid.

The accounts of the Commissioners are audited annually by the justices, who, if they think fit, may order the publication of them in two or more of the Bristol newspapers.

The rates are paid by the tenants or the occupiers of premises, and a moiety of such rates are allowed them by their landlords, unless special agreements are made between landlord and tenants to the contrary. In case of any disputes between out-going and in-coming tenants respecting the proportion of rates to be paid, two justices of the city and county of Bristol are authorized to apportion the rates between them.

By an Act of the 3rd of George IV., the Commissioners were empowered to repeal the then existing rules and bye-laws, and to make and pass others. A Committee of Inspection is appointed, and consists of nine Commissioners, five of whom retire every six months, and are replaced by five others. No Commissioner on this Committee is allowed to view and report upon any defect, reparation, or alteration in any place wherein he may be personally interested.

The surveyor is ordered to keep a daily journal of the works he inspects, to be produced before the Committee of Inspection and the General Board. With regard to sewers, whenever any sewer is open for cleansing or repairs, he is directed to enter in a book, called the *Sewer Book*, a particular description of each sewer, stating all particulars respecting it, so as to afford an accurate account of it, and during the progress of any such work, to examine the maps of sewers, and correct them where necessary, every new sewer being laid down by him on the maps.

Among the duties of the "inspector," he is required to visit the several districts on the days appointed for the scavengers' attendance therein, and to see that the streets, lanes, &c., are properly swept, and the soil and the ashes of the inhabitants be taken away in due time. He also is directed to keep a daily journal, to be exhibited to the Committee of Inspection, and to attend at least once in every day at the Office of the Commissioners, to enter in his daily journal any complaints which may have been made.

There is no public survey of the town comprehending a system of levels from a common datum for the regulation of the drainage or other structural arrangements. The accompanying sketch of the arrangement of the sewers of Bristol, laid down upon the large six-sheet map of Ashmead, would appear to be the first ever attempted. For this we are indebted to Mr. William Sanders, aided by the information of Mr. Armstrong, the surveyor to the Commissioners of Paving and Cleansing, who in the most handsome manner directed their surveyor, and other officers, to afford us every information in their power.

Partial maps exist, and the general situations of the sewers are known, but it will be only by degrees that the surveyor can become acquainted with them in proper detail, as the work of repair and examination can be carried out.

The order for the "*Sewer Book*," is dated 24th January, 1841, and it does not appear that other than very incomplete records of the sewers were previously kept. The present sewerage being the result of works carried on for several centuries, without regard to any fixed system, except that of getting the sewers into the old courses of the Frome and Avon, in the way considered most convenient for the time being, the present drainage is in little accordance with any general and effective system which might now be devised for the town; and supposing such a system to be agreed upon by the Commissioners, it would require both much time and expense to have it properly carried out.

It is but justice to the Commissioners to state that they evince every desire to get the general sewerage of the city into an effective state, and that their surveyor, Mr. Armstrong, is an efficient officer; but the complication of the old sewers, the interruption to the free discharge of many sewers by the Floating-harbour, and, as it is understood, the absence of the proper amount of funds for any operations on an extended scale, considerably cripple their exertions.

APPENDIX

City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

## APPENDIX.

## City of Bristol.

Report on its Sanitary Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

The whole of the sewerage, anterior to the construction of the Floating-harbour, in 1809, was arranged for delivery into a tidal river, so that when the new cut was made (see map) from the Hotwells to St. Philip's Marsh, for the passage of the Avon, and the old course of the river between these points was converted into a Floating-harbour, nearly the whole sewerage of the city, as regarded its delivery into the tidal river, was disorganized, and the sewage thrown into the stagnant waters of the Floating-harbour.

It would appear that, after the damming up of the old channels of the Avon and Frome in 1809, disagreeable smells were emitted from the stagnant waters during warm weather, which were considered to engender disease; frequent applications were made to the Dock Company and other public bodies to remedy the evil, and many plans and suggestions were offered, but the Directors refused to move in the matter, stating that the execution of such plans was not within their line of duty, and that they possessed no powers for the purpose by the Act of 1803, under which the float, &c. had been formed. During the hot summer of 1825 the float became so offensive that the inhabitants complained loudly; there was much controversy, and eventually the Commissioners of Sewers took up the subject, and considered that, under the 37th section of the Dock Act, the Directors were required, at the charge of the Company, to alter and amend the sewers of the city, as might be necessary from the change of conditions produced by the floating harbour.

The Directors resisted this interpretation of the Act, stating that they had completed a sewer at Castle Pill, through Bread and Avon streets, into the Avon, above the dam at Temple Meads, the only sewer they were compelled to make.

In consequence, in 1826, the Commissioners of Sewers applied for a writ of mandamus requiring the Dock Company to construct the necessary works. The case was argued in the Court of King's Bench, and the writ, after much litigation, obtained in 1827. There were affidavits made in this matter by some of the chief medical men of the city to the effect that the effluvia was not unwholesome.

In consequence of the mandamus, the sewage falling into the Frome, above the Stone Bridge, now passes through a culvert carrying off the Frome waters, with the filth discharged into it above the bridge, by Broad Quay and beneath the Floating-harbour at Prince's-street Bridge, to the new cut near the gaol. A small amount of sewage is also taken up at the Docks near the Butts, and is carried beneath the float, a large sewer not far distant being permitted to deliver itself into the float. These and the sewer crossing near Marsh Bridge constitute all that has been yet done.

A mass of sewage is still discharged into the waters of the Floating-harbour. The chief part of the crowded districts of Temple and Redcliff districts so drain. The map shows the mouths of 16 sewers of those districts, some of them large, thus emptying themselves, independently of the filth thrown into the float from the houses which immediately adjoin it. On the opposite side of the float, 18 sewers, of which some are large, thus deliver themselves; and seven more empty themselves into it between the Butts and the Stone Bridge at the head of the Frome branch of the float, two of which are large, one draining the district between the Butts and College-street and places adjacent, and the other the district between Hanover-street and Berkeley-square, including Frogmore and Park streets.

Some of these sewers get so full of filth at their mouths that when the float-waters are let out it is necessary to cut and rake away the accumulations. A bank of filth, a yard high, is found in the main sewer between Bath-street and the float, when the waters of the latter are let out. All the ends of the sewers intended to deliver their contents into the old tidal river, at levels beneath that at which the float waters are usually kept, are necessarily ponded back to that level; yet much of the filth, by its pressure, seems to slip into the bed of the float, judging from the gaseous emanations passing through the water, which are observable at the mouths of many of the sewers, particularly in warm weather.

It is stated that the sewer which drains Park-street and others in that direction is so checked by the float-waters that, where it discharges itself into them, it is ponded back for 40 yards; and that when, during storms, a body of water finds its way into this sewer, it has burst into the cellars of Hanson-street.

The course of the Frome, after that river enters among the houses of the town, may be regarded as the chief sewage nuisance of Bristol. Into it is discharged a large mass of the filth of the town, and it may be considered as a great open sewer until it reaches the Stone Bridge, where it enters the culvert above mentioned—a very ingenious contrivance of flood-gates, allowing the surplus waters in floods to escape into the adjoining branch of the Floating-harbour, while the pressure of the waters in the latter, at other times, keeps them closed, and the Frome, with its charge of sewage, passes into the culvert.

When the waters of the Frome are low, as generally happens in summer and autumn, the stench from the course of the Frome is great, and the inhabitants of the houses adjoining it, mostly of the poorer class, as scarcely any others will live in them, describe it as at times making them turn sick, and to be such as to compel them, as much as possible, to close their windows and doors against it.

It has been proposed to arch over this part of the Frome, and thus to convert it into a main sewer, the space above to be formed into a good street, the present wretched courts and other tenements adjoining it being removed. A part of it has been arched over for the new bridewell; and it is to be hoped that so very obvious an improvement for the health of the town may not be neglected.

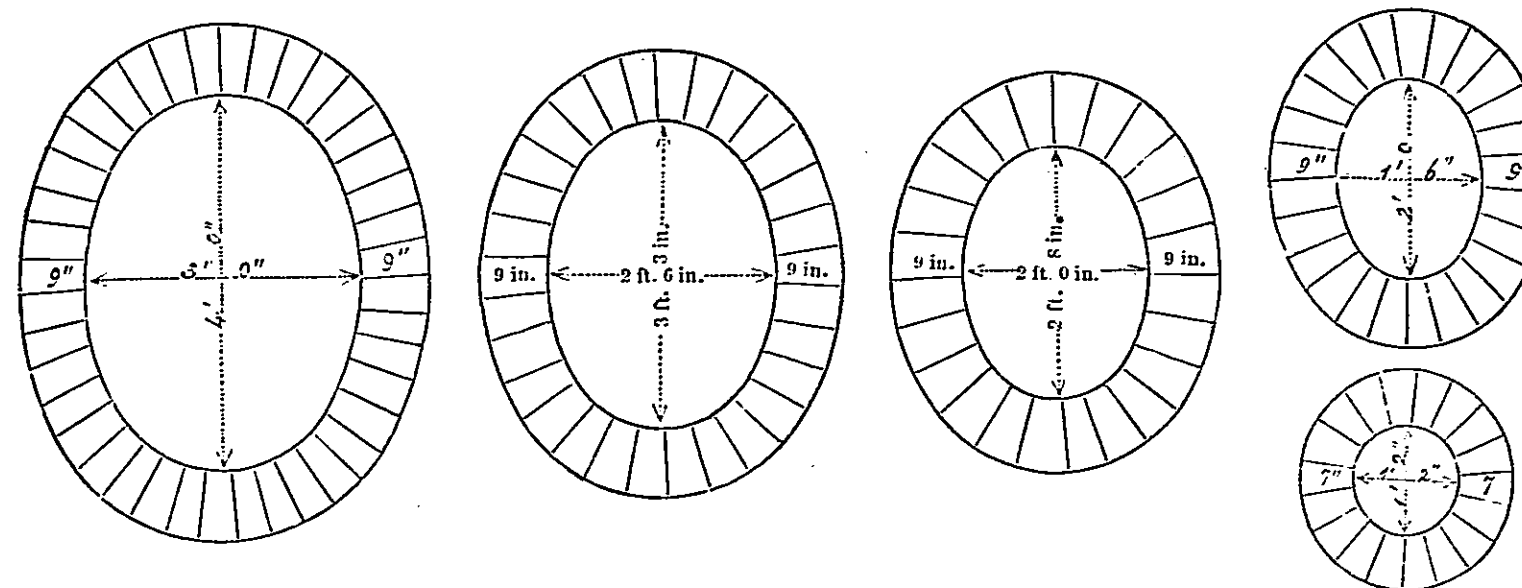
## APPENDIX.

## City of Bristol.

Report on its Sanitary Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

It is but justice to the surveyor of sewers, Mr. Armstrong, to state that he has proposed to remedy much of the mischief produced by the float, by reversing that part (the chief part) of the drainage of the Temple and Redcliff districts which is now discharged into the float, and by carrying it, by means of a tunnel, beneath Redcliff-hill into the new cut. This, if properly carried out, would be a most important step, and relieve a populous part of the town, abounding in miserable localities, from much wretchedness. The rock of which Redcliff-hill is formed (red sandstone) could be readily excavated, and a fair reversed fall obtained for the whole area to be benefited.

With respect to the form of sewers, as these have been constructed at such different times, without reference to any system, much variety is to be expected, and is found. At present, the subjoined forms are adopted by Mr. Armstrong whenever he



constructs new or has to replace old sewers. When he can obtain it, he prefers a fall of 1 inch in 5 feet; and he states that, in some parts of the town, he can only get 1 inch in 30 feet. He prefers that the collateral should empty themselves into the main sewers at from 6 to 12 inches above the bottom of the latter, with a slope, at the actual junction, to the bottom. He approves of flushing, though he has not hitherto employed it; but intends to do so when possible and desirable. Mr. Armstrong states that much more mischief than might at first sight be supposed is caused by the rats in old sewers, boring through them and letting out their contents in various directions. He suggests that whenever a new street is made, the Commissioners should have power to construct a main sewer in it, and to compel each house to form a proper and effective drain into the main sewer according to the surveyor's plan.

*Scavenging.*—The city, or that portion of it which is under the control of the Commissioners of Paving and Cleansing, is, as regards scavenging, divided into six districts, for each of which there is a separate contractor, who engages to clean the streets and take away ashes, dust, &c. twice in each week.

In the city, it would appear that the scavengers are not bound to clean the foot pavements; and therefore, the courts being considered as foot pavements, the scavengers do not enter them. When the inhabitants of these courts desire to remove the refuse and ashes which accumulate in them, they must convey such refuse in boxes, baskets, or by other means to the adjoining streets, there to be removed by the scavengers. In consequence of this want of attention to the courts, they are often, more especially in the poorer districts, in a filthy state, while the streets may be described as generally well cleansed.

In the houses of the more easy classes there is a fair provision for the reception of ashes, to be taken to the scavengers' carts when they go their rounds, but in the poorer houses ash-bins are much neglected.

There would appear to be no fixed places for the deposit of the town refuse, the scavenger contractors discharging their carts wherever they may be permitted, and it may be found most convenient for the time. The screened ashes are usually sold to the masons, and the remainder of the refuse is, for the most part, employed for horticultural and agricultural purposes. The general value of the town refuse is unknown, each contractor selling to the best advantage and not furnishing any accounts.

Unfortunately, the power of the Commissioners only extending to the ancient limits of the city and its liberties, and there being apparently little or nothing beyond the ordinary parish arrangements in force in the out-parishes and suburbs, the sewerage and cleansing of these out-parishes and suburbs is much neglected, and often very defective, especially in localities inhabited by the poor. In Clifton, though chiefly composed of handsome houses, inhabited by persons in affluent and easy circumstances, the want of proper sewerage is deplorable. Ranges of handsome houses, otherwise well appointed, have nothing but a system of cesspools—often the holes from which the stones for building the chief and rough parts of the houses have been taken. There is indeed a sewer down two-thirds of the Royal Crescent, with one from Caledonia-place, falling into another from Sion-hill, which seems also to drain a part of Prince's-buildings in its passage over the cliffs to the river. A sewer comes down from Saville-place and houses adjacent; and in the direction of Richmond-terrace there is some drainage, passing down by Berkeley-place and Woodwell-lane to the float; but the mass of houses in Clifton has no sewerage.

In the out-parish of St. James many of the sewers seem to communicate with the city



## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

sewerage; much of the sewage of the out-parish of St. Paul seems to find its way into the water-course which joins the Frome at Baptist Mills, one which is noticed as offensive in warm weather. A large portion of the sewerage in the out-parish of St. Philip and Jacob is in a miserable state: there is one district, termed the Dings, in which it is wretched. It is also very bad in many parts of Bedminster.

In the higher parts, and other situations, in Clifton, where the good houses prevail, the cleansing, as might be expected, is good; but in the poorer situations, and in the Bristol out-parishes and suburbs, it is very indifferent, and accumulations of filth, which should never be permitted, are to be found, more especially among the poorer inhabitants.

There can be little doubt that if the powers of the Commissioners of Sewers for the city were extended over the out-parishes and suburbs, a far better state of sewerage and cleansing would arise than that which now exists.

*State of the town as regards streets, alleys, and courts.*—As might be anticipated in an ancient city like Bristol, the old parts of it are ill-constructed as regards width of streets and their ventilation. The older streets are, for the most part, narrow; the lanes and alleys frequent, and the courts numerous and confined. As it becomes necessary to take down old houses, those with stories gradually approaching as they rose above each other, until there was little distance between the higher parts of the houses on each side of streets, once frequent in Bristol, are gradually becoming rare, and there seems a general disposition to improve the chief old streets as opportunities arise.

Still, however, narrow streets and lanes are not uncommon in the older parts of the town, and there is a large proportion of narrow alleys and confined courts in many localities.

In the large mass of buildings in the Temple district, Temple-street, though generally composed of indifferent houses, is the best from its greater width; but leading out of it, in various directions, are numerous miserable courts, ill-ventilated. The same district also contains many wretched courts and alleys. A part of the Redcliff district is in the same condition, but improvements are being made near the church, which will tend greatly to ventilate a portion of it.

There are some wretched tenements in the neighbourhood of Lewin's Mead, and along the course of the Frome, in the direction of the Pithay; the streets and courts containing them are ill-constructed with regard to proper ventilation.

There are some wretched habitations in the district of St. Philips, though the streets are better laid out than in the more central and ancient parts of the city, as is also the case with the district comprising Poyntz, or Bull Paunch Pool, New-street, Wade-street, &c.; between these last-mentioned localities there is a broad line of good ventilation in an east and west direction, forming West-street, and Old Market-street, which is continued, though narrower, into Castle-street.

The mass of buildings which rise and cover a part of the hill, in the direction of King's Down, being exposed to the prevalent winds, may be considered to be well situated as regards a free circulation of air. Clifton, from its high and dry situation, and the wide distribution of its good-classed houses, is most excellently placed. The lower part or Hotwells contains some ill-constructed lanes, but as a whole even this portion is fairly exposed to the winds, and the fault more in the houses than in the position of the streets.

The chief open places in Bristol are Queen's and St. James's Squares, College-green, and the open space near St. James's church. For ventilation purposes the space occupied by the Floating-harbour would be most valuable, if the waters were less tainted with impurities.

A glance at the map will show that the prevalent winds being from the west and south-west, a considerable portion of the more crowded and lower parts of the city is not well swept by them.

Bristol is remarkably free from cellar dwellings. We observed so few that they scarcely deserve notice; so that in this respect the city is most fortunate.

*Distribution of Inhabitants.*—The following general view of the manner in which the different parts of the city and part of its suburbs are inhabited, furnished by a competent authority, may be found useful.

*St. Philip's and St. Paul's—In and Out.*—The inhabitants of the in-parish, chiefly tradesmen, with a small proportion of mechanics, &c., in Redcross-street, Rich's-buildings, &c. The out-parish contains a large proportion of the working population, chiefly in the south-west end of the parish.

*Redcliffe.*—Families of independence, opulent merchants, and professional men, in small numbers; tradesmen and persons of more moderate means numerous; minor tradesmen, artizans, and labourers very numerous; poor numerous.

*St. James's—Within and Without.*—Opulent merchants few; families of independence many; professional men numerous; chief tradesmen few; minor tradesmen and artizans many; poor very numerous. Many retired tradesmen in *St. James's without*.

*St. Paul.*—Opulent merchants few; professional men and families of respectability many; chief tradesmen a small number; minor tradesmen, artizans, and labourers very numerous; poor numerous.

*St. Augustine.*—Opulent merchants, families of independence, and professional men, numerous; chief and minor tradesmen, and artizans, also numerous; poor not very numerous, except in the vicinity of Host-street, Trenchard-street, &c., and in the tenements between Lime-kiln-lane and the Floating-harbour, which are somewhat densely peopled.

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

*Castle Precincts.*—Embrace the central parts of the city, and contain warehouses of merchants, the first class shops, the banks of the city, merchants, attorneys, and other officers and places of business. The resident inhabitants chiefly tradesmen of the first and second class; poor not very numerous.

*Public parks, gardens, or walks.*—There are no places for recreation supported at the public charge, but the banks of the river, from the Hotwell-house on one side and from Rownham Ferry on the other, afford ample opportunities of walking among the picturesque scenery of the Avon, and are, with Clifton and Durdham Downs, much frequented during Sundays and holidays.

*Supply of water.*—Bristol and its suburbs, including Clifton, are supplied with water from pipes laid into the houses, from conduits, and from wells. Very little is accomplished by the former mode, and that only for the better-classed houses, more by means of conduits, but the chief supply is from the wells.

We are indebted to Mr. Samuel Stutchbury, of the Bristol Institution, for the following account of the water laid into the houses, and of the conduits:—

*Water laid into the houses in Bristol.*—Jacob's Wells, on the side of Brandon-hill, seems to supply all, or nearly all, the water laid into the houses in Bristol. Two services of pipes proceed from them, one belonging to the Dean and Chapter of Bristol, supplying the premises attached to the cathedral, a part of College-green, Trinity-street, and two or three places adjacent; and the other to the Corporation, supplying the grammar-school, and perhaps one or two other places. The water is of good quality, rising from the beds of the upper part of mountain limestone series behind Belle Vue, but the volume of it laid on in this way is but inconsiderable compared with that necessary for the supply of the city.

*Water laid into the houses at Clifton.*—About 404 houses, all belonging to the more affluent classes, are supplied with water in this manner on Clifton-hill. Of these 304 receive their water from the wells at Sion-house, known as Sion-spring. It is there pumped up by a steam-engine, through a shaft sunk through the mountain limestone, 250 feet deep. The temperature is the same as that of the Hotwell water, which rises through the rocks near the spot whence the Sion-house water is raised, and it is believed to have the same substances in solution, being probably little else than a part of the same waters.\*

It is considered that double the number of houses might be supplied in this manner without altering the present arrangements of the pipes. It has been found by experiment that this well could afford 24 gallons per minute, or 33,560 gallons per day. Though many thousand gallons are given away in the dry seasons for watering the roads, and much to individuals, it would appear that not much more than half this quantity is now raised. The well was sunk about the year 1790, and until 1811, when pipes were first laid, the houses were supplied by means of water-casks.

About 100 houses are supplied from a spring, named Richmond-spring, near Richmond-terrace, and many of the new houses erecting in that vicinity are preparing to receive water from it. The proprietor states that this spring could supply the consumption of about 300 houses.

According to the evidence adduced these two sources could afford a supply of water to about 900 of the houses at Clifton, all of the best class, and 400 now avail themselves of them.

*CONDUITS.*—Of these there are several:—

1. *Redcliff.*—One very ancient, for the keeping up of which lands have been left, and this is done by the churchwardens of the parish. It is supplied from the Lias, about a quarter of a mile S.S.E. from Lower Knowle. After a considerable course, the water is received in a tank at the corner of Redcliff Church-yard, where there are cocks open to the public.

2. *St. John.*—Also an ancient conduit. It is supplied from a spring on the Millstone-grit, on the side of Brandon-hill, and is received in a tank at the top of Park-street. A main cistern anciently afforded water to the monastery of the Carmelites, the prior of which granted a leather pipe to the parish of St. John.

3. *Temple.*—Supplied from a spring apparently in the Lias of Pyle-hill. Another ancient conduit. The parishioners used to maintain it from the profits of the Temple fair, granted them for this purpose. In 1840 the fair was suppressed by the corporation; but no compensation has been given to the parish to keep up the conduit. It was out of order when visited by us.

4. *The Quay Pipe, or Conduit.*—The water for this is obtained from a withy bed, on the lias district of Horfield, north-eastward from the Orphan Asylum, between the high land

\* We are indebted to Mr. William Herapath for the following analysis of the Hotwell water:—

Contents in an Imperial Gallon of 70,000 grains.

Carbonic Acid Gas . . . 8.75 Cubic inches.  
Nitrogen Gas . . . 6.56 Ditto.

Chloride of Magnesium	2,180
Nitrate of Magnesia	2,909
Chloride of Sodium	5,891
Sulphate of Soda	3,017
Sulphate of Magnesia	1,267
Carbonate of Lime	17,700
Carbonate of Magnesia	660
Carbonate of Iron	103
Bitumen	150
Sulphate of Lime	9,868
Silica	270

Grains . . . 44,015



## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

of Ashley Court and the mill-stream flowing from the Boiling-well. After passing a considerable distance, it is received into a cistern at the bottom of Quay-street. Open to the public from seven to ten in the morning, and from three to seven in the evening.

5. *All Saints*.—The water rises from the upper part of the mountain limestone, in Maudlin-lane, formerly in the garden of the Priory of St. James, and is conveyed by pipes into a cistern, with cocks, in All Saints'-lane. The public had formerly free access to this conduit; but now the parishioners only have keys and the right to use it.

6. *St. Thomas*.—A good supply of water, received from the tank at Redcliff Church.

7. *Conduit on the Back*.—Rebuilt in 1725.

WELLS are scattered over the city and suburbs in all directions, except upon the country occupied by the mountain limestone, through which the waters find their courses by various fissures and passages to about the level of the sea. Of these wells many in the city are open to the public, as at the Back, Barton-street, Black Friars, Cannon-street, Curran-lane, Hollister-street, James-court, Broadmead, King's Head-court, Stephen-street, Thomas-street, White Friars, Wine-street, Narrow Weir, Old Park, Pembroke-court, St. Peter's pump, the Pithay, Prince's-street, Quaker's Friars, Rose-alley, and Redcross-street.

These are not all strictly public wells, but there seems no check to the use of any of them, and some such as those in Wine-street, the Pithay, St. Peter's pump, &c., are in constant use by the public.

Wells with pumps are very common in private houses and in numerous courts; but in the latter situations we found a large proportion of them out of order. In several localities pumps of rain-water were observed, the water having been collected in tanks,—a method of preserving soft water too much neglected in our towns.

Mr. Stutchbury is of opinion that Bristol may be considered as fairly supplied with water for ordinary household purposes, but not with wholesome drinking water. The water from the Millstone-grit and upper parts of the Mountain Limestone series appears to be the best; but it is hard. That from the Lias is considered next in quality. Good water is rarely obtained from the Red Sandstone Series, being frequently brackish, and a large part of Bristol stands on this rock.

Tolerably good water was formerly afforded from the silt immediately underlying the gravels, peats, and clays of the alluvial flats of St. Philips and Queen's-square; but latterly much of it has been tainted by persons sinking into the silt for the discharge of cesspool fluids, which thus become mingled with the silt waters.

It can scarcely be doubted that in many other localities than on the alluvial flats, cesspool fluids find their way into the wells. In the porous red sandstones this must often happen, affording as they do such facilities for absorbing them, and cesspools and wells are intermingled in the districts composed of this rock. The water from the ancient well or pump of St. Peter (formerly known as the well of St. Edith, and made by Canynge, the founder of St. Mary, Redcliff,) in red sandstone, is considered better for making tea than those near it, a character perhaps due to the percolation to it of the filthy waters of the Frome and Float. When the Float water has been out, this well has been known to be pumped dry. In some courts of the Temple and other districts little care is taken to prevent the filth of the gutters from oozing into the wells; and in one place, in the Dings, we observed a privy immediately adjacent to the well.

The shipping is supplied by two floating tanks, or barges, the water being obtained from the River Avon, above the feeder for the Float, and brought alongside the vessels, in which the casks, being stowed empty, are filled by means of flexible hose and fly-wheel pumps. The charge is about 1s. per puncheon.

There are no fire-plugs, except at Clifton, where the mains in connection with the Sion well or spring seem to have this provision. Thus Bristol may be regarded as ill provided with water against fires, except in the immediate vicinity of the Float.

The number of fires (usually termed working fires) in Bristol was—

In 1838 . . . . .	21
In 1839 . . . . .	12
In 1840 . . . . .	24
In 1841 . . . . .	23
In 1842 . . . . .	9
In 1843 . . . . .	19

108—Average 18 yearly.

During the same six years there were 246 calls for fires, or 41 per annum.

There are seven fire-engines belonging to insurance offices, some of which are stated not to have any. Every parish has a fire-engine. One engine has 350 feet of hose, and is always kept full of water; and all the engines are worked and tried every quarter of a year in public places.

There are no rewards for the first intelligence of fires; but the public are described as ably assisting the firemen, always numerous during fires.

The desire to have Bristol more efficiently supplied with water appears to have been long felt, and Mr. Stutchbury states that an Act was passed in 1696, by which a Company contracted with the Corporation to supply the city with good water, at about 40s. a-year for each family. This Company formed a reservoir and erected a large wheel-engine at Hanham Mills; but it does not appear that the scheme answered the purpose of the projectors. According to the agreement, Bristol was to have been supplied with water for 200 years, and the Company seems to have paid to the Corporation 150l. and 164l. 13s. 4d. septennially

for a long time. About 1783 the Company forfeited 500l. to the Corporation and closed their works. It is probable that the reservoir on Lawrence-hill was made by the Company.

From 1783 to the present time, though a better supply of water to the city by means of pipes has often engaged public attention, and meetings of influential persons have been held, nothing further has yet been accomplished. It was proposed to raise the water from copious and never-failing springs by the side of the Avon, between St. Vincent's-rocks and the Black-rock, and to tank it on the Windmill-hill, thence to let it descend over Clifton. In this manner high pressure might be kept up over a large part of Clifton.

It would appear that an Act, passed in June, 1811, for making a navigable canal between the cities of Bath and Bristol, also contained clauses for supplying the inhabitants of the city of Bristol and its neighbourhood with water; clauses apparently introduced for the purpose of giving a popular character to the bill, for they never seem to have been acted upon. Clause XXVI. provides that, if the company does not construct the necessary works for the supply of water in 14 years, the powers granted for that purpose should cease; and accordingly they did cease, no such works having been constructed. This Act, in fact, can be considered as little else than one for forming a canal.

At a meeting in March, 1840, at which the mayor presided, it was proposed to form a Bristol and Clifton Water-works Company, and to raise 60,000l. in 1200 shares of 50l. each. In consequence, in November, 1841, notice was given that application would be made to Parliament in the then ensuing session for an Act to carry out the plans, which seem to have been of an extensive kind. In this it would appear the Company failed.

Mr. Stutchbury suggests that good water could be obtained from several sources:—

1st. From the Ashton waters, a reservoir to be made at Ashton, near the Aqueduct, and a main to be conducted along the line of the Bristol and Exeter Railway, and thus supply Bedminster and the whole south-side of the city, the elevation of the Ashton waters being about 70 feet above the city, south of the river.

2ndly. From the great spring at the mill opposite the Hotwell-house.

3rdly. From the spring emptying itself into the river at the Old Hotwell-house above mentioned.

These two last to be tanked on Clifton Downs, or at any convenient height.

4thly. From the Frome and Avon rivers, at convenient heights and distances.

Viewed as a sanatory question, there are few, if any, large towns in England in which the supply of water is so inadequate as at Bristol. From the evidence which has been laid before this Commission, it has been shown that the labour and consequent expense attached to the system of obtaining a supply of water from draw-wells or pumps engenders filthy habits, directly acting upon the health, and indirectly upon the morals of the people. The water of the pumps is generally hard and unfit for washing.

Hardness of water necessarily implies a very considerable expense in the waste of soap, or of carbonate of soda necessary to soften it, so as to render it useful for purposes of washing. This has led to the necessity of erecting tanks for rain-water, and has thus increased the expense of the supplies of water to the city. In fact, the inhabitants of many courts are either wholly dependent on the supply of rain-water, and are consequently much distressed in seasons of drought, or they obtain it from taverns or shops, the owners of which expect often more than an adequate return in the purchase of the articles vended by them.

It is probably considerably above the truth, that not more than 5000 persons, and these constituting the most wealthy families in Bristol and Clifton, are supplied with water by means of pipes laid on into their houses. On this supposition, 73,443 persons are wholly dependent on supplies obtained from public or private wells. In some parts of Bristol, in which the water is brought from the well by a water-carrier, the charges to the poorest family is at least 1d. per day; and it has been stated in evidence by Mr. Hawksley, that the labour of fetching water, estimated on the lowest average quantity used (seven gallons per head), amounts in money to 3d. per week for each family. Thus, without taking into calculation the annual expense of the interest of capital for wells and tanks, or the requisite sum to cover wear and tear, the annual expense for carrying water, as estimated by value in time, must be at least 9620l. to that portion of the town in which water is not laid on into houses by means of pipes. If the other expenses alluded to could be brought into the calculation, it would appear that the present system, even of a limited supply by wells, is much more expensive than the copious supplies afforded by Water Companies, as ascertained by the experience of Preston and Nottingham, in which towns the charge per week amounts to from 1d. to 2d. for each family. It is quite obvious that the labour of fetching water naturally leads to a very sparing use of it. It cannot, therefore, be a matter of surprise that the interiors of the houses of the poor in Bristol are generally of a filthy description. Mr. Bayley, a city missionary, who is well acquainted with the district of Lewinsmead, states, that although there are not many complaints of a want of hard water, "the supply of soft water, so necessary for personal cleanliness, is totally inadequate to the wants of the inhabitants: the general habits of the poor in this district are dirty, and their homes uncomfortable." Mr. Gilbert, registrar of deaths, states, that "many of the houses are filthy in the extreme, the supply of water being very bad." Mr. Rogers, a surgeon, well acquainted with the habits of the poor in Bristol, describes the supply of water as "not plentiful, and often scarce;" and remarks that "cleanliness cannot and does not exist." Dr. Budd, after pointing out that the filthy habits of the poorer classes in Bristol are mainly attributable to the deficient supply of water, shows, very judiciously, that the QUALITY of the water also acts in producing this result. He says, "Hard water curdles soap, and, to the same extent, destroys its cleansing properties; the poor can never be

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.



## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

made to use it for washing, unless when there is no other to be had. Where, therefore, the pump or spring-water is hard, they are left to the scanty and irregular supplies furnished by rain, which are quite insufficient for constant use. *Hard water, however unlimited the supply, is consequently of very little service in promoting cleanliness.* The truth of this remark may be abundantly seen in this city." The general character of the well-waters in Bristol is that referred to by Dr. Budd.

A personal inspection of very many dwellings of the poorer classes in Bristol satisfied us that the previous remarks, as to their filthy condition, is by no means over-rated. The filthy state of the habitations we ascribe wholly to the want of means, and not to any inherent habits in the people themselves, from whom we, in very many instances, received loud complaints on this subject.

*Baths.*—There are several private baths, but so expensive as to be beyond the reach of the poorer classes. There are, however, a few cold swimming baths, which may be used at moderate prices.

The first of these is known under the name of Renison's Baths, being kept by a man of that name. They are situated at the end of Stoke's Croft, in the out parish of St. Paul, in a place, therefore, at a considerable distance from the densely populated districts. In this establishment there is one large swimming bath for gentlemen. It is about 30 yards long and 20 broad, varying from 4 to 6½ feet in depth; the water is clear and good, and in large quantity, entering at one end and flowing out at the other. The charge for bathing is only 2d., or 3d. if a towel is given. To this establishment is attached a ladies' bath of small dimensions; but this is scarcely ever used.

To the gentlemen's bath, in hot weather, there is an average of 20 to 30 people per day; but the proprietor states that this number is now much on the decrease.

The other baths are enclosed parts of the river Frome, attached to public-houses. The charge for these is from 1d. to 2d.; but the vicinity of the public-house does away with any benefits arising from bathing. There are, therefore, no public baths, properly so called, all those alluded to being kept by private persons as a matter of speculation.

*Habitations of the Poorer Classes.*—The want of the facilities for internal cleanliness in houses is to be regretted the more on account of the density of the population in many parts of the city. The number of persons to each house in the whole city is 6·1—a number nearly as high as the proportion found to exist in the crowded towns of Manchester and Liverpool. It is of frequent occurrence to find one room occupied by a family consisting of five or six individuals. In fact, this is described to be the general condition of dwellings in many of the poorer districts, as shown in the following portion of evidence of Mr. Bayley:—

"What is the general condition of the dwellings of the labouring classes in Lewinsmead?—Most families occupy one room, some two small ones; very few have more, not being able to afford the rent. These (in summer time especially) are very hot and ill ventilated, owing to the common practice of *fixing* the upper sash, and thereby preventing a good circulation of air."

Mr. Bayley considers that the low moral tone of this district is in a great measure fostered by the neglect of the decencies of life, which this overcrowding and filth necessarily implies.

Mr. Gilbert gives a similar account of the Redcliff district, adding that he finds very little regard paid to the separation of sexes in the same apartment.

It was to be expected that the overcrowding and deficient state of ventilation must operate very prejudicially on the health of the inhabitants; and accordingly we find these circumstances severely commented on by medical witnesses, as shown in the following portion of evidence of Mr. Stephens:—

"Are the apartments of the poorer classes properly ventilated?—The apartments of the poorer classes are not properly ventilated, especially in severe weather; for custom will reconcile the inhabitants to a close and foul atmosphere, but cold cannot be borne, and thus every window is kept closed to render the room as warm as possible. I have noticed that after a long continuation of frost, fever always appears in a malignant form among the poor, from the reason just stated, I presume."

Dr. Budd refers in the following terms to this density of population, and bad ventilation of their dwellings, as a great means by which fever is propagated:—

"It is clear enough that diseases which propagate by communication from one person to another must spread most where people are thickest. Now, in almost every instance in which I have witnessed contagious fever in Bristol, there has been only one bed-room to each family; and in many this was the only apartment. Several persons consequently occupy each bed; and in almost the last case of fever which I attended, there were four ill of the disease in one bed. The first attacked had communicated the disease to the others. Unfortunately the want of common cleanliness, and the absence of sufficient means of ventilation, act in fatal alliance with these conditions. The lower classes of people in Bristol are, generally speaking, very dirty in their habits. They hardly ever whitewash their rooms, but seldom change their bed or body-linen, and their persons and sleeping apartments are much infested with fleas and other vermin. But it is particularly lamentable that after a fever or other contagious disease has been through a house tenanted by persons of this class, no additional means of purification, much less any express measures for the extinction of contagious effluvia, are resorted to. It is astonishing that this state of things should be allowed to continue when the frightful consequences are so evident, the means of averting them more or less completely so obvious and easy of adoption, and their enforcement a matter of such great moment to society. We protect ourselves, by all manner of stringent legislation and heavy penalties, against nuisances merely offensive to sense, and yet, without complaint or interference, allow our neighbour to harbour the seeds of pestilence."

House-drainage in the poorer districts of Bristol is almost unknown. Courts are fre-

quently connected with the main sewers by drains or "gouts," as they are termed, but these in almost every instance act inefficiently from the deficient supply of water. As a consequence of this state of sewerage, water-closets exist only in the houses of the more wealthy part of the community. A deficient supply of privies, occasionally in bad repair, and very often filthy, forms the only means of accommodation for the poorer classes. In some districts which we examined, we found as many as one privy to every two houses. In other districts, the proportion was three privies to 14 houses; and in several instances the supply was still more scanty. There are no regulations for cleansing privies, except an implied private understanding, that each of the neighbours enjoying the advantage shall cleanse them in rotation. The consequence of this is, that the cleansing is frequently much neglected. We observed numerous instances in which, from the bad position and construction of the privies, the ordure had penetrated through the wall of the adjoining dwelling. One instance of this kind we may advert to more particularly:—the family of E. S. inhabits an underground kitchen in Lewinsmead. Opposite the door of this kitchen, the ordure of an adjoining privy has permeated. The room is badly ventilated, and its inmates appear wan and sickly; they ascribe their bad health to the emanations of the privy, as shown in the following evidence of the mother of the family:—

"How long have you resided here?—Nearly two years.

"Have you enjoyed good health since then?—No, all our troubles have come on us here. I used to be strong and lusty—able for work; but now I am weak and sickly. I have had many children, and never suffered from my confinements till I came to this place; but since then I have had two dead-born children. But what distresses me so much is, that my children, who were healthy before, are becoming very puny; and my husband is not able for the work he used to do. God has dealt hardly with us for two years.

"Is the smell from the privy always as bad as it is now?—Generally much worse. Mr. ———, the missionary, when he comes to visit us, has often to put his head out at the window, he gets so faint. I think, somehow, that we are worse when the smells are worse. My husband and I have begun to think of this lately, and we are about to move, to see if we can get better."

Instances of a similar kind to the above have frequently come under our notice.

It is unnecessary to describe in detail the lodging-houses of Bristol, which present no features which are not characteristic of such establishments in other towns. In Bristol, as in other large towns, the lodging-houses are conducted on the principle of crowding the largest number of people into the smallest possible space, generally without regard to distinction of sex, or even of the most ordinary decencies of life. In several rooms we found as many as eight or ten beds, each of them containing at least two persons, occasionally more, but the average number of beds to each room is probably not above four. In one or two instances we observed cases of contagious disease, such as scarlatina and synochus, without any attempt to prevent the extension of the disease. Medical witnesses describe these lodging-houses as the foci from which fever spreads to the surrounding districts. They are not subject to any regulation, and the consequence is that the filthy state of the interiors of houses already alluded to is exhibited in an increased degree in these resorts of vagrants. As the state of lodging-houses in Bristol, as well as in other towns, will be shown in another report, we consider it unnecessary to enter into detail on this subject.

*Health of Inhabitants.*—In the elaborate analysis of the registries of death, detailed in the subjoined report of Dr. Kay, the general condition of the town of Bristol, with regard to health, will be perceived. The great mortality and loss of life in Bristol, inferior only to Liverpool and Manchester, is not to be wondered at, when we consider its deficiencies in a sanatory point of view. The returns, published by the registrar-general, show that the mortality in Bristol is 3·1 per cent, or 1 in 32 of its population. As the mortality in districts of an average degree of salubrity is found to be 2 per cent., there has been an *excess* of mortality in Bristol during the last five years (estimating the mortality at 2·9 per cent., the average of the last five years) equivalent to 3083 deaths. It will be observed, by the report of Dr. Kay, that a large proportion of the excess of deaths is due to infants, who are peculiarly prone to be affected by the various causes of mortality to which we have referred. But the evil is not by any means confined to the infantile population. The average duration of adult life is also materially diminished; and, what is perhaps of equal importance, the enjoyment of life and working ability of the survivors are materially affected.

It will be seen by the tables, that certain districts of the city are marked by having a higher mortality and a shorter durability of life than other localities more favourably situated in their sanatory condition. Medical witnesses, from their experience in these districts, attest the same facts, and, in almost every instance, agree in tracing them to removable causes. This is shown in the following portions of evidence from various medical men. Mr. Swayne particularly refers to the deficient state of drainage as a cause of disease.

"Can you specify any particular parts of the city peculiarly liable to contagious or eruptive fevers, or other forms of disease?—I have observed that epidemics and contagious (?) fevers, denominated 'gastric,' 'enteric,' 'bilious,' 'choleric,' &c., together with common cholera and dysentery, to prevail most in those parts of the city where the drainage is bad, and in the neighbourhood of the different small branches of the rivers, particularly the Frome, which are nothing better at present than common sewers; but it is in the suburbs, where there is no drainage at all, that I have seen worst fever,—such as the vicinity of Montpelier, and Ashley Vale, where there is a most offensive ditch; the neighbourhood of the Black-boy at Durdham Down, and some parts of Clifton, particularly Richmond-terrace, where the practice of making cesspools and reservoirs for the sewage prevails.

"Do you recollect any marked instance in which the deficient state of drainage was accompanied with fever?—I had a very remarkable instance last summer, in an institution which I attend,—the

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.



## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.

Female Orphan Asylum, near the large ditch or brook in Ashley Vale, which I mentioned in my last answer. During the dry weather in the latter part of the summer, the ditch, which receives all the sewage in the neighbourhood, became very offensive, in consequence of there being no water flowing through it; a fever then broke out very suddenly, 10 individuals having sickened at once. We had, in all, 24 cases among 60 persons. The fever continued without any abatement, notwithstanding every precaution was taken to prevent its spreading, until, by the fall of copious rains in the autumn, this brook was filled with a stream of water, when the fever immediately ceased, no such case having arisen since."

Mr. Henry Stephens refers to the state of the Frome as very injurious to public health:—

"Will you state the districts in which fever most abounds?—I have marked on a map the spots where fever most frequently occurs; and these will be seen to be along the Frome from the Weir to the Stone-bridge: not only the most numerous, but the worst cases of typhus occur in this tract. I am certain, public health is much injured by this filthy stream remaining uncovered, especially during the hot months. With regard to the Float, the waters of the Frome pour into one branch of it, when they stagnate, and the stench of this in the summer and autumn months is too notorious to need any remark. By referring to the newspapers of last summer you will see repeated complaints made by the inhabitants of St. Augustine Parade respecting this nuisance, and that some disease had appeared, which was attributed to the fetid exhalations from the Floating Harbour, and that some of the tradesmen had been compelled to remove their families on account of this annoyance."

Mr. Rogers states, that while he cannot say that the smells of the Float, "which are occasionally very bad," have originated fever, yet he has "little doubt of that circumstance tending, in conjunction with others, if not to excite, certainly to aggravate disease."

Dr. Budd, after pointing out in strong terms that deficiency of diet is one great cause of disease in the lower districts of Bristol, at the same time draws attention to the very injurious consequences which arise from the exposed state of the river Frome. He refers to the great amount of sickness in the houses situated on the banks of that filthy stream, "especially because the inhabitants are in station considerably above the lowest class." He points to these evils in the following evidence:—

"Along the whole course of this stream, or, more correctly speaking, this ditch, is a source of noisome effluvia, which in the summer season sensibly poison the air for a long way round. In many parts, the aspect of the ditch and its banks, loaded with impurities of all kinds, is disgusting in the extreme. Between St. John's bridge and the bridge at the Quay-head the nuisance reaches its climax. The inhabitants of Christmas-street are the great sufferers. Part of this street is built on a bridge thrown across the Frome, between the two already mentioned. I am now attending two families in this street, in the houses Nos. 12 and 16: these houses are nearly opposite, and being built on the bridge, the backs of them overlook the stream in opposite directions. At the back of each is a gallery, built of wood, which projects from the wall of the house, and overhangs the ditch. In the corner of each gallery is a privy. From both there is a view of a range of other privies, up and down the stream, belonging to houses which abut upon it. These privies hang over a bank of mud, the level of which is only swept at spring-tide, or when the Frome is swollen by freshets. The state of things in the interval is too loathsome and disgusting to describe."

"When the tide comes up, matters are, for the time, still worse; for it comes loaded with the filth discharged from the sewers that open further down. The stench then becomes almost intolerable. A short time ago I visited the house which looks down the river, when it was nearly full tide. The room in which my patient lay overlooked the stream; and, as the window happened to be open, the stench was so overpowering that I could scarcely stay there. The inmates, however, from being so long accustomed to the smell, did not perceive it."

"The construction of the opposite house is still worse. The gallery at the back is here closed in, and made into a scullery, lighted by a small window; it is, consequently, not swept by the open air, as that on the other side. The floor is full of large chinks, through which the ditch below is visible, and noisome effluvia enter undiluted. This is a most poisonous place. As if to unite in one spot every condition unfavourable to life, the day-room of this house is almost dark, having only a borrowed light from the scullery behind, and from an obscure shop in front. I need scarcely add, that all the people here are unhealthy. The inmates of these two houses told me, that the most healthy people coming to live here very soon droop, and lose their good looks. They become pale and weak, and suffer much from indigestion. The wan looks of my informants fully bore out their statements."

I was not surprised to find, too, the interior of these houses kept in a very filthy state, and the people extremely dirty in their persons. Cleanly habits cannot long survive the contaminating influence of such conditions. People living among them necessarily become filthy, coarse, and brutalized."

Some witnesses supposed that the low state of morality to which Dr. Budd refers, ought, in many instances, to be considered the main cause of disease in these localities. But such witnesses had not considered, that the very inducements to excess in stimulating drinks found their origin in the depressed state into which the inhabitants are thrown by unhealthy physical agencies; it is quite true that, in the localities alluded to, the money which ought to be spent in effective nutriment is too often expended in alcoholic stimulants, or even in tea—a stimulant much less injurious, and much resorted to in these and similar localities; but the very appetite for such stimulants is a sign of depressing physical agencies. Mr. Bayley, the city missionary, whose evidence has been already cited, after having spent years of almost hopeless labour in these unhealthy districts, states, that the great obstacle to the success of his mission is the lax state of morality created and fostered by the want of facilities for cleanliness, and neglect of the decencies of life. He finds that the habits of cleanliness and morality taught to children at school are, in a great measure, neutralized by the state of filth and overcrowding which they meet with in the houses of their parents."

Several registrars of deaths refer to this overcrowding as causing very injurious consequences to morals and to health, in the case of death, as shown in the following portion of evidence of Mr. Gilbert:—

"What is the usual period that bodies are kept disinterred in your district?—From 5 to 8 days, and I have known them kept 12 days."

"Why are they kept so long?—In many cases, from a foolish idea that greater respect is shown to the dead, but more frequently from the expense of burying them earlier, arising from the difficulty of obtaining the attendance of persons on any day but Sunday. Thus, if a person dies on Thursday, he would not be buried till the Sunday-week following."

"Does the family live and sleep as usual in the room containing the dead body even after it has acquired an offensive smell?—Not generally; but I have met with many such cases."

"On entering an apartment in which the family did remain as you describe, has your own health been affected?—Yes, frequently. I have sometimes been made very ill."

"Have you perceived any injurious effects to the occupants of the room?—I have known persons to be very seriously affected, and in several instances I have seen additional deaths occasioned by the retention. In fact, the smell sometimes becomes so bad that applications have been made to me by the neighbours to see whether I had not the power to compel burial."

As the interment in towns has been made the subject of a separate inquiry, we need only refer to the circumstance, that, in addition to the church and chapel burying-grounds, several of which are in a very crowded state, there are some burying-grounds in Bristol kept by undertakers for the purpose of speculation. Witnesses have stated, that the scenes which occur in these, for the purpose of obtaining room for burials, are not only highly unbecoming, but likely to be productive of very injurious effects to the health of the immediate neighbourhood. One of these witnesses, a labouring man, who officiates over the funerals instead of a clergyman, describes the state of the ground when a grave is opened in terms almost incredible. A personal examination of these burying-grounds has led us to the conviction, that the retention of burying-grounds by private individuals, as a matter of speculation, is productive of much injury, not only to morals, but also to the health of the localities in their vicinity."

Slaughter-houses in Bristol are scattered over the town without any special regulations. Very frequently they are situated in unventilated courts, and are much complained of both by medical witnesses and by the inhabitants of the courts themselves."

The manufactories are generally situated towards the eastern side of the city, in a direction, therefore, opposite to the prevailing winds, and are not, on this account, considered as productive of injury to the health of the city. Yet although this is not the case, Bristol, with a climate known to be mild and salubrious, enjoys the unenviable celebrity of being the third most unhealthy town in England. The poverty of its inhabitants cannot be the cause of its low position in the scale of health, for as Mr. Brady, the surgeon to St. Peter's Hospital, remarks—

"It is probable that the poorer classes (in Bristol) are not subject to such extreme destitution as in some manufacturing towns. This arises from various causes. Bristol not being a manufacturing place, the labouring classes are not subject to fluctuations between high wages and total want of employment; therefore large masses of artisans, suddenly reduced to a state bordering on starvation, are fortunately unknown to us. Besides, Bristol, being an ancient city, possesses many charitable endowments, and the distribution of these funds preserves many families from suffering from the want of the absolute necessities of life."

As the climate is salubrious, and poverty not peculiarly severe, we can only look for the causes of the unhealthy state of the city in the neglect of proper sanatory conditions. We have seen these to be, bad drainage and sewerage, deficient supplies of water, bad structural arrangements of streets and dwellings, and overcrowded state of the population. These are, in a great measure, removable causes, and most of them are within the recognised province of legislation. The powers at present possessed by the authorities of the city are quite inadequate for the removal, or even material abatement, of these evils."

The Sewerage Act does not provide for a systematic drainage of the unimproved districts of the city, and does not afford powers of improving unhealthy districts at the expense of the owners of property in these districts; neither does this Act comprehend a necessary union of house drainage with public sewerage."

By the 15th clause of the 1st Vic. sess. 1837, powers are given to prevent the pollution of the rivers Frome and Avon by conveying into them "any noxious or offensive materials or ingredients, or any substance whatsoever"—with what small effect is shown by the complaints of the medical witnesses, whose evidence has been cited."

By an Act 3 Vic. sess. 1840, intituled "An Act for regulating the Buildings and Party-walls within the City and County of Bristol, and for widening and improving several Streets within the same," the Council are empowered to purchase houses and lands for the purpose of widening and improving streets, and for regulating buildings and the strength of party-walls, but it does not provide any effective sanatory measures, unless similar clauses to those contained in the last Act, for suppressing nuisances offensive to the senses, be deemed worthy of this name."

When we consider the magnitude of the evils described, the great unnecessary waste of life, necessarily entailing heavy pecuniary burdens on the community, and depressing the physical condition of the survivors, few will not agree to the concluding passage of the evidence of Dr. Budd on the state of Bristol:—

"It is high time that society should show, by the magnitude and liberality of its provisions, its deep sense of the importance of cleanliness to the health and happiness of the people. When the public can once be brought to see, in all the clearness in which the truth appears to medical men, that the present prevalence of dirty habits among the poor involves the premature and miserable death of thousands of the most useful members of society by fever and other disorders, it will become evident to all, that too great a sacrifice cannot be made, in order to provide the lower classes with the means of cleanliness, and to promote its practices among them."

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by Sir H. T. De La Beche, and Dr. Lyon Playfair.



## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.

## REPORT on the SANATORY CONDITION of CLIFTON.

By WILLIAM KAY, M.D., Senior Physician to the Clifton Dispensary, and Lecturer on Forensic Medicine in the Bristol Medical School.\*

At the request of Her Majesty's Commissioners for the Health of Towns, charged with the examination of Bristol and its vicinity, I have undertaken to draw up a short Report illustrative of the sanatory condition of Clifton.

Clifton is naturally, and for our purpose may be conveniently, divided into Upper and Lower—the difference of elevation being about 220 feet. There are few places, probably, which, within the same area, present differences, physical and local, more marked than those occurring in the two divisions. The Upper, Clifton, properly so called, may be said to lie on the brow of a hill, in a convex or semicircular form, abutting on the extreme right, the south-west, over the river Avon, and extending round to the south-east, nearest to the city of Bristol, comprising a distance of about a mile.

Immediately in front lies Lower Clifton, and the floating harbour of Bristol, opening to the right, upon the river Avon. The greater part of Clifton, occupying the brow of the hill, is sheltered from the north and north-westerly winds by the acclivity of the higher ground, which rises behind it to the Clifton and Durham downs. These downs, extending about two miles, are bounded on the west by the deep valley through which the Avon flows, and are open to the breezes from the Atlantic and the Bristol Channel. The front of Clifton thus faces the south and south-west.

From this sketch, it will be readily understood, that the temperature must vary very much in different parts of Clifton; that portion lying on the south side of the hill being several degrees milder than that in the immediate neighbourhood of the downs.

The registers, from which the numerical data in this Report are chiefly taken, include, in Upper Clifton, Durdham Down Road, and that portion of Durdham Down which adjoins Redland, having a population of 950 or 1000 persons, consisting chiefly of labourers, lime-burners, mechanics, and small shopkeepers—the higher class of the Down residents being included in a separate district. The whole population of Upper Clifton, computing by the census of 1841, amounts to 6720, which, in the absence of actual data, I have ventured roughly to estimate as follows:—

Gentry, professional persons, and their families	4000
Tradesmen and their families	1250
Mechanics, labourers, &c.	500
	5750
Gentry, &c.	166
Tradesmen, &c.	154
Labourers, &c.	650
	6720

Dr. Chisholm, physician to the Clifton dispensary for four years, gives the following description of the Hotwell Road in 1817:—

“Nearly three-fourths of the population of the parish are confined to that part of it called the Hotwell Road, extending about a mile in length along the north-western bank of the Avon, from the immediate vicinity of Bristol to the Hot-Wells, and narrowed on one side by the river, and on the other by Clifton Hill, high and acclivous, into a breadth of not more than from 30 to 50 yards. All the houses are adapted to the circumstances of the lower classes, or very frequently, for the purpose of employing the surface in the most lucrative way, formed into narrow courts and blind alleys, in which there are no means of thorough ventilation, and in which, for the most part, the air is in a very unagitated state. The houses are occupied, in most instances, each by two or three numerous families, so that one room frequently serves the purpose of parlour, bedroom, kitchen, scullery, and wash-house, to six or ten individuals. An impure air and accumulated filth are the necessary consequences; and the fetid smell which assaults the stranger on entering any of these rooms sufficiently indicates their offensiveness. . . . Animal food does not very often enter into the composition of their diet, and when it does it is chiefly bacon. The persons of the inhabitants thus limited in their circumstances, are, except on Sundays and holidays, at all times squalid, filthy from the neglect of ablution, and sordid from the miserable garments they are covered with. . . . A great portion of the indigent male inhabitants are decayed or unemployed servants, sailors, tradesmen, or labourers: of the female, almost universally, decayed servants, or whose occupation is washing and ironing—a frequent remote cause among them of phthisis pulmonaris.”

At the back of nearly the whole length of the Hotwell Road just described, the high ground alluded to as Clifton Hill abuts so closely upon the outlets of the houses as greatly to impede, by such proximity and abruptness, anything like a free current of air. The rock, in fact, in many places, has obviously been cleared away merely to allow space for the erection of the dwellings.

\* It should be stated with regard to this Report that some brief notices respecting the topography, geology, meteorology, &c. of Clifton, have been omitted to prevent repetition, as these subjects are fully treated of in the preceding report of the Commissioners.

## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.

Jacob's Wells, branching off, forms another portion of the district lying under similar disadvantages—the high shelving ground of Clifton Wood hemming it in on one side, and Brandon Hill on the other. There are likewise several courts, both closed and open, densely inhabited; and, though somewhat better than those of the Hotwell Road, not remarkable for purity or cleanliness.

How large a proportion of the inhabitants congregated in these vicinities, in houses, as Dr. Chisholm describes them, “adapted to their circumstances,” rank in the lower class, will readily be understood from the fact, that *one in sixteen* of the whole population of Clifton is in the receipt of parochial relief—the average number being 847.

Having thus briefly explained the local and physical conditions in which the inhabitants of the two divisions are respectively placed, we may proceed to inquire how far health, and consequently mortality, are affected by these combined influences. In other words, whether health, and a corresponding period of years, are realised in a degree proportionate to the superior conditions presented for their attainment in the one case, and to what extent they fall short of this ratio, under the existence of less favourable circumstances in the other.

The healthy state or otherwise of a district admits of illustration in three ways: first, by the number of deaths relatively to the population; secondly, by the mortality at particular ages, and amongst different classes: and, thirdly, by the average age attained.

A reference to the Mortuary Registers, from July 1, 1841, to June 30, 1842, shows that in the *parish* of Clifton, in a population, according to the census of 1841, of 14,034, there occurred 362 deaths. The following table exhibits the relative mortality of seven of the larger towns, the average being taken for three years (1840, 1841, and 1842):—

TABLE No. 1.

Towns.	Population. 1841.	Average of Deaths in 1840, 1841, and 1842.	Per Cent. of Population.	Proportion.	Deaths under 5 years. 1841.	Deaths from 50 to 70. 1841.	Deaths from 70 and upwards. 1841.	Deaths under 5 years. per Cent. of Total Deaths.	Deaths from 50 to 70. per Cent. of Total Deaths.	Deaths from 70 and upwards. per Cent. of Total Deaths.
Metropolis	1,870,727	45,612	2.4	1 in 37.39	19,519	8,075	5,551	42.7	15.5	12.1
Liverpool	223,054	7,811	3.5	1 in 28.75	4,261	886	445	54.5	11.3	5.6
Manchester	192,408	6,153	3.2	1 in 29.64	2,917	767	397	47.4	12.4	6.4
Leeds	168,667	4,487	2.7	1 in 36.73	2,143	507	353	47.7	11.3	7.8
Birmingham	138,187	3,673	2.7	1 in 36.79	1,818	448	339	49.4	12.1	9.2
Bath	69,322	1,766	2.6	1 in 39.75	733	310	332	41.5	17.5	18.7
Bristol	64,298	1,995	3.1	1 in 32.33	917	320	253	45.8	16.5	12.2
Clifton (Union)	64,231	1,589	2.5	1 in 40.50	769	222	231	48.3	13.9	14.5
Clifton (Parish)*	14,034	362†	2.6	1 in 38.55	110	73†	65†	30.7	20.1	18.6

\* The deaths in the Clifton *parish* occurred in 1842. The average deaths for the three years, as given for the other towns, was 345. I had not the data to calculate those for the same period, which took place at the different ages, “under five years,” &c.

† This number, 362, includes 31 deaths in the poor-house, the age on admission, except in cases of infirmity, &c., being 60 years. These deaths rather unfairly increase the rate of mortality, and correspondingly add to those occurring between the ages of 50 and upwards. (See Table 2, p. 78.)

Bristol, it will be seen from the above table, is exceeded in the rate of mortality by only two of the seven towns, viz., Liverpool and Manchester. Clifton Union, on the contrary which includes several rural districts, presents a lower rate than any of the towns. In the *parish* of Clifton again, the mortality, though somewhat higher, is still below the average. In Bristol, the deaths under five years are less than the other towns, with the exception of the metropolis and Bath; in Clifton (Union) greater, Liverpool and Birmingham only excepted. In Clifton (Parish) much below any of the towns under comparison, being only 30.7 per cent; whereas the lowest of the others is 41.5 per cent. In examining the Table in reference to the deaths at advanced ages, both from 50 to 70, and from 70 years upwards (in which the principle as a test of the healthy state of a town, is, of course, reversed, the higher the per centage, the more favourable being the indication,) Clifton (Parish) again takes a decided precedence; Bath comes next in order, then Bristol, Clifton (Union) and the metropolis. But the per centage of all these ages, is taken upon the total deaths. A fairer mode of ascertaining the rate, is to compare the mortality at particular ages with the numbers *living* at those ages, and this has accordingly been done, so far, at least, as the census returns, with which I have been favoured, admitted, in Tables 6 and 11, pages 97 and 102 of the Bristol report.

For several additional illustrations connected with the mortality at different ages, in relation to the total deaths, the population, &c., the excess of deaths above the healthy standard of 2 per cent., the average age of the living and the dead, the resultant loss of the years of life, &c., in the parish of Clifton, compared with the neighbouring parishes in the Clifton Union and Bristol districts, the reader is referred to the Tables generally contained in the accompanying report upon the mortuary statistics of Bristol. The Upper and Lower divisions of the parish, however, furnish relatively a very different result—109 deaths occurring in the former, and 253 in the latter:—

	Population.	Deaths.	Per Cent.	Proportion.
Upper Clifton	6,720	109	1.6	1 in 61.6.
Lower Ditto	7,314	253	3.4	1 in 28.5.

The rate of mortality in the Lower division, even excluding the deaths in the poor-house, is more than double that of the Upper, though the difference in the population is only 600. Were it in the same ratio the number of deaths would be 118.

APPENDIX.  
Clifton.Report on its Sanitary Condition, by  
W. Kay, M.D.

Table, showing the Ages at which the 362 deaths took place in Clifton parish, including 31 deaths in the poor-house:—

		Deaths.		Per Cent. of total Deaths.	
Under 1 year		57		17.2	
1 year and under 2 years		23		6.9	
2	"	3		3.0	
3	"	4		2.4	
4	"	5		3.6	
Birth to 5 years		110		33.2	
5 to 10 years		20			
10—15	"	8			
15—20	"	7			
20—30	"	24			
30—40	"	23			
40—50	"	22			
50—60	"	34			
60—70	"	30			
70—80	"	40			
80—90	"	11			
90—100	"	0			
Unknown		2			
		331	+	31*	362 Total Deaths.

Of these 110 deaths of children, under five years of age, 30 took place upon, and 80 below the hill.

TABLE No. 3.

	Deaths.	Gentry.	Tradesmen.	Mechanics.
UPPER CLIFTON.				
Under 1 year	20	4	8	8
1 to 2 years	5	..	3	2
2 to 5 years	5	2	3	..
Total	30	6	14	10
Population	6,720	4,166	1,404	1,150
Proportion in 1000	4.4	1.4	9.9	8.6
LOWER CLIFTON.				
Under 1 year	37	1	12	24
1 to 2 years	18	..	6	12
2 to 5 years	25	1	8	16
Total	80	2	26	52
Population	7,314			
Proportion in 1000	10.9			

The occurrence of only six deaths of children under five years of age, (one the child of a stranger) in a population of 4166 of the higher ranks, whilst 24 deaths took place amongst 2554 of the other two classes, that is, in the proportion of 1.4 to 9.3 in 1000, is by no means an equivocal proof how greatly the mortality of infantile life is affected by local and physical circumstances. "More than half the children of the working classes, and only one-fifth of the children of the gentry die," Mr. Chadwick states, "before the fifth year of age."—(*Sanatory Report*, p. 167, note.) It would, of course, be Utopian to look for similar immunity under such dissimilar conditions; but that a much nearer approximation to it might be attained; in other words, that the sacrifice of infantile life might be considerably diminished, by the adoption of regulations to prevent the dwellings of the poor being crowded, to ensure more efficient ventilation and drainage, and to promote their general comforts, admits not of the slightest doubt.

TABLE No. 4.—The Proportion of Deaths to Births.

	Population.	Births.	Per Cent.	Proportion.	Deaths under 1 Year.	Per Cent. of Births.	Proportion.	Deaths under 5 Years.	Per Cent. of Births.	Proportion.
UPPER CLIFTON.										
Gentry	4,166	31	7.4	1 in 134.3	4	12.9	1 in 7.7	6	19.3	1 in 5.1
Tradesmen	1,404	29	2.0	1 in 48.4	8	27.5	1 in 3.6	14	48.2	1 in 2.0
Mechanics	1,150	42	3.6	1 in 27.3	8	19.0	1 in 5.2	10	23.8	1 in 4.2
	6,720	102	1.8	1 in 65.8	20	19.6	1 in 5.1	30	29.4	1 in 3.4
LOWER CLIFTON.										
	7,314	201	2.7	1 in 36.3	37	18.4	1 in 5.4	80	39.8	1 in 2.5
Total	14,034	303	2.1	1 in 46.3	57	15.5	1 in 5.3	110	36.3	1 in 2.7

Though the general result, as exhibited in the former, is considerably modified by the comparison made in this latter Table, between the births and deaths of children, it being the details, and not the principle under illustration, that is affected, I have thought it right to retain both. Infantile mortality is still, it will be observed, shown to be in excess amongst the labouring class, even in proportion to the births; the children born to them dying in the proportion of 1 to 2.5 in Lower Clifton, and those born to the gentry in Upper Clifton, 1 to 5.1.

APPENDIX.  
Clifton.Report on its Sanitary Condition, by  
W. Kay, M.D.

TABLE No. 5.

CAUSES of the DEATHS of CHILDREN, from Birth to Five Years of Age, in UPPER and LOWER CLIFTON.

	Upper Clifton.	Lower Clifton.		Upper Clifton.	Lower Clifton.
Convulsions, Teething, &c.	5	24	Influenza	0	1
Inflammation of lungs, &c.	9	16	Enteritis	0	2
Scarlatina	3	13	Diarrhoea	1	1
Measles	0	1	Dropsy	1	2
Whooping-cough	1	4	Accidental	0	3
Hydrocephalus, Cephalitis	4	6	Malformation	1	0
Phthisis, Atrophy, &c.	4	5	Unknown	1	0
Croup	0	1			
Cynanche	0	1	Total	30	80=110

TABLE No. 6.—Causes of the Deaths, at other Ages, in Upper and Lower Clifton.

		UPPER CLIFTON.				LOWER CLIFTON.				Poor-House.	Total.
		Gentry.	Tradesmen.	Mechanics.	Strangers.	Gentry.	Tradesmen.	Mechanics.	Strangers.	Paupers.	All Classes.
Sporadic Diseases.	Of the Respiratory Organs.	Consumption	5	6	25	2	3	14	25	1	41
		"Diseased Lungs"	3	1	1	1	6	..	..	5	17
		Inflammation of Lungs	1	2	4	1	1	4	..	..	14
		Pleurisy	..	..	..	..	..	..	..	..	7
		Asthma	..	..	..	..	..	5	..	2	3
		Hydrothorax	..	2	..	..	1	..	..	..	3
		"Diseases of Heart"	2	1	2	1	2	4	1	..	15
		Apoplexy	..	..	..	1	2	2	..	1	6
	Of the Nervous System.	Inflammation of Brain	2	..	..	..	..	2	2	..	6
		"Diseased Brain"	..	..	..	..	..	1	..	..	1
		Hydrocephalus	..	..	..	..	..	1	..	..	1
		Delirium Tremens	1	..	..	..	..	..	..	2	6
		Paralysis	..	..	..	1	2	1	..	..	1
		Convulsions	..	..	..	..	..	1	..	..	1
		"Diseases of Liver"	1	1	..	..	1	..	..	2	5
	Of the Digestive Organs.	"Diseases of Stomach"	..	..	..	1	..	..	..	1	2
		Inflammation of Bowels	..	1	1	..	1	6	..	1	10
		Hernia	2	..	..	..	..	1	..	..	3
		Stricture of Oesophagus	1	..	..	..	1	..	..	..	2
		Quinsey	..	..	..	..	1	..	..	..	1
	Of the Urinary Organs.	Diabetes	..	..	..	..	1	..	..	..	1
		"Diseased Kidney"	1	..	..	..	..	..	..	..	1
Epidemic, Endemic, &c., Diseases.		Fever	..	..	..	..	1	..	..	..	1
		Typhus	..	1	..	..	1	..	..	..	3
		Puerperal Fever	..	1	..	..	..	..	2	..	2
		Scarlatina	2	..	1	..	1	2	..	..	6
		Whooping Cough	..	1	..	..	..	..	..	..	1
		Erysipelas	..	1	..	..	..	..	..	..	1
		Diarrhoea	2	..	..	..	..	1	..	..	1
		Dropsy	1	1	..	..	4	5	1	..	12
		Hæmorrhage	..	..	..	..	..	..	1	..	1
	Sporadic Diseases of Uncertain, &c., Seat.	Cancer	..	..	1	1	1	..	..	..	3
Other Diseases, &c.		Ulcers. Abscess	..	..	..	..	1	..	..	1	2
		Gangrene Senilis	..	..	..	..	..	..	..	2	2
		"Age, Debility, Decay"	7	3	4	5	2	15	2	9	50
		"Atrophy"	..	..	..	..	..	1	..	2	3
		"Natural Deaths," &c.	..	1	..	..	..	1	..	1	7
		Accidents	..	..	..	..	1	..	..	..	1
		Drowned	..	..	..	..	1	3	..	..	4
		Other Diseases, &c.	..	1	1	..	..	1	..	1	4
		Unknown, &c.	..	..	..	..	..	..	..	..	5
	Total	21	22	22	14	12	26	85	13	31	252
	Children	6	11	13	..	2	14	64	..	Children	110
	Strangers	14	..	..	..	12	1	6	"Unknown"	..	..
	Total	41	33	35	..	26	41	155	..	..	362

\* All the deaths of strangers, both in Upper and Lower Clifton, with the exception of one of the five from consumption in the latter, were amongst the class of gentry. The deaths of strangers registered from July 1st, 1841, to June 30th, 1842, were 27—14 in Upper, and 13 in Lower Clifton; and in 1842—3, 30—22 in the Upper, and 8 in the Lower Division—0, of the 27 deaths in the former, and 17 of the 30, in the latter year, were from Phthisis.

I may just direct attention to the great disparity in the deaths of children, from convulsions, teething, &c. in the two divisions of the parish; 5 only out of 30, in the one, 16.6



## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by  
W. Kay, M.D.

per cent., and 24 out of 80, in the other, 30 per cent. These affections occurring, in by far the majority of instances, during the first year, will go far to account for the greater mortality of children at this age, amongst the lower class. Scarlatina, in like manner, was nearly doubly fatal, under the same relative circumstances.

In reference to the deaths at other ages, it is certainly remarkable, that in a population of 4,166 of the higher class, in Upper Clifton, no death is registered as occurring from consumption, and only one connected with the organs of respiration; whereas 10 deaths are referred to this fatal malady, and 10 to other affections of the lungs, in a population of 2,551 of the middle and lower classes. The deaths of 10 strangers, 9 amongst the gentry, occurred from phthisis; of the 41 deaths, 19 were males, and 22 females; they formed one-ninth of the total deaths, or about three persons in 1,000 died from consumption. The mortality from this cause is not traceable to any obvious connection with the occupations of the deceased, but more probably to an hereditary tendency to pulmonic disease. Shipwrights, carpenters, gardeners, labourers, &c., and persons engaged in various trades, being equally the victims. The mortality by diseases of the respiratory organs was 81, (30 in Upper, and 51 in Lower Clifton,) nearly one-fourth of the total deaths, or in the proportion of 6 in 1,000 of the population. Under the heads of fever and typhus, four deaths only are recorded, one case of fever having occurred in the Upper, and three of typhus in the Lower Division of Clifton. As I shall presently have occasion to allude to the relative number of deaths from fever in the courts, &c., in former years, it may be well to explain, that the writer is perfectly aware, that even the worst parts of the parish, the Hotwell Road, Jacob's Wells, &c., when compared with other places, and more especially the large, densely populated, and manufacturing towns, may be considered as almost exempt from this epidemic;—we, fortunately, even in fever years, enumerate the cases by tens, they, under ordinary circumstances, by hundreds. A similar remark will apply to scarlatina, measles, small-pox, &c.; one death only from measles, and none from small-pox, being registered during the year. Fifty three deaths, irrespective of those entered as "natural deaths," are attributed to "age," "debility," "atrophy," &c. more than one seventh of the total mortality. Though far from denying the propriety of assigning death occasionally, where there seems to be a general and gradual failure of the powers of life, to "old age," "natural decay," &c., these terms, it is to be feared, are too generally and indiscriminately employed. In many instances, at least, we may be allowed to doubt, whether more specific causes might not have been detected and reported to the registrar. Chronic, and possibly obscure affections of the lungs or heart, not unfrequently prove directly fatal to persons of advanced age.

TABLE No. 7.—THE DEATHS in the different MONTHS and SEASONS of the Year.

—	Deaths from Birth to 5 Years of Age.	60 Years and upwards.	70 Years and upwards.	Deaths at other Ages.	Total Deaths.
January . . . . .	10	17	12	18	45
February . . . . .	8	10	9	13	31
March . . . . .	21	12	9	11	44
April . . . . .	12	10	8	16	38
May . . . . .	10	6	5	13	29
June . . . . .	5	6	1	10	21
July . . . . .	12	3	1	14	29
August . . . . .	5	8	3	11	24
September . . . . .	8	4	2	12	24
October . . . . .	7	11	5	8	26
November . . . . .	4	8	7	13	25
December . . . . .	8	8	6	10	26
Totals . . . . .	110	103	68	149	362
—	Spring.	Winter.	Summer.	Autumn.	Total.
Deaths of young children	41	22	27	20	110
Deaths of old people .	32	33	15	23	103
Deaths at other ages .	40	41	37	31	149
Totals . . . . .	113	96	79	74	362
Deaths of young children	27	39	25	19	110
Deaths of old people .	22	39	15	27	103
Deaths at other ages .	39	42	37	31	149
Totals . . . . .	88	120	77	77	362

The first, is the ordinary arrangement of the seasons, considering February, March, and April as the spring months; May, June, and July the summer; August, September, and October, the autumn; November, December, and January, the winter months. The

second, is the arrangement observed in the Quarterly Returns of the Registrar-General; the spring quarter, including April, May, and June; the summer, terminating in September; the autumn, in December; and the winter quarter in March. The total deaths in the spring and winter, and in the summer and autumn quarters, according to either disposition of the months, are, in this instance, the same within one; thus,  $113+96=209$ ; and  $88+120=208$ — $79+74=153$ ; and  $77+77=154$ . So likewise, in reference to the deaths of children in spring and winter, 63 and 66. Summer and autumn, 47 and 44. Old people, 65 and 61—38 and 42; and the deaths at other ages, 81 and 81—68 and 68. These numbers, in both instances, illustrate, in a striking manner, and as regards all the three classes, but particularly the aged, the effects of cold and other privations to which the poor are more especially exposed, in augmenting the mortality. Of the 68 deaths of persons at 70 years and upwards, 26 occurred in spring, 25 in winter, 7 in summer, and 10 in autumn. Though less of privation and discomfort, in reference to the seasons, are experienced by the inmates of a poor house, whose supply of food and fire is not subject to the precarious contingencies connected with the weather, and whose position, therefore, affords a fairer criterion of the effects of cold alone; even in relation to aged persons, in this respect, more favourably situated, the increased mortality in the colder, and more variable months of winter and spring, is sufficiently apparent. Of the 31 deaths in the Clifton Poor House, 11 occurred in the spring and 12 in the winter—four of the remaining eight, took place in the summer, and an equal number in the autumn. The relative mortality, at the different ages, is shown in the following Table.

TABLE No. 8.

—	Deaths in Winter and Spring per Cent. of Total Deaths.	Deaths in Summer and Autumn per Cent. of Total Deaths.
Deaths at all ages . .	57.7	42.3
Deaths of children . .	57.2	42.8
Deaths at other ages .	54.3	45.7
Deaths above 60 years .	80.2	19.8
Deaths above 70 years .	75.0	25.0
Deaths in poor-house .	74.1	25.9

The following Table exhibits the mortality prevalent amongst the different Classes, as furnished by the mortuary registers:—

Gentlemen, professional persons, and their families	66
Tradesmen and their families . . . . .	75
Mechanics, labourers, and their families . . . . .	190
	331
Persons in Poor-House . . . . .	31
Total . . . . .	362

TABLE No. 9.

—	UPPER CLIFTON.				LOWER CLIFTON.			
	Population.	Deaths.	Per Cent.	Proportion.	Population.	Deaths.	Per Cent.	Proportion.
Gentry . . . . .	4,166	41	.9	1 in 101.6	..	26	..	..
Tradesmen . . . . .	1,404	33	2.3	1 in 42.5	..	41	..	..
Mechanics . . . . .	1,150	35	3.0	1 in 32.8	..	155	..	..
	6,720	109	1.6	1 in 61.6	7,314	222	3.0	1 in 32.9

The mortality of tradespeople, it will be perceived, is more than double, and that of the lower class, more than treble, the mortality amongst the higher class; and in the 41 deaths of the latter, are included those of 14 strangers, that is one-third (14—41) of the whole.

Excluding the (31) paupers from the calculation, as being placed in peculiar circumstances already explained (see † note, Table I, p. 77), by the addition of the actual age of every person at death, under each of these classes, and dividing the total by the number of dead in each class, the average ages are as follows:—

Clifton (Upper and Lower)	{Gentlemen, &c., 48 years Tradesmen, &c., 39 „ Mechanics, &c., 25½ „}	General average, 33 years.
Upper Clifton (alone)	{Gentry, &c. . . 48 years Tradesmen, &c. 34 „ Mechanics, &c. 31 „}	General average 38 years.

The data, given at p. 160 of Mr. Chadwick's 'Sanatory Report,' supply us with the means of comparison with other places:—

## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by  
W. Kay, M.D.

## APPENDIX.

Clifton.  
Report on its Sanatory Condition, by W. Kay, M.D.

TABLE No. 10.—AVERAGE AGE AT DEATH.

	Gentry, &c.	Tradesmen.	Mechanics.	General Average.
	Years.	Years.	Years.	Years.
Kendal . . . . .	45	39	34	36
Clifton . . . . .	48	39	25	33
Bath . . . . .	55	37	25	31
Four Metropolitan Unions	44	29	22	26
Leeds . . . . .	44	27	19	21
Manchester . . . . .	38	20	17	20
Bolton . . . . .	34	23	18	19
Liverpool . . . . .	35	22	15	17

Clifton, it will be seen, still maintains its favourable position, as previously shown by the Table of proportionate mortality. Had the more advanced ages from the poor-house been taken into the account, the result would have been still higher.

We proceed, then, to inquire, in what particular localities any marked deviations from these results are observable, and to what causes they may fairly be attributed. It is conceded at once, that that division of the parish, which I have called *Upper Clifton*, from its greater elevation and the superior purity and salubrity of its atmosphere, is more favourably circumstanced than the *Lower*—but, assigning to these conditions the full value to which they are legitimately entitled, there will remain a discrepancy, as shown by the Tables of Mortality, to be accounted for on other and very different grounds. This distinction I am anxious to place in its proper light. Were the residents of *Upper Clifton* to exchange places, that is, locality, with the inhabitants below the hill, each party retaining their respective habits—the one, still occupying houses equally spacious and convenient, in streets, &c., of similar dimensions and cleanliness—the other, transplanted with their streets, courts and alleys, under the accompanying conditions of dirt and density—though the exchange, in its effects upon the higher class, would, unquestionably, somewhat modify the existing results, the balance of health and longevity would still, I contend, be sufficiently preserved, strikingly to illustrate the principle advocated. The rate of mortality amongst the new occupants of *Lower Clifton* might be *greater* than it was in their former position; and their humbler, but now elevated neighbours, might not die in precisely the same ratio as before—and, yet, it may safely, I conceive, be assumed, that the latter would by no means rise so high, nor the former descend nearly so low, in the scale of mortality.

Though my connexion as physician to the Clifton Dispensary for several years has made me familiar with the localities of courts, lanes, &c. &c., and the physical and moral condition of the inhabitants, in lieu of submitting any statements of my own, I prefer, for obvious reasons, recording the testimony of others.

To the members, therefore, of the District Visitors' Society, to each of whom is allotted the surveillance of from 15 to 20 houses of the humbler class, and who must, consequently, be well acquainted with the habits, personal and household, of each family; I addressed a printed series of questions, calculated to elicit specific information upon the various points connected with our inquiry. Upwards of thirty of these papers were returned, with answers to almost every question. I have likewise, accompanied by my respected colleague, lately visited the whole district, carefully inspecting every court, cul-de-sac, &c., and, in many instances, the dwellings themselves, and can fully confirm the correctness of the visitors' reports in every particular.

Various circumstances combine to render the majority of the habitations in the Hotwell Road, and especially those in the courts, more liable to infection and disease; some of these, in relation to the locality itself, were noticed in our sketch of this portion of the parish, viz. the high ground in the rear of the houses on the south side, and the consequent obstruction to a free circulation of air; nor is the old river, since it was converted into a floating harbour, without its influence, at certain seasons, in augmenting this tendency. But to neither the one nor the other are, I conceive, to be ascribed nearly so much of the injurious consequences as result from the more serious evils of imperfect drainage, close and crowded habitations, filth, and a deficient supply of water.

**Drainage.**—The inconveniences arising from deficient or badly constructed drains and sewers, are by no means confined to the *Lower* district, or to the arrangements of an earlier period. From many of the sewers in *Upper Clifton*, which in all parts presents unusual facilities for carrying off liquid refuse, foul air is constantly escaping, and to an extent quite palpable to the senses. At the very top of Granby Hill, there is a surface-drain which assails the olfactories of every passenger; and another, which occurs to me at the moment, on Clifton Hill, equally offensive. But, what is still more inexcusable, Cess-pools are the only receptacles provided for most of the houses recently built, or in the course of erection. Stone being generally procurable on the spot, the excavations made for this purpose are, with a little additional masonry, readily converted into these abominable nuisances—the consequence is, that some of the *new* houses have already lost their tenants, the smells arising from the drains being altogether insufferable.

"The greatest blessing," writes an old inhabitant of *Upper Clifton*, "that could be conferred on the country, would be for the Legislature to pass an Act, compelling parties to make proper drainage and sewerage from all houses and buildings; for, such is the effect of the nuisance in the house which I occupy, that, when the reservoir is being emptied, it

tarnishes the brass and silver of the candlesticks, and indeed, every thing in the house of a metallic kind."—J. K.

The state of the Drainage, Condition of Houses, &c. may be inferred from the following remarks in the Visitors' Reports:—

"The *private* drainage in the Hot-Wells is bad; the same remark applies more or less to other parts of the parish, and in some cases to the public drainage."—N. B.

"Drains bad from *most of the houses*."—G. H.

"The drainage is very bad in many parts, *particularly from private houses*."—G. H.

"Drainage and sewerage not good."

"In some instances quite the reverse of good."

"There is a want of proper drains."—S. W.

"There is a large drain under one of the houses, which is often very offensive—the inhabitants often complain of it."—S.

"Drainage not good, though every facility exists for making it good."—S. K.

"Drainage not sufficient—*receptacles* are used which require to be emptied often, and are very noxious."—C. W.

As regards *Density of Population*, &c., the following observations occur:—

"Some of the houses are very full, from the practice of taking lodgers to help to pay the rent."—B.

"Some of the rooms are crowded. In one room, in Y's house, there is a man, his wife, and six children."—S.

"One house has four families; the housekeeper has four children, the eldest girl grown up; lodgers on the first floor, man and wife, and two babies, in one room. Second floor, mother and grown girl; two others, 12 and 17 years old; these have *one* room; all sleep in *one* bed. On the same floor is a widow and son of 16, in *one* bed also."—B.

"Rees's, Waters's, Jones's, Pembroke, and many other *courts*, with parts of *Green-street*, more especially crowded."—N. B.

"In certain localities, likewise, where the rooms, &c. are underlet to strangers seeking casual lodgings, to obtain charity by begging, &c."—N. B.

"Houses in *Green-street* and in the *Hotwell-road*, more especially crowded. One small house in *Green-street* contains 36 inhabitants."—J. K.

"One house in North *Green-street* contains seven families."—G.

"In the five houses which are at present occupied, 58 persons, including children, reside. The last house in this section (No. 7, *Green-street*,) has contained as many as nine large families."—M. S.

The want of *Ventilation* is thus spoken of—

"The poor do not generally ventilate their houses."—S. W.

"The rooms of some cottages have only borrowed, or perhaps, no light; and consequently no ventilation."—B.

"Ventilation very little attended to."—G. H.

"Not nearly so much as could be wished."—H. S.

"Ventilation in *Norman's-alley* quite impossible."—A. R.

"In district, No. 3, there was no opening in the window—the landlord refused to pay the expense of making it; and it was at last paid for by the visitor."—Sh.

"In another room, in the same house, live a man, his wife, and three children—the window does not open, and the only ventilation is through the broken panes of glass."—S.

"The windows *small* and seldom opened—their rooms are generally close."—S.

*Dirt* is thus noticed:—

"Want of cleanliness the occasion of disease."—N. B.

"There are several houses in *Gibbons's-court* in a very dirty state: a little white-lime would be of great service, and I think it would be of benefit to their health."—H. C.

"The want of repair in many houses, and the want of white-washing and painting, must prove in every way detrimental to health."—A. R.

"The walls of the houses and rooms are very dirty, from want of white-washing."—S.

"Interior of houses want white-liming more frequently."—G.

"With few exceptions (*Hotwell Road*) they have no sheets to their beds; and the rags that cover them are seldom or never washed—this must promote disease."—S.

"The filthy state in which the houses of the labourers, mechanics, &c. are permitted to remain for want of white-washing or liming, vastly encourages dirty habits and sickness. Some houses and apartments have not been white-limed for 14 or 20 years, although densely inhabited. A power (the same intelligent reporter adds) to prevent such a state of things ought to exist—mercenary landlords refuse—they ought to be compelled—it is a great evil."—N. B.

"Their rooms and passages, generally speaking, are in a very dirty state."—G.

"The usual mode of having the privies so close at the backs of the houses, in confined situations, is most unhealthy."—C. W.

"Other conveniences are much wanted for decency."—B.

"The houses in the upper court of *Whittaker's-buildings* are so much out of repair as to be a disgrace to the landlord; so are *Harman's-cottages*. The walls in some of the cottages are never dry, owing to the pipes not being attended to."—B.

"The dampness of some of the cottages is the cause of frequent attacks of illness."—B.

"C. J.'s, Jacob's Wells, I think unfit to be inhabited—unsafe in windy weather. Three individuals live and sleep in one room on the ground-floor, owing to the dilapidated state of the upper rooms."—H. C.

## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.



## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.

Water, it would seem, is by no means deficient; but a very proper distinction is made between the actual supply, and the means of obtaining it:—  
 “Plenty of water in the Hot-Wells, but at inconvenient distances; and in many instances not good. The water in private houses in the Hot-Wells generally not good; very scarce at Durdham Down.”—N. B.

“The water from Lambwell-court is excellent; but, owing to the fatigue of bringing it up the hill, it is not used in sufficient quantity for comfort.”—B.  
 (Many houses in the Hotwell Road, I may add, at a distance of a quarter of a mile and upwards, derive their only supply from this source).

“The inhabitants of Gibraltar Rock, except in one instance, have to fetch their water from a considerable distance.”

“Supplies of water very deficient, and obtained with much difficulty. There are some small cisterns, but not sufficient for cooking or cleanliness, except in very rainy weather.”—G. & S.

“Water not easily obtained.”

“The supply of water is not good, nor easily obtained.”—G.

“Badly supplied with water.”

“Fresh water from the Float easily obtained, but bad.”—C. W.

There is one cause, contributing its baneful influence, and fearfully augmenting all the other moral and physical evils by which the lower classes are surrounded, that must not be passed over—I allude to their habits of drinking and intoxication.

Whether it be the miserable state of their own households, or the unusual facilities and temptations to its indulgence, which beset the mechanic's path at almost every step in the Hotwell Road, combined, probably, with the receipt, in many instances, of high wages, certain it is that this pernicious vice prevails to a lamentable extent, more especially amongst the class we have just named. It has not escaped the notice of the District Visitors.

“Between Trinity Church and the Wesleyan Chapel (the two extremities of the Hotwell Road), distance about three furlongs, there are 20 shops for beer, at six or seven of which spirits are sold. These cannot conduce either to the health or morality of the inhabitants.”—G. H.

On one side of Cumberland-buildings, Cumberland Basin, in a frontage of eight houses, there are five beer-shops.

“The large number of beer-houses in Clifton tend very much to the demoralization of the mechanics and labourers.”—J. B.

In replying to the inquiry respecting their habits of life, &c., the same competent witness states:—

“The men, particularly where large wages are paid, are generally improvident and inclined to drink, and, therefore, their families not cleanly.” He further adds:—“Generally well able to support themselves, but for beer.”—J. B.

Of another portion of the parish it is stated:—

“The men demoralized by their associates under the rocks, being obliged to spend part of their wages every week in drink.”

The beer-house in this neighbourhood is generally, I am told, filled on Sunday by persons in a state of intoxication.

The localities to which the preceding statements more immediately apply are Green-street, the Hotwell Road, and Jacob's Wells—and they present, it will readily be allowed, a mass of physical evils not necessarily attaching to the poorer classes, but, on the contrary, for the most part admitting of actual prevention or removal.

That sickness and disease should follow in their train is a natural and almost inevitable result. To establish our point, however, it will be necessary to show, not merely that where these evils prevail, disease and an increased rate of mortality are concomitants, but that the latter abound, in a degree and to an extent, proportionate to the existence of the former—in other words, as cause and effect, and in a corresponding ratio.

Though I am not able to state the relative numbers living in the streets and courts, &c., there can be no doubt that a much greater density of population, consisting, with very few exceptions, of persons decidedly of a lower grade, both morally and physically, is invariably to be found in the latter. Most of the dwellings are lodging-houses, many of the rooms being again sub-let. This will account for the number of persons congregated in the courts, and the absence of any approach to cleanliness, either personal or domestic. When the habitation is dirty, personal neglect almost invariably follows; if the disposition to better habits ever existed originally, it is quickly laid aside, overcome by the universal prevalence of vicious example. It is in these filthy abodes that lodgers of the lowest class find their appropriate accommodation. I will mention two or three courts in illustration of these statements.

Rees's court, built within the last 20 years. The entrance from the Hotwell Road is through a long covered passage, about five feet in width, contracted to four feet, and opening at a right angle upon the first houses, which are necessarily confined from the nature of the buildings included within this area, and leading up a flight of steps to smaller dwellings still more unfavourably situated.

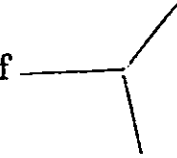
In this, as in the court passages generally, deposits of an unseemly and offensive character are by no means uncommon.

The upper buildings consist of five houses, of three stories, on each side, occupying

a frontage of 50 feet, with an intermediate space, forming the court, of only eight feet,\* backed by a high wall at the end, and this again surmounted by a row of buildings, altogether impeding ventilation. The internal arrangement of the dwellings is equally bad; one room below, nine feet square and nine feet high, leads by a narrow staircase, barely allowing space for passage, to two apartments of similar dimensions above—the upper, the attic, immediately under the roof—the ceiling sloping accordingly—and the window placed so low down in the front as altogether to preclude the escape of foul air. There are 79 persons living in these 10 houses. The proprietor and builder is a man of considerable property. The average rent is from 8*l.* to 9*l.*

Jones's court consists of an upper court 9½ feet, and a lower 8½ feet wide, with no outlet whatever. Sixteen houses, of two or three rooms each, at a rental of 8*l.* 8*s.*, are inhabited by 116 persons. The drainage is defective, and the whole place in a very dirty condition. Some of the houses have not been white-washed or painted for ten or twelve years.

Avon-square is similarly divided into upper and lower, and, though by no means confined (with the exception, perhaps, of three or four houses at the entrance), it is not remarkable for cleanliness—the drains are bad. The average rent of the 13 houses is about 10*l.* 10*s.*; two are void, the remaining eleven occupied by 117 people.

Water's-court is a closed court, in the form of  the width of the entrance being

eight feet—the left branch four, and the right ten feet. The dwellings vary in size, and consequently, in the number of rooms—two having six, three five, two four, and the others generally three each; they contain 136 inhabitants. The drains are offensive, and the habits of the people the reverse of cleanly. There is no water, hard or soft. Few or none of the houses, with the exception of the three forming the right branch, are ever cleaned or white-limed; one dwelling had not undergone either of these processes for ten years. A widow, with five children, occupied a single apartment in it, which served for sitting and sleeping room, kitchen, wash-house, &c. &c. Two other houses accommodated respectively, 25 and 26 persons. The rents are from 3*s.* to 6*s.* per week.

Norman's-alley will afford us a good specimen, on a small scale, of a felicitous combination of courtly abominations.

The approach is through a dark, dirty passage, 4 feet wide, and 5 feet 10 inches high; the first object encountered being an open, public privy, in a state of disgusting filthiness; a little beyond, are three houses, or rather hovels, scarcely more decent, two occupied, and one uninhabitable; they contain three small rooms, and fourteen squalid, wretched-looking inmates, apparently in want of the most ordinary comforts, and generally on the parish sick-list; their moral condition is equally low.

A drain passes under one of the houses, and is in a very offensive state: the drainage of the upper buildings coming down immediately through these dwellings. In wet weather, there is commonly water, to the depth of a foot or more in the vacant dwelling; the others, from their situation close under the hill, and with no outlet, are necessarily damp and dark: eight or ten steep, and from their broken condition, dangerous steps, in one corner, lead to this disreputable place, which is thus characterised by the visitor of the district: “The houses in Norman's-alley are very mean and wretched.” “Norman's-alley, the visitor believes, never escapes, from its closeness and wretched accommodations, the before-mentioned diseases, (low fever, measles, and small-pox), and in several instances, where cleanliness was not attended to, the small-pox proved fatal.”

“The dampness of the most miserable dwellings in Norman's-alley led the medical attendant of an invalid living there, to say, that he scarcely dared to give her medicine in such a place.”—A. R.

The “fatality” here alluded to, has reference to the deaths of three persons from small-pox (confluent, I believe) in 1842.

It will hardly be credited that these wretched hovels are let at a high rent, the repairs being done by the tenants—the latter circumstance may, probably, account for the dingy walls and broken ceilings—the whole place (passage, court, and buildings,) is a disgrace to any parish, and its equal, in all the worst features, to be found in few.

Lambwell-court lies just beyond, at the corner of Woodwell-lane, and is, in every respect, a fitting neighbour. From the position of the pump, which is a public one, the entrance is always very wet and dirty. Directly opposite to two of the four houses, and separated by a space of only 4 feet, is a high building, excluding light and air. The inhabitants are 32 in number, very poor, and “living in little better than a bog;” half-a-crown is the weekly rent, and no whitewashing or painting ever done by the landlords.

The preceding descriptions would apply, with slight local modifications, to all the courts. There are three on the north, and eight or nine on the south side of the Hotwell Road. Two of the former, and six of the latter, either wholly or partially closed courts.

\* In the local Act, “For the promotion of the Health of the Inhabitants of Liverpool (June 18th, 1842), the minimum width of streets and courts in future to be built is fixed at 24 feet for the former, and 15 feet for the latter.” (“On the Physical Causes of the high rate of Mortality in Liverpool,” by W. H. Duncan, M.D., page 64.)

## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.



## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.

Five of the seven courts in Jacob's Wells come under the same description; and two of the four in Berkeley-place.

None of the houses in the courts are ever painted or white-limed, except for new tenants.

"There is, perhaps, no mode (remarks Dr. Chisholm in the paper alluded to) of acquiring a knowledge of what may be called statistical pathology, so perfect as a parochial or district dispensary." Perfectly coinciding in the truth of this observation, I proceed with increased confidence and satisfaction to notice some of the results furnished by the records of the Clifton Dispensary. It is only due to the gentleman holding the office of house-surgeon, to premise, that from his uniform attention to the patients, and the good order which obtains in all the arrangements, the charity was never in a more flourishing state, or the admission-notes of the subscribers in greater request, than at the present moment.

There is not, I believe, a single 'Visitor's Report' that does not speak in the most gratifying terms of the value attached by the poor to the medical gratuitous assistance which they thus receive.

I may be allowed this passing allusion, inasmuch as the high favour in which we stand, proves how generally the charity is resorted to by the humbler class, for whose benefit it was established, and how excellent a criterion it proportionably furnishes of the relative number in the parish who suffer from disease, and of the particular nature of their maladies.

The number of cases, medical, surgical, midwifery, and vaccination, treated in 1840, was 1468, and the deaths 58—3·2 per cent. In 1841, cases 1547, deaths 79—4·9 per cent. And in 1842, cases 1621, deaths 60—3·7 per cent.

The following, at the suggestion of the medical officers, is the plan adopted in recording the cases under treatment:—

"No. of Note—Date of Admission—Patient's Name—Age—Single or Married—Place of Abode—Occupation, &c.—Disease—Physician Consulted—Results—(i. e.) Relieved—Cured—Died—Date—Observations"—(Post mortem appearances, &c.)

This arrangement, and the regularity and care with which the entries are made, renders it at all times easy, by a casual inspection, to ascertain the prevalence or absence of disease, epidemic or otherwise, in any portion of the district. Such a register, in short, affords, what I consider every medical institution in the kingdom ought to be capable of supplying, a valuable summary of medical statistics.\*

Considering the greater or less prevalence of Fever, throughout the year, as furnishing the best general indication of the healthy state or otherwise of a neighbourhood, I noted down from the Dispensary books every case which occurred in the years 1840, 1841, and 1842, with the accompanying particulars of its character, locality, &c. &c.

The year 1840, it may be remarked, was strictly a Fever season, the disease for the most assuming a Typhoid character. In 1841, it would appear to have been superseded in some degree by small-pox. In the following year, the cases of fever were more numerous than in 1840, but of a much milder type—Gastroenterite. In 1840, the number of cases was 94, and the deaths 13—in 1841, 50 and 4 deaths, and in 1842, 144 cases and 5 deaths.

TABLE No. 11.

	Cases.	Deaths.	Upper Clifton.		Lower Clifton.		Durdham Down, &c.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1840...	94	13	2	0	88	12	4	1
1841...	50	4	0	0	49	3	1	1
1842...	144	5	8	0	125	5	11	0
Total.	288	22	10	0	262	20	16	2

The number of the population of Lower Clifton, of the class of persons likely to apply to the Dispensary, is about 5500; of Upper Clifton, 500; Down, 650—together 1150: that is, rather more than *one-fifth* of the above.

In comparing the number of fever cases which occurred in each of these localities, it appears, that in the 5500 inhabitants of the Lower Division, there were 262 cases, or 4·7 per cent.; in the 500 of the Upper, 10 cases, or 2 per cent.; and in the 650 of the Down, 16 cases, or 2·4 per cent.; together 1150, and 26 cases, or 2·2 per cent. This proportion is nearly in the same ratio as the *general mortality*—3·4 Lower, and 1·6 Upper.

\* It is, surely, to be regretted, that the records of our hospitals and infirmaries are, generally speaking, so little available for purposes similar to the present inquiry. The primary object of such establishments is, undoubtedly, the relief of the sick poor; and in no way, it is conceived, could this be indirectly more efficiently promoted than by a well-arranged registry of their complaints, in connection with the locality, occupation, and general circumstances of the applicants. The internal economy and management of our public medical institutions is, for the most part, admirable. In the important point alluded to, the *statistics of disease*, there is great room for improvement. The Bristol infirmary, I am well aware, and have much pleasure in stating, forms an honourable exception; it is not more distinguished for the extreme cleanliness and good order which characterize its general arrangements, than for the careful and systematic method in which its medical records are conducted. The particulars noted in the entries of the cases are, if I mistake not, very similar to those observed in the Clifton dispensary.

TABLE No. 12.

CASES OF FEVER and DEATHS in 1840, in the Streets and Courts of LOWER CLIFTON.

	Cases.	Deaths.	Cases in		Deaths in	
			Courts.	Streets.	Courts.	Streets.
Fever .....	64	2	26	38	1	1
Typhus .....	16	8	5	11	3	5
Typhoid .....	14	3	10	4	3	0
Total ...	94	13	41	53	7	6

One, of the two fatal cases from common fever, occurred in World's-End-lane, and the other in *Cottage-court*.

Of the 8 deaths from typhus, 3 took place in *courts*, viz. 2 in *Rees's* and 1 in *Berkeley court*—4 in one house (47, Mardyke-row), (to which I shall have occasion to revert,) and 1, again, in World's-End-lane.

All the 3 deaths from fever, assuming in the later stages a typhoid character, occurred in *courts*—1 in *Rees's*, 1 in *Waters's*, and the third in *Providence-court*.

Thus, out of the total number, 13, who died from fever in one year, 7 were persons living in *courts*.

From the above Table it will be seen, that of the 5 typhus cases in *courts*, 3 proved fatal, and 5 out of the 11 in *streets*, &c., the former being in the proportion of 60, and the latter in that of 45½ per cent.

Of the 10 typhoid cases in the *courts*, 3 died—no death took place amongst the 4 patients elsewhere. And again, of the 26 who suffered from common fever in *courts*, 1 died; and only 1 in 38 persons attacked who lived in *streets*, &c.; or, taking the total number of cases in each instance,—

41 in *courts*, and 7 deaths—17 per cent., or 170 in 1000.  
53 in *streets*, and 6 deaths—11½ per cent., or 113½ in 1000.

And this comparison, be it remembered, is made between two localities in the *same district*, both favouring the development of fever, and in many respects similarly circumstanced—the same deleterious agencies at work in both instances, their combined influence tending to the production of disease and the increase of mortality—the like noxious elements in operation, though not in an equal or uniform degree—close and crowded habitations, and their necessary consequence, a vitiated atmosphere, existing in the *streets*, but neither so generally, nor to so serious an extent, as in the adjoining *courts*.

But there is *one court* which figures in this death-roll so conspicuously, that it must pass in review a further scrutiny. This is *Rees's-court*, described at pages 9 and 10.

In the year under consideration, 1840, 11 cases of Typhus appear on the books of the Dispensary as occurring in this court, three of which were fatal; others were attended by the surgeon of the Clifton Union. It prevailed in the greatest intensity, from January to May, but was not extinct till several months later. So formidable a character did it at length assume, that persons were with difficulty induced to attend upon the sufferers, from dread of exposing themselves to the risk of infection in so confined a space. It was in the upper room, the attic, the heat of which, in summer, the occupants describe as insupportable, their construction not admitting of anything like ventilation, that the unfortunate fever-patients were immured. The surgeon of the Dispensary, whose official duties necessarily render him familiar with noxious effluvia of every kind and degree, assured me, that on several occasions during his attendance, the feelings of painful spasmodic oppression, induced by the inhalation of the foul air, were so overpowering, that he was compelled to remain outside. My own sensations were very similar—constricted respiration, accompanied by nausea. It is only due to this gentleman, and to the medical officer of the Poor Law Union, to state, that, upon their representations, every comfort and alleviation which circumstances admitted, were liberally supplied by the parish authorities—bed-linen and other necessities being considerably furnished. To these and other judicious arrangements, and to their own prompt and indefatigable attention, may, certainly, be ascribed the recovery of several patients apparently in a hopeless state. Notwithstanding the malignancy of the disease, three only out of the whole number died. This court is well known to the visitors of the district.

"Fever and measles have been *very severe* and of *long continuance* in *Rees's-court*, when prevailing elsewhere."—G. H.

"Fever and other diseases are more *frequent* in the *courts*, particularly *fever* in *Rees's-court*."—N. B.

That this character should specially apply to this particular court, will not appear surprising, when, in addition to its extremely confined arrangements, the fact is kept in view, that the houses are never white-washed, except upon the occasion of their receiving new tenants. Were any confirmation of this statement wanting, it is supplied by the circumstance that, at the period in question, after the protracted prevalence of the fever and the occurrence of three deaths, repeated representations as to the absolute necessity of a thorough purification and cleansing proving ineffectual, the parish authorities were literally obliged to take the office upon themselves: by their directions, buckets, brushes,

## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.



## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.

and other necessary materials were brought from the workhouse, and the whole premises white-washed.

We need not stop here, nor, indeed, have we space to devote to the much disputed question, whether, in this instance, the malaria, arising from the close and vitiated state of the atmosphere, dirt, &c., &c., originated the fever, as the efficient cause, or merely favoured its extension when once introduced. It is sufficient for our immediate purpose to have shown, that the disease, however generated, assumed, under these circumstances, a virulence and activity which did not mark its progress where such conditions were absent. That the noxious exhalations arising from the decomposition of animal and vegetable matter, the foul air of drains, cess-pools, &c., greatly favour and countenance, so to speak, fever, will scarcely be disputed, even by those who contend for its specific origin. This leads me to notice, in illustration, the cases which occurred in one house, No. 47, Mardyke-row, in the year 1840. There is a little history connected with this particular locality, too interesting to be passed over. From the details already given, four deaths, it will be seen, took place out of the seven cases under the same roof.

Mardyke-row forms a continuation of the Hotwell-road, and enjoys this great advantage over the latter, that there are no buildings in front, their place being occupied by iron-railings—nothing, therefore, to intercept light and air. In a round of inspection of the courts and other nuisances the other day (in furtherance of the object of Her Majesty's Commissioners), the number on the door induced me to enter the house for the purpose of ascertaining, if possible, how it happened, that this particular habitation, presenting externally precisely the same aspect as its neighbours, should have been singled out as the *locus* of typhus in a very malignant form. To all my inquiries respecting the drains, &c., the replies of the landlady were perfectly satisfactory; there were no offensive smells, no accumulation of refuse or other nuisances; the rooms were not over-crowded, and the occupants were much upon a par with their neighbours. I was on the point of leaving the house without obtaining any clue to the mystery, when it occurred to me to enquire, whether the premises had *always* maintained their present good character for cleanliness and immunity from disease? "Oh, no, Sir," was the answer; "three years ago," (1840), "when I first came here, the sewer was choked up and very offensive, and required to be emptied, which was accordingly done;" and then, calling my attention to a flight of steps at the back, leading to a kind of platform, walled in and surmounted by the usual high rocky ground common to the row, she continued: "along the whole of this space was a range of pig-styes, covering the ground with dung and fluid filth, which ran down the steps so that it was impossible to tell whether they were stone or brick, or, in fact, to distinguish any steps at all; they were never in a state to be used." The good woman knew all about the fever and the deaths, and of her own accord referred them to the causes just specified. The detail will be complete when it is added, that, though 16 cases of fever have subsequently occurred in the row, and one or more in the adjoining dwellings, not a single fever patient has been visited by the medical officers of the Clifton Dispensary in this individual house, since its purification, and the removal of the pig-styes, with their accompanying filth, in the year 1840.

It would be difficult, I think, to cite an instance of physical cause and effect in more direct bearing than is presented by these circumstances. In casually mentioning them last week to a medical friend, he informed me, that one of the most intractable cases of fever he ever attended, occurred within two doors of the residence in question; the subject of it was a young man attacked with typhus, in whom the symptoms were marked by extreme depression of the vital powers, and unusually protracted convalescence.

He had two or three relapses which reduced him to a very low state, and greatly perplexed his medical attendant. It was at length discovered, that, directly underneath the window of the patient's room, there was a receptacle for ashes, vegetables, &c., &c., the latter being in a state of the most offensive putridity, the effluvia of which readily found its way into the apartment. Upon his removal to another locality, no fresh relapse took place, and the young man presently recovered. It would be easy to multiply examples of the same close and obvious connection between atmospheric impurity and disease, especially when accompanied with filthy habits, from almost every court and street in the district.

In Jacob's-wells and the courts adjoining, some of the worst cases, without exception, of Typhus fever which I ever witnessed, occurred in the autumn of 1838. When one individual of a family was attacked, so thoroughly did the dwelling become impregnated with the noxious virus, that the other members, for want of proper isolation, almost invariably suffered. Wine and other stimulants were administered with manifest advantage. The disease, in several instances, proved fatal: the recoveries were very slow, and retarded in some cases, by the occurrence of sphacelus.

But the deleterious effects arising from malaria, though more generally developed, and acting with increased virulence in courts, alleys, and similarly crowded situations, are, by no means, confined to such localities. On high and abruptly shelving ground, lying perfectly open, and called, from its rocky character, Gibraltar, overlooking the float, and free to every breeze under heaven, are scattered some half dozen small cottages. Two years ago, I visited one of the occupants, a hale, muscular man, by occupation a labourer, suffering from fever, with gastro-enteritis. Leeches and other appropriate treatment had already been adopted, with manifest relief to the irritation of the mucous surface and the general symptoms. The fever had now assumed a Typhoid character, attended by prostration, to a degree, which it was difficult to connect with the milder form of the previous

affection. Upon entering the room, a smell of the most foul and offensive nature, and which, on so elevated a site, I was little prepared to encounter, betrayed the secret mischief. I presently discovered that a door, close to the head of the patient's bed, communicated directly with the pig-stye; and anything more disgustingly loathsome than the intolerable stench which escaped, from the mingled odours of sour wash and excrement, it is impossible to conceive. I instantly represented the urgent necessity for the poor man's immediate removal, or his life would, obviously, be the sacrifice. The suggestion was disregarded; the pigs were fed, and I suppose fattened, and their master died—and thus stand the animal and human dwellings, in their relative proximity, to this very day. Let it not be said that I am pushing the point too far—ascribing effects to causes inadequate to their production. In the opinion which I have ventured to express, that the *fatal result*, if not the *original disease*, was, in this case, referable to the noxious effluvia inhaled by the unfortunate inmate, I am amply borne out by numerous records of similar occurrences. So long as he remained in good health, and only returned to his dwelling at night, and during the intervals of daily labour, he might breathe the vitiated atmosphere with comparative impunity; but when, in consequence of illness, however induced, he became a constant and passive sufferer in the midst of the foul effluvia, the circumstances, both topically and individually, were sufficiently changed, to render him, with enfeebled powers of resistance, incapable of coping with their morbid influence. One more instance may be mentioned:—A physician recently attended several members of a family, occupying a spacious private and detached residence, on an elevated and decidedly healthy site, in consequence of their being attacked with fever, of a low typhoid character, obviously occasioned by the effluvia from the cess-pool; so vitiated was the atmosphere of the house, that, after paying the usual visit and leaving it in his carriage, the medical attendant was compelled, by feelings of sickness, to alight, and only experienced relief from the act of vomiting. What must be the effects of similar malaria, in the confined, crowded, and dirty habitations of the poor, under circumstances precluding its dilution or escape, it is not difficult to imagine.

The Dispensary Records furnish us with the following cases and deaths from Scarlatina, in the years 1840, 41, and 42:—

TABLE No. 13.

	Cases.	Deaths.	Per Cent.	In Courts.		Per Cent.	In Streets.		Per Cent.
				Cases.	Deaths.		Cases.	Deaths.	
1840...	23	4	17.3	10	3	30.0	13	1	7.6
1841...	73	9	12.3	20	3	15.0	53	6	11.3
1842...	52	6	11.5	15	2	13.3	37	4	10.8
Total	148	19	12.8	45	8	17.7	103	11	10.6

45 cases in courts and 8 deaths = 17.7 per cent., or 177.7 in 1000.  
103 cases in streets and 11 deaths = 10.6 per cent., or 106.7 in 1000.

Total 148 19

4 cases, in 1840, occurred in *Rees's-court*, and 1 death in *Lambwell-court*.  
5 cases, in 1841, " *Jones's-court*, and 1 death.  
4 cases, in 1842, " " and 1 death.

A brief summary of the preceding statements and facts will bring the subject more clearly under our view:—

Clifton, in soil, situation, and climate, is decidedly a healthy locality. The general mortality is less than any of the towns quoted, with the exception of the metropolis, and infantile mortality the least—more persons attain to advanced ages, from 50 to 70; and from 70 years upwards, Bath only, in reference to the latter ages, and that in a very trifling degree, excepted. Kendal is the only place mentioned in the list, in which the average period of life is higher—Clifton is nearly double that of Liverpool, being in the proportion of 33 to 17 years—it enjoys a comparative immunity from disease. Its two divisions, Upper and Lower, present a marked contrast in almost every particular—the nature and extent of this difference are by no means reconcilable with the mere circumstance of locality; dirt, density, and defective drainage exert a much more powerful influence in the deterioration of health and the increase of mortality; considerably more than double the number of persons, in proportion to the population, dying *below* than *upon* the hill; and even in *Upper Clifton*, the deaths of young children, in the three classes of gentry, tradesmen, and mechanics, are in the ratio of 6, 12, and 15. The prevalence of Fever and other diseases, and their increased virulence and activity, are mainly referable to noxious causes, and add considerably to the general mortality. Disease and deaths are more frequent in the courts than in the adjoining streets—deficient ventilation, filthy habits, and crowded dwellings, being the chief agents in producing these results.

Many of the preceding deductions having been drawn from very limited data, and from the occurrences of one year, (1841-2); another, it may be urged, would furnish different results. To meet this objection, I examined the Mortuary Registers for the past year, from July 1st, 1842, to June 30th, 1843, which supply the following conclusive facts:—

## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.



## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.

TABLE No. 14.

	Total Deaths.	Upper Clifton.	Lower Clifton.
1842 . . . . .	362	109	253
1843 . . . . .	297	97	200
Deaths under 5 years:—			
1842 . . . . .	110	30	80
1843 . . . . .	105	31	74
1842—Deaths from fever . . . . .	5	1	4
„ from scarlatina . . . . .	22	2	20
„ from measles . . . . .	1	0	1
Total . . . . .	28	3	25
1843—Deaths from fever . . . . .	11	2	9
„ scarlatina . . . . .	4	1	3
„ measles . . . . .	17	3	14
Total . . . . .	32	6	26

TABLE No. 15.

DEATHS of CHILDREN, from Birth to Five Years of Age, in the Parish of Clifton, in 1842 and 1843.

	1842.	1843.
Under 1 year . . . . .	57	57
1 to 2 years . . . . .	23	26
2—3 „ . . . . .	10	9
3—4 „ . . . . .	8	7
4—5 „ . . . . .	12	6
Total . . . . .	110	105

The following numbers exhibit the relative mortality in Upper and Lower Clifton, from the first year of the registration in 1837-8 to the 30th June, 1843, inclusive, making a period of six years. In 1838, Upper, 94—Lower, 181; 1839, 104 and 175; 1840, 99 and 193; 1841, 123 and 259; 1842, 109 and 253; 1843, 110 and 187. In the year 1843, the deaths as given in the above Table (14), and supplied by another hand, are 97 and 200—a proof, at least, that, where any doubt arose as to the locality to which the deaths belonged, in the examination conducted by myself, they were assigned to the Upper Division. Still, it will be perceived, that the total number of deaths which occurred during the six years in Lower Clifton was 1248, and those in Upper Clifton 639—very little more than half.

The uniformity in the results is certainly very remarkable, and goes far to prove the action of fixed and permanent causes—it is difficult to imagine a closer statistical approximation. I omitted to notice in its proper place, that during the prevalence of cholera in 1832, 60 deaths are recorded in the parish register of burials—59 having occurred in Lower, and only one in Upper Clifton, viz.: 2 in Green Street; 29 in the Hotwell Road; 11 in Lime-kiln Dock; 6 in World's-end Lane and Whittaker's Buildings adjoining; 10 in Jacob's Wells; and 1 in Cumberland Basin. The single death upon the hill, took place on Durdham Down. Long prior to the present investigation, during my ordinary attendance upon the patients of the Clifton Dispensary, and especially those suffering from fever, I had been strongly impressed with the necessity of some measures being adopted to improve the dwellings, and to correct the numerous physical evils by which the poorer classes are surrounded to so formidable an extent. Upon the occurrence of any epidemic, contagion is fostered in lieu of being checked, and spreads with a virulence and rapidity utterly unknown amongst the families of the higher classes of the community. I may confidently appeal to professional men, whether they ever witness fevers or other diseases assuming elsewhere, anything approaching to the malignant and fatal character which too often marks their progress amongst the poor.\* Much is doubtless referable to the superior comforts and precaution of the one class, in contradistinction to the privations and neglect of the other. At the same time, I am convinced, that the magnitude of the mischief is traceable to causes, not inherently or essentially attaching to the poor, *quasi* poor, but to their needless exposure to many noxious and positive influences, internal and external to their habitations, which admit of ready correction or removal—I allude, in particular, to those previously enumerated:—Defective drainage; imperfect ventilation; crowded and badly constructed dwellings, and want of cleanliness—the latter being connected with the absence of proper supplies of water.

And why, let me ask, should persons be allowed to erect human habitations, in situations and in construction, so palpably at variance with every principle of health or convenience?

What right has any man to crowd human beings, poor though they be, into a space utterly incompatible with wholesome, not to say comfortable, existence?

\* In illustration of this remark, I may mention the following cases of deaths from scarlatina, which were communicated to me by Mr. Hartley, having caught his attention in examining one of the quarterly returns from the district of St. Augustine. Three children, two under the age of five years, were attacked in the month of November, and died upon three following days. The nurse in attendance communicated the infection to two of her children, who likewise both died within a day of each other. A neighbour carried the disease to two other children, to both of whom it proved fatal—one dying on the 25th, and the other on the 28th December.

## APPENDIX.

## Clifton.

Report on its Sanatory Condition, by W. Kay, M.D.

Upon what grounds does any one presume to confine this less fortunate portion of his species within limits infinitely too small, and obviously insufficient, for the maintenance of the healthy functions of vitality?

What avail public generosity and private benevolence, our hospitals and dispensaries, if their funds are to be expended, and their wards are to be peopled with the inmates of these dens and hovels of infection? It is sacrificing the charity of the many, to the cupidity and recklessness of the few; it is catering for the victims of a sordid and unprincipled speculation.\*

If prevention be better than cure—precautionary means wiser than remedial arrangements—the counteraction of existing and immediate mischief more judicious than its subsequent and tardy correction—then is it the duty, as we doubt not it will be the wisdom, of the legislature, to enact laws that shall meet the crying exigency of the present evils, and rectify, so far as may be, the abuses of the past. It is in the perfect conviction, that parliamentary interference alone is equal to the undertaking, and that nothing short of specific and positive enactments are adequate to the difficulty, that I have ventured, under the direction of Her Majesty's Commissioners for the Health of Towns, to point out, without reserve or hesitation, some of the grievances specially affecting the lower classes, and more urgently demanding redress.

Had leisure permitted, it would have been easy, within our own immediate neighbourhood and observation, to have added to their number, and proportionably increased the amount of their enormity.

## CITY OF BRISTOL.

City of Bristol.

HAVING been requested by Her Majesty's Commissioners for the "Health of Towns," to ascertain the number of deaths that occurred in the different districts during the past year, from July 1, 1841, to June 30, 1842, and the ages of the dead, with the view of showing the relative local mortality, and the average term of life, in Bristol and Clifton, I consulted, at their request, the Superintendent Registrar, Mr. Hartley, to whose courtesy, in affording every assistance and facility in his power in furtherance of the investigation, I have much pleasure in acknowledging my grateful obligations.

The city of Bristol is divided for the purposes of registration into the five following districts: 1. Castle precincts, including 11 parishes—Castle precincts, St. Ewen, All Saints, St. Leonard, St. Mary-le-Port, St. Werburgh, St. Peter, Christchurch, St. John, St. Nicholas, and St. Stephen: 2. St. Augustine, two—St. Augustine and St. Michael: 3. St. Mary Redcliffe, three—St. Mary Redcliffe, St. Thomas, and Temple: 4. St. James, one—St. James: 5. St. Paul, two—St. Paul and St. Philip and Jacob (In).†

The population of Bristol, according to the census of 1841, was 64,279—24,483 males, and 34,796 females; and that of Clifton (Union) 29,294 males, and 36,474 females, of the following ages:—

TABLE No. 1.

AGES.	BRISTOL.			CLIFTON.		
	Males.	Females.	Total.	Males.	Females.	Total.
Under 1 Year . . . . .	760	779	1,539	814	917	1,731
1 to 2 . . . . .	742	801	1,543	787	760	1,547
2—3 . . . . .	748	783	1,531	846	888	1,734
3—4 . . . . .	677	748	1,425	766	787	1,553
4—5 . . . . .	645	680	1,325	821	740	1,561
5—10 . . . . .	3,572	3,791	7,363	4,034	4,092	8,126
10—15 . . . . .	3,111	3,199	6,310	3,648	3,811	7,459
15—20 . . . . .	2,991	3,020	6,011	3,351	3,751	7,102
20—25 . . . . .	2,743	3,515	6,258	2,753	3,801	6,554
25—30 . . . . .	3,079	4,133	7,212	2,661	4,151	6,812
30—35 . . . . .	2,773	3,442	6,215	2,394	3,309	5,703
35—40 . . . . .	2,487	3,017	5,504	2,263	2,856	5,119
40—45 . . . . .	1,763	2,000	3,763	1,595	2,058	3,653
45—50 . . . . .	1,771	2,198	3,969	1,633	2,265	3,898
50—55 . . . . .	1,153	1,415	2,568	1,120	1,408	2,528
55—60 . . . . .	1,183	1,484	2,667	1,203	1,443	2,646
60—65 . . . . .	677	872	1,549	599	781	1,380
65—70 . . . . .	760	1,004	1,764	773	1,080	1,853
70—75 . . . . .	380	574	954	419	569	988
75—80 . . . . .	323	539	862	383	532	915
80—85 . . . . .	153	288	441	175	272	447
85—90 . . . . .	89	184	273	110	174	284
90—95 . . . . .	27	50	107	31	42	73
95—100 . . . . .	8	26	34	8	20	28
100 and upwards . . . . .	7	3	10	1	7	8
Not specified . . . . .	1	2	3	0	2	2
Total . . . . .	432	10	442	140	20	160
Total . . . . .	29,483	34,796	64,279	29,294	36,474	65,768

\* "In Liverpool alone, in the business of cure or alleviation, there are now engaged 50 physicians and 250 surgeons, apothecaries, and druggists, and not one responsible public officer to investigate the causes of disease with a view to prevention. Nor has the city of London, with a population of 125,000, one such officer, though it has an expenditure of 72,000*l.* per annum in hospitals and endowed medical charities alone, for the alleviation of disease."—Supplementary Report, p. 189, § 224.

† Clifton Union, which, for convenience, is thus early introduced, on account of the comparison to be presently instituted, comprehends six districts:—1. Clifton; 2. St. Philip and St. Jacob (Out); 3. Ashley, including St. James, St. Paul (Out), and Horfield; 4. Westbury, including Henbury and Compton Greenfield; 5. Stapleton, including Stoke Gifford, Winterbourne, and Filton; 6. St. George.



## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by  
W. Kay, M.D.

The population of the five districts of the one, and the six of the other, was respectively as follows:—

BRISTOL.				CLIFTON.			
Districts.	Males.	Females.	Total.	Districts.	Males.	Females.	Total.
Castle Precincts . .	5,176	5,550	10,726	St. George . . .	3,984	4,321	8,305
St. Augustine . . .	5,873	7,636	13,509	St. Philip, &c. . .	10,402	11,188	21,590
St. Mary Redcliffe . .	6,911	7,706	14,617	Clifton . . . .	5,451	8,724	14,177
St. James . . . .	4,805	5,750	10,555	Westbury, &c. . .	3,047	4,639	7,686
St. Paul . . . .	6,713	8,154	14,872	Stapleton . . . .	3,707	4,114	7,821
				Aslley . . . .	2,701	4,058	6,759
Total . . . .	29,483	34,796	64,279	Total . . . .	29,294	35,474	64,768

In three of these districts there occur public hospitals; in Castle Precincts, (in the parish of St. Peter), St. Peter's Hospital, containing on an average about 370 inmates; 340 adults and aged persons, and 30 children. Connected with the hospital, are wards for the reception of lunatics, the number being generally about 70, which are included in the above.

From the nature of the establishment, receiving the poor from all the city parishes, the population of this district, it will be obvious, is slightly increased, over and above its legitimate number, and the mortality, especially of aged persons, considerably augmented. This passing notice may suffice for the moment, as we shall have occasion to recur to the effect which St. Peter's, in common with other public institutions, produces upon the district returns of death, when noticing the particular tabular results.

In the district and parish of St. James, is situated the Bristol Infirmary, established in 1735, supported by voluntary contributions, and affording accommodation to 228 sick poor. The average number of patients on the books is about 220 in, and 550 out-patients. It is, however, by the former only that our calculations can be affected; and the deaths, as will be seen hereafter, occurring in this charity, form a large proportion, nearly a third, of the total deaths of the district.

St. Mary Redcliffe, likewise, contains a medical hospital, called the "General Hospital," equally maintained by public subscriptions. It was opened in 1832, and receives 32 in-patients.

Three of the districts of the Clifton Union also contain public institutions. In the parish of St. George, is situated the Union workhouse for the admission of 220 pauper children, from one to sixteen years of age.

In Stapleton, the asylum connected with St. Peter's Hospital, for the reception of adults and children, the numbers being respectively about 350 and 300.

Clifton contains the parish workhouse, capable of accommodating from 160 to 180 persons.

My object in reference to Bristol being limited, as I have previously explained, to a statistical examination of the tables of mortality, and not, as in the instance of Clifton, embracing the wider range, and more general features of a sanitary report, further preface is unnecessary.

For purposes of general reference, and as forming the basis of the tables which follow, it may be convenient, in the first instance, to give the deaths and ages in each district.

TABLE No. 3.

AGES.	BRISTOL DISTRICTS.					CLIFTON DISTRICTS.										
	St. Paul, and St. Philip and Jacob (In).	Redcliffe, St. Thomas, and Temple, and Hospital.	St. Augustine.	St. James, and Infirmary.	Castle Precincts, and St. Peter's Hospital.	St. Philip and Jacob (Out), and Workhouse. <sup>1</sup>	Clifton Parish, and Poor-house.	Westbury, Henbury, &c.	Aslway, St. James, and St. Paul (Out), and Hospital.	Stapleton, and Asylum.	St. George, and Poor-House.					
Under 1 year . .	Deaths 73	Deaths. 80	Deaths 0	Deaths. 60	Deaths. 56	Deaths. 49	Deaths. 13	Deaths. 127	Deaths. 4	Deaths. 57	Deaths. 21	Deaths. 27	Deaths. 33	Deaths. 4	Deaths. 44	Deaths. 3
1 — 2 . . . .	47	42	1	51	32	2	20	3	0	23	0	8	12	10	3	5
2 — 3 . . . .	14	12	1	10	15	3	3	0	0	10	0	5	5	2	0	8
3 — 4 . . . .	9	8	0	6	10	2	5	2	0	8	0	1	7	2	0	4
4 — 5 . . . .	3	4	1	6	5	1	2	0	0	12	0	1	1	3	0	2
Birth to 5 years	146	146	3	133	113	8	79	18	282	4	110	0	36	52	50	7
5 — 10 . . . .	14	14	2	19	12	7	10	2	25	0	20	0	6	6	3	0
10 — 15 . . . .	7	4	1	10	4	5	1	0	7	0	8	0	1	3	6	1
15 — 20 . . . .	4	5	1	4	13	9	11	7	11	2	7	0	7	2	5	0
20 — 30 . . . .	22	22	1	26	20	36	17	24	26	3	24	1	10	4	12	1
30 — 40 . . . .	20	19	8	15	18	15	14	11	24	2	23	1	10	9	8	0
40 — 50 . . . .	22	22	3	22	24	12	16	26	23	2	22	3	7	12	4	0
50 — 60 . . . .	22	24	2	14	13	10	17	15	26	1	34	4	10	7	4	0
60 — 70 . . . .	33	27	2	32	13	7	14	18	33	2	30	5	11	11	12	5
70 — 80 . . . .	32	33	0	27	19	2	11	7	31	3	40	16	24	20	15	9
80 — 90 . . . .	7	9	0	13	4	1	11	10	7	0	11	1	6	5	5	6
90 — 100 . . . .	1	1	0	1	..	..	1	3	1	0	..	..	1	..	1	0
100 and upwards	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..
Unknown, &c..	..	2	..	..	..	..	3	..	..	2	..	..	..	..	..	..
Total Deaths	330	328+23 351	316	258+112 370	205+141 346	508+19 527	331+31 362	129	126	125+30 155	125+11 136					
Population . .	14,572	14,617	13,509	10,555	10,726	21,590	14,177	7,086	6,759	7,851	8,305					
Per centage . .	2.2	2.2	2.3	2.4	1.9	2.3	2.3	1.3	2.0	1.5	1.5					
	2.2	2.4	2.3	3.5	3.2	2.4	2.5	1.3	2.0	1.9	1.6					

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by  
G. W. Kay, M.D.

In arranging these tables, a little difficulty presented itself in reference to the Hospitals, Poor-houses, &c. The deaths occurring in these establishments, instead of being assigned to the particular districts in which they are situated, should obviously, in strict correctness, be distributed over the different parishes, &c., whence the individuals came. In one or two instances, perhaps, this might have been practicable; but the admission into the majority of these institutions not being confined to the inhabitants of the city, but equally available to strangers and parties from a distance, prevented the general adoption of such a principle. For the sake of uniformity, it was deemed better, therefore, under these circumstances, to give the results, inclusive and exclusive of such additions, in separate columns.

This tabular form was drawn up from lists prepared, at Mr. Hartley's suggestion, according to the following plan:—The streets or other locality arranged alphabetically—the date, name, age, and occupation of the deceased, and the cause of death. They show the deaths which took place at every age, from birth upwards, advancing *quinquennially* after the *fifth*, and *decennially* after the *twentieth* year, and giving the total number of deaths from birth to the fifth year, being a period of infantile life peculiarly subject to disease and a corresponding rate of mortality. These intervals, I need scarcely explain, were adopted from similar returns published in the annual volume by the Registrar-General. The high rate of mortality marking the *first* and *second* years of infantile life, and the comparative immunity characterizing the *third*, *fourth*, and *fifth*, form striking, though by no means peculiar, features in the subjoined Mortuary Registers; nor can we, as I have just hinted, be at any loss to account for these results, connected with the earlier and tender period, and the relative exemption enjoyed at the progressive and more matured stage, of childhood's existence. The vital powers, or, as it is better expressed by the French term, *viabilité*, are frequently feeble or imperfectly developed at birth, and, if not cherished with corresponding care, are quickly extinguished; and even when life, thus struggling into existence, by judicious fostering, becomes gradually established, new organs, and their appropriate functions, are thus called into action, fresh demands are made upon the system, requiring proportionate supplies of nutriment on the part of the parent during their progressive development. What wonder, then, if the children of the poor, frequently suffering at this critical period from deficient or the want of wholesome aliment, cold, and neglect of every kind, in addition to the varied ills to which infantile life is ordinarily exposed, fall victims, in such large numbers, to the combined influence of casual and positive evils. Still the operation of these untoward agencies is limited; we are prepared for a *certain* sacrifice of life as the necessary result of contingent and noxious tendencies—it is only when the average and recognised extent of the mischief is *materially* exceeded, that our attention is directed to an investigation of the causes thus superadding to the legitimate, so to speak, rate of mortality. We do not expect to find the offspring of parents, living in large and densely-populated towns, escaping this critical period equally with those more favourably circumstanced as residents of the *rural* districts. But, after taking this difference of locality and its attendant circumstances into the account, and assigning to it its appropriate influence, any further or marked deviation in the amount of mortality, we shall be justified in referring to the agency of *special* causes.

With a view to the more particular illustration of the general principle, the superior sanitary position of the country compared with towns, the same modes of illustration, that were observed in the case of Clifton, may with equal propriety be adopted. The first, the mortality in reference to the population, has been already exhibited by a comparison of Bristol with other large towns in Table 1, page 77, the average number of deaths taken for *three* years, 1840, 1841, and 1842, being 1998; that is, in 1840, 2330; in 1841, 1895; and in 1842, 1771. Had the average been extended to *five* years, from 1838 to 1842 inclusive, the mean mortality would have been 1902.

This is a *general* comparison—large towns with large towns; and merely serves to show, that the rate of mortality in Bristol, though not a manufacturing town, is higher than that of the other six towns, with the exception of Liverpool and Manchester, both of which standing low in the sanitary scale, Bristol can by no means be considered as occupying a favourable position. Into the immediate causes of this inferiority, it would be foreign to our present limited inquiry to enter;—moreover, the forthcoming report of Her Majesty's Commissioners, in which, doubtless, all the varied circumstances tending to such a result, will be fully considered, renders such enumeration on our part superfluous.

In pursuance of the plan thus marked out, and in continuation of our first illustration, we propose to compare the mortality of Bristol with that of other districts of a rural or semi-rural character, situated in the immediate neighbourhood; and for this purpose, the six districts forming the Clifton Union may be most conveniently selected. The population of each is taken from returns furnished by the Registrar-General—the deaths from the local registers.

## 94 APPENDIX to SECOND REPORT of COMMISSIONERS of INQUIRY

## APPENDIX.

## City of Bristol.

Report on its Sanitary Condition, by G. W. Kay, M.D.

TABLE No. 2.

BRISTOL.						CLIFTON.					
Districts.	Population.	Deaths.	Per Cent.	Proportion.	Excess above 2 per Cent.	Districts.	Population.	Deaths.	Per Cent.	Proportion.	Excess above 2 per Cent.
Redcliffe . . .	14,617	351	2.2	1 in 44.2	59	St. George . . .	8,305	136	1.6	1 in 61.0	-30
St. Paul . . .	14,872	330	2.2	1 in 45.0	32	Westbury . . .	7,086	129	1.8	1 in 54.9	-14
St. Augustine . .	13,509	316	2.3	1 in 42.7	46	Stapleton . . .	7,851	155	1.9	1 in 50.6	-2
Castle Precincts .	10,726	346	3.2	1 in 31.0	131	Ashley . . .	6,739	136	2.0	1 in 49.7	=
St. James . . .	10,555	370	3.5	1 in 28.5	159	Clifton . . .	14,177	362	2.5	1 in 39.1	78
						St. Philip, &c. .	21,590	527	2.4	1 in 40.9	95
Total . . .	64,279	1,713	2.6	1 in 37.5	427	Total . . .	65,768	1,445	2.1	1 in 45.5	127
Five Years' average	..	1,902	2.9	1 in 33.7	606	Five Years' average	..	1,449	2.2	1 in 45.3	134

Considering Westbury and Stapleton as rural districts, St. George, Ashley, and Clifton, as semi-rural, and St. Philip and Jacob as a town district, and connecting it with the Bristol districts, the following would be the results:—

Districts.	Population.	Deaths.	Per Cent.	Proportion.	Deaths at 2 per Cent.	Excess.
2 Rural . . .	14,937	284	1.9	1 in 52.5	299	-16
3 Semi-rural . .	29,241	634	2.1	1 in 46.1	585	49
6 Town . . .	85,869	2,240	2.6	1 in 38.3	1,717	523
Total . . .	130,047	3,158	2.4	1 in 41.1	2,601	556

Nearly the same relative proportion in the totals, obtains, it will be observed, upon an average of five years, as is furnished by the result of one year's mortality.

In Mr. Farr's able letter, appended to the Second Annual Report of the Registrar-General, at page 81, the annual rate of mortality in cities is stated to be 2.7, and in counties 2.0 per cent. In the preceding table, the six town districts give 2.6 per cent., and the five rural, &c., 2.0 per cent.

The marked difference observable in Castle Precincts and St. James's, relatively with the other districts, amounting to an increase in the rate of mortality of 1.1 per cent., is referable to the deaths which occurred in St. Peter's hospital and the infirmary; the former amounting to 139, and the latter to 112; without these deaths, the per centages would be 1.9 and 2.4 respectively.

Though it is not my intention, in the present report, to enter upon the medical statistics of Bristol, facilities for drawing up the following summary of the "causes of death" having been placed at my command, it appeared desirable, as well in confirmation of the preceding statement of the mortality, as for the convenience of reference, to record the diseases in each district, which occasioned it.

A slight examination of the totals, under the separate classes of disease, viewed in connexion with the causes of the deaths of children in Table No. 8, would lead to the conclusion, that the pressure of the causes of mortality bore more heavily upon the *infantile* than the *adult* population. Admitting the inference as applicable to the year under inquiry, the fact, that a considerably larger proportion of deaths occurs in town than in the country, remains unaffected. Human life is not the less sacrificed because *children* are the victims. The present race of children are the representatives of a future generation. But an estimate of the loss of life by the fatality of disease, to be correct, must not be restricted to a mere enumeration of the actual deaths; curtailment of the years of human life is not less a sacrifice of human existence. If *twenty* die at 29 years of age, instead of attaining the average period of 39 years, there is, obviously, a loss of 10 years of life in the case of each individual, amounting to 200 years upon the *twenty*,—equivalent, therefore, to an excess of deaths of five persons, or in the ratio of 25 per cent. The deaths in Bristol, upon an average of five years, were 1902; and supposing their average age at death to have been 29 years, (which, as we shall presently see, is *two years beyond* the actual fact), there would have been an excess of 475 deaths each year, or 2375 in the five years; or, employing the mode of calculation adopted in the "Quarterly Table of Mortality," published by the Registrar-General for the quarter ending September 30, 1843, in which it is stated, that "an extensive investigation of the mortality, in all the statistical districts of the kingdom, has shown that less than 2 per cent. of the population die in a great number of the country districts, and in some town districts;" and that 2 per cent. may, therefore, be considered as "the mortality in districts of an average degree of salubrity"—at 2 per cent. of the population of Bristol, the number of deaths would have been 1286 per annum; they were at the rate of 2.9 per cent., giving 1902, or a yearly excess of 606 deaths, and consequently, for the five years, an excess of 3083. In the two rural districts, it will be seen from the table, the mortality being only 1.9 per cent. for the year 1841-2, 16 less died than would have died, if the annual mortality had been 2 per cent. of the population.

TABLE No. 3.

Causes of Death.		BRISTOL DISTRICTS.										CLIFTON DISTRICTS.											
		St. James.	Infirmary.	Castle Precincts.	St. Peter's Hospital.	St. Augustine.	St. Paul, &c.	St. Mary Redcliffe.	General Hospital.	Total Districts.	Total Public Institutions.	Clifton	Poor-house.	St. Philip and Jacob.	Workhouse.	Ashley, &c., &c.	Stapleton	Asylum.	Westbury, &c.	St. George	Workhouse.	Total Districts.	Total Public Institutions.
Of the Respiratory Organs.	Consumption	44	20	25	33	34	27	31	..	161	53	40	1	50	4	13	21	1	21	18	1	163	6
	Pneumonia	4	3	6	3	5	12	4	..	31	7	8	1	10	1	5	1	1	3	2	1	29	1
	Pleurisy	1	..	2	2	2	1	1	..	2	3	6	1	3	..	2	1	1	1	..	10	1	
	Hydrothorax	1	..	2	2	2	1	1	..	7	2	3	..	3	..	2	1	1	1	..	7	1	
	Bronchitis	..	3	2	4	1	25	1	28	7	12	1	12	1	1	2	1	1	1	..	15	1	
Of the Circulation.	Asthma	4	1	6	1	2	12	..	..	30	5	12	1	14	1	1	1	1	1	4	..	33	2
	Disease	13	1	3	..	21	2	..	2	39	3	12	5	..	2	1	..	1	..	..	16	5	
										298	72										273	16	
	Diseases of Heart	8	5	..	5	13	..	3	4	24	14	15	..	4	1	4	2	..	5	..	..	30	1
Of the Nervous System.	Apoplexy	4	3	3	..	2	7	6	1	22	4	5	1	10	1	6	7	3	6	1	..	35	5
	Cephalitis, &c.	..	2	2	6	2	1	8	..	13	8	3	1	4	1	1	4	1	1	..	12	..	
	Hydrocephalus	..	1	1	3	2	1	..	..	5	1	1	1	1	..	1	1	1	1	1	5	..	
	Paralysis	5	1	1	3	7	6	1	..	20	3	4	2	4	1	1	4	1	2	..	16	2	
	Convulsions	..	1	1	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	2	..	2	..
Of the Digestive Organs.	Epilepsy	1	..	1	1	1	1	1	..	3	1	1	1	1	1	1	1	1	1	2	..	3	..
	Insanity	..	1	..	3	1	1	..	..	2	4	1	1	1	1	1	1	1	1	..	..	3	..
	Delirium Tremens	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Disease	3	1	..	..	5	..	2	2	10	3	3	..	3	..	1	..	..	..	..	7	..	
										75	25											83	7
Of the Urinary Organs.	Gastritis, Enteritis	6	2	..	9	5	18	7	1	36	12	9	1	8	1	3	3	1	4	3	1	30	4
	Hernia	..	3	..	..	..	..	..	..	3	3	3	1	2	1	1	1	..	..	..	5	..	
	"Disease of Liver"	2	1	2	2	4	3	4	..	15	3	3	2	3	1	1	1	..	1	..	9	3	
	Disease	4	1	2	1	5	3	..	1	14	3	1	1	3	..	..	..	..	..	..	4	1	
										65	21											48	8
Of the Genital Organs.	Diabetes	..	1	..	1	1	..	..	..	1	1	1	1	1	1	1	1	1	1	1	2	..	
	"Disease of Kidney"	2	2	1	1	1	..	..	..	4	3	1	1	2	1	1	1	1	1	1	4	..	
	Nephritis	..	..	..	1	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
	Childbed	..	..	..	..	1	6	..	..	7	..	..	..	1	1	1	1	1	2	..	2	..	
	Disease of Uterus	2	1	2	..	1	1	..	..	6	1	..	..	1	1	1	1	1	1	..	3	1	
Of the Uncertain Seat.										18	6											11	1
	Dropsy	4	6	6	3	7	11	15	1	43	10	12	1	18	2	4	8	1	6	10	..	58	2
	Carcinoma	2	2	..	1	1	1	4	..	7	2	3	1	2	1	1	1	1	1	1	8	1	
	Ulcer, Abscess, &c.	3	3	1	6	2	4	1	..	11	9	1	1	4	1	1	1	1	1	1	7	2	
	Scrofula	2	1	..	1	1	1	..	..	4	1	1	1	1	1	1	1	1	1	1	1	1	..
Epidemic, Endemic, and Contagious Diseases.	"Age," "Debility," &c	9	..	17	22	33	30	52	1	141	22	43	11	16	2	10	7	14	30	7	1	113	27
	"Sudden Deaths"	1	..	2	4	1	4	..	..	11	1	5	1	6	1	1	1	1	2	1	1	13	1
	Accidents, &c.	2	17	2	2	1	2	5	7	24	1	5	1	5	2	2	1	2	1	1	11	1	
	Burns	..	10	..	..	..	..	..	..	10	..	..	..	..	..	..	..	..	2	1	2	..	..
	Drowned	..	26	..	..	1	1	1	1	27	1	4	2	2	1	1	1	1	1	1	6	..	
Children	Other Diseases, &c.	4	2	..	4	2	11	7	..	24	6	7	3	7	2	4	1	3	1	1	24	3	
	Unknown, &c.	..	..	3	..	..	..	1	..	4	..	5	1	2	..	..	2	1	..	..	8	2	
										279	84											251	37
	Fever	6	8	..	3	7	3	1	..	17	11	1	1	12	..	1	2	..	..	..	13	..	
	Typhus	..	..	1	1	1	1	1	1	3	8	3	..	..	..	4	..	..	..	..	9	1	
Public Institutions.	Small-pox	..	..	1	1	..	..	..	..	1	1	..	..	..	..	1	..	..	..	..	1	..	..
	Measles	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	18	..	
	Scarlatina	2	..	4	..	6	1	3	..	16	..	6	..	5	4	1	..	1	1	..	..	..	
	Whooping-cough	1	..	..	..	..	..	1	..	1	1	1	..	1	..	1	..	..	..	..	2	..	
	Croup	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	2	..	
Total	Erysipelas	..	2	2	1	3	1	..	7	2	1	1	1	1	1	1	1	1	1	1	5	1	
	Diarrhoea	1	1	..	1	..	..	..	1	2	1	..	2	1	2	1	1	1	1	1	5	1	
	Rheumatic Fever	..	1	1	2	..	..	..	3	1	..	2	..	2	1	1	1	2	..	..	5	..	
	Puerperal Fever	1	..	2	..	2	..	..	5	..	2	..	2	..	1	..	..	..	..	..	5	..	
Children		140	104	126	123	183	184	162	20	815	247	221	31	226	15	84	75	23	93	62	3	761	72
		118	8	79	18	133	146	146	3	622	29	110	..	282	4	52	50	7	36	63	8	593	19
Public Institutions.		258	112	205	141	..	..	328	23	1437	276	331	..	508	19	..	125	30	..	125	11	1354	91
		112	..	141	..	..	..	23	..	276	..	31	..	19	..	30	..	..	..	..	..	91	..
Total		370	..	346	..	316	330	351	..	1713	..	362	..	527	..	136	155	..	129	136	..	1445	..



## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by G. W. Kay, M.D.

Our second illustration has reference to the deaths occurring at particular ages. "The most marked and serious difference," writes the then Registrar-General, Mr. Lister, (Second Annual Report, p. 15), "is that which is observable between the mortality of rural districts and of large towns, as exemplified in the proportion of the deaths of children, and of persons dying at advanced ages." We commence with the former—infantile mortality. The principle upon which the mortality of young children has been ordinarily, and in the absence of other data, necessarily founded, is by a comparison of their deaths with the total deaths, taking place in one or a given series of years. The objections to which this mode of calculation is liable, has been already anticipated in the Clifton Report. The general mortality being the standard, the deaths of children, it is obvious, will appear above or below the average, according as the former is in excess, or otherwise. The general mortality may be small, and the deaths of children not beyond the mean, and yet numerically present an excess, and *vice versa*. The necessity of keeping in view, as an essential element in the calculation, the proportionate numbers *living* at the different ages, infantile or otherwise, of which the *deaths* are recorded, will receive ample confirmation in the progress of our inquiries.

TABLE No. 4.

SHOWING the Number of Children dying under 5 years of age, relatively to the Total Number of Persons dying at all ages.

BRISTOL.					CLIFTON UNION.				
Districts.	Total Deaths.	Deaths under 5 Years.	Per Cent. of Total Deaths.	Proportion.	Districts.	Total Deaths.	Deaths under 5 Years.	Per Cent. of Total Deaths.	Proportion.
Castle Precincts.	346	97	28.0	1 in 3.5	Westbury . .	129	36	27.9	1 in 3.3
St. James . .	370	126	34.0	1 in 2.9	Clifton . . .	362	110	30.3	1 in 3.2
St. Augustine .	316	133	42.0	1 in 2.3	Ashley . . .	136	52	38.2	1 in 2.6
Redcliffe . . .	351	149	42.4	1 in 2.3	Stapleton . .	155	57	36.7	1 in 2.7
St. Paul . . .	330	146	44.2	1 in 2.2	St. George . .	136	72	52.9	1 in 1.8
					St. Philip, &c.	527	286	54.2	1 in 1.8
Total . . .	1,713	651	38.0	1 in 2.6	Total . . .	1,445	613	42.4	1 in 2.3

CLASSING the Districts as in the last Table.

Districts.	Total Deaths.	Deaths under 5 Years.	Per Cent.	Proportion.
2 Rural . . .	284	93	32.7	1 in 3.0
3 Semi-rural .	634	234	36.9	1 in 2.7
6 Town . . .	2,240	937	41.8	1 in 2.3
Total . . .	3,158	1,264	40.0	1 in 2.49

The deaths of children under five years of age, in the Clifton Union, exceed the same deaths in the city of Bristol, as compared with the total deaths, nearly 4½ per cent. (42.4 and 38.0), but, upon taking St. Philip and Jacob from the former, instead of exceeding, they become nearly 2½ per cent. less (35.6 and 38.0), and if this district be annexed to the Bristol districts, (to which, partaking so much of a *town* character, it legitimately belongs), the result is then more than 6 per cent. (35.6 and 41.8) in favour of the *country*.

Although 18 of the 97 deaths in Castle Precincts took place in St. Peter's Hospital—nearly one fifth of the whole—this district occupies the most favourable position in the table, the proportion being only 1 in 3.5; less, it will be perceived, than any of the rural, &c. districts. In like manner, St. James, which in this respect is scarcely affected by the deaths of children in the infirmary (in which 8 only occurred out of the 118) stands second in the Bristol list.

Both these districts exemplify the objection just advanced to this mode of calculation. Upon a reference to Table 2, it will be seen, that the total number of deaths, that is, the deaths at all ages, in Castle Precincts and St. James, are in excess, being 3.2 and 3.5 per cent. of the population, instead of the mean 2.2 per cent. They are placed, therefore, at the foot of the column; hence the infantile mortality appears low. In Redcliffe and St. Paul, on the contrary, the "total deaths" are relatively few (about the mean), and they accordingly occupy the head of the list; hence the infantile mortality in these districts appears high.\*

Our next table exhibits the proportion of children living under five years to the total population.

\* So, in St. George, the general mortality is only 1.6 per cent., the lowest of all the districts, and, accordingly, the deaths of children, thus estimated, present the highest ratio, with the exception of St. Philip and Jacob.

TABLE No. 5.

BRISTOL.					CLIFTON.				
Districts.	Population.	Living under 5 Years.	Per Cent.	Proportion.	Districts.	Population.	Living under 5 Years.	Per Cent.	Proportion.
Redcliffe . . .	14,617	1788	12.2	1 in 8.1	St. George . .	8,305	1242	14.9	1 in 6.6
St. Paul . . .	14,872	1782	12.0	1 in 8.3	St. Philip, &c.	21,590	2980	13.8	1 in 7.2
St. Augustine .	13,509	1552	11.4	1 in 8.7	Stapleton . .	7,851	1004	12.7	1 in 7.7
St. James . . .	10,555	1183	11.2	1 in 8.9	Ashley . . .	6,759	772	11.4	1 in 8.7
Castle Precincts.	10,726	1058	9.8	1 in 10.1	Westbury . .	7,086	769	10.8	1 in 9.0
					Clifton . . .	14,177	1359	9.5	1 in 10.4
Total . . .	64,279	7363	11.4	1 in 8.7	Total . . .	65,768	8126	12.3	1 in 8.0

Districts.	Population.	Living under 5 Years.	Per Cent.	Proportion.
2 Rural . . .	14,937	1,773	11.8	1 in 8.4
3 Semi-rural .	29,241	3,373	11.5	1 in 8.6
6 Town . . .	85,869	10,343	12.0	1 in 8.3
Total . . .	130,047	15,489	11.9	1 in 8.39

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by G. W. Kay, M.D.

In the last table, Redcliffe and St. Paul, in the Bristol, and St. George and St. Philip, &c., in the Clifton districts, ranked the lowest; in this they take the highest places in the lists;—that is, as a large proportion of their populations consisted of children under five years of age, there was a greater possibility, *ceteris paribus*, of a larger proportion dying—there were more living to die, or, at least, who might die.

Not that it by any means necessarily follows that such should be the fact; the sequence is not at all absolute; nor does the converse of the proposition necessarily obtain. There may be, relatively to the population, few children living, and yet many, relatively to the total deaths occurring in such population, may die. Thus Castle Precincts and St. James present the *highest* rate of infantile mortality, in conjunction with the *lowest*, if the term may be allowed, of infantile vitality; the greatest result from the fewest materials—comparatively few *living*, and many relatively *dying*.

The Clifton Union workhouse, in which there are usually about 220 children, from one to sixteen years of age, being situated in the parish of St. George, readily accounts for the large proportion of the infantile population, amounting to nearly 15 per cent. of the inhabitants.

Stapleton is likewise affected by its asylum for adults and children connected with St. Peter's Hospital; the average number of the latter being 310; hence the proportion which the deaths in these districts under five years bear to the total deaths, in Table 4,—proportions, *per se*, indicative of unhealthy localities; whereas, upon making the more legitimate comparison between the numbers *dying* relatively to the numbers *living*, their true position is satisfactorily determined. We need not multiply our illustrations; the eye, in glancing down the lists, will readily do its office.

Our third table, in connexion with this matter, is decisive in its indications. It is a comparison between the number of children *living* in 1841, and the number of children *dying* in 1842, under five years of age.

TABLE No. 6.

BRISTOL.					CLIFTON.				
Districts.	Living under 5 Years. 1841.	Died under 5 Years. 1842.	Per Cent.	Proportion.	Districts.	Living under 5 Years. 1841.	Died under 5 Years. 1842.	Per Cent.	Proportion.
St. Paul . . .	1782	146	8.1	1 in 12.2	Westbury . .	769	36	4.6	1 in 21.3
Redcliffe . . .	1788	149	8.3	1 in 12.0	Stapleton . .	1004	57	5.6	1 in 17.6
St. Augustine .	1552	133	8.5	1 in 11.6	St. George . .	1242	72	5.7	1 in 17.2
Castle Precincts.	1058	97	9.1	1 in 10.9	Ashley . . .	772	52	6.7	1 in 14.8
St. James . . .	1183	126	10.6	1 in 9.3	Clifton . . .	1359	110	8.0	1 in 12.3
					St. Philip, &c.	2980	286	9.5	1 in 10.4
Total . . .	7363	651	8.8	1 in 11.3	Total . . .	8126	613	7.5	1 in 13.2

Excluding St. Philip and Jacob (out,) (see page 77), and comparing the other five districts of the Clifton Union with the five Bristol districts, the numbers would be—

District.	Living under 5 Years. 1841.	Died under 5 Years. 1842.	Per Cent.	Proportion.	District.	Living under 5 Years. 1841.	Died under 5 Years. 1842.	Per Cent.	Proportion.
Bristol . . .	7363	651	8.8	1 in 11.3	Clifton . . .	5146	327	6.3	1 in 15.7

## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by  
G. W. Kay, M.D.

The comparison itself, however, will be rendered more fair, and certainly more striking, if we distribute the districts as formerly.

Districts.	Living under 5 Years. 1841.	Died under 5 Years. 1842.	Per Cent.	Proportion.
2 Rural . . .	1,773	93	5.2	1 in 19.0
3 Semi-rural . .	3,373	234	6.9	1 in 14.4
6 Town . . .	10,343	937	9.0	1 in 11.0
Total . . .	15,489	1264	8.1	1 in 12.2

Not to lose sight of the last named localities, Castle Precincts and St. James, it will be seen, occupy in this table the actual position which, by natural inference, had been previously assigned to them. The district of St. Philip and Jacob, in like manner, though not in all respects, under precisely similar circumstances, takes the lowest range in the scale. In this latter instance, all the three conditions, numerically considered, tending to such a result, co-existed—the proportion of the population consisting of children was large; the relative number of their deaths to the total deaths, great; and the number living under five years of age, comparatively in excess.

In illustration of the remarks made under the preceding Tables 5 and 6, and more especially in reference to the two districts of St. George and St. Philip, &c., let it be observed, that they exhibit these features in common—a high per centage of the *deaths* of children relatively to the *general mortality*, and a large proportion of children *living*, relatively to the *population*; the latter varying only 1 per cent. in a high ratio 14.9 and 13.8; and the former, in the case of each, being 1 in 1.8 of the total deaths. Hence the inference, if confined to these data, would lead us to place the two districts upon a par, and to regard them equally in an unfavourable aspect. Carrying the investigation a little further, however, this uniformity is no longer preserved. In the present Table, (No. 6,) it will be seen, that 1 in 17 of the children *living* in St. George, in 1841, *died* in 1842; whereas the proportion in St. Philip and Jacob was 1 in 10; this third comparison alone restoring them to their legitimate position.

The *particular year or years* of infantile life, in which the mortality attained the maximum, will be readily seen from the following Tables:—

TABLE No. 7.

SHOWING the Mortality of Children at each Year, from Birth to Five Years of Age.

BRISTOL DISTRICTS.										
Ages.	St. James.		St. Mary Redcliffe.		St. Paul, and St. Philip and Jacob.		St. Augustine.		Castle Precincts.	
	Deaths.	Per Cent. of Total Deaths.	Deaths.	Per Cent.	Deaths.	Per Cent.	Deaths.	Per Cent	Deaths.	Per Cent.
Under 1 year . . .	56	21.7	80	24.3	73	22.1	60	18.9	49	23.9
1 and under 2 years . .	32	12.4	42	12.8	47	14.2	51	16.1	20	9.7
2    "    3    " . . .	15	5.8	12	3.6	14	4.2	10	3.1	3	1.4
3    "    4    " . . .	10	3.8	8	2.4	9	2.7	6	1.8	5	2.4
4    "    5    " . . .	5	1.9	4	1.2	3	0.9	6	1.8	2	0.9
Total . . .	118	45.7	146	44.5	146	44.2	133	42.0	79	38.5
With Infirmary . . .	126	34.0	With Hospital 149    42.4		..	..	..	..	With St. Peter's 97    28.0	

CLIFTON DISTRICTS.												
Ages.	Town District.		Three Semi-rural Districts.						Two Rural Districts.			
	St. Philip and Jacob (out).		St. George.		Ashley, St. James, &c.		Clifton.		Stapleton.		Westbury, Henbury, &c.	
	Deaths.	Per Cent. of Total Deaths.	Deaths.	Per Cent.	Deaths.	Per Cent.	Deaths.	Per Cent.	Deaths.	Per Cent.	Deaths.	Per Cent.
Under 1 year . . .	127	25.0	44	35.2	27	19.8	57	17.2	33	26.4	21	16.2
1 and under 2 years . .	107	21.0	5	4.0	12	8.8	23	6.9	10	8.0	8	6.2
2    "    3    " . . .	23	4.5	8	6.4	5	3.6	10	3.0	2	1.6	5	3.8
3    "    4    " . . .	12	2.3	4	3.2	7	5.1	8	2.4	2	1.6	1	0.7
4    "    5    " . . .	13	2.5	2	1.6	1	0.7	12	3.6	3	2.4	1	0.7
Total . . .	282	55.5	63	50.4	52	38.2	110	33.2	50	40.0	36	27.9
With Poor-house . . .	286	54.2	72	52.9	..	..	110	30.3	With Asylum. 57    36.7		..	..

Table No. 7.—continued.

## APPENDIX.

## City of Bristol:

Report on its Sanatory Condition, by  
G. W. Kay, M.D.

Ages.	Two Rural Districts.		Three Semi-rural Districts.		Six Town Districts.	
	Deaths.	Per Cent. of Total Deaths.	Deaths.	Per Cent.	Deaths.	Per Cent.
Under 1 year . . .	54	21.3	128	21.6	445	22.9
1 and under 2 years . .	18	7.1	40	6.7	299	15.3
2 " 3 " . . .	7	2.7	23	3.9	77	3.9
3 " 4 " . . .	3	1.1	19	3.2	50	2.5
4 " 5 " . . .	4	1.5	15	2.5	33	1.7
Total . . .	86	33.9	225	38.0	904	46.5
With Public Institutions.	93	32.7	234	36.9	937	41.8

The most striking feature in the above Tables is the smaller proportion of deaths occurring between the ages of one and two years, in the Clifton Union, or more definitely, in the rural and semi-rural districts, compared with the Bristol, that is, the town districts. If we read off the second line without the decimals, we shall have 40, 88, 69, 80, and 62, as the mortality, at the age of one and two years, in Clifton; and 124, 128, 142, 161, 97 and 210, as that in Bristol, (including St. Philip and Jacob (out) the former averaging 67, the latter 143 in 1000; or, as represented in the summary, rural 71, semi-rural 67, and town 153; the *public institutions*, in both instances, being equally excluded. And this difference does not, it will be perceived, arise from the deaths *under one year*, being correspondingly fewer in the town districts; the three classes of districts giving respectively 213, 216, and 229 in 1000; nor from the deaths from two to five years inclusive, as the following Table will clearly show:—

Districts.	Deaths 0—1 per Cent. of Total Deaths.	Deaths 1—2 per Cent. &c.	Deaths 2—5 per Cent. &c.	Deaths from Birth to 5 Years per Cent. of Total Deaths.
2 Rural . . .	20.4	7.4	4.8	32.6
3 Semi-rural . . .	20.6	7.0	8.9	36.5
6 Town . . .	20.6	13.6	7.5	41.7

The additions of the per centages, at the different ages, correspond, within a few decimals, with the last line in the preceding Table. Had the figures, in the calculations, been carried out to the second or third place of decimals, the result would, of course, have been precisely similar. Nor is the difference in the mortality alluded to, referable to a disparity in the total numbers of children *living* in the rural, &c., and the town districts. From Table 5, it will be seen, that the proportions were very similar; viz., 1773, 3373, and 10,343, 1 in 8.4, &c., or dropping the decimals, 84, 86, and 83, in 1000 of the population. Neither is it to be attributed to the disproportionate numbers living under one, and from one to two years; these being 1059 and 949—2211 and 2141.

One class of causes, it must be obvious, alone remain to account for the fact, thus clearly shown to exist, that the amount of infantile mortality, between the ages of one and two years, in the town, is double that occurring in the rural districts—the diseases incident to childhood, and other noxious influences, prove fatal in a twofold degree, under the less favourable circumstances of the former.

The district in which the mortality from one to two years is the greatest, is that of St. Philip and Jacob (out); without St. Philip, the deaths in the town districts would amount to only 8.8 per cent., instead of 13.6, of the total deaths under 5 years; and accordingly, upon consulting the registers, I find the mortality, from inflammation of the lungs, scarlatina, whooping-cough, hydrocephalus, &c., preponderated at this particular age.

Keeping in view again, that the *population* under five years, in the rural, &c. districts, is half that of the town districts (5146 and 10,343) and that the *deaths* in the one, are to the deaths in the other, nearly as 1 to 3, (327 to 937)—we shall likewise expect to find this ratio, in the excess of mortality, more or less nearly preserved, in the instance, at least, of those infantile diseases which are more extensively fatal. Thus the deaths from convulsions and teething, were respectively, in the two sets of districts, 77 and 182; from inflammation of the lungs, 64 and 199; atrophy, debility, &c., 45 and 165; whooping-cough, 9 and 54; measles 2 and 21; small-pox, 1 and 8; fever, 5 and 28; inflammation of the bowels, 12 and 44. (See Table 8.)

The scope of this Report, as already explained, precludes my pursuing the investigation further. Having adverted to the facts, Her Majesty's Commissioners will have little difficulty in reconciling them with the physical condition of the districts in which they occurred.



## APPENDIX.

City of Bristol.

Report on its Sanatory Condition, by G. W. Kay, M.D.

TABLE No. 8.

CAUSES of the Deaths of Children from Birth to Five Years of Age.

	BRISTOL DISTRICTS.					CLIFTON DISTRICTS.							
	St. Augustine.	Redcliffe and Hospital.	St. James and Infirmary.	St. Paul and St. Philip and Jacob.	Castle Precincts and St. Peter's Hospital.	Ashley, St. James, &c.	Clifton (Parish).	Westbury, Henbury, &c.	Stapleton and Asylum.	St. George and Poor-house.	St. Philip and Jacob, and Workhouse.		
Convulsions and Teething . . .	35	48	21	15	15	12	29	10	6	20	48		
Inflammation of lungs, &c. . .	22	22	37	33	18	4	25	7	10	18	65		
"Atrophy," "Phthisis," &c. . .	28	18	20	30	25	10	9	3	9	14	44		
Bronchitis . . . . .	1	5	2	6	3	1	1	1	1	2	11		
Croup . . . . .	1	1	2	1	3	1	1	1	1	1	2		
Thrush . . . . .	1	1	1	1	1	1	1	1	1	1	1		
Quinsey . . . . .	1	1	1	1	1	1	1	1	1	1	1		
Whooping-cough . . . . .	6	18	3	3	3	6	16	4	9	6	25		
Scarlatina . . . . .	11	10	5	12	3	1	1	1	1	1	10		
Measles . . . . .	3	3	3	1	1	1	1	1	1	1	3		
Small-pox . . . . .	1	1	1	1	1	1	1	1	1	1	12		
Fever . . . . .	4	5	3	3	1	3	10	2	2	3	16		
Hydrocephalus, Cephalitis, &c. .	12	3	12	9	5	8	3	2	2	1	7		
Dropsy . . . . .	1	3	5	16	6	3	2	3	2	1	3		
Inflammation of bowels . . . .	7	1	1	3	4	2	2	3	2	1	3		
Diarrhoea . . . . .	4	10	8	8	4	4	1	3	1	1	3		
Accidents . . . . .	4	10	8	8	4	4	1	3	1	1	3		
Unknown . . . . .	1	1	2	7	6	2	2	2	1	1	9		
Other diseases . . . . .	1	1	2	7	6	2	2	2	1	1	9		
Total . . . . .	133	149	126	146	97	52	110	36	57	72	286		

The occurrence of many or few deaths at advanced ages, is likewise considered as affording a criterion by which the healthy character, or otherwise, of a district may be fairly inferred. This test, however, must be regarded as furnishing the approximate rather than the absolute truth. For it by no means follows, that persons dying at "three score years and ten," in a particular locality, attained even longevity, much less that they have resided during the whole period of their lives, in such locality. Dwellers in towns, as the evening of life is drawing to a close, frequently retire from the busy haunts of the earlier period of their existence, and end their days in the more quiet retreats of the country, or, it may be, in the place and amid the scenes associated with childhood. The exchange of country for town under the same circumstances, is, obviously, much more rare—the result of necessity rather than that of choice. This fact, therefore, must be taken into account, in comparing the relative numbers who die at advanced ages in the country and in towns; or the latter would appear unjustly to a disadvantage. "Equally remarkable," observes the authority already quoted, (Mr. Lister, Second Annual Report, page 15,) "are the contrasts exhibited by the towns and rural districts, with respect to the proportion of persons who appear to have died in old age."

The following table shows the number of deaths occurring above 70 years of age relatively to the total deaths:—

TABLE No. 9.

BRISTOL.					CLIFTON.				
Districts.	Total Deaths.	Deaths above 70.	Per Cent.	Proportion.	Districts.	Total Deaths.	Deaths above 70.	Per Cent.	Proportion.
St. Augustine . . .	316	41	12.9	1 in 7.7	Westbury . . .	129	31	24.0	1 in 4.1
Castle Precincts . .	346	43	12.4	1 in 8.0	Stapleton . . .	155	37	23.8	1 in 4.2
Redcliffe . . . . .	351	43	12.2	1 in 8.1	Clifton . . . .	362	68	18.7	1 in 5.3
St. Paul . . . . .	330	40	12.1	1 in 8.2	Ashley . . . . .	136	25	18.3	1 in 5.4
St. James . . . . .	370	26	7.0	1 in 14.2	St. George . . .	136	13	9.5	1 in 10.4
					St. Philip, &c. .	527	42	7.9	1 in 12.5
Total . . . . .	1,713	193	11.2	1 in 8.8	Total . . . . .	1,445	216	14.9	1 in 6.6
Or separating, as before, St. Philip and Jacob . . . . .						918	174	18.9	1 in 5.2

Districts.	Total Deaths.	Deaths above 70.	Per Cent.	Proportion.
2 Rural . . . . .	264	63	23.9	1 in 4.1
3 Semi-rural . . .	634	106	16.7	1 in 5.9
6 Town . . . . .	2,240	235	10.4	1 in 9.5
Total . . . . .	3,158	409	12.9	1 in 7.7

Some of these districts, it is necessary to recal, are materially affected by the existence of public institutions. In Castle Precincts, of the 43 deaths at the age of 70 and upwards, 20 (of the 141 deaths at all ages) took place in St. Peter's Hospital, 14.1 per cent.; leaving

only 23 out of 205, or 11.2 per cent. in the district. Stapleton, still more decidedly, by its "asylum;" an establishment connected with the hospital for the reception of "infirm persons and young children; all of whom belong to the different parishes of Bristol."

Of the 37 deaths registered for the year, 16 occurred in the Stapleton Asylum. In the Clifton poor-house, as we had previously occasion to notice, 17 persons died at advanced ages. Nor is the effect confined to the deaths—for the inmates of both these establishments, being chiefly the "aged and infirm," they were of course enumerated, in the general census of 1841, as belonging to, and living in, the two districts, Stapleton and Clifton. This leads us to the second Table, showing the number of persons living above 70 years, compared with the total population.

TABLE No. 10.

BRISTOL.					CLIFTON.				
Districts.	Total Population.	Population above 70.	Per Cent.	Proportion.	Districts.	Total Population.	Population above 70.	Per Cent.	Proportion.
St. Paul . . . . .	14,872	453	3.0	1 in 32.8	Stapleton . . .	7,851	324	4.0	1 in 24.0
St. James . . . . .	10,555	285	2.7	1 in 37.0	Clifton . . . .	14,177	435	3.0	1 in 32.5
Castle Precincts . .	10,726	284	2.6	1 in 37.7	Westbury . . .	7,086	209	2.9	1 in 33.9
Redcliffe . . . . .	14,617	350	2.5	1 in 38.4	Ashley . . . . .	6,759	165	2.4	1 in 40.9
St. Augustine . . .	13,509	328	2.4	1 in 41.1	St. George . . .	8,305	177	2.1	1 in 46.9
					St. Philip . . .	21,590	453	2.0	1 in 47.6
Total . . . . .	64,279	1,730	2.6	1 in 37.0	Total . . . . .	65,768	1,763	2.6	1 in 37.3

Districts.	Total Population.	Population above 70.	Per Cent.	Proportion.
2 Rural . . . . .	14,037	533	3.5	1 in 23.0
3 Semi-rural . . .	29,241	777	2.6	1 in 37.6
6 Town . . . . .	85,869	2,183	2.5	1 in 39.3
Total . . . . .	130,047	3,493	2.6	1 in 37.2

How, strictly, the remark holds good, that no certain inference can be drawn from the number of deaths occurring at the age of 70 years and upwards, in relation to the total deaths, without regard to the proportionate numbers living at such ages, is strikingly illustrated by the district of St. James. In the preceding Table (No. 9), the proportion, it will be observed, is 1 in 14 only; that, in the other districts, as shown by the summary, being, on the average, 1 in 7½. Hence the proof, thus deduced from the existence or otherwise of longevity, would be unfavourable to the healthy state of the district: whereas in the present Table, it will be seen, that the number of persons living, at the age of 70 years and upwards, compared with the population, is greater, in the district of St. James, than in any of the town districts, with the exception of St. Paul; being, in fact, exactly the average, 1 in 37.—And viewing these two facts in connection, they furnish evidence of directly an opposite character to that derived from the first fact alone; viz., that as there were 285 persons living, at 70 years of age and upwards, according to the census of 1841, of which number 26 only died in 1842, it follows, that there must be a larger proportion still living at these advanced ages, in the district of St. James, than in the other districts;—in other words, that the district is apparently more favourable to the attainment of longevity, and therefore, so far as longevity, *per se*, is available in evidence, a more healthy locality.

Similar comparisons between the results of the two Tables would elicit the same disparity. Thus the deaths in St. Paul's, above 70 years, were only 40 out of the 330 deaths at all ages, being the lowest per centage, St. James's excepted; whereas the numbers living, above 70 years, in relation to the population, furnish the highest per centage. Arranging the districts in the order of precedence, in the one case, as exhibiting a relative majority of the population of aged persons, they would stand thus:—1. St. Paul; 2. St. James; 3. Castle Precincts; 4. Redcliffe; and 5. St. Augustine. And, on the other hand, as showing a relative majority of deaths of aged persons, they would rank in the following order:—1. Castle Precincts; 2. St. Augustine; 3. Redcliffe; 4. St. Paul; and 5. St. James. Or, in the third place, abstracting the numbers dying in 1842, from those living in 1841, the proportion in existence, at the former period, would lead to an arrangement of the districts, thus:—1. St. Paul; 2. St. James; 3. St. Philip and Jacob; 4. Redcliffe; 5. St. Augustine; and 6. Castle Precincts—not materially differing, it will be observed, from the result of the first mode of comparison.

Our third Table exhibits the number of persons living in 1841, and dying in 1842, above 70 years of age.

## APPENDIX.

City of Bristol.

Report on its Sanatory Condition, by G. W. Kay, M.D.

TABLE No. 11.

APPENDIX.  
City of Bristol.  
Report on its Sanatory Condition, by  
G. W. Kay, M.D.

BRISTOL.					CLIFTON.				
Districts.	Living above 70. 1841.	Died above 70. 1842.	Per Cent.	Proportion.	Districts.	Living above 70. 1841.	Died above 70. 1842.	Per Cent.	Proportion.
St. Paul . . .	453	40	8.8	1 in 11.3	St. George . . .	177	13	7.3	1 in 13.6
St. James . . .	285	26	9.1	1 in 10.9	St. Philip . . .	453	42	9.2	1 in 10.7
Redcliffe . . .	350	43	11.3	1 in 8.8	Stapleton . . .	324	37	11.4	1 in 8.7
St. Augustine . .	328	41	12.5	1 in 8.0	Westbury . . .	209	31	14.8	1 in 6.7
Castle Precincts	284	43	15.1	1 in 6.6	Ashley . . .	165	25	15.1	1 in 6.6
					Clifton . . .	435	68	15.6	1 in 6.3
Total . . .	1,730	193	11.1	1 in 8.9	Total . . .	1,763	216	12.2	1 in 8.1

Districts.	Total Deaths.	Deaths above 70.	Per Cent.	Proportion.
2 Rural . . .	533	68	12.7	1 in 7.8
3 Semi-rural . .	777	106	13.6	1 in 7.3
6 Town . . .	2,183	235	10.7	1 in 9.2
Total.	3,493	409	11.7	1 in 8.5

The last proof we shall adduce of the higher sanatory influence of the country over towns, is derived from the *mean duration of life*. If, as has been shown, infantile mortality is less, and the deaths at advanced ages are more numerous; or, more simply, that fewer persons, out of a given population, die very young, and more proportionately live to become old, in the rural than in the town districts, we shall be prepared to find, that the average age in the former is greater than that attained in the latter; in other words, that the country is more favourable to the attainment of longevity.

And this evidence of the comparative healthy character of different districts, we consider more certain and uniform in its indications than any of the preceding, provided due allowance is made for the peculiarities affecting particular localities.\*

An equal number of deaths, it is obvious, may occur in two districts; and so far their sanatory position be apparently assimilated; and yet the mean duration, the chances of life, may be widely different; the proportion of deaths of young children, and other disturbing causes, being, as we have just hinted, sufficient to produce this disparity. Table 10, at page 82, of the Clifton Report, enables us to compare the average age of the dying in several of the large towns. I have not been able to ascertain with sufficient accuracy, the total ages of the deaths in Bristol, and consequently, not the average age of death, in each class, to assign them their true position, according to the distinct occupation of such class; the *general* average, that is of all classes, at death, calculated in the manner explained in the same page, I found to be 26 years—placing Bristol upon a par with the metropolitan unions, and above the four last towns named in the Table. The returns, with which I have been obligingly supplied, of the ages of the population, according to the census of 1841, do not give either the numbers *living*, or the total ages, in each *separate class*, which render it, therefore, impossible for me to attempt any classification of the average age of the *living*.

The mean duration of life may be calculated from the total ages of the *dead*, divided by the numbers dying, or the total ages of the *living*, divided by the population—the former, as we shall have occasion to illustrate, furnishing the more correct indications.

The form of the returns gives the age of the living, only in intervals of quinquennial periods, after the first five years of life; the average ages of the inhabitants living in each district, taken from these imperfect data, must obviously, therefore, be received with some qualification.

The following Table exhibits the average age of the living and dying, in the town and rural districts of Bristol and the adjoining parishes, arranged in parallel columns, excluding, so far as practicable or expedient, the public institutions.

TABLE No. 12.

BRISTOL.			CLIFTON.		
Districts.	Average Age of Dead.	Average Age of Living.	Districts.	Average Age of Dead.	Average Age of Living.
Castle Precincts . .	28.6	27.6	Westbury . . .	38.5	27.7
St. Paul . . .	28.0	23.7	Clifton . . .	33.0	28.2
Redcliffe . . .	26.4	26.6	Ashley . . .	31.4	28.2
St. James . . .	24.4	26.4	Stapleton . . .	28.8	26.6
St. Augustine . . .	27.9	26.5	St. George . . .	22.2	23.3
			St. Philip, &c. . .	21.0	24.9
Total . . .	27.0	26.1	Total . . .	27.5	26.5

\* "The actual mortality of most districts is found to be coincident chiefly with its physical condition, and is most accurately measured by the years of vitality which have been enjoyed, i.e. by the *average age of death*. The numbers of deaths increase or diminish considerably, and frequently create erroneous impressions, whilst the average ages of death are found to maintain a comparatively steady course, always nearest to the actual condition of the population, and give the most sure indications."—(Supplementary Sanatory Report, Appendix, p. 243.) It is gratifying to me to find my statements thus confirmed by Mr. Chadwick.

In Castle Precincts, exclusive of the deaths in St. Peter's Hospital, the average age of the dying is 28.6 years—had the ages of these deaths been taken into the account, it would have been 31.3 years.

In the census of the population in 1841, the ages of the inmates of this, and of the other public institutions previously mentioned, were, doubtless, included in the enumeration; but the documents, with which I was favoured, not giving their ages, that is, the ages of those *living* at the time in St. Peter's Hospital, I am, of course, unable to make the requisite distinction. In the absence of such data, and not to encumber our pages with calculations too minute and intricate, the explanatory statements given at pages 77 and 82 may probably suffice for all practical purposes.

It must be obvious, however, that the average age of the *living*, in any particular locality, is not necessarily affected by the mere circumstance of its being the locality of a public institution. The assemblage of a large proportion of persons in such an establishment, over and above the number that would otherwise have lived in dwellings upon the site it occupies, will, of course, in precisely this increased ratio, add to the population and augment its density. But unless the ages of the individuals, so congregated, vary in the aggregate from the ages of an equal number of the general inhabitants, the mean duration of life in the district will remain the same.

The 23 deaths in the "General Hospital" add one year to the district of St. Mary Redcliffe; the larger number (112) in the infirmary, two years, to the average age of the dead in that of St. James; but neither are included in the figures given.

The mean duration of life in Westbury and Henbury, as shown by the ages of the *dead*, is 38½ years; by those of the *living*, only 27.7 years. Upon consulting Tables 9 and 4, the cause of this disparity will be immediately apparent. In Table 9, in which the *deaths* above 70 years are compared with the total deaths, Westbury, &c., as in the present Table, will be found at the head of the list; that is, a greater number of old persons died during the year, relatively to the deaths which occurred at other ages. In Table 4, the proportion of deaths under five years to the total deaths, it will be perceived, was small; hence the resultant figure 35½. But the mean duration of life in this district, deduced from the ages of the *living*, is only 27.7 years. Table 10, renders this equally obvious: Westbury occupies the *third*, in lieu of the *first* place in the column: there were not so many old people living.

In Clifton, the average age of the *dead* is 33 years; in Ashley, nearly 31½ years (31.4). In the former, are not included the deaths of aged persons in the poor-house, which would have raised it to 35.4 years. The "three score years and ten" were lived by many, and even the "four score years" attained by not a few, in both these localities. The *mortality* under five years, on the other hand, was proportionately small; of the *living*, the average age is 28.2 years, equally in Clifton and Ashley, both being suburban parishes. The "Asylum" at Stapleton influences the results in reference to both the young and old of the district—the numbers *dying*, that is, in childhood and advanced life. But this very circumstance, viz., that the "asylum" is the receptacle for *both* these classes, obviously tends to equalize its position, rendering the resultant figure expressive of the mean duration of life, much the same as it would be, were there no such establishment in existence. Had its inmates been confined to *adults only*, then, as in the instance of the Clifton poor-house, the additional numbers of the *aged* living, and in natural course dying, not being counterbalanced by a like proportion of the *young*, similarly circumstanced, would have been in excess, and the mean duration of life have been correspondingly raised.

Stapleton being one of the two rural districts selected to represent the higher value of life in the country than in town, this explanation appeared necessary, as the calculation might otherwise have been considered in some degree vitiated.

We are thus prepared to understand why the low figures, 22 and 23 years, stand opposite to St. George. It contains the workhouse of the union, in which *children only* are admitted; placing the district in precisely the reverse position of Clifton.

With these explanatory statements we may venture to group the districts as in the preceding Tables.

Districts.	Average Age of Dead.	Average Age of Living.
2 Rural . . .	33.7	27.1
3 Semi-rural . . .	30.4	26.8
6 Town . . .	25.5	25.8
Total . . .	27.2	26.3

"The chief test of the pressure of the causes of mortality is then the duration of life in years; and whatever age may be taken as the standard of the natural age, or the average age of the individual in any community, may be taken to correct the returns of the proportions of death in that same community." (Supplementary Sanatory Report, Appendix, page 243.)

This quotation from Mr. Chadwick's able volume will render the following Tables sufficiently intelligible. For the convenience of reference, the same order of the districts is preserved as in Table 2 (page 94). To facilitate the calculations, the average age of the individual in each district is given in years and *months* instead of *decimals*. In Table 2, the decimals of course represent *tenths*; in these tables, as standing for months, *twelfths*; which will account for the slight apparent disparity. The deaths in the public institutions being excluded, the proportionate number of deaths likewise varies.



TABLE No. 13.

## BRISTOL DISTRICTS.

Districts.	Popu- lation.	Deaths.	Proportion.	Years Lived.	Average Age.	Healthy Proportion.	Years Loss of Life.	Excess of Deaths.	Per Cent. of actual Deaths.
					Years. Months.				
Redcliffe . . .	14,617	326	1 in 44.8	8,612	26.5	1 in 66.1	4,102	105.1	32.2
St. Paul . . .	14,872	330	1 in 45.0	9,246	28.0	1 in 62.7	3,630	93.0	28.1
St. Augustine . .	13,509	316	1 in 42.7	8,816	27.10	1 in 59.9	3,529	90.4	28.4
Castle Precincts .	10,726	205	1 in 52.3	5,873	28.7	1 in 71.5	2,135	54.7	26.3
St. James . . .	10,555	258	1 in 40.9	6,306	24.5	1 in 65.1	3,762	96.4	37.2
Total . . .	64,279	1,435	1 in 44.7	38,853	27.0	1 in 64.6	17,220	441.5	30.7

## CLIFTON DISTRICTS.

St. George . . .	8,305	125	1 in 66.4	2,784	22.3	1 in 115.2	2,094	53.7	42.4
Westbury . . .	7,086	128	1 in 55.3	4,928	38.6	1 in 56.0	64	1.6	..
Stapleton . . .	7,551	125	1 in 62.8	3,605	28.10	1 in 84.4	1,271	32.6	25.6
Ashley . . .	6,759	135	1 in 49.0	4,270	31.5	1 in 67.5	1,031	26.4	19.1
Clifton . . .	14,177	331	1 in 42.8	10,966	33.0	1 in 50.4	1,936	50.9	15.4
St. Philip, &c. .	21,590	508	1 in 42.5	10,697	21.0	1 in 78.7	9,144	234.4	46.0
Total . . .	65,768	1,353	1 in 48.6	37,250	27.6	1 in 68.9	15,559	398.9	29.4

"The Carlisle Table is taken as the standard for the duration of life, to measure the loss of life in the several districts, as it gives the probability of life from infancy, well ascertained for one town, and nearly coincides with the experience of the annuity offices on the select class of lives insured by them, and with the results which I have obtained from the mortuary registries showing the average age of death in the county of Hereford." (Appendix, page 240.) As an illustration of the mode in which this "standard" is made available, I select the first district in the Bristol Table, St. Mary Redcliffe. The deaths which occurred in the year were 326; this number, therefore, multiplied by the average age of the individual, 26 years and 5 months, will give 8,612 as the total number of years which these 326 persons had lived; but, according to the healthy or natural standard, they should have enjoyed 39 years on existence on the average— $326 \times 39 = 12,714 - 8,612 = 4,102$ , which represents the actual loss of years of life; or, we may take the difference between 26.5, and 39, viz., 12 years and 7 months, the loss of life to each individual, and multiply this by the number of deaths— $326 \times 12.7 = 4,102$ , as before; which, divided by 39 years, gives an excess of deaths of 105 persons. The "healthy proportion" is ascertained by dividing the population of the district by the difference between the actual deaths, and the excess of deaths— $326 - 105 = 221$  in 14,617 = 66.1; that is, 1 in every 66 only of the population should have died; whereas, 1 in 45 (44.8) did actually die. Now, if this calculation be correct, the total period of existence enjoyed by the individuals who died, added to the estimated loss of years of life, and divided by the number of deaths, should give the average individual age according to the Carlisle Table— $8,612 + 4,102 = 12,714 \div 326 = 39$  years; or, taking all the Bristol districts— $38,853 + 17,158 = 56,011 \div 1,435 = 39.4$  years; the Clifton districts— $37,250 + 15,590 = 52,840 \div 1,353 = 39.4$  years.

	Popu- lation.	Deaths.	Proportion.	Years Lived.	Average Age.	Healthy Proportion.	Years Loss of Life.	Excess of Deaths.	Per Cent. of Actual Deaths.
					Years. Months.				
2 Rural Districts	14,937	253	1 in 59.0	8,533	33.8	1 in 68.3	1,349	34.6	13.0
3 Semi-rural . .	29,241	592	1 in 49.39	18,020	30.5	1 in 63.2	5,081	130.2	21.9
6 Town Districts	65,869	1,943	1 in 44.19	49,550	25.6	1 in 67.5	26,230	672.5	34.5
Total . . .	130,047	2,788	1 in 46.6	76,103	27.3	1 in 66.7	32,759	839.9	30.1

And what are the results developed by these Tables? That in the city of Bristol there is a yearly excess of 441 deaths, 30.7 per cent. upon the actual deaths—the mortality, under existing circumstances, being 1,435, or 1 in every 44 of the population; whereas, under more favourable and not impracticable arrangements, it would be only 994, or 1 in 64 of the inhabitants. In Clifton Union, the excess is 399 (29.4 per cent.), 1 in 48, instead of the healthy proportion, 1 in 68—1,353 deaths instead of 954.

The rural districts present an excess of 13 per cent.; the semi-rural, 21.9; and the town districts, 34.5 per cent. upon the actual deaths over and above the number that should have occurred according to the healthy standard. We have thus, in Bristol and Clifton Union, a loss of thirty in every hundred lives—an excess of 840 in 2,788 deaths.

Having thus completed, though very imperfectly, our allotted task, the immediate object in illustration of which it was undertaken, the superior sanitary position, namely, of the country over towns, will, we think, be admitted as fully established.

The tabular arrangements are designed to show—

1st. That the congregation of large masses of people, in cities or towns, tends to increase the general mortality.

2ndly. That infantile life is more especially affected.

3rdly. That density of population, and its accompanying circumstances, are unfavourable to the attainment of longevity.

4thly. That the average duration of human existence is materially abridged.

5thly. That these results are ordinarily in close relation to the density of population; that is, that they attain their maximum, *ceteris paribus*, in the districts most thickly inhabited.

A summary of the whole has been attempted in the following arrangement. The upper columns present a comparison, extended in a continuous line, between the parish of Clifton (the subject of our first report), Clifton Union, and Bristol, in reference to each of the points previously exemplified in the separate Tables. In the lower columns, the rural, semi-rural, and town districts are brought into comparison in a similar manner.

TABLE No. 14.

	Clifton Parish.	Clifton Union.	Bristol.	
General mortality . . . . .	1 in 39.1	45.5	37.5	of Population.
Living under 5 years . . . . .	1 in 10.4	8.0	8.7	of Population.
Died under 5 years . . . . .	1 in 12.3	13.2	11.3	of Population under 5 years.
Died under 5 years . . . . .	1 in 3.2	2.3	2.6	of Total Deaths.
Living at 70 years and upwards . . . . .	1 in 32.5	37.3	37.0	of Population.
Died at 70 years and upwards . . . . .	1 in 6.3	8.1	8.9	of Population at 70 years and upwards.
Died at 70 years and upwards . . . . .	1 in 5.3	6.6	8.8	of Total Deaths.
Average age . . . . .	28.2 yrs.	26.5 yrs.	26.1 yrs.	of Living.
Average age . . . . .	33.0 yrs.	28.9 yrs.	25.9 yrs.	of Dead.

	Rural.	Semi- Rural.	Town.	
General Mortality . . . . .	1 in 52.5	46.1	33.3	of Population.
Living under 5 years . . . . .	1 in 8.4	8.6	8.3	of Population.
Died under 5 years . . . . .	1 in 19.0	14.4	11.0	of Population under 5 years.
Died under 5 years . . . . .	1 in 3.0	2.7	2.3	of Total Deaths.
Living at 70 years and upwards . . . . .	1 in 25.0	37.6	39.3	of Population.
Died at 70 years and upwards . . . . .	1 in 7.8	7.3	9.2	of Population at 70 years and upwards.
Died at 70 years and upwards . . . . .	1 in 4.1	5.9	9.5	of Total Deaths.
Average age . . . . .	27.1 yrs.	26.8 yrs.	25.8 yrs.	of Living.
Average age . . . . .	33.7 yrs.	30.4 yrs.	25.5 yrs.	of Dead.

To trace out the varied and multiform circumstances to which the different numerical results are to be ascribed in each district, would involve a devotion of time, and minuteness of inquiry, which I regret it is not in my power, in connexion with other engagements, to bestow. In assigning certain general causes as explanatory of this difference, and of the mortality of towns in the abstract, I am well aware, that numerous collateral agencies, each exerting a separate specific influence, must be taken into the calculation, if we would satisfactorily account for the actual physical evils exhibited in the aggregate. Of the modifying effects of such agencies upon the well-being of families and individuals, I was constantly reminded in the limited inquiries, which my leisure permitted, connected with the statistics of Clifton.

Density of population, imperfect ventilation, deficient drainage, and inadequate supplies of water, are undoubtedly, in themselves, conditions most unfavourable to health, and fruitful sources of disease. But any inquiry into the physical circumstances affecting the health of the inhabitants of a particular locality or district, would obviously be most incomplete, did it fail minutely to investigate their habits of life, their occupations, earnings, diet, clothing, and the multiplicity of subordinate, but collectively powerful agents, acting upon a population in their individual and social position. Fully recognizing the importance and value of these details, I can only express my regret that circumstances, at the moment in which my humble assistance was requested, precluded the possibility of entering upon their consideration. With due facilities and arrangements, Bristol affords an ample and varied field for such an investigation.

The more general causes operating prejudicially upon the health of towns, and which exert comparatively little influence in rural localities, may be briefly enumerated.

Atmospheric impurity, arising from various sources, is, undoubtedly, the most extensive in its operation.

Every being, human or animal, in each act of inspiration, vitiates a portion of air, renders it less pure, less fitted for the support of life. But the mere respiration of multitudes, however closely compacted, under any recognized conditions of actual existence, though it exerts a manifest influence on the general atmosphere of a community, is by no means the only agent in effecting its contamination. Manufactories of different kinds, and all the varied processes connected with human industry, and which require, for their multiform operations, the expenditure of large portions of combustible materials, from which volumes of smoke and other noxious gaseous effluvia are constantly escaping, contribute, in a much more marked degree, to atmospheric deterioration. How obviously the site of any large town may be described, even from a considerable distance, by the darker super-incumbent atmosphere, is matter of daily observation.

But the support of life of such congregated thousands, implies the consumption of animal and vegetable products, and the consequent production of refuse, to a proportionate extent. The gaseous exhalations eliminated during the process of decomposition, must still further add to the evil, and prove correspondingly prejudicial to the health of the community. Better and more stringently enforced regulations, as regards the combustion of fuel, and the timely removal or judicious disposal of every species of filth, in lieu of its permitted accumulation, would doubtless diminish, if not altogether prevent, much of the resultant mischief. In the absence, or non-efficiency of such salu-

## APPENDIX.

## City of Bristol.

Report on its Sanitary Condition, by G. W. Kay, M.D.



## APPENDIX.

## City of Bristol.

Report on its Sanatory Condition, by G. W. Kay, M.D.

tary arrangements, a great portion of this organic and excrementitious matter, having first *substantially* tainted the atmosphere, assumes the fluid state; and, though admitting in this form of still easier diversion through appropriate channels—in other words, by means of properly constructed drains and sewers, from the inadequacy of such provision, the evil is still more widely diffused. These may be considered the chief sources of the contamination of the air of towns, and the active agents in the production or extension of disease.

Another arrangement, consequent upon the aggregation of individuals in large numbers, is the division of towns into streets, courts, alleys, &c.; but, unfortunately, and almost universally, without any specific plan, and with little or no regard, in the original distribution or construction of the dwellings, to the health, individually or collectively, of the occupants. Hence, in this nearly indiscriminate allotment, the disproportion of space to numbers, density of population, and its numerous attendant inconveniences. But, confessedly apparent, as in most large towns, is this want of original design, it has, in the case of not a few, been rendered still worse, by the subsequent appropriation for building purposes, of those few open spaces, in and around their sites, which have been not inaptly termed, the breathing spots, the lungs of a community. In many instances, where the evil has at length attained its climax, and public attention been aroused by the sudden breaking out of fever or other epidemic, it has been found necessary, more however, for the most part, from considerations of civic convenience, probably, than solicitous regard to the general health, to widen certain streets, enlarge the great thoroughfares, and remove the more obvious impediments to efficient ventilation. The sacrifice of human life, (can it be otherwise regarded?) that in the interval has taken place, and where such improvements have not yet been effected, which is still going on, it is surely lamentable to contemplate. It is in these narrow and confined localities, which are common to every large town, and more especially, where they assume the shape of courts, lanes, and alleys, that noxious effluvia are generated to the greatest extent, and detained, so to speak, within their favourite precincts. Hence, it happens, ever and anon, that fever, or other disease, in a malignant form, is developed, and carries off numbers of unfortunate victims. Nor does the construction and internal arrangement of the great proportion of dwellings, particularly those of the middle and humble classes, even when favourably situated, by any means admit of the due degree of ventilation or cleanliness. Little or no regard would seem to have been paid to such important considerations either by the proprietor or builder.

Houses are daily erected, not only in the most objectionable and unhealthy localities, and to the serious detriment of those previously reared, but, unprovided with supplies of water, deposits for refuse, and other conveniences, alike essential to decency and morality.

All these circumstances, it is submitted, if they do not at all times produce specific disease, have a direct tendency, by lowering the standard of health, to predispose to its accession, and thus to shorten the period of human existence. The wonder surely is, not that the mortality of towns is so great, but that, contrasted with the country, the difference is not still more marked and decided.

There is one point connected with the economy of towns, and undoubtedly demanding the most serious consideration, which, in this brief outline, I have purposely refrained from noticing—I mean the subject of inter-mural interments. That the burial of the dead, in the midst of our large and densely populated towns, is a custom, even under the best regulated arrangements, fraught with inconvenience, and oftentimes danger to the living, seems hardly to admit of being deliberately questioned. That the state of our churchyards, and other places appropriated to sepulture, is such as to call loudly for interference, the disclosures which have of late been made public place beyond all reasonable doubt. But, as I have occasion to know, that an inquiry into this increasing evil, and its remedy, is engaging the attention of the very able author of the "Sanatory Report," and that the details will ere long be officially published, further remark would be premature, and out of place.

In conclusion—if the true causes have been assigned for the greater mortality prevalent in towns, all remedial measures, it is obvious, must be framed with the avowed design, and carried out in the honest spirit, of accomplishing, so far as may be, their actual removal. In reference to the majority of the evils enumerated, however formidable and widely extended their operation, there is, fortunately, nothing in their nature or peculiarity to render impracticable wisely directed sanatory arrangements.

Drains and sewers may be made where they are deficient, and improved where they are defective. In most towns, the supplies of water are abundant, and only require to be rendered available. Refuse need not be allowed to accumulate, nor dirt to remain stationary. There is plenty of light and air, and no reasonable ground for their exclusion. The state of existing courts and alleys admits of considerable modification, and their construction in future, if permitted at all, may be regulated by special legislative enactments.

The nation, we believe, is prepared to expect and welcome measures, on the part of Her Majesty's Government, having for their object the amelioration of the public health, of an enlightened and comprehensive character. The startling disclosures published in official documents, and the scarcely less impressive statements brought forward in private reports (all tending to show the extremely objectionable and inadequate nature of the existing civic arrangements, and the utter impossibility of their being equal, under any modification or extension of their powers, to deal with the evils in question,) must have convinced every unprejudiced mind of the absolute and urgent necessity, that legislative provisions of proportionate magnitude should be adopted, and that they can only be efficiently carried out under the direction of duly and specially qualified, independent public officers.

Clifton, January 22, 1844.

## REPORT on the CITY of BATH and its SANATORY CONDITION,

By SIR HENRY T. DE LA BECHE.

## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

*Situation.*—Bath is built partly on the slope and lower part of a hill, rising from the right bank of the river Avon, where it forms a considerable bend round from east and west to north and south, the more ancient portion being at the bend, and on the lower ground, and partly on the eastern bank of the same river, but on this side rising, except as scattered villas and minor ranges of houses, to a less elevation than on the right bank.

Lansdown, forming the continuation of the hill on which a large part of Bath stands, is elevated about 800 feet above the sea; and viewed from the Wells Road, the city has a striking appearance, its various crescents and ranges of houses rising above each other from the lower ground to the crest of this range of hill. The bulk of the buildings shade off, as it were, by means of detached ranges of houses and villas, the latter dotted thickly about the outskirts of the city.

It is a handsome town, and from the abundance and small cost of the stone quarried around, and the facility of working it, houses are easily constructed; and even when small, present a better appearance than those of the same character in most towns.

The Avon is navigable up to Bath, and the navigation is continued by the Kennet and Avon Canal into the Thames, so that the city possesses water communications with Bristol on the one side and London on the other.

*Climate.*—From the sheltered situation of a great part of the town from the northerly winds, while the same portion is freely swept by those, and they are the most prevalent, from the westward and southward, at the same time that other parts of the city are open to the eastern winds, and such northerly winds as find their way down the valley of the Avon, with the variable heights of the houses above the bottom of the valley, such obvious causes for difference of temperature are afforded in different parts of Bath, that observations respecting it, in one part of the town, may vary much from those in another.

The following is a table of the mean temperature observed by Mr. Biggs, chemist, in the lower part of the town from June 1841, to July 1843, and may suffice for a general view of this subject:—

1841 July . . .	65°	1842 July . . .	62°
„ August . . .	65°	„ August . . .	67°
„ September . . .	61°	„ September . . .	58°
„ October . . .	50°	„ October . . .	46°
„ November . . .	44°	„ November . . .	45°
„ December . . .	43°	„ December . . .	46°
1842 January . . .	36°	1843 January . . .	41°
„ February . . .	42°	„ February . . .	37°
„ March . . .	46°	„ March . . .	45°
„ April . . .	49°	„ April . . .	50°
„ May . . .	54°	„ May . . .	53°
„ June . . .	63°	„ June . . .	55°

As far as this table extends it would give us the mean temperature of the months for the two years, as follows:—

Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
38°·5	39°·5	45°·5	49°·5	53°·5	60°·5	63°·5	66°	59°·5	48°	44°·5	45°·5

This would give an annual mean for the two years of 51°·2, which appears small for the lower parts of Bath, the mean annual temperature of which we should not expect to be less than in the lower portion of Bristol, namely 53°, though 51°·2 may approximate fairly to the annual mean of a large part of Bath.

The following affords a view of the fall of rain in this city for the same period, July 1841, to June 1843, inclusive:—

	1841-2.	1842-3.
July . . . . .	1·50 inches.	2·25 inches.
August . . . . .	2·87 „	2·50 „
September . . . . .	7·37 „	4·00 „
October . . . . .	4·50 „	1·00 „
November . . . . .	5·25 „	8·00 „
December . . . . .	4·25 „	2·25 „
January . . . . .	3·00 „	3·37 „
February . . . . .	2·75 „	2·01 „
March . . . . .	5·00 „	2·00 „
April . . . . .	0·25 „	4·25 „
May . . . . .	2·62 „	5·25 „
June . . . . .	3·00 „	2·75 „
	42·36	39·63

This would give a greater mean annual fall of rain than for Bristol, for which the mean of 16 years is 32·92 in. It is thought that the fall of rain is somewhat more at Bath than at Bristol, but it requires better observations to establish this than have hitherto been made. Mr. Biggs considers that the fall of rain observed for the two years noticed is above the average, which he estimates at about 32 inches per annum. It is probable that the climate of



## APPENDIX.

## City of Bath.

Report on its Sanitary Condition, by Sir H. T. De La Beche.

Bath does not materially differ from that of Bristol. Like the latter it may, as a whole, be regarded as mild and moist. Mr. Field, surgeon of Bath, observes, "It is certain that the climate of Bath is damp. The south-westerly breezes, as they pass over the hills of the neighbourhood, deposit a considerable quantity of the water which they waft from the Atlantic."

*Geological Structure of the country on which the City stands.*—The nearly horizontal beds of clays, limestones, sands, and sandstones on which Bath stands, constitute a portion of the series of rocks to which the term oolitic has been given from the oolite or oviform grains in many of the limestones. The city and its environs are indebted for its appearance to the limestone beds, named the Bath oolite, extensively quarried in the neighbouring hills, especially on Claverton and Combe Downs. To these beds, for there are several, succeeds a considerable thickness of clay, known as the Fullers'-earth, from a minor portion of it furnishing real fullers'-earth, much employed in the cloth manufactories of the neighbouring towns of Bradford, Frome, &c. Richmond Hill and Mount Beacon, in the higher and northern side of Bath, are upon this clay. Beneath the Fullers'-earth clay appears the limestone known as the "Inferior Oolite." The upper part of Sion Hill, Lansdown-crescent, Springfield-place, Rock-house, Lansdown-grove, &c., are upon this limestone, one based on sands, termed the Inferior Oolite Sands, which are not so thick at Bath as at some other localities in the vicinity. They form steep ground ranging under the escarpment produced by the Inferior Oolite limestone. The lower part of Sion Hill, All Saints' chapel, and part of Lansdown-road, are upon these sands, which also form the escarpment behind Upper Camden-place. Still in the descending order of the beds, occur those known as Marlstone, being an indurated condition of calcareous marl mingled with sand, some clay being intermingled. Cavendish-crescent and place, the higher part of Park-street, part of Lansdown-road, Camden-place, Upper Camden-place, the back of Prospect-place, with Stanley-place are on the Marlstone. The rocks above enumerated, therefore, support the higher parts of Bath on the north side of the river.

All the rest of Bath, consequently the great mass of it, is built on the marls, and argillaceous limestones, known as the Lias, with the exception of Pulteney-street, Sidney-place, Bathwick-street, and other streets and places adjacent on the left bank of the Avon, with the various buildings on the Dolmeads and the Parades; the bottom of Southgate-street, parts of Avon, and Milk-streets, King's Mead-terrace, Green-park-buildings, and Norfolk-buildings, and Crescent, on the right bank of the river, which stand on alluvial ground, in a great measure composed of clay.

The buildings on the oolitic limestones and sands are on dry ground; on the marlstone it is more moist, and on the lias and alluvial ground it is naturally damp. On the lower ground, however, where the latter character would otherwise be much felt, the accumulated buildings of centuries, and the vaulting on which the houses are erected, much prevent the damp character of the ground beneath from being injuriously felt above.

As might be anticipated from the interstratification of the different kinds of rock mentioned, conditions for the occurrence of springs are numerous, and accordingly they are not uncommon, and from them Bath is supplied with water for domestic purposes, wells to cut the lines of water beneath the surface being also formed.

With the exception of the alluvial flat at the bottom of the valley, the ground upon which Bath stands affords great natural facilities for drainage.

*Floods.*—That part of Bath which is built upon the alluvial flat at times suffers severely from floods, in a great measure produced by the artificial obstructions which have been raised by bridges, by encroachments on the banks of the river, and by mill-dams or weirs, to the natural discharge of the river waters. Mr. George, town clerk of Bath, in his answers, on the part of a Committee of the Town Council of Bath, to the questions forwarded to him from the Commissioners, observes, respecting the liability of the town to flood:—

3. "It is, the lower part particularly. In the time of snow, very considerably."
4. "There are (obstructions to the natural drainage) from several weirs across the river."

The floods are much felt in the tenements, (nearly altogether occupied by the poorer classes,) erected outside the city boundary, on that part of the alluvial flat of the Dolmead, where the discharge of the floods, from the bridges, and encroachments on the river towards the quays, is much impeded. The houses in New-street, Dolmead, are so sunk in many places as to be beneath the water-level in high states of the Avon, and in floods they are inundated.

It is stated that the floods during the last 25 years have generally increased from the many encroachments in different places on the banks of the river, and from the multiplication of bridges. The quay on the town side, above the old bridge, is represented as an encroachment made about 18 years since.

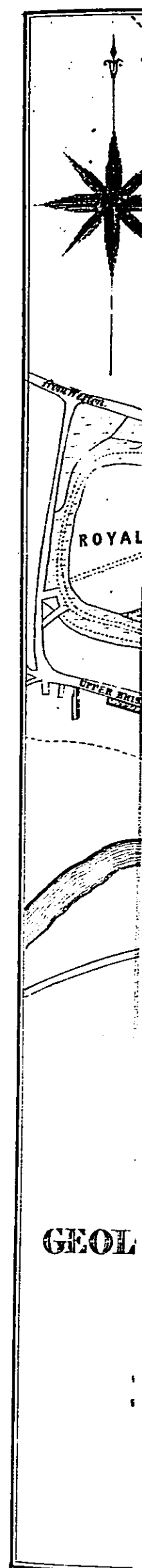
It appears from a report of Mr. Telford to the corporation of Bath, on the improvement of the Bath bridge, dated August 1823,—

"That in the great flood of 1809, the water, at 90 yards above the bridge, was higher than at 153 yards below it, by two feet 9 inches.

"This difference of head could not arise from the want of water-way at Bath-bridge; because it is six feet more than that of Pulteney-bridge, and more than the channel either above or at some distance below the bridge.

"The true causes are, that the arch next the south abutment has half its width encroached on by a projection of masonry, while, on the north side, the river-bank forces the current obliquely against the piers, thereby lessening the effect of the water-way, and throwing the greatest weight of water against the obstructed arch. The northernmost arch is, also, thus prevented from performing its office until the flood-water has acquired the before-mentioned head.

"From the foregoing statement of facts, I infer that, were the obstructions on each shore removed so as to permit the water to pass directly through the arches, no head would be created, but a regular



## APPENDIX.

## City of Bath.

Report on its Sanitary Condition, by Sir H. T. De La Beche.

# MISSIONERS of INQUIRY

Like the latter it may, as a whole, Bath, observes, "It is certain that the they pass over the hills of the neigh- which they waft from the Atlantic." The nearly horizontal beds of and, constitute a portion of the series e oolite or oviform grains in many of its appearance to the limestone beds, pouring hills, especially on Claverton, succeeds a considerable thickness of it furnishing real fullers'-earth, much ing towns of Bradford, Frome, &c. ern side of Bath, are upon this clay. own as the "Inferior Oolite." The place, Rock-house, Lansdown-grove, the Inferior Oolite Sands, which are ity. They form steep ground ranging estone. The lower part of Sion Hill, ese sands, which also form the escarp- nding order of the beds, occur those areous marl mingled with sand, some the higher part of Park-street, part e, the back of Prospect-place, with enumerated, therefore, support the

is built on the marls, and argillaceous Pulteney-street, Sidney-place, Bath- the left bank of the Avon, with the ne bottom of Southgate-street, parts of ark-buildings, and Norfolk-buildings, on alluvial ground, in a great measure

on dry ground; on the marlstone it aturally damp. On the lower ground, much felt, the accumulated buildings rected, much prevent the damp cha- above.

the different kinds of rock mentioned, d accordingly they are not uncommon, estic purposes, wells to cut the lines

of the valley, the ground upon which

uvial flat at times suffers severely from obstructions which have been raised by d by mill-dams or weirs, to the natural erk of Bath, in his answers, on the e questions forwarded to him from the town to flood:—

w, very considerably." several weirs across the river."

together occupied by the poorer classes,) lluvial flat of the Dolmead, where the hments on the river towards the quays, d, are so sunk in many places as to be in floods they are inundated. ave generally increased from the many e river, and from the multiplication of dge, is represented as an encroachment

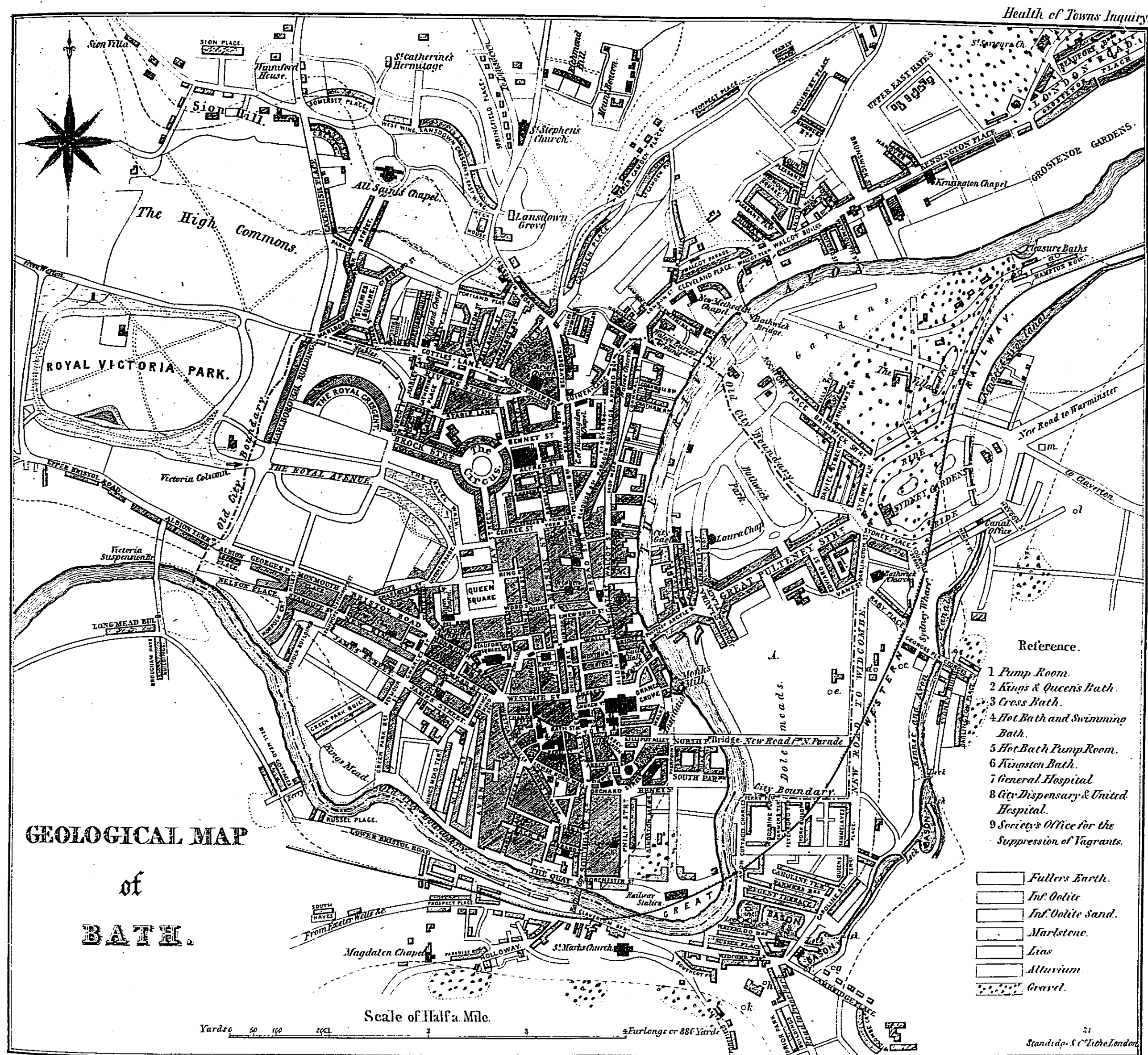
ration of Bath, on the improvement of

above the bridge, was higher than at 153

of water-way at Bath-bridge; because it is e channel either above or at some distance

ment has half its width encroached on by a ank forces the current obliquely against the owing the greatest weight of water against is prevented from performing its office until

e the obstructions on each shore removed so es, no head would be created, but a regular





APPEN

City of 1

Report on it  
tory Condit  
Sir H. T. D.  
Beche.

inclined plane preserved, and therefore, that no alteration (in the arches of the bridge) is required on account of the water-way."

Obstructions near the bridge still continue, and though great care has been observed in constructing the adjoining bridge for the Great Western Railway, all the artificial arrangements in this part of Bath, and at Twerton weir below, tend to impede the free course of the flood-waters.

*Drainage and Cleansing.*—There is no plan of Bath, with proper levels, for building, sewerage, or other structural purposes. There are Commissioners for the out-parish of Walcot, who have powers, under a Local Act, to construct sewers, and somewhat more than one-fifth of the city comes under their jurisdiction for this purpose. For the remainder of the city there is a total absence of public powers for drainage and sewerage, a singular state of things for so large a town.

The present drainage, for at least three-fourths of Bath, may be considered as little else than the result of adjustments among the various proprietors of the ground and houses at different times among each other, a fact sufficiently remarkable when it is considered that this city has long been the resort of persons in easy or affluent circumstances, and that it contained, in 1841, a population of 53,206 persons.\*

Respecting the drainage and sewerage of Bath, Mr. George observes:—

6. "There are no settled regulations for draining the town. The streets, courts, and alleys are paved, and have generally sufficient inclination for surface drainage. In the more distant part of the environs there may be a few open ditches that receive the drainage of cottages, but none near the town. I know of no stagnant pools."

7. "The under-drainage is partially effective. There are main sewers either in the streets or in the areas of the houses, or behind the houses, with collateral or branch-chains from the houses into them."

8. "The houses are well supplied with necessaries: they empty into drains, and rarely require cleansing, except from stoppages arising from accidental circumstances. There are no public necessaries."

9. "The house-drains are cleansed by the water from the roofs and wash-houses passing through them, but are occasionally obstructed."

10. "Some of the public or main sewers are occasionally obstructed by deposits arising either from their inadequate size or want of current, or both causes combined; but this does not often occur."

"Traps to prevent the escape of smells are plentifully used."

11. "The Commissioners for the out-part of the parish of Walcot have power, under a Local Act, to order the construction of new sewers and the alteration and reparation of old ones, where they see occasion; their power extends over about a fourth or fifth part of the city. There is no such power vested in any body for the remainder of the city."

12. "All the drainage of the town is conducted into the river, except in a few cases of old houses and a portion of new buildings, the suburbs having cess-pits."

With reference to the form of the sewers and drains, Mr. George remarks that they are—

13. "Rectangular; the house-drains from 6 inches square to about 12 inches by 10 inches; main sewers from about 12 inches by 14 inches to 2 feet by 4 or 5 feet, the prices varying accordingly; a drain of 12 inches by 14 inches would cost 1s. 6d. per foot running measure."

14. "When the main sewers require cleansing they are opened from the surface, and the deposit taken out and carried away."

The following are answers to the Commissioners' questions relating to the drainage of Bath, which have been received from Mr. Philip Duncan, well known for his philanthropic character and for his desire to promote all useful and public works at Bath:—

6. "The upper part of the city is well drained; but several streets in the lower part, from their situation and from negligence, are insufficiently drained."

7. "There are sewers, but imperfect."

8. "Many poor houses are defective in necessaries. There are no public necessaries."

9. "Many house-drains bad."

10. "The drains are covered, but frequently obstructed."

Though so defective in arrangements to insure a general and proper system of sewerage, Bath, as a whole, is well paved, and fairly cleansed, as regards the duties of the scavenger, though in this respect also there is a want of a general system. In the matter of cleansing power (scavenger duties), instead of there being no commission for Bath, there would appear to be too many, and a consequent want of co-operation and an unnecessary expense of officers required for the purpose.

The following letter from the town clerk of Bath to the Secretary of the Commission, points out the Acts under which the paving, cleansing, &c., are carried out, and the present faulty and conflicting state of the regulations in force, resulting from the number of district Boards:—

"Sir,

"Bath, 5th February, 1844.

"In reply to your inquiry respecting the Local Acts which now exist for the government of this city and borough, I beg to inform you that there are four, and which are described in Schedule E to the Municipal Corporation Act, viz.:—

"33 Geo. III., c. 89.—'An Act for paving, cleansing, lighting, watching, and regulating the streets, squares, lanes, ways, and passages, and public places within such part of the parish of Walcot, in the county of Somerset, as is not within the circuit, precinct, and jurisdiction of the city of Bath, in the same county; and for removing and preventing nuisances, annoyances, encroachments, and obstructions; and for establishing a proper and effective police therein; and for licensing and regulating hackney-

\* It would appear that, when Queen Elizabeth visited Bath, there was no common sewer in it; and this town, now large and handsome, is represented to have been a poor place in 1670.

APPENDIX.

City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

'coaches, chairs, porters, basket-men and basket-women within the said city of Bath, and a certain distance thereof.'

"41 Geo. III., c. 126.—'An Act for paving, steining, cleansing, watering, lighting, watching, and regulating the streets, squares, lanes, ways, passages, and public places within the parish of Bathwick, in the county of Somerset, and for removing and preventing nuisances, annoyances, encroachments, and obstructions, and for establishing a proper and effective police therein.'

"54 Geo. III., c. 105.—'An Act for better paving, cleansing, lighting, watching, regulating, and improving the city of Bath, and the liberty and precincts thereof.'

"Note.—This Act embraces the parishes of St. James, St. Michael, St. Peter, and St. Paul, and a part of Walcot, which comprised the city of Bath before the passing of the Municipal Act.

"6 Geo. IV., c. 74.—'An Act to amend an Act of His late Majesty for paving, cleansing, lighting, watching, and regulating the streets and public places within such parts of the parish of Walcot, in the county of Somerset, as are not within the city of Bath.'

"Some of the Commissioners for the execution of these Acts are elected for life, others for five years, and seven are annually appointed out of the town council to assist the other Commissioners in the execution of the Act of 54 Geo. III. Under each of these Acts there is a separate establishment of clerks, surveyors, and other officers for carrying them into execution. These Acts being very differently constructed, I consider it unnecessary, for the present purpose, to show the various or particular discrepancies and dissimilarity, but merely to state, that offences are described and punishable under one which are not offences under another; and for those offences which are punishable under all, the penalties vary in amount from 10s. to 5l.; and that, in fact, what is an offence in one part of the borough is not in another. The manner of repairing the streets, &c., as provided by these Acts, is considered objectionable, and requires alteration and amendment. In some instances there is no power of steining, and the expenses are paid by individuals instead of a general rate.

"The city and borough of Bath, as extended under the Municipal Act, contained, in 1841, a population of 53,209 persons. The parish of Lyncombe and Widcombe, which is immediately contiguous to the old city, and now forms a part of the borough, contains about 15,000 persons, and is not under the regulation of either of the above Acts, but is subject to the General Highway Act. The inhabitants of that part of it which is watched by the borough police contribute towards the expenses of such watching, but the lighting of the same part is paid out of the borough fund. The lighting in the other parishes is under the directions of the Commissioners named under the above Acts, and is paid for by a separate rate on the inhabitants.

"In the year 1837, the great inconvenience attending this state of things was brought under the consideration of the town council, by whom a committee was appointed to meet the Commissioners, with a view to a consolidation of the Acts, the introduction of several amendments suited to the present state of the borough, and one uniform system; but the Commissioners of the various Boards declined co-operation with the council: and thus the matter rested until the year 1839, when another committee was appointed for the same object, but having ultimately in view an application to Parliament by the council, leaving the several Commissioners to oppose it upon any grounds they might consider tenable. This proceeding terminated in consequence of a difficulty which arose as to whether the expense attending the application to Parliament (in the event of a failure from any circumstance) could be paid out of the borough fund without violating the Municipal Act. The opinion of Mr. J. Wightman (then at the bar) was taken on the point, who considered that the borough fund could not be charged with the expense, and the application was therefore abandoned, and thus the matter has remained from that period to the present. My official situation enables me to speak to the great difficulties and inconvenience experienced by the borough magistrates in administering justice within their jurisdiction under the existing Acts, and as to the necessity of additional powers, similar to those given to the magistrates, at the police offices in London under the 2 and 3 Victoria, c. 47.

"I remain, Sir,

"Yours, very obediently,

"P. GEORGE, Town Clerk."

"To Henry Hobhouse, Esq."

With respect to the service of scavengers, Mr. George observes:—

15. "The annual expense cannot be ascertained, it being borne by ground-landlords or tenants, and not by any public body."

16. "They (the courts and alleys) are cleansed by the scavengers appointed under the local Acts. The refuse is removed by carts twice a-week, at the expense of the rates."

17. "Dust-boxes are used; the refuse is removed twice a-week."

18. "The scavenger has a depot in the environs,—the refuse is carried into the country and sold for manure."

19. "There are three local Acts, which are conflicting and inadequate in their powers,—many nuisances not punishable, and those that are varying as to penalty and punishment."

A remarkable instance of the effects of apparently conflicting views is to be seen in York-street, near the Abbey, one-half of it being (longitudinally) paved, the other half Macadamized; so that (the street not being a wide one) the wheels on one side of a carriage may run on a paved, those on the other upon a stoned road.

Though some of the courts and alleys were found dirty and ill-cleansed, and cabbage leaves, peas-cods, and other refuse of that kind may be thrown into them, and into such streets as Avon and Milk-streets, inhabited by the poorer classes, the scavengers' work may be regarded as fairly executed at Bath, more particularly when compared with that in the generality of towns of a similar population.

*Streets, Alleys, and Courts.*—Bath may be regarded, taken as a whole, as a well-built town; the streets generally airy and good, the chief exceptions being in the lower and older part of the town. Courts and narrow alleys are not very frequent. Milk and Avon streets, the abode of the poorest classes, are both fairly wide streets; the houses in them are usually dirty and ill-ventilated, but the streets themselves would be regarded, in towns where good streets are not so prevalent, as sufficiently wide, and they are both well paved. A main sewer is stated to run

## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

between the two streets, and to be swept clean daily by the discharged water from the hot-baths. The courts behind are in many instances dirty and ill-cleansed.

Selden-court in Southgate-street is narrow (about four feet wide) and dark, having a wall in front of the houses nearly equal in height with them; it is represented as not healthy, but it appears well drained and clean. The great evils are bad ventilation and want of light. There seems no regulations for the construction of such courts, for Boyce's-court, in Wine-street, recently built, is very narrow and ill-ventilated, but it is clean. There are some miserable dwellings in Barton-place, and other situations inhabited by the poor, but the evil in modern times has been the erection of houses in the Dolmeads, previously mentioned as liable to floods. These are inhabited by the poorer classes, and the drainage among them is imperfect, though some sewers have been constructed at the cost of the owners. No precaution has been taken to prevent the water in times of flood from entering these drains, and they therefore rather aid the inundation of the houses in this district, which is otherwise partially protected by an embankment. The highways also among them are in a bad state, especially in the Ferry-road, though a way-rate of 9d. in the pound is levied upon the occupiers.

The ventilation of the poorer houses is usually bad and neglected, and there is much personal dirt. There are no cellar dwellings. The school-rooms for the labouring classes are not ill constructed, but they appear to have no play-grounds. Mr. Philip Duncan describes their site, drainage, light, warmth, and ventilation, as "sufficiently good," and Mr. George also expresses himself favourably on this head.

Mr. George states that there are no local Acts or provision to prevent the ends of the streets being closed up, or to relieve over-crowding, by promoting the extension of suburbs.

Respecting the habitations of the poor, Mr. Philip Duncan observes:—

50. "Many are crowded and dirty."

51. "In the worst houses twelve families, frequently four persons in a room."

52. "The general state of the air (in the dwellings of the poorer classes) very impure."

53. "Better warmed than in most towns, as coal is comparatively cheap, and coke is much used by the poor."

*Lodging-houses.*—According to a return from the police, there are about 27 houses of this kind in Bath, chiefly in the lower parts of the town, and the general character of the keepers of them is represented by the same authority to be bad. The probable number of vagrants who sleep in each house each night is stated by the police to vary from four to six, so that, taking the number at five, 135 persons of this description would, on the average, sleep in these lodging-houses per night. Supposing that, on the average, each vagrant may sleep two nights in these houses, 19,870, or nearly 20,000, would be the number of different vagrants sleeping in the Bath lodging-houses per annum. Making every allowance for the same parties visiting Bath more than once during the year, yet considering that many only remain one night, the number of different vagrants who visit this city must be very considerable. By those who have looked into the subject, it is stated, that during the season at Bath, when there is a considerable influx of visitors, the vagrants are most numerous, and it is to be feared that indiscriminate charity somewhat prevails at this place. A large proportion of these vagrants is represented to be of the worst kind. They pay about 3d. per night for their beds, placed in small, ill-ventilated rooms. The beds are usually occupied by two, but occasionally a larger number is crammed into them, without much regard to sex or age. For the relief of deserving poor travellers, there is a Refuge for the Destitute, where they are provided with food and beds for the night; after which, if found begging, the police interfere.

Also, to relieve deserving poor travellers, a gentleman of the Committee of the Society for the Relief of the Sick Poor, usually termed the Monmouth-street Society, from meeting at their house in Monmouth-street, attends daily (Sundays excepted) to hear the applications of poor travellers. He gives them (if considered deserving) a loaf of bread and some soup, under promise to leave the town.

*Public parks and walks.*—The chief of these is a space of about 200 acres, named Victoria Park, which was formed by subscription in 1829, and is now supported in the same manner. The corporation gave 100l., and 160l. annually, and in a few months nearly 4000l. were raised. This park partly occupies the common fields belonging to the freemen of Bath. The Victoria Park is under the management of a committee, and the public have access to it.

In addition to this is the East Park, and Cleveland-walk, due to the exertions and liberality of the public authorities, the agents of the Duke of Cleveland (a large proprietor at Bath), and others.

*Baths.*—This city has long been famous for its thermal springs, as its ancient and modern names attest. From the remains of large baths and sudatories that have been discovered, the Romans appear to have made that use of them that might have been expected. These baths would appear to have been destroyed at the time of the Saxon occupation of the country, and one locality at least made a burying-place, connected with an abbey or priory, as Saxon stone coffins were found, in 1755, above these remains, which were then first discovered, one coffin resting upon one of the pilasters of the great bath. The rubbish being cleared away, and several ancient channels for carrying off the water repaired, the locality again became one of baths and sudatories, under the name of the Kingston Baths, from the duke of the same name, who rebuilt them.

Roman remains have been found in connexion with the other baths, among these was part of a Roman bath, the steps to which had been apparently much worn by the feet of the bathers.

The baths consist of the King's and Queen's Baths, the Royal Private Bath, the Cross Bath, the Tepid Swimming Bath, and the Kingston Baths.



## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

The King's Bath is 66 feet long and 41 feet wide; is filled daily to about the height of 4 feet 7 inches, and contains about 314 tons of water. The spring in the centre of the bath affords three hogsheads of water per minute, at a temperature of 116°.

The Queen's adjoins the King's Bath, and is smaller, being about 25 feet square, and is supplied from the same spring.

Connected with the King's Bath is a reservoir for cooling the waters, containing about 32,000 gallons, so that the private baths may be arranged at convenient temperatures. A jet into the air, worked by a small steam-engine, performs the cooling process in the centre of the reservoir.

At the King's and Queen's Baths the charge for bathers is 1s., and they appear to have been far more frequently used formerly than at present; parties of ladies and gentlemen then bathing together, properly dressed. There are seats and recesses round the King's Bath for the accommodation of the bathers, who may select a temperature in different parts of the bath, varying from 100° to 116°.

At the Cross Bath, so called from a cross formerly in the centre of it, erected as a memorial of the queen bathing in it in 1687, persons can bathe on payment of 6d., in order to meet the means of the less affluent classes. The old charge was 1s. 6d. The number of persons who bathe—and the terms have not been long reduced—is estimated at 3500 per annum, and they are considered to be on the increase. The temperature of the water is 94°, and the waste water, giving nearly the amount of that rising from the spring, is about 18 gallons per minute.

At the Royal Private Baths there are seven baths, fitted with marble and glazed white tiles. Each bath contains about 14 hogsheads of water, which flows into it in about five minutes.

Attached to these baths is one for invalids, named the Hospital Bath, the temperature of which ranges from 98° to 100°. Here poor persons bathe under regulations. Orders by the mayor remain in force for a month; and when a surgeon certifies that benefit may arise, the bathing appears to be gratuitous.

The Bath Hospital, open to the sick poor of Great Britain and Ireland, and now including the poor of Bath, which at its foundation it did not, as it was supposed that they could have the benefit of the waters at small cost, was opened in 1742. Upon the case of a patient being described by some physician or properly skilled person of the neighbourhood where the patient resides, and it appearing a proper one, he receives a notice when a vacancy takes place. The patient is expected to deposit 5l. caution-money before admission; for soldiers it is 3l.; the caution-money being "to defray the expenses of returning the patients after they are discharged from the hospital, or of their burial, in case they should die there. The remainder of the caution money, after these expenses are defrayed, is returned to the person who deposited it."

The following letter from Dr. Tunstall, the resident apothecary, to the Health of Towns Commissioners, will best explain the character of this valuable institution:—

## "BATH HOSPITALS.

"This hospital, in reference to similar establishments, is no guide in the conducting of statistical inquiries; still, as a large establishment, containing a number of inmates, I have thought a brief account of it may not be useless to Her Majesty's Commissioners for conducting the inquiry into the health of towns.

"It was founded by Act of Parliament, for the reception of cases requiring the use of the Bath waters, and admits patients from all parts of the United Kingdom. The patients are required to be in good constitutional health; and such as are in an unfit state for their use are immediately discharged.

"During the period of 10 years, commencing May, 1833, and terminating April, 1843, 5119 patients have been discharged, of whom 30 have died of apoplexy, 11 of phthisis, and other diseases of the chest 16, of small-pox 3.

"With the exception of the epidemic influenza and these three cases of small-pox, no attendant, nurse, or patient has during that period suffered from any febrile affection.

"The sanitary regulations are strict. Each patient has a separate bed, with a good supply of linen as often as may be required. The wards during the winter season are kept at an uniform temperature of 58°, by means of hot air; they are ventilated by machinery, which supplies the tanks with hot and cold water. The hospital is well drained, and free from any unpleasant smell.

"The introduction of the Bath waters in 1830, with the steam apparatus, very much reduced the mortality, and ameliorated the general health of the establishment. In the 10 years from 1823 to 1833, while the number of patients discharged were 3801, the number of deaths from various causes was 48. Febrile affections were then of not unfrequent occurrence.

"The diet of this house is larger than that of hospitals generally:  $\frac{1}{2}$  lb. of cooked meat four times a-week; 14 ounces of bread daily, with beer, potatoes and tea in proportion; on the days on which no meat is given, good broth, rice-pudding, with bread and cheese, is allowed.

"The hospital contains beds for 86 male and 47 female patients; the average number in the house is 120; their average residence three months.

"The two upper men's wards are 9 feet 7 inches high, 42 feet long, and 20 feet broad; they each contain 10 beds.

"The four lower men's wards are 11 feet 10 inches high. The largest contains 25 beds; it is 71 feet long by 22 feet wide.

"The other two make up 15 beds each; their length is 57 feet by 16 feet 8 inches. The smallest men's ward makes up 11 beds; it is 40 feet long by 18 feet wide.

"There are three female wards; the largest contains 26 beds; 12 feet 2 inches high, 71 feet long, and 22 wide: the smallest contains six beds; 24 feet by 18 feet: the other contains 15 beds; 57 feet by 16 feet.

"Each ward is provided with a separate scullery and water-closet; the cooking is performed by a

patent range, with a steam apparatus for boiling. The clothes and linen of the establishment are dried in a closet communicating with a hot-air apparatus."

The following is an analysis of the King's Bath waters by Mr. Herapath:—

For an imperial gallon = 70,000 grains.

Chloride of magnesium	5.976
Chloride of sodium	16.848
Sulphate of magnesia	7.488
Sulphate of soda	10.672
Bicarbonate of lime	8.152
Carbonate of iron	.240
Carbonate of magnesia	a trace
Sulphate of lime	90.480
Silica	1.760

Grains 141.616

According to Dr. Daubeny, Professor of Chemistry at Oxford, who examined the Bath waters, 222 cubic feet of gas were emitted in 24 hours. Carbonic acid varied from 4.5 to 13 per cent. of the whole, and the remainder consisted of 96 per cent. of nitrogen, and 4 per cent. of oxygen.

The waters are employed internally, but appear not to be so much drank as formerly. The terms for drinking the waters at the Pump-rooms are as follows:—

## THE GRAND PUMP-ROOM.

The year	£2 10 0	Three months	£1 4 0
Six months	1 15 0	One Month	0 10 0

One week, 3s. 6d.

Single glasses of water to non-subscribers, 4d. each.

## THE HETLING PUMP-ROOM.

The year	£2 2 0	Three months	£1 1 0
Six months	1 11 6	One month	0 8 0

One week, 2s. 6d.

Single glasses of water to non-subscribers, 3d. each.

The large Pump-room is spacious; 60 feet long, 36 feet wide, and 34 feet high; used as a promenade, a band playing at stated times. The water supplied to it for drinking is obtained by a pump, which descends 10 feet below the bottom of the King's Bath, in the same spring which supplies that bath.

The Bath waters probably find their way through one of those fissures or dislocations common in the older rocks of the same district, termed *faults*; in this case, not improbably through the Coal Measures, continued, beneath the sandstones and marls, named the New Red Sandstones and Marls, and their covering of lias and other members of the oolitic series, from adjacent rocks of the same kind. At Bath the thermal waters have forced their way through superincumbent red sandstones, marls, and lias. It has been suggested that a large amount of these waters which now runs to waste, or is let out from the baths, might usefully be collected in a large tank or reservoir for public bathing at a very small charge.

*Supply of Water.*—This, for domestic purposes, is obtained from springs thrown out by the clay, or other impervious beds in the series of rocks of which the neighbouring hills are composed, collected and conducted into the town, or from wells sunk in different places.

Mr. Little, agent for the Circus Water Company, enumerates the following water companies at Bath:—

Circus Water Company.  
Captain Dunning's Water Company.  
Park-street Water Company.  
Sir Thomas Bloomfield's Water Company.  
Cavendish-square Water Company.  
Lord W. Paulet's Water Company.  
Lord Manvers' Water Company.  
Corporation Water Supply.

"Several of these companies," it is stated, "supply a very limited number of houses, and are confined to the boundaries of the properties on which the spring, supplying the water, has its rise, and as none of them are protected by Act of Parliament, they are not able to extend their pipes into any neighbouring district, and thereby create a competition."

Mr. Little states that there is a great waste of the surplus Circus water, sufficient to supply Avon and Milk-streets (inhabited by so many poor families) for seven months in the year, and that if the corporation would lay down pipes, the water might be supplied without further expense. In his answers to those questions of the Commissioners, which relate to water, he says:—

26. (The town is supplied) "principally by several private companies and by wells. All the companies have not fire-plugs, nor could they render assistance in case of fire."

28. (The mode in use for distributing the water is) "by means of iron and lead pipes under the roads and pavement."

## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

31. "Most of the houses have water laid on, except the very poorest class, and have separate tanks for about 40 to 60 gallons."
32. "I know of but three stand-pipes for the poor of the whole city, and that only for certain hours in the morning. The others (of the poorer classes) get their supply as they can."
33. "I know of none." (Complaints respecting supply.)
34. (The annual charge is) "about 20s. for the poorest, 40 to 50 gallons per diem, and higher according to the quantity supplied."
35. "About 40 gallons a-day for 20s., 60 gallons for 30s.," &c.
36. (Respecting redress for deficiency in quality or quantity.) "None that I know of."
38. (As to the use of filters in private houses.) "I think not, nor do I deem it requisite from the pure state of the water."
39. (Respecting the water being kept on night and day.) "Only at certain hours of the day. Except the corporation new fire main, which is always charged, but at present only laid in a few streets."
41. "The corporation new fire main can throw the water over high houses and buildings."
42. (With respect to time of full supply of water in cases of fire.) "It depends on the part of the town in which the fire may arise, but in no case, I think, more than about 15 or 20 minutes."
43. "There are no arrangements (against fire) beyond the supplies to be obtained from the pipes."
44. (Average number of fires in the year.) "I think not one serious fire in a year. There are many small accidents, but generally put out by the police, who are furnished with leather buckets by several offices."
46. "There are men and engines practised about four times a-year."

The following respecting the supply of water are among the answers received from the town clerk:—

26. "From springs which flow from the surrounding hills collected into reservoirs, applicable for domestic use and the extinction of fire."
27. "The water is very pure, but not generally soft, being loaded with carbonate of lime. Know of no analysis having been made, or any evil arising from its use."
28. "By iron pipes chiefly, to which are united lead feathers for conducting the supply into cisterns."
29. "By the corporation principally, water companies, and private individuals."
30. (Number of houses in the town.) "8200."
31. "About 3000 houses are supplied from the corporation water-works, each having a separate cistern or cisterns, except in small courts, where there is one common cistern."
32. "The corporation gratuitously supply six public conduits in poor districts, from which water can be drawn five hours per day. In some situations, without the water-works, wells are sunk upon the premises; but generally the city and suburbs are sufficiently supplied."
33. (Respecting complaints.) "So few as not to be worth naming, good water being one of the best and cheapest articles Bath can boast of."
34. (Annual charge of water laid on.) "Varying from 10s. to 2l. 10s. per house. Average 27s. each."
35. "The size of the cistern regulates the charge: the lowest sum entitles the recipient to 40 gallons per day, the highest two hogsheads."
36. (Redress for deficient supply.) "None; the consumer being content to take such supply as the springs afford, and new applicants do not require a guarantee which cannot be given."
37. "The quality appears unchangeable. The quantity must depend on the fall of moisture."
38. (Filters.) "They are considered unnecessary from the supply being so pure."
39. (Water kept on.) "From six to 12 hours per day, according to the quantity in the reservoirs."
40. (Stand-pipes for cleansing pavements.) "None."
41. "By a new arrangement of the pipes, there is laid down in the central parts of the city what is termed a 'fire-main,' belonging to the corporation water-works, which is kept constantly charged, and from which, by means of a leathern hose attached to the fire-cocks, in five minutes a continuous stream of water can be thrown on a conflagration to the height of 103 feet, simply by the column or pressure which the elevation of the reservoirs gives. This self-acting principle is now being extended to other districts, and will in future be adopted where new pipes are necessary."
43. (Arrangements for protecting public buildings from fire.) "None, except the provision contained in the preceding answer, or private fire-engines."
44. "Bath is singularly fortunate in being comparatively exempt from such calamities, no fire of consequence having occurred for some years. Many individual losses no doubt happen, but only known to the agents of fire offices. This, in some measure, may be attributed to the stability of the buildings, which are nearly all built with freestone, protected by party-walls."
46. (Well-appointed and practised engines and service of firemen.) "Yes."

Mr. Bristow, F.G.S., of the Ordnance Geological Survey, reports, from a levelling which he made, that at the principal reservoir, No. 4, at Beechen Cliff, belonging to the corporation, the spring is 157½ feet above the ordinary height of the Avon at the Old Bridge. The front of the reservoir B.C.W.W., where the clay is one foot from the surface, nearly 147 feet. This reservoir is filled from that above, and is driven back four feet. The height of the ground in front of the next reservoir is 124 feet. There are other reservoirs on the hill, but the chief one is No. 4. Pipes convey the water from these reservoirs into the town.

The wells vary in the quality of the waters raised from them, according to the beds of limestone, clays, marls, sands, &c., in which they are sunk.

In the alluvial ground Mr. Bristow states, that trees (oaks, &c.) are sometimes found in great abundance beneath an alluvial red loam, about eight feet thick, resting on gravel, of about the same thickness, and this upon lias clay. The water, though in abundance, is never good where these trees are found; they are often so soft as to be cut by the spade. Beneath the gravel there is generally, a copious supply of water, but it is rarely good. In the sinkings

into the lias clay, some furnish tolerable water;\* but other wells have been carried down many feet without obtaining it.†

The following section of a well at Prior Park shows the water retained by clay beneath the great oolite limestone:—

	Feet.
Loose rock . . . . .	20
Oolite . . . . .	20
Hard freestone . . . . .	20
Clay (Fullers'-earth) . . . . .	40
Water . . . . .	100

The next gives an example of water sustained by the clay beneath the Inferior Oolite Sand, at America Buildings, half way between the river and the top of Lansdown:—

	Feet.
Light clay . . . . .	20
Oolite . . . . .	30
Sand . . . . .	100
Blue clay . . . . .	24
Water . . . . .	174

These examples will suffice to show the manner in which the water is retained among the various beds by the clays, which when they crop out on the sides of the hills produce springs.

*Health and average Age of Inhabitants.*—Properly to estimate the health and average age of the inhabitants of Bath, it should be borne in mind that it is a place of much resort for persons in affluent and easy conditions of life, (among whom females prevail,) who reside in good houses, and for the most part in well-ventilated streets, or crescents and ranges of building well exposed to the sun and winds, especially to the mild and prevalent southerly and westerly breezes.

Not only is this prevalence of females due to those in easy circumstances, who make Bath their residence, but to the number of maid-servants employed in the different families. The proportion of males to females will be best seen by the following table of the population for 1801, 1811, 1821, 1831, and 1841:—

POPULATION OF BATH.

	1801	1811	1821	1831	1841
St. Peter and St. Paul . . . . .	Males 1,048 Females 1,412	1,179 1,588	1,379 1,640	1,201 1,465	1,178 1,396
St. James . . . . .	Males 2,051 Females 2,897	2,197 3,056	2,834 3,444	2,576 3,272	2,779 3,415
St. Michael's . . . . .	Males 1,380 Females 2,103	1,252 1,663	1,545 1,917	1,583 1,943	1,457 1,879
Lyncombe and Widcombe . . . . .	Males 1,231 Females 1,550	1,303 2,118	2,571 3,309	3,952 4,752	4,590 5,330
Bathwick . . . . .	Males 1,048 Females 1,672	1,204 1,968	1,537 2,466	1,496 2,537	1,879 3,093
Walcot . . . . .	Males 6,829 Females 10,730	7,742 12,815	9,541 14,505	10,227 15,796	10,442 15,768
Total . . . . .	33,951	38,090	46,688	50,800	53,206

From this it would appear that, in 1801, the proportion of females to males was as 1·5 to 1, or 30 to 20; in 1811 the same; in 1821 as 1·4 to 1, or 28 to 20; in 1831 the same; and in 1841, 1·38 to 1, or about 27 to 20, showing a decrease in the difference for every 20 years since 1801. In 1801 there was an excess of 6777 females; in 1811 one of 8326; in 1821 one of 7874; in 1831 one of 8730; and in 1841 one of 8546.

When it is considered that out of the population of 53,206, as appears by this table for 1841, 30,871 were females, of whom a large proportion were not born at Bath, but came to reside in this city, many in advanced life, and many in its prime, particularly the maid-servants;

\* Mr. Bristow notices one well, of which the following is a section:—

Loam . . . . .	4 feet.
Lias (Gray clay . . . . .)	6 "
Blue clay . . . . .	90 "

The water rose nearly to the top of the well.

On the Widecomb-road:—

Red loam . . . . .	3 feet.
Blue clay . . . . .	77 "

Water very good and abundant.

† At Holloway Brewery, 70 feet above the level at the Old-bridge, the following well section was found:—

Rotten sand . . . . .	30 feet.
Blue clay, with occasional bands of lias	
limestone, about 4 feet apart . . . . .	200 feet.

Well abandoned from want of water.

There are several other examples of dry wells in the lias.

## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.



APPENDIX.  
City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

that considerable numbers of the males have also become residents at mature age; and that so large a proportion of the population is among the easy classes, well lodged and fed, receiving every attention in sickness, their servants also for the most part withdrawn from many of the causes of disease to which the poorer classes are usually exposed, we shall not be surprised at the character for health which this town enjoys.

It being very desirable to obtain the opinion of a properly qualified medical man on the health of the Bath population, Mr. Field, a skilful practitioner and registrar for the Lansdown district, was requested to investigate the registers for the year ending July, 1843; this he kindly undertook to do, and the following is his report:—

Report by Mr. Frederick Field, Surgeon, &c.

"The city and borough of Bath, by the census of 1841, contained a population of 53,206. The number of deaths registered during the year ending June 30th, 1843, is 1151, of which 565 were males and 586 females.

"Assuming that there has been but a slight increase of the population since the time of the census, we will take the numbers as we there find them, which will give a ratio of a little more than 2·1 per cent. as the mortality for the year terminating June 30th, 1843.

"Of this mortality rather more than three-tenths (351) are of children under 5 years, an equal proportion (353) between 20 and 60, three-tenths (348) above 60, and the remainder (99) between 5 and 20.

"Fever is not a common malady in Bath, the total number of deaths from that cause is but 42, and here it must be understood, that under the term 'fever,' I have included every death belonging to the class, whether registered as typhus, bilious, nervous, &c.

"Contagious maladies were not so prevalent in the year to which our remarks are confined. The total number of deaths from them is 41, viz., 3 by small-pox, 3 hooping-cough, 9 scarlet fever, and 26 from measles.

"Humanity must congratulate itself on the fact that only 3 deaths from small-pox occurred in so large a population during a twelvemonth. The Vaccination Act has been rather actively carried out in the city and neighbourhood, as I find that the sum of 1711. 4s. 6d. has been paid to the district vaccinators by the Board of Guardians since the spring of 1842.

"The proportion of mortality above 60 to the whole is large. It has been often said, and I believe with truth, that the city of Bath contains a larger number of aged persons than any other place in the kingdom of equal size and population.

"The deaths from consumption and decline are 185, forming nearly a-sixth of the total mortality. I find 2 deaths of policemen registered, and both of them were from consumption. The average number of that force is 97, and 2 deaths in a year warrant the idea that there is nothing very destructive in the atmosphere of Bath to those who are so much exposed to it.

"Why so large a number of children under 5 years die in Bath (three-fifths of the number being under one year) is a question not very easy to answer. Let us take a slight review of each of the registration districts, and we may then, perhaps, be enabled to come to some conclusion.

"The Lansdown district comprises the western part of the parish of Walcot. It is bounded on the south by the river Avon, on the north by the Lansdown Hills, on the west it is open to the surrounding country, and on the east it adjoins the Walcot and Abbey districts. Part of it lies low, but fully two-thirds are upon elevated ground, and inhabited principally by the upper ranks. The lowest parts are liable occasionally to be extensively flooded; and the sewers being but a small height above the mean level of the river, it frequently passes into them, thereby impeding the drainage.

"The total ratio of mortality for the district is 1 in 47·5: taking a section of the part which lies low and inhabited chiefly by poor people and vagrants (Avon-street and Milk-street), we find the ratio to be 1 in 40·3; on comparing this with another section, of an elevated situation, and inhabited almost entirely by the rich (the Crescent, Circus, &c.), we are struck by the great difference, the ratio there being 1 in 76. We must not, however, from this conclude that mere locality is the cause of this, for, taking another section, of equal elevation, but inhabited in a great measure by poor people (Lampard's-buildings, Balance-street, &c.), we find the ratio 1 in 36·7. Now it is precisely in these parts that the infantile mortality is so great, constituting one-half of the total deaths, whilst in the richer part it is only a little more than one-eighth.

"The greatest number of deaths under 5 appear to be caused by convulsions, pneumonia, and bronchitis, tabes mesenterica, measles, scarlet fever, and diarrhoea.

"The number of deaths from consumption is about the general ratio for the city as before mentioned.

"The Walcot district comprises the eastern portion of the parish of Walcot. Nearly the same remarks may be made with respect to it as of the adjoining district of Lansdown; a considerable part of it is bounded by the river, to which many of the houses are nigh. Some of these are inhabited by the poor, and are liable to be flooded. The ratio of mortality is 1 in 48·5; the mortality under 5 rather higher than that of Lansdown. Weakness, bowel complaint, atrophy, measles, and inflammatory affections of the chest, are the principal causes of infantile death. I have not the data in my possession for computing the ratio of mortality in different sections of this district, as in the case of Lansdown; but on looking over the Returns, there appear to be some places which have a greater proportionate mortality than other parts, viz., Ainslie's-buildings, Wellington-place, and Half-moon-street. They are all situated at some distance from the river (the two former in an elevated position), and inhabited by work-people and paupers. The deaths from consumption are above the mean ratio of the city.

"The Abbey district comprises the parishes of Saint Michael, Saint Peter and Paul, and Saint James. On the south and east it is bounded by the river, and in other directions by the Lansdown and Walcot districts. Part of the parish of St. James lies very low, and is at times most extensively flooded. The drainage here is defective owing to the same cause as already mentioned with respect to the lower part of the Lansdown district.

"Part of the parish of Saint Michael lies rather low, and is occasionally flooded, though not to so great an extent as that of Saint James. A considerable portion of the Abbey district is inhabited by the principal tradesmen of the city, who live in spacious streets, and occupy well-ventilated dwellings. In estimating its mortality, we must deduct 200 from its population, being the average number of

patients in two hospitals, including servants. This will make its general ratio 1 in 51·3. The mortality under 5 is higher than the Walcot district, and appears principally to be caused by convulsions and debility. The deaths from consumption are about the general average. Walcot-street, Trim-street, Gallaway-buildings, Chapel-court, and Saint James's-parade, appear to have a large ratio of mortality. In the first two and in the last there are several poor inhabitants. The third and fourth are occupied almost entirely by poor. The dwellings are very crowded with inmates.

"The Bath United Hospital, for the reception of medical and surgical cases, is also situated in this district. Its average number of inmates is 65, and it generally receives 1000 in-patients per annum. The number of deaths that occurred in it is 56; three only of them were cases of fever.

"The Lyncombe and Widcombe district comprises the parish of Lyncombe and Widcombe. It is situated on the south side of the river Avon, and has a large poor population, inhabiting houses close to its banks, and liable to be greatly inundated at times. On the slopes and tops of the hills, however, are dwellings occupied by the higher ranks. If we deduct from the population the inmates of the workhouse (about 540 at the time of the census), the ratio of its mortality will be 1 in 57·5. Its infantile mortality is enormous, being 72 or nearly one-half, and of these 72, 50 are under one year. The causes of death under five appear to be convulsions, asphyxia, bowel complaint, consumption, and inflammation of the chest. The age of the asphyxiated children is described as a few seconds! This is a fact which certainly demands particular investigation. The ratio of deaths of aged people is very little more than one-sixth of the total mortality. The deaths by consumption are above the average. The Dolemeads we should expect to exhibit a high rate of mortality, but such is not the case; and the houses in the vicinity of the canal basins, and of a large mill pond, do not present a higher rate of mortality amongst their occupiers than the other parts of the district.

"The workhouse is situated on Odd Down in this district. Its average number of inmates is about 600. Five of the 85 deaths registered are from measles, and one only from fever. On inspecting the causes of death, there is nothing to warrant the idea of its being otherwise than a healthy place. I have been in doubt whether some of the workhouse deaths should not be added to the general mortality of Lyncombe and Widcombe. If so, they should be part of the aged and the children, the former in all probability having lived for some time within its walls, and most of the latter having been born and bred up in it. This determination, however, would not make much difference in the ratio under five.

"The parish of Bathwick forms a part of the Bathwick district. It is mostly inhabited by the higher ranks of the community, who live in airy and elevated positions. Only a small part, near the river, is occupied by the poor, and here they suffer occasionally from floods. The ratio of mortality is 1 in 61·4. The mortality under 5 is very small (not one-fourth). The deaths from consumption much less than the average (one-ninth).

"From a careful review of the facts brought under my notice during this analysis of the Mortality Returns, and from an experience of more than 20 years as a medical practitioner in this city, added to the information I have acquired from my professional friends, I cannot but conclude that Bath is a healthy place. The returns of deaths above 60 show that a great number attain to advanced age. The deaths from consumption are not more than the general ratio of the kingdom; and those from fever are very small. Indeed, when we consider that a great number of the higher ranks are its inhabitants who live in large handsome houses, well ventilated, and many of which may be called rural residences with strict propriety, we could not look for any other than a healthy state of population.

"On the other hand, we must take into account that a considerable amount of poor dwell in the city, and that a large number of vagrants are constantly resorting to it for the sole purpose of begging, and therefore we ought not to be surprised if its mortality were higher than it is. I have carefully examined the Returns to see if there were any particular place that I could mark as having something within it more productive of disease than the adjoining neighbourhood. James-street, in the Lansdown district, and Oak-street, in the Lyncombe and Widcombe districts, are both places lying low and liable to suffer from floods. The former gives 10 deaths, four of which are from consumption and two from pneumonia. The latter gives six deaths, four from consumption and two from pneumonia. The elevated situation in the Lansdown district (Lampard's-buildings, &c.) gives a greater ratio of mortality than Avon-street and Milk-street, though the latter places lie very low, and the greater part of the vagrants take up their abode in Avon-street and its courts.

"Wellington-place, in the Walcot district, gives a large mortality (11), of which seven are children under 5, three persons between 20 and 60, and one only above 60. Is it because these places are situated on the slope of a hill that their mortality is excessive? I have mentioned these few instances to give an idea of the difficulty of coming to a conclusion, especially when it is considered that I have only the returns of a year to draw my inferences from.

"The mortality under 5 is large. It is in poor districts that we find it to be the case. Be it remembered, however, that these districts contain a larger number of young children than their richer neighbours. Still, making this allowance, there should not be such an excessive disproportion. It occurs in all localities, whether situated high or low. Must we look to the moral condition of the poor to explain it? They certainly exhibit great carelessness with regard to the preservation of the health of their children, and too often neglect to avail themselves of medical assistance until too late to be of service.

"There are many physical causes of disease in Bath. Witness the floods in the lower parts, their imperfect drainage, and the crowded and dirty state of the dwellings of the poor in various localities; and disease there would be of great extent and fatal character, were it not for the very active benevolence exercised towards the poor, and the great facility they have in obtaining medical aid from the hospitals and dispensaries with which the city abounds."

APPENDIX.  
City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

## APPENDIX.

*City of Bath.*

**Report on its Sanat-  
ory Condition, by  
Sir H. T. De La  
Beche.**

TABLE 1.  
GENERAL MORTALITY.

District.	Population by Census 1841.	Deaths.	Males.	Females.	Under 5 Years.	Of whom under 1 Year.	5 Years and under 20 Years.	20 Years and under 60 Years.	60 Years and upwards.
Lansdown . . . .	14,111	297	136	161	88	47	19	91	99
Walcot . . . . .	12,102	250	112	138	80	45	21	74	75
Abbey . . . . .	12,103	216	121	95	75	48	23	57	61
General Hospital . . . .	..	3	2	1	..	..	..	1	2
United Hospital . . . . .	..	56	36	20	1	..	16	36	3
Lyncombe and Widcombe	9,920	163	87	76	72	50	12	51	28
Workhouse . . . . .	..	85	42	43	15	2	3	26	41
Bathwick . . . . .	4,973	81	29	52	20	10	5	17	39
Total . . . . .	53,209	1,151	565	586	351	202	99	353	348

TABLE 2.  
DEATHS BY CONSUMPTION AND DECLINE.

District.	Under 5 Years.	5 Years and under 20 Years.	20 Years and under 60 Years.	60 Years and upwards.	Total.
Lansdown . . . . .	2	4	38	3	47
Walcot . . . . .	1	4	44	..	49
Abbey . . . . .	2	9	21	3	35
United Hospital . . . . .	..	..	5	..	5
Lyncombe and Widcombe.	8	1	22	2	33
Workhouse . . . . .	1	..	6	..	7
Bathwick . . . . .	1	1	7	..	9
Total . . . . .	15	19	143	8	185

TABLE 3.  
DEATHS BY FEVER.

District.	Under 5 Years.	5 Years and under 20 Years.	20 Years and under 60 Years.	60 Years and upwards.	Total.
Lansdown . . . . .	..	5	1	2	8
Walcot . . . . .	2	..	3	2	7
Abbey . . . . .	4	2	..	2	8
United Hospital . . . . .	..	1	2	..	3
Lyncombe and Widcombe.	3	3	1	4	11
Workhouse . . . . .	..	..	1	..	1
Bathwick . . . . .	1	1	..	2	4
Total . . . . .	10	12	8	12	42

TABLE 4.

LANSDOWN DISTRICT.		LANSDOWN DISTRICT.	
Deaths under 5 years, 88.		<i>Poor—Low Situation.</i>	
Convulsions . . . . .	14	Population of Avon-street and Milk-street, by Census of 1841 . . . . .	1892
Pneumonia and bronchitis . . . . .	11	Deaths . . . . .	47
Tabes and atrophy . . . . .	9	24 of these under 5 years.	
Diarrhoea . . . . .	6	<i>Rich—High Situation.</i>	
Measles . . . . .	8	Population of River-street, Circus, Cres- cent, &c. . . . .	2281
Scarlatina . . . . .	5	Deaths . . . . .	30
Small-pox without previous vaccination . . . . .	2	4 of these under 5 years.	
Hydrocephalus . . . . .	4	<i>Mostly Poor—High Situations.</i>	
Aphthæ . . . . .	3	Population of Lampard's-buildings, Balance- street, &c. . . . .	1576
Consumption . . . . .	2	Death . . . . .	43
Dropsy . . . . .	1	21 of these under 5 years.	
Debility . . . . .	1	Deaths in the Lansdown district by Pneumonia and Bronchitis.	
Premature . . . . .	2	5 years and under 20 . . . . .	2
Asphyxia . . . . .	1	20 years and under 60 . . . . .	7
Enteritis . . . . .	2	60 years and above . . . . .	20
Erysipelas . . . . .	1		—
Malformation . . . . .	2		
Intussusception . . . . .	1		
Internal hæmorrhage . . . . .	1		
	76		
Cause not stated in 12 cases.			

Cause not stated in 12 cases.

## APPENDIX.

*City of Bath.*

Report on its San-  
2 tory Condition, by  
9 Sir H. T. De La  
4 Beche.

TABLE 4.—*continued.*

WALCOT DISTRICT.		LYNCOMBE AND WIDCOMBE DISTRICT.	
Deaths under 5 years, 80.		Deaths under 5 years, 72.	
Weakness . . . . .	13	Convulsions . . . . .	12
Bowel complaint . . . . .	7	Asphyxia . . . . .	9
Atrophy . . . . .	8	Bronchitis . . . . .	4
Fits . . . . .	6	Bowel complaint . . . . .	9
Brain affection . . . . .	5	Measles . . . . .	2
Teething . . . . .	4	Teething . . . . .	1
Measles . . . . .	7	Mesenteric disease and marasmus . . . . .	3
Fever . . . . .	2	Consumption and decline . . . . .	8
Consumption . . . . .	1	Pneumonia . . . . .	6
Affections of chest . . . . .	7	Fever . . . . .	3
Aphthæ . . . . .	4	Erysipelas . . . . .	2
Croup . . . . .	2	Stoppage in bowels . . . . .	1
Enteritis . . . . .	1	Whooping-cough . . . . .	1
Jaundice . . . . .	1	Aphthæ . . . . .	1
Dropsy . . . . .	1	Debility . . . . .	1
Affection of heart . . . . .	1	Hydrocephalus . . . . .	1
Dropsy . . . . .	1		
Malformation . . . . .	1		
Spina bifida . . . . .	1		
	73		64
Causes not stated in 7 cases.		Causes not stated in 8 cases.	
ABBEY DISTRICT.		WORKHOUSE.	
Deaths under 5 years, 75.		Deaths under 5 years, 15.	
Convulsions . . . . .	13	Convulsions . . . . .	1
Congenital debility . . . . .	9	Diarrhœa . . . . .	3
Teething . . . . .	5	Atrophy . . . . .	4
Fever . . . . .	4	Whooping-cough . . . . .	1
Small-pox . . . . .	1	Croup . . . . .	1
Measles . . . . .	3	Consumption . . . . .	1
Decline . . . . .	2	Measles . . . . .	3
Croup . . . . .	1		14
Whooping-cough . . . . .	1		
Hydrocephalus . . . . .	2		
Effusion on the brain . . . . .	6		
Diseases of chest . . . . .	6		
Diarrhœa . . . . .	3		
Thrush . . . . .	1		
Erysipelas . . . . .	1		
Abscess . . . . .	3		
Disease of bowels . . . . .	4		
Fleshy tumor on heart . . . . .	1		
Suffocated . . . . .	2		
	68		
Causes not stated in 7 cases.		Cause not stated in 1 case.	
BATHWICK DISTRICT.		Deaths under 5 years, 20.	
		Marasmus . . . . .	
		Convulsions . . . . .	
		Hydrocephalus . . . . .	
		Mesenteric disease . . . . .	
		Debility . . . . .	
		Consumption . . . . .	
		Liver disease . . . . .	
		Pneumonia . . . . .	
		Scrofula . . . . .	
		Fever . . . . .	
		Scarlatina . . . . .	
		Measles . . . . .	
		Suffocated . . . . .	
		Congestion of brain . . . . .	
		Spasm of throat . . . . .	
		18	
		Cause of death not stated in 2 cases.	
		FREDERICK FIELD, Surgeon.	

Cause of death not stated in 2 cases.

FREDERICK FIELD, *Surgeon.*

The following Table has been constructed from the documents furnished by Mr. Field :—

TABLE 5.  
EXTRACTS from the Registries of Death for the Bath Registration District for the Year ending  
July, 1843.

Occupations.	Total Number of Deaths.	Average Age at Death.				Number of Deaths from Consumption.	Number of Deaths from Epidemic, &c., Diseases.	
		Above 5 Years.		At all Ages.			Under 5 Years.	All Ages.
		Yrs.	Mths.	Yrs.	Mths.			
Gentry, &c. . . .	119	63	1	59	5	11	1	8
Tradesmen, &c. . . .	244	47	7	32	5	37	22	33
Artisans, Labourers, &c.	462	44	8	31	0	89	25	43
Undescribed, &c. . . .	231	48	9	29	0	21	13	20
Paupers . . . . .	100	60	8	54	0	7	8	15
Totals . . . . .	1,156	50	2	35	3	165	69	119



## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

From this it appears that while the average age at death of the gentry for this year was 59 years 5 months, that of the tradesmen was 32 years 5 months, and of the artisans, labourers, &c., 31 years, the average age of the tradesmen being nearly one-and-a-half years above the latter, while it is 27 years under the average of the gentry, a difference somewhat remarkable, when the commodious size of many of the shops is considered, and that many persons of this class at Bath are in very easy circumstances. When the deaths under five years are deducted, the difference in the average age of the gentry and tradespeople is not so considerable, being 15½ years, and that between the latter and the artisans, &c., is increased, being 2 years 11 months, which would make it appear that while the average age of the gentry is reduced, by addition of the deaths at 5 years and under, only 3½ years, either from the comparative small number of such deaths among them, or the great proportion of adults to children in this class at Bath, the average age of the tradespeople is, by this addition, reduced 15½ years, and that of the artisans and labourers 13½ years.

From Table 1 it appears that one in 3·3 of the total deaths for the year were under 5 years, and Mr. Field remarks that this is chiefly among the poor; at the same time, however, it would appear to be much felt among the tradespeople, judging from the difference in the average age of this class, caused by adding or subtracting the deaths at 5 years and under. The number of deaths at advanced life, 60 years and upwards, is considerable for the year, being no less than 1 in 3·3, the same as for the children under 5 years. That of those from 20 to 60 years does not much differ from this, being 1 in 3·26, leaving the number who die from 5 to 20 years 1 in 11·6.

When the births are compared with the deaths at Bath, and every allowance made for the imperfect registration of the former, it appears that there must have been a considerable influx of strangers to account for the increase in the population of Bath of about 20,000 between 1801 and 1841, or at a rate of about 500 per annum. The total births compared with the total deaths for the last 5 years only gives a preponderance of births over the deaths of 1046, leaving a population of about 1500 to be accounted for during that time by immigration. In 1840 the births were not equal to the deaths, according to the registration, by 75. Taking these 5 years to guide us, there would therefore appear an increase by immigration into Bath of about 300 persons per annum, or three-fifths of the total annual increase; and it is well known that such persons are chiefly of the more wealthy and easy classes, and not unfrequently of advanced age, giving by their deaths a somewhat fallacious character to the high average age for the town, and more especially for the gentry inhabiting it.

TABLE 6.

NUMBER of BIRTHS and DEATHS registered in each of the Sub-Districts of BATH, in the Years 1839, 1840, 1841, 1842, 1843, ending 31st December respectively.\*

BIRTHS.																		
	Males.						Females.						Males and Females.					
	1839	1840	1841	1842	1843	Total.	Total.	1839	1840	1841	1842	1843	1839	1840	1841	1842	1843	Total.
Abbey . . .	141	149	157	166	183	796	762	166	166	135	126	169	307	315	292	292	352	1558
Batheaston. . .	103	104	103	101	106	517	506	95	96	117	104	94	198	200	220	205	200	1023
Bathwick . . .	74	55	71	71	72	343	338	51	71	74	75	67	125	126	145	146	139	681
Lansdown . . .	161	164	162	191	178	856	817	160	172	158	150	177	321	336	320	341	355	1673
Lyncombe, &c.	155	167	181	167	143	813	775	163	156	158	154	144	318	323	339	321	287	1588
Twerton . . .	136	99	150	106	128	619	640	121	140	126	127	126	257	239	276	233	254	1259
Walcot. . .	176	200	212	157	174	919	865	194	160	196	152	163	370	360	405	309	337	1784
Total . . .	946	938	1036	959	984	4863	4703	950	961	964	888	940	1896	1899	2000	1847	1924	9566

DEATHS.																		
	Males.						Females.						Males and Females.					
	1839	1840	1841	1842	1843	Total.	Total.	1839	1840	1841	1842	1843	1839	1840	1841	1842	1843	Total.
Abbey . . .	177	181	201	154	171	884	858	177	198	202	145	136	354	379	403	299	307	1742
Batheaston. . .	48	85	78	87	88	386	385	68	95	75	67	80	116	150	153	154	168	771
Bathwick . . .	59	72	59	53	54	297	354	64	85	64	61	80	123	157	123	114	134	651
Lansdown . . .	145	165	133	147	155	745	894	164	182	174	191	183	309	347	307	338	338	1639
Lyncombe, &c.	147	188	172	132	153	792	758	140	194	147	154	123	287	382	319	286	276	1550
Twerton . . .	63	79	62	55	60	319	358	69	70	71	69	79	132	149	133	124	139	677
Walcot . . .	139	173	122	128	122	684	806	142	207	168	157	132	281	380	290	285	254	1490
Total . . .	778	943	827	756	803	4107	4413	824	1031	901	844	813	1602	1974	1728	1600	1616	8520

These tables would give a somewhat high rate of mortality for Bath during the 5 years, taking the population at 53,206, the census of 1841, as well for the two preceding as for the two succeeding years, and, therefore, as a fair average, and deducting the deaths for Batheaston and Twerton.

\* Obtained from the Office of the Registrar-General.

## Per Centage of Deaths at Bath.

1839	1840	1841	1842	1843	Mean =
2·5	3·0	2·7	2·6	2·4	2·64

## APPENDIX.

## City of Bath.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

This mean is beyond the average for many large places and for the country at large, and when we regard the high average age at death for Bath, is one well illustrating how far the disturbing causes of a considerable immigration of persons advanced in life, and of many deaths among them,—it has been seen that 1 in 3·3 of the total deaths for 1843 was of 60 years and upwards,—may give a fallacious character to the results obtained for longevity or per centage of deaths in a particular locality.\*

Referring to Table 5, 1 in 10·8 were from consumption among the total deaths of the gentry, 1 in 6·6 among the tradespeople, and 1 in 5·2 among the artisans, &c., showing that the last class suffered most from this disease, which, as a whole, caused 1 in 7 of the total deaths for the year; no great proportion when compared with the towns mentioned in the Swansea Report (p. 139).

The same table shows that 1 in 14·9 died among the gentry from epidemics; 1 in 7·4 among the tradespeople, and 1 in 10·7 among the artisans and labourers, showing for the year 1843, at least less mortality from epidemics among the latter than among the tradespeople. Taken as a whole, only 1 in 9·7 of the total deaths for this year were from epidemics; but of this number somewhat more than one-half were children under 5 years of age.

A large number of the deaths for the year, 1 in 5, being undescribed as regards class, the average age of these persons being 29, all ages included, and 48½ years, excluding those under 5 years, and the investigation being only for one year, these conclusions respecting the average age of the different classes can be only regarded as approximations.†

## REPORT on the SANATORY CONDITION of FROME, SOMERSET.

By SIR HENRY T. DE LA BECHE.

*Situation.*—The town is situated on the upper part and north-eastern and eastern sides of a hill rising about 180 feet above the river Frome, a comparatively small portion only occupying the lower ground near the river, or rising on the opposite side of the valley. The mills or manufactories, chiefly of woollen cloths, are placed at convenient intervals for their purposes, for about three miles in length along the river. The county is hilly, and raised, as a whole, considerably above the sea.

*Climate.*—It does not appear that any correct register of temperature, or of the frequency and amount of rain, has been kept. The higher parts of the town are well exposed to the winds, but the slope facing the east is not so well swept by them, being sheltered from the most prevalent, the west and south-west, while it is open to the northern and eastern. As to the frequency and amount of rain, the climate does not appear to differ much from that of Bath and Bristol; but in regard to temperature, from its greater height above the sea, and from its general want of shelter from the northward and eastward, Frome possesses a climate, as a whole, colder than in those two neighbouring cities.

*Geological Character of the Ground on which the Town is built.*—Frome stands on portions of the series of rocks which is termed oolitic, from the frequent occurrence of oviform grains in the limestones, which, with clays, sands, and sandstones, compose this series. The chief part of the town is built on the shelly oolitic limestones, intermingled with clays, termed Forest Marble, reposing on the clay and shales known as Fullers'-earth, from a portion of good fullers'-earth (employed as such for the cloth manufactories) being obtained from it in the extension of the same rocks nearer Bath.

From the intermixture of clays with the shelly limestones beds, from partings, and a structure, generally porous, of the latter, conditions for springs and obtaining water from wells are frequent. A part of the ground at Keyford (a portion of the town so named) has a sandy foundation, from the occurrence of sands and sandstones in the upper part of the Forest Marble.

\* The difference between the rate of mortality above given for 1843, and as stated by Mr. Field, arises from the different number of deaths in the returns furnished to him, from that given in the preceding table, the same amount of population being taken for both calculations, and appearing to show that the area termed Bath in both accounts was not the same. There is occasionally much difficulty in ascertaining how far the population, as given in the census, may truly correspond with that to which the mortuary registers have reference. The mean rate of mortality for Bath, as given in the quarterly table of mortality for June 1843, issued under the direction of the Registrar-General, was 2·6, agreeing with that above stated.

† Though these numbers do not precisely agree with those obtained for the deaths at Bath in 1840 (Chadwick's Sanatory Report, 1842, p. 168), they approximate sufficiently to them to show the general difference in the average ages of the different classes at death. Mr. Elwin states that out of 616 cases of death in 1840, the results were as follows:—

No. of Deaths.	Average Age at Death.
146 gentlemen, professional persons, and their families . . .	55 years.
244 tradesmen and their families . . .	37 "
896 mechanics, labourers, and their families . . .	25 "

Mr. Elwin adds, "In making these returns, I have thrown out all visitors and occasional residents, and my knowledge of the locality, with the assistance of the clerk of the Union, has enabled me to attain complete accuracy with respect to the gentry, and a close approximation to it in the remaining cases."



## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

This portion of the town is necessarily based on the driest rock; the limestones afford the next best foundation; while the clays, whether found among the limestones, or at the lower part of the town, where the Fullers'-earth appears, prevent the free absorption of water, keeping the surface damp in situations not having a good slope, or not well exposed to the sun and air. The limestones are much quarried for building purposes, affording a cheap material; and coal is found and worked at Radstock, and other places sufficiently near (within a few miles), to be readily accessible, at no very great cost, to the inhabitants.

Although some care would be required so to combine the various parts of a system of sewerage for Frome, that the houses on the higher ground, where most level, should be well drained; the chief portion of the town, being on slopes, often considerable, could be most efficiently drained with little cost or difficulty.

**Floods.**—Mills or manufactories requiring dams to be formed for the purpose of obtaining water-power, necessarily tend to impede the natural discharge of flood-waters along a line of river, especially when the general fall of the river course is inconsiderable. From this cause, and from encroachments made upon the free passage of the river waters in other than moderate heights of the water, floods are much felt at the lower part of the town.

Mr. Thomas Bunn, a gentleman who has long resided at Frome, and to whom that town is greatly indebted for many important improvements,\* in his answers to, and observations upon, the questions of the Commissioners, sent to him, says, respecting obstructions to the natural drainage:—

4. "There is almost every kind of obstruction. The heavy town bridge is an obstruction. The weirs of the mill below, being built across the river, check the flow of the stream. There are dye-houses and mills above the bridge. Workmen are encouraged to throw cart-loads of rubbish into the river on each side, from the idea that the owner of the adjoining land will gain more ground, or at least preserve his boundary. Sometimes there are meetings of inhabitants, at which partial, but very inefficient remedies are proposed and adopted. At a meeting of chiefly the owners of mills and dye-houses, and of the lands adjoining the river, at which I presided as chairman, they came to a resolution, 'That persons who made obstructions in the river should be prosecuted.' Now to effect this, it was necessary that they should prosecute each other, for they themselves were the obstructors of the river. There are, in truth, two parties, one which benefits by the obstructions in the river, another which is greatly annoyed by the floods. One party will not relinquish their profits; the other, by a little foresight, might have erected their houses above the level of the floods; but they will not take them down and build others. I believe I am the only person who ever took down a house in the lower town and rebuilt it above the usual level of the floods. There are several massive, ill-contrived bridges. The county will not remove them and build better. The town bridge is built in a straggling manner, where the river and the back stream of a mill meet. It consists of five little arches, and very wide piers. Houses are built upon it, though of recent construction."

3. "The houses near the river are flooded, including those in the lower market-place, so as to set the furniture afloat and spoil the shop goods. The water is very filthy. Part of it flows from the hills, some from the river and dirty drains."

**Sewerage and Cleansing.**—No sewerage, deserving the name, exists. There is surface drainage, into which much house refuse finds its way, from being thrown into the gutters communicating with the gratings, in the poorer parts of the town; better communications with the drains being adopted for this purpose chiefly in the houses of the more wealthy classes.

There is no public plan of the town, comprehending a system of levels. There is a large public survey of the three tythings into which the town is divided, made chiefly for parish purposes; and there is a reduced copy having the boundary of the four ecclesiastical divisions marked on it. There is also another plan of the town on a scale of three chains to the inch, showing proposed improvements, drawn and lithographed at the charge of Mr. Bunn, who presents copies to all who may feel an interest in Frome. All these plans are without levels.

Mr. Bunn observes respecting the drainage:—

6. "There are no regulations. The town being chiefly on a hill, with a river below it, affords great facility for drainage. The principal streets are drained; less attention is paid to the courts and alleys, but, generally speaking, the surface is dry. There are no stagnant pools or open ditches."

7. "The town originally consisted chiefly of narrow lanes, which did not deserve the name of streets. About 33 years ago an Act of Parliament was obtained, and some of the chief thoroughfares were made 40 feet wide, including two footways at the sides. The widened streets are well under-drained. Some of the old streets were previously drained by a subscription made about 35 years since, before which infectious fevers prevailed in the neighbourhood for want of drainage. These have ceased since."

On the subject of privies, it would appear that there are few that do not empty themselves into cesspools; and the few which have their filth led into the drains, contrived for little else than the surface drainage, are complained of from the want of traps at the gratings. At the national school, built for 600 children, though it was intended that the privies should be built at a proper distance from the school, they are erected so close to it as to have been offensive for 20 years. Respecting privies, Mr. Bunn says:—

8. "Most of them are emptied, and the contents used for manure. Some convey the filth into drains; but this is a bad practice, except near the river, for it only spreads the nuisance over the town, and is offensive at every grate and opening."

9. "The house-drains conveyed into public drains do become offensive."

10. "The town public drains contain deposits, and are offensive at the openings. They are not trapped. The descent of the hill, and an occasional storm of rain, are the chief agents in removing obstructions."

\* At his own expense he has planted many thousand trees, and the pleasant appearance of Bath-street and some other parts of the town is due to his liberality.

## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

12. "The urine of the poor is purchased by the clothiers, and is used in the manufacture of cloth."

13. "The usual form of the drain is about 18 inches square. In Bath-street there is a circular culvert of about two feet diameter. One drain on Catherine-hill is larger." \*

14. "The public drains are never cleansed."

With respect to cleansing, the way-wardens, two of whom are elected for each of the three tythings into which the town is divided, and under whom the drainage is also placed, sell the road dirt. Mr. Bunn, in his evidence, says:—

15. "There are no scavengers."

16. "The poor place their refuse in their coal-holes and sell it for manure."

17. "There are no dust-bins."

18. "There is no deposit for the refuse of the town; it is sold by auction, and removed from the streets weekly for manure, when the purchasers are punctual."

19. "The way-wardens sometimes interfere [for the enforcement of cleansing]. There is no other authority."

**State of the Town as regards Streets, Alleys, and Courts.**—Until about 33 years since, Frome was little else than a mass of narrow streets, alleys and courts; and it is but justice to Mr. Bunn to state, that the change which has taken place in the aspect of the town, by the formation of new wide streets and thoroughfares, has been, in a great measure, due to his indefatigable exertions to improve it. In passing through the town by the ordinary thoroughfares, it has a good appearance, and it is only by diverging from them into the old part of Frome that the narrow lanes, alleys, and courts will be found.

Speaking of the former condition of the town, he says, "I have counted three dung hills in view from one spot in a principal thoroughfare. In the very centre of the town, near the market-place, and principally in a place called Anchor Barton, was such an accumulation of dung-hills, slaughter-houses, and tallow melting-houses, as is undescribable. The principal thoroughfares were narrow lanes. That I may not mistake, I have measured some of them which remain. In the wider parts they are, including two footways, about 16 feet 7 inches; in the narrower parts, 13 feet and 11 feet 10 inches. It required skilful driving, and ascending the footways to pass. Some travellers alighted, and walked through the town to avoid collision." Though the modern improvements have altered this state of things in many places, there is a considerable portion of the town, chiefly occupied by the poorer classes, which still retains its old character.

It would appear that improvements were made under the provisions of a Turnpike Act passed in 1810: 10,000*l.* were raised, and provision for re-payment so arranged that, in 1843, more than 8000*l.* of this sum had been paid off.† Mr. Bunn observes, that "town improvements are not now permitted to be made with the revenues of Turnpike Trusts; but, in this instance, all the neighbouring roads passed through the town of Frome, and the widening was essential to the convenience and safety of travellers." He further observes, respecting the present condition of the streets:—

20. "Some of the streets, especially the new streets, are of convenient breadth; but many older streets, even those through which carriages pass, are mere narrow lanes. The houses are not built back to back. Some of the courts are closed at the end. There is no arrangement for cleansing. Every individual builds as he chooses."

22. "There is no Local Act to prevent the ends of streets being closed up, or to relieve the overcrowding of districts; on the contrary, there is a great prejudice in favour of building in crowded streets, and against the extension and advantageous disposition of suburbs, and against open spaces."

23. "The National School, the Christchurch School, and the Trinity-church School are, in some respects, favourably constructed, and deficient in others. The Infant School, in Vicarage-street, is not so well constructed. These are all attached to the Established Church. Most of the Dissenters' schools are new and well arranged, with a few exceptions."

**Open Spaces for Exercise. Public Walks.**—There is nothing which can be called public of this kind, unless a raised walk for a short distance on the Warminster-road, named the Coal Ash-walk, can be so termed. Mr. Bunn, always alive to improvement in Frome, has about eight acres of excellently situated ground, on the top of the town, of which he has given part for the Christchurch schools, and proposes to do the like for a savings' bank opposite. This

\* The kind of work executed for drainage, so illustrative of that required and done in many towns included in a similar class with Frome, will be seen by the following estimate by a mason, for which we are indebted to Mr. Bunn. It should be observed that stone and lime are both cheap and abundant.

"An Estimate for putting in Gouts and Culverts."

"1. For putting in an 18-inch square gout, and finding coverers to take any weight in the turnpike road. The coverers and bottomers will cost 1*d.* per foot, and in covering one yard of gouting there will be 7½ feet of stone, and 4½ feet of bottomers required, which will cost 1*s.* For building-stone and haulage to the same, and coverers 6*d.*; masonry for building one yard of gouting and putting in the same 6*d.*, which will make the gouting amount to 2*s.* per yard.

"2. To culverts.—For putting in a culvert of two feet square, dry wall, and turning an arch with rubbed stone and good coal-ash mortar, with bottomers complete. The culvert will take one load in the yard. Stone and haulage 1*s.* 6*d.*, mortar 6*d.*, bottomers 6*d.*, and 2*s.* 3*d.* per yard workmanship, which will bring the culverts to 4*s.* 9*d.* per yard.

"To digging out drains—if in stone, 6*d.*; in clay, 3½*d.* extra.

"Keyford, 29th November, 1843.

(Signed) "JAMES PRATT, Mason."

† It is stated that about 10,000*l.* have also been raised by gifts and subscriptions to build two churches and three schools, and that about the same sum has been expended by the inhabitants in rebuilding their houses.



## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

space he seems anxious to devote to public use as a place of recreation, taking a very moderate payment for the ground, but there would appear no public desire to second his views.

A beautiful valley, named Vallis Vale, about a mile from the town, is much frequented, the proprietor, the Marquis of Bath, not interrupting those who walk there.

*Baths.*—The river seems to offer the only place for bathing, but its waters are not over-fitted for the purpose, being impregnated with impurities from the manufactories.

*Supply of Water.*—From the geological arrangements of the clay and limestone beds above mentioned, there is no want of water for the supply of the town if it were properly collected and delivered to the inhabitants. The impure condition of the river-water prevents its employment for culinary purposes. The spring-water, as might be expected from the sources whence it is derived, usually contains bicarbonate and sulphate of lime in sufficient quantities to make it what is termed "hard." Respecting the supply of water, Mr. Bunn observes:—

26. "The supply of water is from numerous springs and wells. Generally speaking, families are left to provide their own. There are a few public pumps and draw-wells in inconvenient situations. One spring flows from the churchyard, (not a good source.) The east of the hill, on which the town stands, is well supplied with springs. There is no supply for watering the streets, except from open springs and pumps, some of which are at a considerable distance; and no supply in case of fire, except what the inhabitants voluntarily bring in buckets."

Respecting the quality of the water, Mr. W. C. Brand, chemist, at Frome, makes the following statement:—

"I have, at different times, made analyses of the waters, both from springs and wells in the town of Frome. Without an exception, I have found them what are denominated hard waters, which is caused by their containing sulphate of lime and carbonate of lime in solution. For the most part they are agreeable to the taste; but I have met with some exceptions, probably from some impurity in the wells."

According to the census of 1841, there were 2460 inhabited and 243 uninhabited houses, with 15 building, making a total of 2718 houses in Frome: one that shows but a slight increase in 10 years, since there was a total of 2681 in 1831. Very few of these have water laid into them by any kind of pipes: when that is done, it is at the cost of the owners or occupiers of the premises.

32. "The poorer classes (Mr. Bunn states) supply themselves as they can; 100 families from an open spring near Trinity church; \* 30 families from one (another) well; some from public pumps or draw-wells, and some from the bounty of their neighbours."

33. "There have been and are many complaints of want of water, and the distances which the poor go to obtain it."

35. "The quantity is unlimited, but the convenience of the inhabitants is not much attended to. No money is paid, with few exceptions."

37. "If the way-wardens were to apply the parish funds, not exceeding a limited amount, to procure water for the poor at very low prices, at their houses, it would be an advantage."

The following statement respecting an attempt to supply part of Frome with water, laid into the houses or carried to a conduit, is so characteristic of the mode in which such subjects are treated and viewed in some towns, that it should find a place here. The friend to the supply of water alluded to was Mr. Bunn himself.

"At the time we were excavating Bath-street,† which is 40 feet wide, and when we had descended about 16 feet, we found a natural spring of the purest transparent water. A question arose whether we should turn this into a dirty drain, where it was not wanted, or apply it to supply the wants of the inhabitants who lived below (further down the hill), where many were without any water; and some who had sunk wells found water which could not be used for domestic purposes.‡ A friend to the supply obtained permission to form a reservoir to hold 200 hogsheads under the street, so strongly arched over that loaded waggons have passed on the arches for 30 years. Pipes were laid, and the water brought from the hill to the vale below. A small space was enclosed in the lower market-place with iron palisades, and a triangular pedestal raised, in which were placed three brass-cocks, affording a constant supply. Keys were distributed to those who had no water, without compensation. The first symptom of dissatisfaction which occurred was a rigid scrutiny into the expense of building the reservoir: this proved to be only 100*l.*, and the intended censure for extravagance fell to the ground. It was proposed to erect a fountain, as in the Market-place in the city of Wells. In the meantime, the advocate for the supply of water placed on the pedestal, as a temporary substitute, a large marble vase. Some of the people of the town climbed over the iron palisades in the darkness of the night, lifted off the marble vase, which was very weighty, carried it to the bridge, threw it over, and broke it in pieces. Then a report was raised that the water was deleterious and injurious to health. The trustees of the roads very properly ordered it to be analysed by different chemists. All the chemists reported that it was as clear and as wholesome as any water drank in the town. A person procured a pipe to be laid down at the public expense, but not for public use, to supply two houses of his own. He quarrelled with his tenants and cut off the pipe, and consequently these houses have had no water laid on from that day to this, a period of more than 20 years. A gentleman, who had lately acquired a fortune of 50,000*l.*, was building a house: he requested leave to alter the line of water-pipes that he might extend his area. This could not be refused; but the pipes were laid down again so carelessly that the water ceased to flow. The advocate for the supply of water again interfered. He

\* From another statement of Mr. Bunn it appears that this spring is the property of a man in humble life, named Flower, who, though possessed of little else than it, freely gives its waters to all who ask, denying no one. He even supplies his poor neighbours with cups and bowls with which to dip the water out of the spring.

† One of the chief improvements made in the town.

‡ The wells in the lower part of the town are in the clays and marls named Fuller's Earth, and which do not usually afford good water.—H. T. D. B.

## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

obtained the signatures of seven trustees to a paper approving of the removal of the obstructions in the pipes, and some new materials were ordered. At the next meeting, not one of the trustees who had signed the paper attended. The proposal was discouraged by those present, and the expense incurred, about 10*l.*, thrown on the friend of the supply.

"At a subsequent meeting, it was seriously proposed to remove the little pedestal which had been raised for the benefit of the inhabitants, and sell the materials. The late Mr. Barton, of Corsley, who was wise and prudent, said it was an affair of too much importance to be decided so hastily, and prevented it. At the next meeting, the friend to the supply was absent from illness. The order was made, though the occupiers of houses offered two guineas and four guineas yearly for a pipe, and the little edifice was destroyed. This pure spring, in the centre of a populous town, has, for more than 20 years, flowed from the reservoir into a drain, where it is useless.

"In pursuance of the present inquiry, the friend to the supply of water has visited the houses near the spot where the cocks were placed. He found 12 of them either without water or without any which was fit for domestic use. In one building reside 25 old women, 11 of whom are more than 60 years old, 9 more than 70, and 5 more than 80 years, who are supported by a charitable endowment, and who go from their homes every day with their empty pitchers to beg water. Some of them tremble under the weight, and are scarcely able to carry it to their respective apartments."

41. "There is not on an average one fire in a year."

42. "The engines are soon brought, and supplied willingly with buckets of water by the neighbours."

45. "The inhabitants build as they like."

46. "There are four fire-engines, three of which are in pretty good repair. There are 12 firemen, who exercise the engines four times in the year, namely, on the first Saturday after each quarter-day, for which they are paid 1*l.* 5*s.* each time. If they attend a fire with the engines their pay is 4*l.* 10*s.* Mr. W. Giles, jun., the secretary to the gas inspectors, pays the firemen from the gas-rates.\*"

*Tenements of the Poorer Classes.*—Compared with the dwellings of the same classes in most large towns, the houses of the poorer inhabitants of Frome, as in many towns of similar size in the same part of England, are not remarkable for want of accommodation, as regards space, though they are usually ill-ventilated and ill-drained—conditions, the bad effects of which are not yet sufficiently understood by the poorer classes, and to remedy which, in country towns more especially, more might be done by themselves than is now accomplished. There are several endowed charities for the poor, the endowments for which are stated to amount to about 1500*l.* per annum.† This sum, regarding the population of the town, is considerable. There is also much private benevolence, and the ladies of Frome have formed themselves into visiting parties for the relief of the poor.

50. "Generally, (Mr. Bunn states), the houses of the poor are substantially built and covered with stone or slate. The rooms are of sufficient size for health and comfort. The people are underfed and averse to ventilation. There are some exceptions, where the buildings are close, mean, and confined. The poor have better dwellings here than in the poor districts in London."

51. "Usually there is one family only in each house. Sometimes a family receives one or more lodgers. Occasionally different families occupy different floors; the rooms are sufficiently large."

52. "The ventilation of the habitations is left to the feelings of the inhabitants. Sometimes the visiting charitable ladies—and they are many—when the windows have no openings, order the glazier to alter them. Those who are deficient with respect to diet, fuel, and clothing, are not so sensible to the benefits of fresh air, and, indeed, cannot endure it so well as others. At the Union workhouse regulations for air and cleanliness are introduced."

53. "I have heard from the charitable ladies who visit the poor, that they scarcely now enter a poor person's room in the winter which has not a moderately comfortable fire. Coal-mines are within six miles, and the supply abundant."

21. "There are no cellar dwellings."

*Lodging Houses.*—There are not many, but two or three of them exhibit the usual amount of dirt, bad ventilation, and crowding. It appears from Mr. Bunn's statements, that,—

55. "Paupers are received, by tickets from the paymasters, at the Union workhouse, where they are entitled to a supper, a clean bed, and breakfast, and are afterwards required to do two hours' work."

*Health and Average Age at Death.*—The following is a report from Mr. Thomas Henry Payne, surgeon and registrar of Frome, whose means of obtaining correct information are considerable, upon the mortality and prevalent diseases in that town.

"This district, for which I am registrar, comprises the parishes of Frome and Rodden; the former, a town containing a population, according to the last census (which was taken under my superintendence), of 11,750, including the neighbouring hamlets; the latter (Rodden) a village with a population of about 200, and adjoining the town of Frome.

"The population is made up of two principal classes, viz., those engaged in the different branches of the clothing manufactory, and the others in agricultural and out-of-door pursuits.

"Those engaged in the clothing department work either at the factory or at their own homes, and are chiefly weavers—men who lead a sedentary life, are more or less addicted (as far as their means admit) to the general habit of beer-drinking, and who, from deficiency of animal food and wholesome air, are the victims of the many epidemics to which this district is so liable; the children inherit the deficiencies, moral and physical, of their parents, rendering them more susceptible to the attacks of the disease which may happen to be prevalent. And when it is considered that these children, so

\* The town seems to have been lit with gas, in consequence of a meeting for that purpose held on the 1st January, 1830, a company composed of 25*l.* shareholders having been formed.

† Among them are an asylum for the education of 40 girls, and the support of 20 old men, and another establishment (the Blue School) for old women and boys. Mr. Bunn remarks that both these charitable establishments are liable to be flooded, the Asylum from want of drainage, and the Blue School from being built in the midst of the river.



## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

constituted, are exposed to the influence of crowded working-rooms, as well as sleeping-chambers, to say nothing of the want of ventilation and general neglect of cleanliness, the Saturday being nearly the only day on which they think of cleaning themselves, it will not be wondered at that so many fall victims on the invasion of an epidemic.

"There are a great number of these children employed; all work at the mill, crowded together indiscriminately, male and female, in low rooms full of machinery. The heat generated by so many, together with the smell of the clothes saturated with the oil used about the machinery and in different processes of the manufacture, causes a most offensive smell, and must, as there is little or no ventilation, be productive of the worst effects. The greater part of those so engaged have to walk, after the day's work, a distance of a mile and a half, some two miles, in all weathers, and seldom, if wet, change their clothes on their arrival at home, where they eat a meal of potatoes, and then retire to their sleeping apartments, leaving their clothes to dry as they best may: this apartment is generally occupied by the whole family, and several in one bed. In the morning they resume their damp clothing and their usual toil; and thus the week passes. There is also a set for the night as well as day, who work alternately at the mill. So common and general, indeed, are these facts in most manufacturing districts, that there is scarcely any necessity for adverting to them; but, inasmuch as they form part and parcel of the cause of sickness, I consider it right to advert to them.

"The existence of these circumstances will fully account for the prevalence and fatality of those diseases to which this town is obnoxious, and to which so many annually fall victims.

"I come now to mention those diseases which obtain to so great an extent in this district, and prove so fatal, especially amongst the poorer classes. First and foremost stands—

"*Phthisis*.—There are annually, on an average, 50 deaths from this disease alone, out of 260, the yearly average of deaths from all causes. In addition, there are nearly 30 cases annually of other diseases of the lungs, chronic and acute. As far as I have means of judging, this is far above the general average of mortality, even in manufacturing towns (with few exceptions), from the diseases to which this organ is incident. I cannot account for the great prevalence and fatality of this disease otherwise than considering them the result of the occupation of the poorer classes, the constant exposure to the vicissitudes of weather, and deficiency of clothing and animal food, &c.

"In remarking on the prevalence of phthisis, I may state that the majority of these cases came under my own observation; and, from my knowledge of the individuals, and other circumstances, I had full opportunity of arriving at a correct conclusion as to the nature of the sickness and the cause of death; so that all the cases entered under the head phthisis in the table of diseases may be considered as genuine examples of that disease, whilst other diseases simulating phthisis, or of doubtful description, are referred to the list pneumonites or other diseases of the lungs and air-passages, according to the best of my knowledge. During the period embraced by the accompanying return, I have had peculiar advantages of ascertaining the exact mortality of this district, as well as the causes of death, being at the same time medical officer and registrar. Although I have always had to contend with the difficulty of obtaining a correct account of the nature of the illness or cause of death, from the inability or indisposition of the medical attendant to give the required information, still, from personal investigation of the circumstances detailed by the informant, I have been enabled to arrive at a tolerably accurate statement of the nature of the disease, and to register it accordingly. It has been always my rule, before giving a certificate of registration, in the absence of sufficient and satisfactory testimony from the proper authority or medical attendant, to make a personal investigation, for my own satisfaction and the furtherance of correct evidence for statistical purposes, being fully impressed with the importance of these means of coming at beneficial and important facts. The difficulty of coming at correct information is by no means lessened by the publication of the nosological table; for without the full co-operation of the medical profession generally, it is impossible to make an uniform and useful return of the causes of death, particularly as it often happens that the application for the certificate of registration is rarely made till the latest period, when there is little time to enable the registrars to make the necessary inquiries as to the nature of the cause of death. Indeed, I am of opinion that nothing short of absolute compulsion on every individual to give due notice of a birth or death will remove this difficulty. I think little confidence can be placed in the registration of births, especially under the present system, inasmuch as there are so many circumstances admitting of an evasion of the registration; that, unless it be made incumbent on all to give notice, it is impossible that the tables can be of any use for statistical purposes.

"There is one great evil which I see adverted to in the interesting report furnished by Mr. Chadwick, and which I know prevails to a great extent as well in this as in other manufacturing towns, and which I consider to be of serious importance, viz., the calling children still-born who have been born alive, but from neglect or intentional ill-usage, have soon ceased to exist. This is one great source of the incorrectness of tables relating to statistical investigations. I do not see how these can be correct, when registration takes no cognizance of still-born children, who are undoubtedly as much a part of the population, although from neglect or some difficulty in delivery, probably mechanical compression, are to all appearance dead, as others who, not being exposed to such casualties, are born alive. There can be no question that gross neglect is practised by the loose women who act as midwives to the poor, which adds greatly to the amount of mortality amongst infants, and the consequent evil (generally overlooked) of a quick succession of unhealthy and rickety children. I have frequently seen newly-born infants put aside as still-born, that have been lustily formed, and who in the space of half an hour have astonished the bystanders by its loud cries; and others who, with the ordinary attention and application of the usual remedies generally resorted to on such occasions, have speedily resuscitated. Indeed, so ignorant and unfeeling are the majority of the poor women of this place, that they would rather see their infants perish than have recourse to any measure, and even censure the adoption of means calculated to recover such as are still born. I have very frequently met with such myself, and I can assert that it is the common practice; and from what I have witnessed repeatedly I can fully corroborate the printed evidence given by other registrars, as reported in Mr. Chadwick's investigations. A reference to the head debility, in the table of diseases I have furnished of deaths occurring in these subjects, will show the great number who die annually after an imperfect existence of a few days or weeks, without manifesting any symptom of disease sufficient to account for death. My intention in making a separate classification of these causes has been to show the large number who perish in this way, and who in all probability might have lived had they received proper and kind treatment. I have good reason to believe that some midwives are encouraged to neglect infants at the birth for this express purpose.

## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

"I have already stated in the explanation of terms at the commencement of this paper, that many causes of death are registered as *decline*, for want of better information, or a cloak for ignorance. This term 'decline' is in very general use in this neighbourhood, and is applied to a large class of causes of deaths. I have, in the appended table of diseases, reported them under the more correct terms of bronchial and other diseases, as my knowledge of the individuals and personal inquiries have enabled me to avail myself of information, as the constitutional tendency, locality, ages, or occupation of the respective parties.

"The general and constant use of such terms as the above constitutes another serious obstacle to the correct return of the actual causes of death, which the publication of the nosological table would go very far to remove, could the assistance of the medical attendants of deceased persons be made use of; but there is a disinclination on the part of the profession to afford this information. And when the registrar does not possess the requisite qualifications himself to enable him to make the necessary inquiries, the registration of causes of death cannot be relied on.

"I have generally observed that the greater number of deaths registered as *decline* (when they are of advanced age), to be those arising from chronic bronchitis, asthma, &c., and when I have been able to come to this conclusion I have so registered them. I make this observation in order to account for the fact of the different arrangement of the causes of death in the tables, as compared with the causes of death as given in my register book of deaths, as also for the purpose of expressing more correctly the causes of death, and thus leading to more accurate statistical deductions.

"*Common continued fever* prevails to a great extent in this district, and arises from the same causes as stated before; but it is not particularly fatal, save when from deficient treatment, unfavourable locality, or bad diet, it terminates in low fever or typhus, when it is almost always fatal. The subjects of this fever are principally the children of the manufacturing-classes, who live in crowded and ill-ventilated apartments, subject to the evils arising from deficient sewerage and other well-known causes, which are a constant source of malarious effluvia. The mortality from this disease is pretty much the same annually, as a reference to the table will show. The past year (1843) measles and scarlatina have been very prevalent, especially the latter, which has proved very fatal; there being double the amount of these diseases conjointly than any preceding year.

"I may observe that typhus and other fevers are not so rife since the exposures made by the reports furnished by the medical officers under the Poor Law Commission, when the nuisances, productive of so much mischief, were pointed out and removed. Prior to this period we had annually some epidemic to contend with, which, in spite of every kind of treatment and the greatest care, proved extremely fatal; abundantly showing the advantages to be derived from the establishment of police regulations to remove the manifold sources of malaria. There can be no question as to the advantages to be derived from investigations made by properly appointed officers of health.

"The last epidemic of any consequence by which this town was visited, carried off nearly 100 children, chiefly of the poorer classes; but, as is always the case, the higher classes suffered more or less.

"Under the heads accident, violence, and sudden death, &c., are registered those which in all probability would more correctly have been put under other heads; but in consequence of the general carelessness and indifference with which such subjects are treated, and the ignorance of juries impanelled on such occasions, there is too much reason to suppose that many cases of manslaughter, if not of murder, have been overlooked, which under different arrangements would have assumed a different aspect. There are annually 13 deaths arising from such causes.

"It is seldom with us that any light is thrown on suspicious deaths by the investigations instituted under the coroner's warrant; and from ignorance, coupled with indisposition, the most suspicious circumstances are disposed of by the comfortable verdict of visitation of God, thereby saving time and trouble, some investigation, and enabling parties who are grossly culpable to escape. If one-half the inquests held unnecessarily in this town were dispensed with, and the extra time so saved devoted to the full investigation of those cases where decidedly suspicious circumstances present themselves, it would be more conducive to the general benefit, and the public would then have some security for their lives and health.

"The public buildings in this town are three—asylum, almshouse, and the workhouse. The first and second of these houses are occupied by old people—in the former males and in the latter females; the deaths occurring here are, of course, from age.

"With regard to the workhouse the case is different. Here a large number of persons are congregated, the apartments generally are crowded and ill-ventilated, particularly the sleeping-rooms, where there is not only not sufficient room for the beds, nearly all of which touch each other, but in some cases two children in one bed. This was the practice when I held the office of medical man to this establishment. Since this period an hospital has been built, which doubtless has removed some of these evils, and the sick can be separated from the healthy. The absence of this arrangement, when I was medical officer, rendered the mortality very great amongst the children during an epidemic. The highest number at any one time resident in the workhouse I believe to be 350; the lowest from 200 to 250. The number of deaths average annually 28. The diseases most prevalent and causing this mortality are diseases of the lungs and mesenteric disease; the former with the adult portion of the inmates, the latter with the children, and proves very fatal. Nearly all the children present a squalid unhealthy appearance, indicative of the scrofulous diathesis, which is the bane of workhouses.

"I can safely state, from the constant observations I have been in the habit of making, that great benefit would accrue from the institution of sanatory laws and properly appointed officers of health, as in the continental towns."



## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beeche.

TABLE 1.—TABLE of DISEASES for the Years 1839—43.

	1839	1840	1841	1842	1843
<b>Diseases of the Lungs and Air Passages—</b>					
Phthisis . . . . .	41	68	41	53	51
Pneumonitis . . . . .	5	14	19	11	15
Bronchitis . . . . .					
Asthma . . . . .	9	10	13	10	12
Hooping Cough . . . . .					
<b>Total . . . . .</b>	<b>55</b>	<b>92</b>	<b>73</b>	<b>74</b>	<b>78</b>
<b>Mesenteric disease, principally infants and children . . . . .</b>	<b>2</b>	<b>12</b>	<b>11</b>	<b>13</b>	<b>17</b>
Age . . . . .	41	56	53	35	63
Common continued Fever and Typhus . . . . .	32	36	23	30	8
Eruptive Fever, Measles, and Scarlatina . . . . .	1	1	2	1	60
Debility, chiefly newly born infants . . . . .	19	34	22	21	21
Diseases of the Brain and Nervous System . . . . .	24	23	26	26	39
<b>Diseases of the Digestive Organs—</b>					
Stomach . . . . .					
Liver . . . . .	4	19	18	12	18
Bowels . . . . .					
<b>Diseases of the Heart and Circulating System . . . . .</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>3</b>
Dropsy . . . . .	16	8	11	12	12
Diseases of Skin and Cellular Tissue . . . . .	8	3	7	4	9
Rheumatism and Diseases of Bone . . . . .	..	..	1	1	1
Diseases of Urinary Apparatus . . . . .	2	1	..	1	2
Childbed . . . . .	1	1	..	2	2
Hernia . . . . .	2	1	..	..	..
Hydrophobia . . . . .	..	1	..	..	..
Accident and Violence . . . . .	3	6	7	6	6
Sudden Death—Visitation of God, &c. . . . .	7	10	2	12	6
Intemperance . . . . .	..	..	..	..	1
Unknown . . . . .	1	..	..	..	1
<b>Total . . . . .</b>	<b>220</b>	<b>305</b>	<b>257</b>	<b>251</b>	<b>347</b>

THOMAS HENRY PAYNE.

From the returns furnished by Mr. Payne, the following table has been constructed.

TABLE 2.—EXTRACTS from Registries of Deaths for the Frome Registration District—Years 1839, 1840, 1841, 1842, and 1843.

	Total Deaths.	Average Age at Death.				Number of Deaths from Consumption.	Number of Deaths from Epidemic Diseases.	
							Under 5 Years	Of all Ages.
		Above 5 Years.		At all Ages.				
		Yrs.	Mos.	Yrs.	Mos.			
Gentry, &c. . . . .	29	63	5	54	8	3	..	1
Tradesmen, &c. . . . .	227	40	11	26	7	63	20	49
Manufacturers, &c. . . . .	358	53	3	36	10	63	31	61
Agriculturists, &c. . . . .	256	50	2	35	11	55	22	40
Artizans, &c. . . . .	361	48	2	33	3	97	25	51
Undescribed . . . . .	24	55	8	39	5	4	2	5
Paupers . . . . .	141	53	11	32	3	13	15	24
Totals . . . . .	1,396	49	9	34	0	298	115	231

Mean per centage of Deaths for the 5 Years 2·3.

From this it appears that the mean age at death of the different classes of the population varies materially, more especially when those who die at five years and under are deducted. While, including all ages, the average age of the gentry is as high as 63 years, that of the tradesman is only 41 years, one much beneath that of those included under the heads of Manufacturers, Artizans, Agriculturists, or Paupers. This difference is equally apparent, when those who die at and under 5 years are deducted; for it then appears that, while the average age at death of the gentry for the five years (1839-43) is 54 years 8 months, that of the tradespeople is 26 years 7 months. The difference, when the deaths at and before five years are deducted, is very considerable for the other classes, showing the large numbers who perish at and prior to five years.

The manufacturers, by this table, attain a higher average age than the agriculturists, the average age of the artisans being less than either. The pauper children who perish at and under five years, make the greatest difference in the average age at death, as without them the average age of this class is 53 years 11 months, and including them 32 years 3 months.

Respecting consumption, it would appear that, of the deaths among the gentry, 1 in 9·7 thus perished, among those of the tradespeople 1 in 3·6, the manufacturers 1 in 5·7, the

agriculturists 1 in 4·6, the artisans 1 in 3·7, the paupers 1 in 10·8. From this, it follows, that the tradespeople and artisans suffer most from this disease.

As regards epidemic diseases, 1 in 29 of the deaths of the gentry is referred to them, while, for the tradespeople, it is 1 in 4·6, for manufacturers 1 in 5·8, for the agriculturists 1 in 6·4, for the artisans 1 in 7, and for the paupers 1 in 9·4.

Excepting the deaths of the gentry, a large portion of the deaths by epidemics take place at or before five years of age, two-fifths of the children of the tradespeople thus dying, and about one-half of the other classes. Appearing to point out, that while from the good sanatory condition under which they are placed, and the ready attainment of medical advice, the gentry rarely lose their children by epidemics, from the lessened advantages possessed by the tradespeople two-fifths of those of that class are swept off at or before five years of age, and a still increased amount of mortality by epidemics is felt among the manufacturers, agriculturists, and artisans.

By reference to Mr. Payne's table (Table 1), it appears that 1 in 5·5 of the total deaths was from phthisis, and 1 in 21·8 from pneumonitis; 1 in 10·7 was from continued fever and typhus; 1 in 11·8 from debility, chiefly new-born infants; 1 in 10 from diseases of the brain and nervous system; 1 in 23·4 of dropsy; 1 in 49·3 of accidents; and 1 in 5·5 of age.

From Table 2, it follows that 1 in 4·6 of the total deaths was from consumption, a rate of mortality from this cause greater than for all the towns noticed in the Swansea Report (p. 139), with the exception of Ipswich; so that it becomes a marked disease for the population of Frome.

It appears also that 1 in 6 of the total deaths was from epidemics, about one-half of which is of children of and under five years of age. In this respect Frome presents a more favourable result than all the towns noticed in the Swansea Report (p. 139), with the exception of Yarmouth and Whitby.

The per centage of the population who die annually at Frome is above the average; and the class of persons who attain the least average age, and who suffer most from consumption and epidemics are the tradespeople. Few of the shops at Frome are of large size, and many are small, while their domestic apartments are often confined and ill ventilated, as much room as possible being afforded to the shops.

The average age at death of the agriculturists and of the artisans, taken with the manufacturers, and of all ages, is much the same; the manufacturers standing higher than the agriculturists, and the artisans below them. The manufacturers suffer less from consumption than the artisans, but more than the agriculturists; while from epidemics the agriculturists sustain less loss than the manufacturers, and more than the artisans.

## REPORT on the SANATORY CONDITION of SWANSEA,

By Sir H. T. DE LA BECHE.

*Situation.*—Swansea is situated at the mouth of the river Tawe (as its Welsh name of Abertawe implies), at the back of the bay which bears its name. It is chiefly built in a north and south direction on the right bank of the river, along which a line of wharfs extends, some also being constructed on the left bank. Though the mass of houses chiefly occupies a direction from north to south, the southern portion of the town expands in a western direction along the communications leading to the Mumbles and Gower.

The river is tidal, the tides flowing considerably beyond the town, and finds its way through a natural break in a range of hills, having an east and west direction, and an elevation varying from about 400 to 500 feet. Cilfay Hill, on the east of the town, thus cut off from the general main range being 633 feet above the sea.

From the base of the Town Hill there is a gradual slope of ground to the more flat portions immediately adjoining the sea, and a very fair fall of surface from the more northern portions of the town to the river Tawe. Northward of the more narrow part, where the range of hills above noticed is naturally broken through, much low land extends for about two miles towards Morristown and Llansamlet, and on this, or adjacent to it, rising slightly towards the hills on either side, are the copper smelting works, the volumes of gaseous products and smoke discharged from which give such a character to this town; one shared in a minor degree, from the same cause, by Neath and Llanelly, and the village of Tybach, all within a distance of 12 miles.

On the west, numerous villas are dispersed over the undulating ground in front of the range of the Town Hill.

*Climate.*—The data for correct information on this head are not so ample as could be desired; from the kindness, however, of Mr. John Jenkins, F.R.A.S., who is now proceeding with careful meteorological observations at Swansea, approximative knowledge on this subject has been obtained, sufficient for the present purpose.

The following table of the temperature is constructed from reductions by Mr. Jenkins, of the observations made by the late Dr. Edwards, by Mr. Gutch, and by himself.

## APPENDIX.

## Town of Frome.

Report on its Sanatory Condition, by Sir H. T. De La Beeche.

## Town of Swansea.



TABLE 1.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual Means.
1818	..	..	..	..	..	..	68°	64°	60°	56°	46°	..	°
1819	..	..	..	..	..	..	..	..	..	..	46°	36°	..
1820	32°	41°	43°·5	55°	56°	62°	67°	63°	58°	51°·5	43°·5	43°·5	51°·33
1821	40°	..	45°·5	..	54°	59°·5	62°·5	64°	60°	54°	50°·5	47°	..
1822	42°	45°·5	47°·5	47°·5	58°·5	67°	63°	62°·5	57°	53°	49°·5	37°	52°·50
1823	34°	38°·5	42°	48°·5	55°·5	58°·5	60°	..	52°·5	51°·5	46°·5	43°·5	..
1824	41°	42°·5	43°	46°·5	54°	..	63°·5	62°·5	58°·5	52°	49°·5	44°·5	51°·45
1825	41°	47°	44°·5	49°	56°	62°·5	..	..	..	..	..	..	..
1838	35°	36°	44°·5	46°·5	55°	60°	62°	63°	59°	53°	43°·5	43°·5	50°·08
1839	43°·5	44°·5	43°·5	47°·5	55°	64°	62°	59°	57°	52°	46°	39°	51°·08
1842	..	..	..	..	..	68°	65°	69°	61°·5	51°·5	45°·5	47°	..
1843	43°·5	38°·5	46°·5	52°	57°·5	59°·5	61°·5	61°·5	61°·5	50°	44°	47°·5	51°·95
Means	39°·11	41°·68	44°·5	49°	55°·72	62°·1	63°·45	63°·16	58°·5	52°·45	46°·4	42°·85	51°·49

By comparing the mean temperature of the months, thus obtained, with those for Bristol, it would appear, that while the months of October, November, December, January, February, and March, do not materially differ at both places, the other months show a higher mean temperature at Bristol than at Swansea, making the mean annual temperature higher at Bristol than at the latter; a result, supposing it to be borne out by future inquiry, and making allowance for the temperature at Bristol having been observed in a town, and at the bottom of a hill, which would seem to show the cooling effects of proximity to the sea and of the winds passing over it.

With respect to prevalent winds, of such importance when the absence or presence of the gaseous products and smoke in the town from the copper works is to be considered, the data are also somewhat different. Taking the tables furnished by Mr. Jenkins, it would appear that the number of days for N. and N.E. winds, those which would convey the "copper smoke," as the combined gases and smoke are termed, into the town, were, for

	N.	N. E.	
1820	64	63	= 127
1821	106	23	= 129
1822	103	32	= 135
1824	97	59	= 156
1843	48	92	= 140

making an average of about 137 days in the year, or less than one day in three, in which the copper smoke may be expected in the town. It does not appear how far land breezes, bringing down the copper smoke into the town during the season for land and sea breezes on this coast, may be included in this calculation.

From information obtained from Mr. W. Roper, lighthouse-keeper at Swansea, and communicated by Mr. W. Bevan, the average number of days would be less than noticed above, and above one in four when the copper smoke would be carried down over the town by the winds.

It does not appear that the amount of rain which falls has been accurately kept. The following, from the tables furnished by Mr. Jenkins, may tend to show the number of days stated to be wet or showery during the years mentioned:—

	Showery.	Wet.	Total.
1820	126	41	167
1821	91	72	163
1822	139	74	203
1824	184	36	220
1838	58	45	103
1839	76	70	146
1843	94	63	157

Taken as a whole, the climate of Swansea may be considered as mild and damp—a character which might be expected from its geographical position.

*Geological Character of the Ground on which the Town and Suburbs stand.*—The fundamental rock is that intermixture of sandstones, shales, clays, and coal, known as the coal measures, containing numerous beds of coal, worked in the adjoining country, and to the abundance and small cost of which the town is chiefly indebted for the copper smelting and other works carried on in and near it.

From the manner in which the more porous sandstone and other beds are mingled with those which are comparatively impervious to the passage of water, the inclination and surface exposure of the beds, the dislocations in their continuity, and from other natural interruptions

to the solidity of the strata, commonly termed "joints," there is no want of springs in these rocks, and such are found in the range of the Town Hill.

Very little of the town is actually built on the coal measures, but upon detrital accumulations, consisting of gravel, sand, and clay, which cover up this rock at Swansea, and the lower and southern part of the Town Hill extending thence to the westward; similar accumulations occurring on the eastern side of the Tawe, and in front of Cilfay Hill.

The gravel is chiefly at the surface in the higher parts of the town, and the clay predominates at the lower portion towards the sea, much of it being apparently in a great measure continued from that clay in Swansea Bay, which, with its often embedded trees, is one of the examples of the so-called submarine forests, part of the land having been depressed, relatively to the sea level, since the trees (oak, &c.) grew on the clay. Blown sand accumulates upon this and other clays, and upon the gravel along the coast of the bay, extending even up to Swansea.

The intermixture of the gravels, sands, and clays affords the conditions necessary to obtain water by means of wells; but, at the same time, it also affords those which in a neglected drainage enable the liquid portions of cess-pools and other receptacles for refuse and filth to percolate and mingle with the well-waters.

Though some care must be taken in arrangements for drainage in the low and extending portion of Swansea towards the west, the surface generally, and the geological character of the ground, present no obstacles to an efficient and proper drainage of the town.

*Floods.*—When freshes from the mountains swell the Tawe, and are met by the in-coming tide, the low grounds above the town become flooded, especially at high spring tides; but, from the situation of the town, little damage is done to it from such causes.

*Sewerage and Cleansing.*—An Act of Parliament was passed in 1809 (49 Geo. III. cap. 79), intitled "An Act for the better Repairing, Cleansing, Lighting, and Watching the several Streets and other Public Passages and Places within the Town and Franchise of Swansea, in the County of Glamorgan, and for removing and preventing nuisances, annoyances, and obstructions therein." Under the provisions of the Municipal Reform Bill the powers under this Act became vested in the town council, who now exercise the powers given by it.\*

There is a general kind of map of the town in the town-hall, but it contains no system of levels. It is stated that the Water-works Company possesses one on which some levels are given.

Nothing deserving the name of a system of drainage can be said to exist.

Dr. Bird, ex-mayor of Swansea, to whom the questions of the Health of Towns Commission were sent, says:—

"There is no system of drainage of a regular or efficient character; drains and sewers are occasionally formed, and when out of repair they are, or should be, by law, put in order; the same when otherwise defective, or when accumulations occur.

"The arrangements of the public sewers are extremely ill conducted and badly managed; system there is none at all, and in many parts of the town there is no drainage or sewerage whatever.

"The Paving and Lighting Commissioners have certain powers as to forming drains in the town; but these powers are not sufficiently comprehensive or efficient in their nature to be acted on, in anything like adequate perfection, nor are the present funds of that Trust equivalent to such a burden.

"The inhabitants, as a whole, have so long been accustomed to the present ill-conducted and inefficient drainage, that I do not apprehend anything short of a compulsory enactment would induce them to observe efficient drainage and sewerage, or to make the requisite outlay of money to carry out such a work, although, perhaps, no individual would gainsay its being necessary.

12. "A large proportion of the refuse of the town, that is, of the street washings, is permitted in many places to remain on the surface, where it is either taken up by evaporation, or allowed to soak into the sub-soil, or both. In many places there are drains communicating with the town-sewers, into which such fluids run: however, these are not by any means arranged in a systematic manner, nor are they general. Slops, soapsuds, dish-water, urine, ordure, &c., are thrown out at the doors of cottages frequently into the streets and gutters immediately in front of the houses.

"A large number of the water-closets and privies have no drains, and the contents are allowed to soak into the adjacent soil, so far as is practicable. In many parts of the town water is to be found on digging a few feet from the surface, and the upper soils chiefly consist of sand. The percolation, therefore, of the filth cannot but produce its effect, and add other impurities to those already contained in solution in the water.

"A more filthy, unwholesome, and disgusting nuisance than the practice involved in this particular query, I cannot imagine, and I am sorry to say it is by no means an uncommon one. I have seen ordure thrown into the gutters and on the public gratings in some of the principal streets of the town."

13. "The branch house-drains are of every description of form and size, not exceeding one foot, at the will of the owners.

"The greater number of the public drains are circular, two feet in diameter, but there are a few of larger dimensions, being 3 ft. 2 in. by 2 ft. oval. The average cost of the two feet drains, including excavations, is about 2s. 8d. per foot; and of the larger drains, about 3s. 6d. per foot."

14. "There are cesspools or catchpits contiguous to the gratings; which convey the surface water of the street gutters to the covered drains. These are cleaned weekly, at an expense of about 2d. per annum. Whenever it is necessary to clean the main sewers, they are opened from the surface, and the dirt removed by manual labour, at an average expense of 10d. per annum, making the total annual expense for cleaning sewers about 30d. per annum. These sewers are used only for carrying off the water from the streets and houses."

8. "Many of the houses have no necessities, and many necessities have no drains."

\* Since this Report was written, a new Act has been passed (7 and 8 Vic. c. 11), greatly enlarging and amending the powers of the local Commissioners. Its powers are vested in the Corporation and 12 Commissioners, specially appointed in the Act.

## APPENDIX.

## Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.



APPENDIX.  
Town of Swansea.  
Report on its Sanatory Condition, by Sir H. T. De La Beche.

"There are no public necessities, but nearly every street, pavement, and road-side walk are used for such disgusting purpose nightly; and daily, too, in many instances."

9. "The house drains are not properly cleaned by water or other means, and they often emit offensive smells."

10. "There are no means of preventing accumulations in the sewers."

15. "Scavengers are appointed and directed to be paid in pursuance of the Act of Parliament, passed in the 49th of Geo. III., cap. 79. 20th May, 1809.

"The powers of this Act now vest in the Town Council. Under the above Act, powers are vested in certain Commissioners, who (amongst other matters) are directed to employ scavengers.

"Section 48 of the above Act relates to the duty of scavengers, and runs as followeth:—'And be it further enacted, That the scavenger or scavengers, or the person or persons employed in or contracting for cleansing the said streets, lanes, passages, and places, shall once in every week, or oftener if the said Commissioners shall so direct; and on such days as they shall appoint, bring, or cause to be brought, some proper cart or other carriage into the said several streets, ways, lanes, passages, and places, where such carts and carriages can pass, and such scavenger or scavengers, or other person or persons shall, upon the request of any of the inhabitants, or their servants or lodgers, go into any of the houses or other places where any dirt, dust, ashes, or filth (except the filth from any necessary-house, or privy) shall be deposited, and shall take and put the same into such cart or carriage, and carry away the same, and shall also sweep, cleanse, and carry away the dirt and soil arising in the said streets, lanes, passages, and places, upon pain of forfeiting any sum not exceeding five pounds for every such neglect or offence therein.'"

16. "The sum paid for scavenging this town is about 198*l.* per annum for the whole of the work the scavengers are to perform. This work comprises the whole duties of public scavengers. They are bound by law to go into places inaccessible to carts, but they, as may be expected, miserably neglect this duty."

17. "Many of the houses of this town have no receptacles for dust, &c., consequently these inhabitants keep their dust, ashes, &c., in baskets or lampers, or else, as is very commonly practised, they throw all their offal, slops, filth, ordure, and ashes into the public street before their dwellings, or deposit the ordure on an adjacent public grating, and throw the ashes into some corner near at hand.

"The scavengers' duty is imperfectly done; the scavengers profess to go into all parts of the town once a-week, but this is not done. In many places, they do not make their appearance once in three months. I am of opinion that the scavengers receive about one-half the sum which would enable them to perform their duty properly, and that they perform about one-third of the duty to be done."

18. "The refuse and ashes of the town are deposited in a field, on the road-side between the town and the infirmary. This field is near the gas-works. I believe the whole or nearly so is disposed of by sale."

19. "The powers for the above purposes vested in the local authorities are not adequate. The 'Paving and Lighting Act' is a very defective one, and much requires revision."

20. "The houses are either in some instances isolated, or they are ranged in streets, terraces, and courts, all of which are as irregular in their arrangement as can well be imagined. Many of the houses are built back to back; many of the courts are closed at the ends. The 'arrangements' for cleansing are not good, and the cleansing itself is, for the most part, very imperfectly effected, and, generally speaking, the courts, streets, and passages are not only kept filthy, but are disgustingly dirty."

"I was at one period of my life in the habit of going into some of the worst parts of London, which were, in my opinion, not more dirtily kept than many of the courts, alleys, and lanes of this town."

"The public 'arrangements' for cleansing consist in the scavengers' work; they profess to go into all the parts of the town once a-week for that purpose; their work is wretchedly performed; for instance, there are four carts employed, and eight men; this for a population of about 20,000 souls, and five miles of streets. And, in addition to the inefficiency of power before named, for the purposes of cleansing, the arrangements themselves are badly and inefficiently conducted as to time, method, &c. The means requisite for enabling the inhabitants themselves to keep their courts and alleys clean, such as privies, free supply of water, &c., are miserably deficient in many instances."

*State of the Town as regards Streets, Alleys, and Courts.*—Though there are several wretched alleys and courts, much of the town of Swansea is composed of open streets, readily swept by the winds, and if kept clean, would have a wholesome character, but inattention to efficient drainage and scavenging gives such an air of neglect to many situations, not ill arranged as regards lines of houses, that the general impression produced is commonly one of more faulty construction than is merited.

Dr. Bird says—

5. "People build where and how they please, and there is no law to prevent them, except as to roofing, party-walls, and some other ordinary matters contained in the 'Paving and Lighting Bill.'"

6. "These regulations are miserably bad. The streets are ill laid, and often not paved at all, and stagnant pools are contiguous to dwellings."

21. "I am not aware of there being any cellar residences in this place, nor can I on inquiry learn that any portion of the inhabitants dwell in such places."

22. "There is no provision for preventing the ends of streets being closed up; such an one is much needed, I should say."

*Supply of Water.*—The means of supplying the town with water are ample, more particularly since the establishment of a waterworks company, whose reservoir is formed between Parkwern and the Rhydings, two miles distant from the town, at a sufficiently commanding height above it, the mains being conducted down the valley, at the upper part of which the reservoir is constructed, and along the Mumbles road into the town. The water is of good quality, and might readily be introduced into the houses under constant pressure, if thought desirable.

\* By § 127 of the late Act, the Commissioners can require the owners of houses to build them.

† This clause is more stringent than that contained in the new Act. It requires the scavenger to perform his duties at least once a week. In the present it is left to the direction of the Commissioners, § 127.

‡ These powers are considerably enlarged. Nuisances of this description can now be abated. § 133.

Much time and labour is now consumed by the poorer inhabitants in fetching water, both from the wells and the springs.

Respecting the supply of water, Dr. Bird in his replies to the questions of the Commissioners, says,

26. "The town of Swansea is supplied with water, either by means of pumps, some of which are public pumps, by means of a stream of water in the upper part of the town, near Mount Pleasant, to which all persons have access who choose to avail themselves of it, and by means of leaden pipes attached to the Water-works Company's mains.

"For the prevention of fires and watering the streets, the supply is drawn from the mains of the Water-works Company."

27. "The water is generally liked. No analysis has been made that I am aware of."

28. "The town is supplied with water by private and public pumps, and by lead pipes from the iron mains of the Water-works Company. The upper parts of the town are supplied principally from running streams."

29. "About one-fourth of the inhabitants are supplied with water from the water-works mains."

30. "In the year 1839, I find by a report of the Royal Institution of South Wales, the following statement:—

*Town of Swansea (within the Turnpike-gates.)*

Houses—Private dwelling-houses, with or without shops, warehouses, offices, &c., &c. attached	1859
Hotels, inns, public-houses, and beer-houses	162
Vacant houses	144
Churches*	2
Chapels	17

"Since this period the town has gone on increasing."

"I am unable to state the number of houses in the suburbs, but they are numerous."

31. "The water is laid on in about 470 houses. Each house has a separate tank, and has an unlimited supply of water."

32. "The poorer classes are supplied by public pumps, or from wells and streams in or near the town, of which there are several.

"There is no provision of a public nature which supplies the poor gratuitously from the water-works mains, nor are any stand pipes permanently affixed to any part of the mains in public streets or places. This might easily be done.

"I suppose some of the poor find a want of water; some people get a living by vending water in casks about the town, and retail it at so much a pailful."

33. "I have not heard any such complaints, but at first the iron rust of the pipes gave the water a red tinge; however lime will remedy this evil, and it is fast decreasing."

34. "A house under 8*l.* rent pays 10*s.* a-year for water to Water-works Company.

	£.	£.	s.
Above rented from	8 to 12	.	12
"	12 to 15	.	15
"	15 to 20	.	20
"	20 to 25	.	25
"	&c.	.	&c.

"Beer-houses pay two guineas per annum.

"Breweries pay three guineas per annum."

35. "People are supplied with an unlimited quantity."

36. "The Act of Parliament of the Water-works Company limits the amount to be paid for water."

37. "I apprehend the present water-works reservoir is sufficient for the town, were it three times its present size."

38. "I believe that filters are seldom used."

39. "It is kept on constantly night and day throughout the year."

40. "There are fire-plugs."

42. "It depends upon circumstances. Generally from a quarter to half an hour."

43. "There are fire-plugs in all the principal streets."

44. "Eighteen fires in houses, warehouses, and workshops have occurred in the last eight years, and two on board-ships. Three of them were destructive; the buildings being burnt down. Another happened in an unfinished house, and all the wood-work was destroyed. The remaining 14 were subdued without serious injury being done to the premises. With regard to the above-mentioned ships, one was burnt to the water's edge; the other escaped with less injury, the fire not extending beyond the cabin.

"The greater number of fires arise from overheating the flues; but some from causes that cannot be assigned."

45. "I am not aware of any houses or large ranges of buildings that are wholly unprotected by party-walls, though in many cases sufficient care is not taken to make the party-walls thick enough to form a proper protection from fire for the primer joints, &c.; particularly in houses of the smaller class."

46. "There are well-constructed engines, two in number, and I think they are well worked. They are placed under the care of an expert tradesman to keep them in order, and occasionally practised by the police and fire brigade. I think they are well and efficiently worked."

*Public Baths and Bathing.*—Numbers of persons from the interior, including many of the men engaged in the iron-works at Merthyr Tydfil, with their wives and families, come annually to bathe in the sea, at Swansea, the sandy coast being favourable for the purpose, and many in the town avail themselves of the opportunities thus afforded. In answer to the question on this head Dr. Bird observes,—

25. "The sea reaches up to the town, and certain parts of the shore are appointed for bathers. There are not any public baths, excepting one very indifferent hot bathing establishment."

\* There are now three—1844.



## APPENDIX.

## Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

**Public Walks.**—The pier may, to a certain extent, be considered a public walk, as there would seem every desire on the part of the authorities to keep it in good condition for the purpose. The wide spread of sands at low water, affords an ample field for wholesome exercise.

**Provisions for Health at Schools.**—Under this head Dr. Bird states,—

23. "At the infants' school there is a good play-ground. I am not aware of any instance of a similar arrangement in this town.

"The light is generally good.

"I believe they are all supplied with privies; the drainage is defective.

"I am speaking of the schools for the poor which are public.

"The private schools at 2d. a-week, and such places, for educating the poor are often wretchedly off in the way of accommodation of every kind."

**Lodging Houses.**—These are numerous, and present the usual characteristics of overcrowding, bad ventilation, and want of cleanliness. In Dr. Bird's answers he presents us with the following account of "lodging-houses," and their inhabitants, given him by the Inspector of police for Swansea.

55. "Mr. W. Rees feels sure there are 60 low lodging-houses or beggar hotels in this town; in some of these he has seen 16 persons sleeping in the same room, Irish, Scotch, and Welsh, consisting of wives, husbands, children, and single people, all in the same room. He has seen six or seven in the same bed, *i. e.*, a man, his wife, and children. These lodgers pay from 2d. to 3d. per night, before they go to bed. Mr. Rees thinks there must be from 250 to 300 of the commonest prostitutes at Swansea. They are very debauched in their habits as regards drink; many of them sleep on straw in the corner of a room, whilst they allow ordure to cover the floor, or throw it with the ashes; so dirty are their domestic habits. In some cases, several take a small house together, whilst others live in lodgings. There are many prostitutes of a better kind; these are more decent in their habits and dwellings."

**Accommodation for the Poorer Classes.**—The number of small or cottage houses inhabited by the labouring classes is striking, and Mr. Bevan, surgeon and registrar of Swansea, attributes much of the comparative healthy state of Swansea to this circumstance. After adverting to the good diet usually obtained by those engaged in the neighbouring copper works, and the fairly constant occupation of the working classes at Swansea, he observes:—

"Another main-spring of health is the occupancy of distinct houses by each family. The practice of cottage building prevails at Swansea to an extent seldom witnessed in the manufacturing districts of England, and as a natural consequence we seldom find more than one family located in each house. We have nothing of what is so common in other crowded districts, tenements, comparatively large, containing three, four, or even six different households, to the manifest detriment of the independence, comfort, cleanliness, and health of all. In such abodes, habits of dirt or dissipation in one, contaminate and annoy the whole, contagious distempers take a wider range, and the number of victims must necessarily be increased.

"A proof of the advantages enjoyed by our working classes in this respect may be deduced from the fact that the number of houses in the town of Swansea, with its population of 16,448, is 3,369, and that, of the whole, 1,400 are cottages, paying a rental not exceeding, but more frequently under, 5l. per annum. In the statistical returns of the Royal Institution of South Wales for 1839-40, revised by Mr. Jenkins, M.A. and Mr. Williams, we find that the proportion of families to inhabited houses is as 1·2 to 1, within the gates, and without the gates, the number of houses is equal to that of families. An obvious consequence of this separate occupancy, and one constituting an important sanatory feature, is that our dwellings are not over-crowded, the proportion of persons to inhabited houses being as 6·99 to one within the gates, and in the district generally as 6·24 to 1."

The following table, taken from the Statistics of the Swansea Union, by Mr. J. H. Vivian, Member for Swansea, published in 1844, shows the number of persons for each inhabited house for 40 years, 1801 to 1841, both inclusive, and that no material change has taken place in that respect for that time, the number being from 5 to 5·3. It also shows the number of persons in each family for 30 years (1801 to 1831) which also differs little during that period, and probably is now much the same, as also appears the case with the proportion of families to each inhabited house.

CALCULATIONS on the Data, extracted from the Population Returns.

SWANSEA TOWN AND FRANCHISE.									
	Houses.				Persons.				
	Inhabited Proportion in 100.	Uninhabited Proportion in 100.	Increase per Cent. of Houses in each period of Ten Years.	Proportion of Houses Built per Cent.	Proportion of Families to each Inhabited House.	Number of Persons to each Inhabited House.	Number of Persons to each Family.	Increase per Cent. of Persons in each period of Ten Years.	Proportion in 100.
									Males. Females.
1801	98·25	1·75	..	..	1·27	5·16	4·05	..	41·46 58·54
1811	93·56	6·14	40·90	·41	1·16	5·15	4·44	34·38	45·19 54·81
1821	96·65	3·94	25·84	1·40	1·04	5·	4·83	25·12	44·28 55·72
1831	95·13	4·87	27·24	·89	1·11	5·13	4·61	29·26	44·44 55·56
1841	95·80	4·20	21·78	1·94	..	5·30	..	26·63	46·83 53·17

## APPENDIX.

## Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

With respect to accommodation for the working classes Dr. Bird says, in his evidence—

55. "Many of the mechanics, sailors, and labourers lodge with people of their own class, and are provided for in the same manner as are those at whose abodes they reside. Here the state of such houses which may be termed lodging-houses for the poorer classes, varies with the means, habits, &c. of those who live in them; some are comfortable, others the reverse.

"The following is given me by the Inspector of Police for Swansea, and Mr. Morgan, Relieving Officer of the Swansea Union:—

"Families sleeping in rooms promiscuously at night even amongst respectable cottagers is not uncommon at Swansea; he knows it to be so, and when there is only one room up-stairs, and one down, and the family numerous, this must be the case. The disposition to be orderly averages pretty fair. He thinks these instances of persons promiscuously sleeping in the same apartments, arises more from necessity than a disposition to do so. Houses having only two rooms are numerous in this place. Houses of this description have frequently been built here within the last ten years. There are some such in course of erection now, but commonly of a better sort; latterly, in erecting these houses of two rooms, a slope behind is, generally speaking, added; some of these slopes contain a small bed-place. These two-room houses vary in rent from 4l. to 4l. 10s., and 4l. 19s.; the last-named rental is generally believed to exempt people from rates, being 1s. less than 5l. Mr. Rees says, that in some of these smallest houses two married families live, and many contain lodgers, in addition to the tenant, his wife, and children. The partitions between rooms at Swansea are generally perfect, and not partial. There are a great number of cottage residences having no privies or water-closets, consequently ordure is frequently deposited on the pathways, public gratings, &c."

**Health and average Age of Inhabitants.**—In a locality where from the gaseous products evolved from the copper works vegetation is destroyed around them, particularly westward, towards which the prevalent winds more frequently drive the copper smoke, so that on the exposed side of Cilfay Hill no plant can grow, and the very soil is washed from the subjacent gravel and rock from the absence of protecting vegetation, and where, moreover, the glass in the windows of the town is corroded from the same causes, it becomes an especial object of interest to see how far the condition of the atmosphere may affect the health of the population within its influence.

The gases evolved from the copper works, consist (independently of the products resulting from the combustion of the coal employed as fuel) of sulphurous, sulphuric, arsenious, and hydrofluoric acids, the three former chiefly driven off during the roasting of the sulphuret of copper, and the double sulphurets of copper and iron, which constitute a large portion of the copper ores smelted at Swansea, the arsenic being sometimes intermingled with these and other ores, and the hydrofluoric acid being produced from the fluor spar (fluoride of calcium) sometimes contained in the ores, and from the same substance employed as flux.

The sulphurous and sulphuric acids are the chief products, the former being invisible, and sulphuric acid in a state of white vapour, being the product most apparent. These, with the smoke arising from the combustion of the coal, constitute the body of the *copper smoke*, for the arsenious acid becomes soon arrested, and the hydrofluoric acid probably does not extend to any considerable distance.

Many plants cannot be grown within the range of these vapours, even where they become, as it were, diluted with the pure air, the colour of the *convolvulus major* has been known to be changed to red, after a few hours driving of the copper smoke, at the distance of two miles from the works, and the houses and cattle that feed upon the grass, where it can grow within the range of much of this smoke, are affected with a great thickening of the knee joints, and their teeth suffer, so that they must be frequently removed from such localities to preserve them.

Lofty chimnies have been adopted at many of the works as a means of somewhat abating the evils arising from the "copper smoke;" and probably the arsenious products are much arrested thereby, but it has been stated that these chimnies only diffuse the sulphurous and sulphuric acids over a wider area. Many plans have been offered, and some tried to abate, or entirely to arrest the noxious vapours discharged from the copper works. At the present time, however, from the increase of these works, during late years, the volumes of noxious vapours evolved must be enormous, and the prevention of their discharge into the atmosphere is a subject of pressing importance, one to which it is stated many of the heads of these great copper smelting establishments are well disposed to give the utmost attention.

Independently of the copper works, there is a chemical establishment situated among them the vapours from which are also offensive, and much complained of by the inhabitants within their range.

Although it might be considered that vapours which clearly caused such destruction to vegetation, could scarcely fail to injure the health of persons coming within their range, the general impression seems to be, that these vapours by no means produce the serious consequences to health that might be supposed. It is stated, that in proportion as the copper works have been extended, agues, which once prevailed in the low grounds near the course of the river, to the northward of the town, has disappeared, so as now to be little known, and it is thought that the copper smoke greatly counteracts the injurious effects to health which would otherwise arise from the neglected sewerage, drainage, and scavenging of the town.

Mr. Bevan, surgeon and registrar of Swansea, who considers "the counteracting agency of copper smoke, as eminently useful in destroying miasmata, and consequently in the prevention of fevers, agues, &c.," after pointing out the advantageous situation of the town, says—

"The general state, however, of the drainage and scavenging is undeniably bad, and nothing less than its happy locality and temperature prevent the worst effects to the general health ensuing. The town sewerage is not only extremely partial, inasmuch as not only many districts built within the last four years have no public sewers, but also from alterations made in several of the older ones, the leading sewers have had their fall or level altered, the result of which is their total inadequacy to the purposes for which they were intended. The greater number of cases of fever which I have met with



## APPENDIX.

## Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

in the course of my practice have occurred in the districts in which no provision has been made for drainage. This is proved by the classification of the deaths in the following table:—

CLASSIFICATION of DEATHS at Swansea for the Years—

	1839	1840	1841	1842
High-street . . . . .	22	31	17	23
Strand . . . . .	19	35	26	28
Green Hill and Upper District . . . . .	141	127	126	130
Middle District . . . . .	105	79	75	92
Burrows . . . . .	5	8	4	6
Mount Pleasant . . . . .	5	4	6	4
Upper Suburbs . . . . .	24	11	7	20
Sketty . . . . .	13	7	5	11
Hamlet of St. Thomas . . . . .	9	9	10	10
	343	302	276	324
Deaths occurring in obscure parts not included in the above Districts. . . . .	9	9	11	4
	352	311	287	328

"From this it appears that the greatest proportion of deaths in the several years has taken place in the Strand, Green Hill, and middle districts, the very situations in which there exists no sewerage, and in which three out of four have been fever and inflammatory cases. The comparison between these districts and others inhabited by the same class has, with due regard to the proportion of the population, occupied my attention, and the result has been a conviction of the evils arising from the want of a proper system of drainage, sewerage, and cleansing."

The annexed table, constructed from the returns of the Mortuary Registers, affords a general view of the mortality within the Swansea district, from 1839 to 1843, both inclusive, (five years,) in which those who have died of decline, consumption, and of epidemic, endemic, and contagious diseases are especially enumerated, with their ages at death, the whole divided into the three classes of gentry, tradespeople, and artisans and labourers.

No. 2.—DEATHS in SWANSEA for Five Years, ending 1843, stating the Rank in Life and Mean Age at Death; and distinguishing Deaths by Decline, Consumption, and Epidemic Diseases.

Population, 1841—18,278.		Total Deaths from all Causes during 5 Years.	Mean Age at Death.	Decline.		Consumption.		Epidemics.	
				Number of Deaths.	Mean Age.	Number of Deaths.	Mean Age.	Number of Deaths.	Mean Age.
MALES.									
Gentry . . .	Under 5 Years . . .	3	..	..	..	..	..	..	..
	Above 5 Years . . .	25	44	3	..	3	..	2	..
	Of all Ages . . .	28	39	3	33	3	28	2	25
Tradespeople . . .	Under 5 Years . . .	42	..	..	..	..	..	9	..
	Above 5 Years . . .	94	43	27	..	4	..	13	..
	Of all Ages . . .	136	30	27	41	4	24	22	12
Labourers and Artisans . . .	Under 5 Years . . .	285	..	8	..	1	..	106	..
	Above 5 Years . . .	367	37	117	..	25	..	60	..
	Of all Ages . . .	652	22	125	34	26	31	166	9
FEMALES.									
Gentry . . .	Under 5 Years . . .	..	..	..	..	..	..	..	..
	Above 5 Years . . .	18	44	8	..	2	..	2	..
	Of all Ages . . .	18	46	8	41	2	25	2	28
Tradespeople . . .	Under 5 Years . . .	24	..	1	..	..	..	8	..
	Above 5 Years . . .	80	43	21	..	6	..	9	..
	Of all Ages . . .	104	34	22	36	6	25	17	12
Labourers and Artisans . . .	Under 5 Years . . .	259	..	12	..	..	..	106	..
	Above 5 Years . . .	397	45	102	..	9	..	74	..
	Of all Ages . . .	656	28	114	34	9	30	180	11

## APPENDIX.

## Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

From this table it appears that, taking the population of the district at 18,278, according to the census of 1841, the middle of the five years noticed, the rate of mortality is 1.74 per cent.;\* that the average number of male deaths per annum is 163.2, and of female deaths 155.6, or 7.6 less than the male; and that this difference in the number of male and female deaths is due to the fewer females who die among the gentry and tradespeople relatively to the males, than among the artisans and labourers, the deaths among whom are nearly even, as regards the sexes, for the five years.

It will be seen that the mean age of the gentry who died in the five years was, for the males 39, and for the females 46 years; the mean age of the tradespeople, for the males 30, for the females 34 years; the mean age of the labourers and artisans, for the males 22, for the females 23 years; in all the three classes, showing a higher age at death for the females than the males, in the first class, of seven years; in the second, of four years; and in the third, of six years; so that this difference is less observable among the tradespeople than among the gentry, and artisans and labourers. The total mean age of the males who died was 23 years, and of the females 29 years.

It will be observed that, as usual, the numbers who die under five years of age are considerable, being 1 in 2.6, the mean age for whom, both males and females being one year. The mortality of this kind is, however, very different in the three different classes, being, for the gentry, only at the rate of 1 in 15.3 of the total deaths, while for the tradespeople, it is 1 in 3.6, and for the artisans and labourers 1 in 2.4, results strongly marking the difference of the sanatory conditions under which the children of the three classes must be placed.

Abstracting those who die under five years of age, the annexed table shows that the mean age at death is for the male gentry 44, and for the female gentry the same; for the male tradespeople 43, and for the females of the same class the same; while for the male artisans and labourers, the mean age is 37, and for the females 45 years, an age for the latter higher than that of the other two classes, though it does not materially differ from them, and one eight years above that for the males of the same class, appearing to show that the influences to which the males of this class have been exposed were much more injurious to life than those which have acted on the females.

According to the table, 1 in 5 die of decline, the deaths from this cause being slightly less among the gentry than among the two other classes, and 1 in 22.4 of the total deaths were from consumption, this cause of death being most prevalent among the gentry, 1 in 9.2 of whom thus died in the five years, while the rate of death from this cause appears for the tradespeople 1 in 24, and for the artisans and labourers, 1 in 22.4. By taking decline and consumption together, 1 in 4.6 of the total deaths are from these causes, it appearing under the head of decline and of consumption, that more males than females thus died, the mean age of both sexes for the class of artisans being the same (34 years) for decline, and nearly the same (31 and 30) for consumption. The mean age of the gentry for decline is 33 for males, 41 for females; and for consumption, 28 and 25. For tradespeople, the mean age for deaths by decline is 27, males and 22, females; and for consumption, 24 and 25.

With respect to epidemics, endemics, and contagious diseases, it would appear that 1 in 4 of the total deaths is from these causes, 1 death in 11.5 among the gentry being from them, among the tradespeople 1 in 6, and among the artisans and labourers 1 in 3.5.

The rate of mortality for Swansea being so low, while the proportion of the total deaths from decline, consumption, and epidemic, endemic, and contagious diseases is so considerable, it becomes desirable to seek for a cause for this apparent contradiction, and such seems to present itself in the number of persons, above the age of five years, who resort to Swansea for employment, lowering the rate of mortality as regards the population from being above those ages at which death is most frequent.

Mr. J. H. Vivian, in his Statistics of the Swansea Union, one which comprises 27 parishes,

\* Mr. J. H. Vivian, in his Statistics of the Swansea Union, obtains 1.69 for the Swansea Town District from the following data, 1.79 being given for the Llangafelach District, while the rural districts of Gower and Llandilo-Talybont are respectively 1.45 and 1.41, the mean for the whole Union being 1.64.

PROPORTION of BIRTHS and DEATHS in the SWANSEA UNION per Cent. to POPULATION, in the four Quarters ending March, 1842, and 1843; calculated on the Returns from the Registrar's Office at Swansea.

	Population.		Births.			Deaths.		
	Census, 1842.	Computed, 1843.	Year ending March, 1842.	Year ending March, 1843.	Mean.	Year ending March, 1842.	Year ending March, 1843.	Mean.
In the Gower District . . . . . No. 1	6,490	6,584	1.65	1.62	1.63	1.16	1.75	1.45
In the Town District . . . . . No. 2	18,278	18,681	2.61	2.81	2.71	1.58	1.80	1.69
In the Llangafelach District . . . . . No. 3	9,001	9,152	3.62	3.87	3.74	1.84	1.75	1.79
In the Llandilo-Talybont District . . . . . No. 4	4,880	4,946	2.70	2.71	2.70	1.58	1.25	1.41
	38,649	39,393	2.70	2.85	2.77	1.57	1.71	1.64

*Town of Swansea.*

**Report on its Sanatory Condition, by Sir H. T. De La Beche.**

and had, in 1841, a population of 38,649,\* observes, while he notices the probable neglect in registering the births, "that the increase in the population of the Union, taking the excess of births beyond deaths, would be 442 persons, or about 1·14 per cent. per annum, on the average of the years ended March, 1842 and 1843. Whereas, on the average of the 10 years ending 1841, the increase was 744 persons, or 1·92 per cent.; so that if the returns of births and deaths are correct, 302 persons must come annually to reside within the Union from other parts of the county or of the kingdom.†

From the following table, given by Mr. Vivian, it would appear that, at the time of the census of 1841, somewhat more than one-third of the population of Swansea town and franchise were not born in the county in which Swansea is situate, and even in Swansea hundred less than 1 in 8 were not so born. The table will also illustrate the increase of the population during 40 years, from 6099, in 1801, to 16,787 in 1841, one that may be mainly attributed to the increase of the copper works, to the working and export of coal during that time, and to the influx of strangers to supply the increased demand for labour and other consequent occupations.

Extracts from the Population Returns:—

SWANSEA TOWN AND FRANCHISE.										
	Houses.				Persons.			Occupations.		
	In-habited.	By how many Families.	Un-habited.	Build-ing.	Males.	Females.	Total of Persons.	Families chiefly employed in Agriculture.	Families chiefly employed in Trade, Manufactures, or Handicraft.	All other Families, not comprised in the two preceding Classes.
1801	1,182	1,504	21	..	2,529	3,570	6,099	39	1,196	4,864
1811	1,591	1,843	104	7	3,704	4,492	8,196	11	1,625	207
1821	2,049	2,124	84	30	4,541	5,714	10,255	30	739	1,355
1831	2,582	2,872	132	24	5,891	7,365	13,256	33	1,289	1,633
1841	3,166	..	139	64	7,861	8,926	16,787	..	..	..

SWANSEA HUNDRED.										
1801	1,620	1,701	97	..	3,366	4,019	7,385	2,452	562	5,660
1811	1,817	1,900	67	15	3,630	4,627	8,257	4,627	956	458
1821	1,890	2,004	95	16	4,484	5,017	9,501	981	528	495
1831	2,241	2,335	110	33	5,361	5,876	11,147	971	465	816
1841	2,686	..	214	30	6,418	6,904	13,322	..	..	..

		Ages.		Ages.		Persons Born.	
		Under 20 Years of Age.		20 Years and upwards.		In this County.	Elsewhere.
		Males.	Females.	Males.	Females.		
1841	{ Swansea Town and Franchise	3,590	3,776	4,271	5,150	11,093	5,694
	{ Swansea Hundred . . .	3,214	3,296	3,204	3,608	11,786	1,536

NOTE.—These numbers refer to persons. In the other years to families.

Having thus obtained an explanation tending to show how the apparently low rate of mortality might be accounted for, it became desirable to compare the town with the adjacent country.

\* The following are the districts and their divisions, with the amount of population in each in 1841, from the same work.

DISTRICT, No. 1.—(Gower District).		DISTRICT, No. 2.	
	Population, 1841.		Population, 1841.
Bishopstone . . . . .	491	Swansea Town and Franchise . . . . .	16,787
Cheriton . . . . .	282	Saint Thomas . . . . .	683
Iston . . . . .	365	Swansea Lower . . . . .	808
Knelston . . . . .	113		—18,278
Llandewy . . . . .	164	DISTRICT, No. 3.	
Llangennith . . . . .	436	Clase, Higher and Lower . . . . .	5,924
Llanmadock . . . . .	269	Swansea, Higher . . . . .	837
Llanrhidian Lower . . . . .	557	Saint John's . . . . .	1,037
Nicholaston . . . . .	119	Llanrhidian Higher . . . . .	1,203
Oxwich . . . . .	345		—9,001
Oystermouth . . . . .	1,482	DISTRICT, No. 4.	
Penmaen . . . . .	149	Llandilo-Talybont . . . . .	1,410
Pennard . . . . .	372	Mawr, Higher and Lower . . . . .	829
Penrice . . . . .	385	Penderry, Higher and Lower . . . . .	1,203
Portyoun . . . . .	364	Rhyndwydydach, Higher and Lower . . . . .	1,438
Reynoldstone . . . . .	258		—4,880
Rossilly . . . . .	339		Population, 38,649
	—6,490		

† Statistics of the Swansea Union, 1844, p. 31.

and with other districts in South Wales in order to see how far the climate, nearly common to them all, might be supposed to influence the deaths by decline and consumption, as has been stated to be the case, and therefore to see how far the influence of the copper smoke might be fairly charged with some parts of the results, the modes of life of the general population being much the same throughout.

For this purpose the two following tables were furnished from the office of the Registrar-General, the three right hand columns being added to it.

*Town of Swansea.*

Report on its Sanatory Condition, by Sir H. T. De La Beche.

TABLE 3.—POPULATION and DEATHS in Four Registration Districts. (The Population is taken from the Return No. 52, made to Parliament by the Census Commissioners in 1841.)

—	1838	1839	1840	1841	1842	Total.	(One in (of Popu- lation.)	One in Total Deaths.
<b>SWANSEA :—</b>								
(Population, 38,641.)								
Total deaths. . . . .	774	701	610	601	674	3,360	115	..
Deaths from Epidemic Dis- eases, including Typhus . }	267	233	154	160	131	945	41	3·5
Deaths from Typhus . . .	55	43	81	66	61	306	126	11
Deaths from Consumption .	150	145	120	120	158	693	55	4·8
<b>CARDIFF; BRIDGEND, &amp;c. ;</b>								
<b>NEATH :—</b>								
(Population, 86,536.)								
Total deaths. . . . .	1,798	1,783	1,722	1,735	1,690	8,728	10	..
Deaths from Epidemic Dis- eases, including Typhus . }	619	566	385	393	353	2,306	37	3·8
Deaths from Typhus . . .	144	168	158	152	130	752	115	11·6
Deaths from Consumption .	233	229	266	263	244	1,235	70	7
<b>CARMARTHEN :—</b>								
(Population, 37,512.)								
Total deaths. . . . .	715	736	803	686	744	3,684	10	..
Deaths from Epidemic Dis- eases, including Typhus . }	192	193	205	143	127	860	43	4·3
Deaths from Typhus . . .	41	62	67	49	62	251	133	13
Deaths from Consumption .	168	142	170	133	139	752	..	4·9
<b>HAVERFORDWEST :—</b>								
(Population, 37,139.)								
Total deaths. . . . .	704	561	647	758	675	3,345	11	..
Deaths from Epidemic Dis- eases, including Typhus . }	230	90	139	171	95	725	51	4·6
Deaths from Typhus . . .	40	47	39	43	31	200	186	16·7
Deaths from Consumption .	105	112	130	127	136	610	61	5·48

The total deaths in Llangafelach in 1842 were 156; the following having occurred in the parish of Morristown, viz., 12 from consumption, 6 from convulsions, 6 from old age, 3 typhus, 3 croup, 2 dropsy, 2 debility, 1 scarlatina, 1 pleurisy, 1 erysipelas, 1 diarrhoea, 1 fistula, 1 paralysis, 1 puerperal fever, and 1 from disease of heart—Total 42.

In order still further to test the value of climate the following table (with the exception of the right column), was also prepared at the office of the Registrar-General, the districts of Penzance, Truro, Tavistock, and Barnstaple being selected as offering somewhat similar climates in the south-west of England, and Kendal for the same reason, more particularly as regards the prevalence of moisture, in the north-west of England. Yarmouth and Whitby were taken as points on the eastern coast of England, Beverley and Ipswich as others more inland on the eastern part of the island, and Huntingdon as having a more central position. In most of the localities the districts comprise rural portions, a circumstance useful as regards investigation into the influence of climate.

TABLE 4.

	1838	1839	1840	1841	1842	Total.	One in (of Popu- lation.)	One in Total Deaths.
PENZANCE :— (Population, 50,100.)								
Total deaths. . . . .	759	848	976	1,016	1,128	4,727	11	..
Deaths from Epidemic, En- demic, and Contagious } diseases, including Typhus	152	150	280	217	260	1,059	47	4·4
Deaths from Typhus . . .	23	38	29	29	54	173	290	27·3
Deaths from Consumption.	158	169	193	167	156	843	59	5·6



## APPENDIX.

## Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

TABLE 4—continued.

	1838	1839	1840	1841	1842	Total.	One in (of Population.)	One in Total Deaths.
<b>TRURO:—</b>								
(Population, 43,137.)								
Total deaths . . . . .	863	742	810	736	1,137	4,258	10	..
Deaths from Epidemic diseases, &c. . . . .	203	93	75	91	419	881	49	4.8
Deaths from Typhus . . . . .	34	29	20	24	53	160	270	26.8
Deaths from Consumption . . . . .	162	158	188	162	175	845	51	5
<b>TAVISTOCK:—</b>								
(Population, 23,995.)								
Total deaths . . . . .	404	353	413	343	621	2,134	11	..
Deaths from Epidemic diseases, &c. . . . .	73	50	93	39	265	520	46	4
Deaths from Typhus . . . . .	19	21	17	10	78	145	165	12.6
Deaths from Consumption . . . . .	78	65	62	55	73	333	72	6.4
<b>BARNSTAPLE:—</b>								
(Population, 37,452.)								
Total deaths . . . . .	489	580	599	545	579	2,792	13	..
Deaths from Epidemic diseases, &c. . . . .	63	120	132	94	76	485	77	5.7
Deaths from Typhus . . . . .	17	17	28	23	31	116	323	24
Deaths from Consumption . . . . .	100	89	110	87	102	488	77	5.7
<b>HUNTINGDON, ST. IVES, and ST. NEOTS:—</b>								
(Population, 55,573.)								
Total deaths . . . . .	1,048	1,117	1,261	1,204	1,222	5,852	9	..
Deaths from Epidemic diseases, &c. . . . .	144	186	244	241	288	1,103	50	5.3
Deaths from Typhus . . . . .	56	84	67	73	63	343	162	17
Deaths from Consumption . . . . .	216	247	224	209	211	1,107	50	5.3
<b>KENDAL:—</b>								
(Population, 34,694.)								
Total deaths . . . . .	728	825	821	601	702	3,677	9	..
Deaths from Epidemic diseases, &c. . . . .	106	243	196	79	126	750	46	4.9
Deaths from Typhus . . . . .	26	46	69	23	40	204	170	18
Deaths from Consumption . . . . .	154	125	132	128	123	662	52	5.5
<b>YARMOUTH:—</b>								
(Population, 24,031.)								
Total deaths . . . . .	417	440	504	493	516	2,370	10	..
Deaths from Epidemic diseases, &c. . . . .	49	37	107	81	85	359	67	6.6
Deaths from Typhus . . . . .	11	10	13	11	11	56	429	42
Deaths from Consumption . . . . .	60	64	57	76	58	315	76	7.5
<b>IPSWICH:—</b>								
(Population, 25,254.)								
Total deaths . . . . .	694	630	593	499	594	3,010	8	..
Deaths from Epidemic diseases, &c. . . . .	230	134	84	36	78	562	45	5.3
Deaths from Typhus . . . . .	16	20	24	17	16	93	272	32.3
Deaths from Consumption . . . . .	138	133	148	129	137	685	37	4.4
<b>BEVERLEY:—</b>								
(Population, 18,957.)								
Total deaths . . . . .	325	328	394	449	371	1,867	10	..
Deaths from Epidemic diseases, &c. . . . .	48	51	98	124	43	364	52	5
Deaths from Typhus . . . . .	7	8	14	12	20	61	311	30.6
Deaths from Consumption . . . . .	33	40	46	48	38	205	92	9
<b>WHITBY:—</b>								
(Population, 20,100.)								
Total deaths . . . . .	404	462	431	380	471	2,148	9	..
Deaths from Epidemic diseases, &c. . . . .	31	85	117	26	57	316	64	6.8
Deaths from Typhus . . . . .	7	3	4	12	23	49	410	48
Deaths from Consumption . . . . .	78	52	48	52	57	287	70	7.5

## APPENDIX.

## Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

From these tables the following has been constructed, by which it will be seen that the rate of death by consumption (decline being coupled with it in these returns) is as high, or nearly so, at Carmarthen as at Swansea, and not materially different at Truro, so that though Llanelly with its copper-works is included in the Carmarthen district, yet we cannot refer the prevalence of consumption at Truro, its tin-smelting works not evolving much noxious vapours, to the mixture of the same gases with the atmosphere as are discharged at the copper-works. Moreover, at Ipswich we find a still higher rate for consumption than at Swansea, and at Ipswich the only works of importance seem to be iron founderies. The Cardiff district, which includes Neath and Tybach with their copper-works, affords a far lower rate of death by consumption, one approximating to that observable at Yarmouth and Whitby. Regarding climate, the Cardiff district is much drier than those of Swansea, Carmarthen, and Haverfordwest, the mountains on the north of it carrying off the clouds drifted from the Atlantic. Still it seems difficult from the data here assembled to conclude much as to the supposed influence of climate on the west coast of England and Wales in aiding the prevalence of consumption, although Beverley, Whitby, and Yarmouth appear such favourable positions in the table, for Ipswich is the worst of all the places enumerated, and Huntingdon is about equal to Kendal, Truro, Haverfordwest, and Penzance. Should such an influence exist, it will require to be proved by more satisfactory data than is here assembled.

TABLE 5.

District.	Population in 1841.	Average Deaths per Annum.	Per Centage of Deaths.	Deaths by Consumption	Deaths by Typhus.	Deaths by Epidemics, including Typhus.	Deaths from other Causes than Epidemics and Consumption.
				1 in	1 in	1 in	1 in
Swansea . . . . .	38,641	672	1.7	4.8	11.0	3.5	1.9
Cardiff, &c. . . . .	86,536	1,746	2.0	7.0	11.6	3.8	1.7
Caermarthen . . . . .	37,512	737	1.9	4.9	13.0	4.3	2.0
Haverfordwest . . . . .	37,139	669	1.8	5.5	16.7	4.6	1.8
Penzance . . . . .	50,100	945	1.9	5.6	27.3	4.4	1.7
Truro . . . . .	43,137	858	2.0	5.0	26.8	4.8	1.7
Tavistock . . . . .	23,995	427	1.8	6.4	12.6	4.0	1.7
Barnstaple . . . . .	37,452	558	1.5	5.7	24.0	5.7	1.5
Kendal . . . . .	34,694	735	2.1	5.5	18.0	4.9	1.6
Huntingdon, &c. . . . .	55,573	1,170	2.1	5.3	17.0	5.3	1.6
Yarmouth . . . . .	24,031	474	2.0	7.5	42.0	6.6	1.4
Ipswich . . . . .	25,254	602	2.4	4.4	32.3	5.3	1.7
Beverley . . . . .	18,957	373	2.0	9.0	30.6	5.0	1.4
Whitby . . . . .	20,100	430	2.1	7.5	47.9	6.8	1.4

These tables, at least, show that both consumption and typhus are prevalent in the Swansea district, and by the note to Table 3, it would appear that in 1842, at Morristown, more frequently involved in copper smoke than Swansea, 12 deaths in 42, or 1 in 3.5 were from consumption. The proportion of deaths by typhus in the Swansea district is very considerable, the largest in the list, though Cardiff nearly approaches it. While 1 in 11, of the total deaths is from typhus at Swansea, only 1 in 47.9 so die at Whitby, and 1 in 42 at Yarmouth, even Ipswich, apparently so high for consumption, gives only 1 in 32.3 for typhus. After Cardiff, Tavistock and Carmarthen come the nearest to Swansea. For deaths by epidemics, generally, and including typhus, the rate of mortality at Swansea is high, closely followed by Cardiff, so that the supposed corrective influence of the copper smoke for these diseases is not apparent. It would thus appear that as regards the health and average age of the inhabitants, the low rate of 1.74 as the per centage of death in the population may be much influenced by the influx of persons above 5 years of age, so that the real per centage of the deaths of those born at Swansea may be much the same as for similar towns; that notwithstanding this immigration, the comparative numbers who die before 5 years of age is still considerable; that there is a marked difference in the relative amount of deaths before 5 years between the richer and poorer persons, being 1 in 2.4 of the total deaths for the latter; and that a large proportion of deaths is from decline, consumption, and epidemics, including typhus.

The influence of climate, and of the copper smoke, though such influence can scarcely be doubted, is not very clearly seen from known data. Taking two rural districts of the Swansea Union, both to the westward of, and therefore scarcely affected by, the copper smoke, namely, Gower and Llandilo Talybont, but still under the influence of the same general climate, we find that, with a united population of between 11,300 and 11,500 persons, (see note, p. 137), the per centage of death is 1.43. The Llangaflech and town districts show a higher rate of mortality, and are those in which this should be expected from the occupations of the inhabitants and the impurities, from various causes, mingled with the air breathed.

Though there is no over-crowding in Swansea, the subject being viewed as a whole, yet from the little attention paid to the ventilation of their rooms, especially their sleeping-rooms, by the mass of the poorer classes, (an inattention common to the surrounding districts,) and from the defective drainage of the town, conditions favourable for epidemics exist, and 1 in

APPENDIX.  
Town of Swansea.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

3·5 of the total deaths among artisans and labourers is from this cause in the Swansea district. Notwithstanding the influence of the rural districts the same rate for epidemics obtains in the whole Union, comprising a population of 38,641.

Consumption (including decline) is also a marked cause of death, 1 in 4·6 in the town district thus dying, a proportion differing but little from that for the whole Union, namely, 1 in 4·8.

The employment of the poorer classes is, as a whole, good, a fact indeed proved by the immigration from other places and parts of the country,\* and those engaged in the copper works, more especially, enjoy the benefits of a fair diet, so that with respect to food the poorer classes of Swansea cannot be regarded as deficient.†

As respects the average age at death in a town in which about one-third of the population was not even born in the county of Glamorgan, and who have therefore immigrated into the district, the population so moving in being probably, as a whole, of fair age, little conclusion can be drawn, except that this circumstance would tend to raise the apparent health and longevity in the district beyond a just comparison with other districts and towns not under equal conditions.

## REPORT on the SANATORY CONDITION of MERTHYR TYDFIL, GLAMORGANSHIRE.

By SIR HENRY T. DE LA BECHE.

## Merthyr Tydfil.

*Situation.*—Merthyr Tydfil, including under that name the town properly so called, Dowlais, and Pen-y-Daran, occupies a length, not including the houses connected with the Plymouth Iron-works, of about two miles, partly in the valley of the Taffie and partly in that of its tributary the Morlais. Taken as a whole, it may be considered well situated on sloping ground,

\* Mr. Vivian, in his Statistics of the Swansea Union, affords the following information respecting the country of birth of the persons in Swansea Town and Franchise.

	Born in England and Wales.				Born in Scotland.		Born in Ireland.		Not Specified where Born. Foreigners, &c.	
	In the County of Glamorgan.		In other Counties.							
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
	4,963	6,130	2,464	2,547	45	16	242	186	147	47
Proportion in 100	29·56	36·52	14·68	15·18	·27	·09	1·44	1·11	·87	·28

† Some insight into the class of persons who are enabled and willing to save from the earnings may be obtained from the following classification of depositors in the Swansea Saving Bank, to the 20th November, 1841, taken from Mr. Vivian's Swansea Statistics:—

Number of Depositors.		Balance Due to each Class.	Average Amount of Deposit.
167	Small Farmers and Country Butchers . . . . .	£. s. d. 5,570 13 9	33
99	Small shopkeepers, Clerks, Accountants, Schoolmasters, Teachers, Excise Officers, &c. . . . .	5,479 2 10	55
405	Mechanics . . . . .	10,708 4 11	26
225	Coppermen, Colliers, Labourers, Bargemen, &c. . . . .	8,377 6 0	37
86	Mariners . . . . .	2,178 10 2	25
51	Dress-makers . . . . .	1,311 9 6	26
177	Female Servants . . . . .	5,049 3 4	28
48	Male Servants . . . . .	1,753 3 1	36
54	Victuallers . . . . .	2,272 2 5	42
102	Children and Apprentices . . . . .	1,648 14 7	16
73	Widows and persons of small income . . . . .	2,662 16 10	36
33	Nurses, Charwomen, &c. . . . .	1,252 17 3	39
66	Trust Accounts . . . . .	1,810 10 0	27
1,586	Total number of Depositors . . . . .	50,104 14 8	32
8	Charitable Societies . . . . .	99 3 6	113
40	Friendly Societies . . . . .	8,957 18 8	224
1,634		59,971 16 10	

Of the 405 Mechanics entered above, 31 are Shoemakers, 36 Tailors, 85 Carpenters and Shipwrights, 55 Masons and Plasterers, 68 Smiths and Workers in Iron, 7 Printers, 7 Carriers, 9 Potters, 6 Weavers, 11 Painters, 4 Braziers, 7 Coopers, 20 Engineers, 59 Miscellaneous, namely, Dyers, Brewers, Gardeners, Policemen, &c., making in all 405—the total number of accounts opened by Mechanics.

a very small portion having a level character. Merthyr church is stated to be 500 feet above the docks at Cardiff, and Dowlais is about 400 or 500 feet above it—Pen-y-Daran being situated between the two places, and joining them together. The valley of the Taffie extends to the range of the Vans of Brecon (2862 feet), where the river has its source, and becomes more expanded near Merthyr Tydfil than further down, the northern escarpments of the mountains, containing coal and iron, ranging off from the main valley near the town. Hence the situation of Merthyr is open, airy, and well exposed to the sun.

*Climate.*—As might be expected from the elevation of the town, varying from about 500 to 1000 feet above the sea, the temperature is somewhat low compared with that at Swansea, and other places on the coast, or at much lower levels, in the vicinity. At the same time the district around the town is rainy and damp, as a whole, the high lands collecting the vapours brought by the prevalent winds from the sea. It does not appear that any register of the temperature experienced, or of the fall of rain, has been kept at Merthyr. Though so many iron furnaces are in blast (there are 13 at the Dowlais establishment alone,) with all their accessory fires and works, and with a population amounting to 37,264, Merthyr Tydfil is not a smoky town, the coals employed either at the works or for domestic use being of a quality so approximating towards anthracite, as to emit little smoke, and coke being used when required in the iron works.

*Geological Character of the Ground.*—The rocks on which the town stands form that interstratification of coal beds, shales, sandstones, and conglomerates known as the Coal Measures, to which, in this district, and for a long line of country, are added beds of clay ironstones. To these ironstones, to the coal, and to the proximity of limestone, employed as a flux in smelting the iron, Merthyr Tydfil owes its importance in the manufacture of iron.

These beds are much covered by gravel in some localities, especially in the lower parts of the valley, and through the gravels the waters percolate in the low grounds, and are obtained in wells. Many beds of the coal measures also throw out springs, or offer facilities for procuring the water sustained by them when wells are sunk to such beds; so that if careful arrangements were made, the inhabitants might receive a good supply of water, one which would but little interfere with that required for the works.

Neither the surface of the ground nor its geological structure present difficulties for a proper drainage of the town; on the contrary, they would offer great facilities.

*Drainage and Cleansing.*—In these respects this town is in a sad state of neglect; with the exception of some little care in the main streets, and regulations about removing ashes before the doors in Dowlais, all else is in a miserable condition. From the poorer inhabitants, who constitute the mass of the population, throwing all slops and refuse into the nearest open gutter before their houses, from the impeded courses of such channels, and the scarcity of privies, some parts of the town are complete networks of filth, emitting noxious exhalations. Fortunately the fall of the ground is commonly so good that heavy rains carry away much of this filth. There is no Local Act for drainage and cleansing, the Highway Act being that in force, and the chief lines of road appearing to be under the Commissioners of the Turnpikes. During the rapid increase of this town no attention seems to have been paid to its drainage, and the streets and houses have been built at random, as it suited the views of those who speculated in them.

Mr. James, chairman to the Board of Guardians, in his answers to the questions of the Commissioners, observes that there are no regulations for draining the town; (6) that the streets are not properly laid out for the discharge of surface moisture; that surface moisture is retained; that there are accumulations of refuse thrown from the houses; and that there are stagnant pools and ditches contiguous to the dwellings.

7. "There are very few drains, and, with one or two exceptions, very inefficient."
8. "The great majority of houses have not proper necessities; some are arranged to empty into drains or cesspools, but the majority are not, and are cleansed by the nightman."
9. "The house-drains are not efficiently cleansed."
10. "The very few public sewers are constructed as badly as possible."
11. (Regulations in force for drainage.) "None."
12. (The liquid refuse is) "thrown into the water-courses."
13. (The public sewers cleansed) "by showers of rain only."
14. "The main streets are occasionally cleansed by the Turnpike Trust Commissioners."
15. (Courts and alleys inhabited by poorer classes cleansed.) "No."
16. "No dust-bins."
17. (Deposit of town refuse.) "Waste pieces of ground near to different parts of the town, and the beds of the rivers Taffie and Morlais; and after a long drought, as at present (July 1844), the stench is almost intolerable in many places. It is not sold as manure."
18. (Local power for enforcement of cleansing.) "None."

Mr. Russell, attorney at Merthyr, states, respecting the drainage and cleansing—

6. "There is no general drainage; but nature does much, as the town is situated on the side of a hill."
7. "There is but one sewer in a new street, but the houses generally in that street do not communicate with it. Drainage is altogether defective."
8. "No place can be worse provided with these conveniences (necessaries for the houses), there being scarcely any attached to the cottages, which bear the greatest proportion (to the other houses). There are no public ones."
9. "The houses are not properly drained, and are offensive generally."
10. (Local regulations.) "None."
11. (Liquid refuse) "allowed to remain on the surface."
12. "There are no public sewers."

## APPENDIX.

## Merthyr Tydfil.

Report on its Sanatory Condition, by Sir H. T. De La Beche.



## APPENDIX.

Merthyr Tydfil.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

15. (Cleansing.) "Only on the turnpike and parish roads."
16. (Courts and alleys inhabited by poorer classes cleansed.) "No."
18. (Deposit of refuse.) "The river Taffé generally; but this is little attended to by the inhabitants. None sold as manure."

Mr. Davies, landlord of the Bush Inn, who has known the town for 20 years, states, in answer to the same questions—

5. "No public survey (of the town)."
6. "No regulations (for drainage). The streets are uneven and unpaved, and retain stagnant waters, as also refuse thrown out from the houses. Many cellars or kitchens are used for slaughtering cattle."
7. (Arrangements for under drainage) "very defective. No sewers or branch-drains."
8. (Proper necessities for houses.) "No. The accumulation of filth is sometimes removed, about once in five years. No public necessities."
9. "Very few drains. The refuse is allowed to accumulate, and too often emit offensive smells."
10. "No public sewers. There is a culvert made by private individuals, and only for the use of certain houses."
11. (Regulations in force for systematic drainage.) "No regulations."
12. (Liquid refuse.) "Thrown into the water-courses. Too often allowed to soak into the subsoil, and in warm weather proves offensive, and detrimental to the health of the inhabitants."
14. (Sewers cleansed.) "No."
16. "No appointed scavengers. The refuse is removed according to the habits and convenience of the inhabitants."
17. "No dust-bins. Soil and rubbish are thrown in various parts of the town upon waste lands."
18. (Place of deposit for refuse.) "No regular place."
19. (Local authority for enforcement of cleansing and prevention of nuisances.) "None, except on parish roads and thoroughfares."

The evidence of Mr. James and Mr. Martin, surgeons, upon the same subject is as follows:—

6. "No regulations. No attention ever paid to drainage, except for a few yards, nearly opposite the church; that however, had no influence in draining the road, but the contrary, as it rose up into the side of the road about 60 yards from the water-course that it runs to." *J.*
6. "There are no regulations for drainage. The streets and roads are badly constructed, and with respect to pavements they are wretched. There are stagnant pools adjoining the town." *M.*
7. (Sewers.) "None but the one just mentioned till lately, when a drain has been carried through the Market Field to the river. There is also a drain from George Town, but I should suppose the fall is too little. It ought to be put under the canal. Nothing but an Act of Parliament can do it, and it is much wanted." *J.*
7. "We have a few sewers; I believe they are very imperfect." *M.*
8. (Proper necessities to the houses.) "No place can be worse off in this respect. Scores, I dare say, hundreds of houses have no such convenience as a necessary." *J.*
8. (Some) "houses in the town have necessities, but no drains. There are no public necessities." *M.*
9. "Such a thing as a house drain was never heard of here." *J.*
9. "The refuse often accumulates so that the smell is most offensive." *M.*
10. "The only sewer I know of is by the Globe tavern, and goes under the road. There is an open grating to it to let in the water from the road. This emits a very offensive effluvia at times." *J.*
10. "The public sewers are badly formed, so that they deposit large quantities of refuse. It remains there until washed away by the rain." *M.*
11. (Local regulations for drainage.) "No." *J.*
11. "There are no local regulations for that purpose." *M.*
12. (Liquid refuse.) "Thrown on the ashes frequently. Often out of the door, there to soak until the rains carry it away." *J.*
12. "Some thrown into the river, the remainder allowed to accumulate on the surface." *M.*
14. (Cleansing of sewers.) "They are not cleansed except by rain water." *M.*
15. "The surveyor of the (turnpike) road employs men and a cart to clear away the dirt." *J.*
15. "We have no scavengers." *M.*
16. "Nothing removed from them (courts and alleys) at the public expense." *J.*
16. "I believe they are seldom cleansed." *M.*
17. (Dust-bins) "Not known here." *J.*
17. "The houses are not provided with dust-bins." *M.*
18. (Deposit of refuse.) "Any vacant place. The iron masters generally cart it away. Nothing paid for it, or for removing it." *J.*
18. "Most of it is deposited by the river side to be carried away by the floods. I think very little of it is sold as manure." *M.*

Though abundant other evidence might be adduced, the above will be sufficient to confirm the statement of the singularly neglected state of Merthyr as to drainage and cleansing. Some apparent difference in the evidence arises from applying the term sewer to common drains for surface water. Of the former the private sewer mentioned is the chief, if not the only one, deserving the name.

It would appear that the Dowlais Iron Company undertake to carry away the ashes from the doors of the inhabitants of Dowlais at the rate of one penny per week for each house. This money seems stopped out of the wages paid, the greater part of the population of Dowlais being under the control, and in the pay of the Company.

The rarity of privies is one of the marked characteristics of the town. Even many recently erected houses are unprovided in this respect, though more attention is now paid than formerly to such conveniences. In some localities, a privy was found common to 40 or 50 persons, and

## APPENDIX.

Merthyr Tydfil.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

even up to 100 persons and more, and from its neglected state, it might well be doubted if it were of advantage, further than to conceal the inhabitants frequenting it from view. Even the houses of small but respectable tradespeople were found unprovided in this respect at Dowlais, and in consequence, the females of the families were put to much inconvenience.

From the number of persons congregated together, and the scarcity of privies, not much regard to decency is paid by the mass of poorer persons, though some of the women are described as suffering much from constipation, brought on by their attempts to avoid exposure. The cinder heaps, as the lines of refuse slags from the iron works are termed, and the river sides are frequented by persons of all ages and sexes, who manage in the best way they can. This system produces much indifference to personal exposure, and may in some way account for the not uncommon practice of the workmen, on their return home from their labour, stripping, and being washed and rubbed down, while naked, by the females of the house, or who may be in it at the time, usually, as it is stated, without much regard to their being married or unmarried. Notwithstanding such exposures and practices, however, the inhabitants of Merthyr are stated by competent and highly credible witnesses to be no more immoral than the inhabitants of other towns in South Wales, and to be not at all remarkable for freedom of intercourse among the sexes.

As an illustration of the habits of the poorer classes, it may be stated, from the information of the clergyman of Dowlais, that when the schools at Dowlais were first built, holding 150 boys, and 150 girls, the children did not know how to make use of the privies, and were obliged to be taught.

The practice of throwing the refuse and slops immediately in front of their doors, is not uncommon with the poorer classes in this part of the country, and it is curious to observe the force of this habit, even in those who in the interior of their houses preserve the utmost neatness. Instances of this kind are common in Merthyr Tydfil, for in many localities the interiors of the houses are cleanly and well kept. It has been seen that such is the practice at Brecon, (p. ) and when noticed in small towns or villages, does not so forcibly strike the observer, nor is it then, perhaps, so mischievous from the small number of houses, but when the same practice is carried into a town, containing many thousands of inhabitants, and wherein there is no system of public sewerage, or any proper control over nuisances of this order, the evil is manifest.

*Supply of Water.*—There is no public supply of water, and the only thing approaching to it seems a pipe carrying water from a spring, to spouts used by some of the Pen y Darian houses, and a spout or two at Dowlais. There are great complaints as to the arrangements for water, and the poorer classes are ill supplied, more especially in dry weather. Pumps and wells are the chief sources, whence that for domestic use is obtained, and the inhabitants commonly term it good, but it may be reasonably doubted, as most of these wells are fed by surface waters, if it can be free from a mixture with impurities derived from the house refuse, soaking into the ground in all directions.

The evidence of Mr. James, (Chairman of the Board of Guardians), Mr. Russell, Mr. James (surgeon), Mr. Martin, and Mr. Davies, on this head, is as follows:—

They all point out that the supply is from the river and surface springs and wells, or the overflow of the canal, and that there is no public distribution of water.

32. (Supply of the poorer classes.) "The poorer classes are supplied with water from the different pumps and draw wells attached to their houses, and in many instances obtain it from the pumps belonging to the tradespeople. I have never heard of more than one instance, where a person charged for water from his pump." *J. ch.*
32. "In all these modes" (pumps, wells, and begging from tradespeople).
32. "In very dry weather the supply is very scanty, as several pumps become dry, and the small rivulets running out of the fields are nearly dry. I often see above a dozen waiting to get their vessels filled. My own neighbourhood is badly off. About three years ago I had a well sunk, and upwards of 20 families are supplied with as much as they choose, at 1s. 6d. per quarter. I suppose they find it advantageous, as the same parties continue to take it, and dread the refusal of it." *J. s.*
32. "The poorer classes are supplied from pumps and draw-wells, in dry seasons they are obliged to beg from the tradespeople." *M.*
32. "From tradespeople and other sources." *D.*
33. "Great and well founded complaints as to quantity, more especially at Dowlais, where the want of water is frequently distressing." *J. ch.*
33. "In unusual dry weather, the poor, in many instances, carry their water from a long distance. At others, have to wait the greater part of the night at pipes (spouts). The usual charge for carrying is from 4d. to 6d. a barrel." *R.*
33. "Great complaints." *D.*
34. (Charge for water). "From private pumps, 6d. per quarter." *D.*
38. (Filters in use). "I believe there are half-a-dozen in the town." *M.*
38. "Very rarely." *D.*
44. (Fires). "One in seven or ten years." *J. ch.*
44. "Not one a-year, very little timber being used in the buildings." *R.*
44. "A fire at Merthyr is a very rare circumstance. Not one in two or three years, which is very extraordinary considering that fire is kept in many houses all night. Many of the iron miners have pounds of powder, and generally kept under the bed." *J. s.*
46. (Fire engines and firemen). "No." *J. ch.*

As observed by Mr. James, the complaints for water at Dowlais appear greater than at Merthyr. In dry weather, the poorer classes appear to go even to the distance of nearly a mile, waiting through a great part of the night, from the numbers that flock to the same spot. It was stated that the Dowlais Company have had the ground surveyed for the purpose of affording a supply from springs at high levels, but hitherto nothing further has been done. The Brewhouse spring seems much frequented by the inhabitants of Lower Dowlais, but they



## APPENDIX.

## Merthyr Tydfil.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

are described as waiting three or four hours for their turn to come round. There is a well at Merthyr, known as Richard Jones's well, frequented by persons from 7 to 9 A.M., and from 3 to 5 P.M., who pay 6d. per quarter for the water. In some parts of Merthyr a pump is found, belonging to several houses, the property of one person, (a privy may also be added), but so little care is taken of the surface-drainage that impurities must often get mingled with the waters of these wells.

*Houses of the Poorer Classes.*—The great proportion of the houses in Merthyr is occupied by those who are employed in the iron works, either in smelting the iron itself, in the subsequent processes, or in procuring the necessary coal and ironstone. The various superintendents and tradespeople occupy better houses, and the few of a superior kind are tenanted by professional men, while Cyfartha Castle, Dowlais House, Pen y daran House, and the residence at the Plymouth works, are occupied by the heads of the four iron establishments. The best of the workmen's houses are, for the most part, those erected by the different iron companies, for such as labour in connexion with their establishments. Some of these appear to have been sold, especially at Dowlais. Speculators of various kinds seem to have built courts, alleys, and rows of houses, wherever opportunities presented themselves, in order to meet the demand for the rapid increase of the town, entirely without regard to any order or system, and without any control as to lines, the form of streets, or to arrangements for drainage. The result is, as might be expected, a very straggling town, the chief roads or thoroughfares governing the main direction of the houses. In the new buildings at Dowlais, and 600 cottages are stated to have been erected there within the last eight years, more attention has been paid to system, and well-contrived streets as regards plan have been built, so that the old and newer parts of Dowlais differ in appearance, the older portions more resembling the generality of houses in Merthyr Tydfil, properly so called.

A large number of these cottages consist of only two rooms, the upper being the sleeping apartment for the family, and usually ill-ventilated. Mr. Davies, superintendent of the Merthyr police, states, that in these two-roomed houses, occupied by workmen, there are generally three beds in the sleeping apartment, containing five or six persons. These cottages are often very small, 8 feet by 10 feet and 8 feet by 12 feet, being not uncommon. Some are of less dimensions. The average rent of these houses is about 6s. per month (of four weeks), or 3*l.* 18s. per annum,—a high rent, apparently, for such tenements. The rents of houses of this class were found somewhat higher in parts of Dowlais, rising up to 8s. per month, or 5*l.* 4s. per annum.

Another kind of cottage, of a better kind, consisting of a kitchen, pantry, and sleeping-room on the ground-floor, and two sleeping-rooms above, is not uncommon, the rent for which varies from 8s. to 12s., and 13s. per month, or from 5*l.* 4s. to 7*l.* 16s. and 8*l.* 9s. per annum. The proportion that these rents bear to the wages of the workmen may be estimated by the following rates of pay, stated to be about the average at present received:—

Colliers . . . .	17s. per week
Miners . . . .	14s. „
Labourers . . . .	12s. „
Masons . . . .	14s. „
Firemen . . . .	20s. „
Puddlers, &c. . . .	„

The most wretched part of the town would appear to be that known as the Cellars, near Pont Storehouse, and supposed to contain about 1500 persons. Though so named, they are not cellars, but a collection of small houses of two stories, situated in a depression between a line of road and a cinder heap, a line of slags from the furnaces, the lower portion of this collection abutting upon the river Taffe. The space between these houses is generally very limited; and an open, stinking, and nearly stagnant gutter, into which the house refuse is, as usual, flung, moves slowly before the doors. It is a labyrinth of miserable tenements and filth, filled with people, many of whom bear the worst characters. The rents of these houses seem to vary from 3s. to 5s. per month. One house was found to measure 10 feet by 5 feet, and 6 feet high in the lower room; and 10 feet by 5 feet, 5 feet high in one place, sloping to 1 foot 6 inches opposite, in the upper room. There was a tenement of only one room, 7 feet by 4 feet 6 inches, 5 feet 3 inches high, with a bed in it, and a stinking gutter partly under the floor. The generality of the houses are, however, of larger dimensions. An end of one of the narrow courts is used as an open necessary by many of the inhabitants, thus causing an intolerable nuisance.

At Ynys Gau, another part of Merthyr, further down the river, there are some miserable habitations—rents high, as is not unusual in such places. For a room 10 feet by 5 feet, and 6 feet high, 6s. per month were found to be paid by a man who inhabited it with his two children. There are many wretched tenements also at Dowlais, and the filth amid which the inhabitants of these and similar places at Merthyr live calls for public attention and remedy, though, no doubt, much depends upon the habits of the people themselves. At present, however, be their disposition to cleanliness what it may, from the absence of drainage, and proper places whereon to throw their house refuse, whatever neatness may exist inside, the outsides of their dwellings are beset with stinking pools and gutters. The tenants of the iron companies, though their rents can readily be stopped from their wages, seem better contented than those of the small proprietors, many of whom seem to expect and take their rents every week. At the Plymouth works a ton of coals per month is allowed with their cottages, at a rate of about 4s. per ton, an arrangement which appears to give much satisfaction.

Respecting the habitations of the poorer classes, it is observed—

## APPENDIX.

## Merthyr Tydfil.

Report on its Sanatory Condition, by Sir H. T. De La Beche

50. (General structure and condition of dwellings). "Generally speaking comfortable cottages." *J. ch.*  
 50. "Cottages built of quarystone, and stone-tiled, containing from three to five rooms each." *R.*  
 50. (Stone cottages, tiled or slated). "Generally the poorer classes are cleanly in their houses." *J. s.*  
 50. "The general structure is stone; the condition of some is wretched." *M.*  
 51. (Families in a house. Number of persons in a room.) "Most families occupy separate houses, and take in single men and women as lodgers." *J. ch.*  
 51. "One family, and lodgers; single men chiefly. At the census time, I think not above six in a house on the average." *J. s.*  
 52. (State of air in houses, and ventilation). "The air is confined." *J. ch.*  
 52. "Pretty good; large fires are generally kept burning in the cottages." *R.*  
 52. "The quantity of fire causing a change of air is, in my opinion, the chief source of ventilation." *J. s.*  
 52. "In some parts of the town the houses are badly ventilated; there are no arrangements for ventilation." *M.*  
 52. "Very unhealthy, through want of cleanliness, drainage, water, and ventilation." *D.*  
 53. (Houses comfortably warmed). "Yes, decidedly; coal is burnt in a common grate almost night and day in winter." *J. ch.*  
 53. "The supply of coal is abundant, and the price reasonable, being about 6s. for 18 cwt." *R.*  
 53. "Most of the workmen have enough of fire." *J. s.*  
 53. "Comfortably warm in winter." *M.*  
 53. "The labouring classes generally burn coal night and day." *D.*  
 53. "Very few cellar dwellings, and, for such, tolerably well lighted and provided with fire-places." *J. ch.*  
 53. "There are some cellar dwellings, but they are fitted up with fire-places and windows." *R.*  
 53. "There are some, but the proportion is not large; lighted in front, as the ground is carried away. All with fire-places." *J. s.*  
 53. "The cellar dwellings are situated in the back streets, having no drainage or ventilation." *D.*

The cottages belonging to the Plymouth iron works are widely scattered, some in rows, usually having gardens attached to them. These habitations, therefore, are of a rural character, and, as it were, constitute straggling buildings down the valley of the Taffe, below Merthyr, or on the side of the eastern hill. Coals, as above mentioned, are included in their rents, at the rate of 4s. the ton per month. Including the coals, the rents seem to vary from 10s. to 12s. per month. Public-houses or beer-shops are not allowed among them.

According to the statement of Mr. Roger Williams, relieving officer of No. 1 District, Merthyr Tydfil Union, which includes eight parishes, (No. 1 District, comprising Merthyr Tydfil, Dowlais, and Vaynor), in the houses with two rooms, the family always sleep upstairs in one room, without regard to sex or age; in some cases lodgers being added to the number. He has seen four beds in one small room, containing eight or ten persons. He was the enumerator in the census of 1841, and found the average to be about five persons per house. There is no Union workhouse, and all persons are relieved at their own houses. The number usually relieved is between 6000 and 7000 different persons per annum.

*Lodging-houses.*—The following is a return of the state of these houses by the superintendent of the Merthyr police, from which it would appear that, allowing, on the average, that each vagrant lodges two nights in a house, 10,950 pass through this town per annum, a number that would be reduced, supposing them to visit it more than once in the year. It is, however, estimated that at least this number annually come to Merthyr.

*Lodging-houses at Merthyr.*

Number of lodging-houses . . . . .	About 15.
Number of beds on the average in each house . . . . .	7.
Number of persons that can be lodged . . . . .	15.
Average number of vagrants or lodgers per night in each house . . . . .	About 4.
Characters of the lodging-house keepers . . . . .	Generally good; chiefly kept by workmen.
How ventilated . . . . .	Very bad.
Supply of water . . . . .	Very bad.
Necessaries . . . . .	None.
Number of persons in a bed . . . . .	Generally 2.
Number of beds in a room . . . . .	2 and 4 beds in a room.
General size of rooms . . . . .	8 ft. by 10 ft., and 8 ft. by 12 ft.

*Public Walks or Places of Exercise.*—There is nothing of the kind.

*Bathing Places.*—There are no public baths. The canal and river are used for bathing.

*Drainage, Ventilation, &c., of School-rooms for the labouring classes.*

23. "The few school-rooms are tolerably well constructed, and some have play-grounds attached to them." *J. ch.*  
 23. "The national schools are well supplied with all these." *R.*  
 23. "The private schools for the workmen are merely rooms in their houses. No play-grounds but the streets." *J. s.*  
 23. "The school-rooms of the labouring classes are convenient. They have necessaries and small play-grounds." *M.*

*Health and Average Age of Inhabitants.*—Merthyr Tydfil being a town which has rapidly increased by immigration within the last 40 years, and about half the population being considered not to be born in the place, it becomes exceedingly difficult to form a correct estimate of



## APPENDIX.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

the health and average age of its inhabitants, so large a number of persons having become resident after those ages of childhood at which so many are swept off by different diseases. The following will show its rate of increase for the last 40 years :—

Year.	Population.	Increase.
1801 . . .	7,705	
1811 . . .	11,104 . . .	3,399
1821 . . .	17,404 . . .	6,300
1831 . . .	22,083 . . .	4,679
1841 . . .	37,264* . . .	15,181

Of these 37,264, there were 18,290, (9,696 males and 8,594 females) in Lower Merthyr; and 18,974, (10,527 males and 8,447 females) in Higher Merthyr, including Dowlais and Vaynor, giving a total of 20,223 males and 17,041 females, or 54·3 per cent. males, and 45·7 per cent. females.

The following tables, furnished by the Superintendent-registrar, Mr. Edwards, will show the total births and deaths for five years in his district, one including Aberdare and Gelligaer, in both of which there are iron works.

TABLE I.

A STATEMENT showing the Number of Births in the several Registrars' Districts of the Merthyr Tydfil District in Five Years, each Year ending December 31st.

	Upper Merthyr Tydfil District.	Lower Merthyr Tydfil District.	Gelligaer District.	Aberdare District.	Total.
1839	709	671	233	339	1,952
1840	709	700	240	339	1,988
1841	742	803	228	370	2,143
1842	807	775	223	340	2,145
1843	730	786	253	352	2,121
Total .	3,697	3,735	1,177	1,740	10,349

TABLE II.

NUMBER of Deaths in Five Years in the several Registrars' Districts of the Merthyr Tydfil District, each Year ending December 31st.

	Upper Merthyr Tydfil District.	Lower Merthyr Tydfil District.	Aberdare District.	Gelligaer District.	Total.
1839	458	442	169	179	1,248
1840	675	511	212	171	1,569
1841	576	472	243	142	1,433
1842	441	382	192	104	1,119
1843	441	424	196	124	1,185
Total .	2,591	2,231	1,012	720	6,554

From these tables it appears that, in Upper and Lower Merthyr, the births exceeded the deaths in the five years by 2,610, or at the rate of 522 per annum. Taking the census of 1831 and of 1841 as guides, the rate of increase of the population would be 1518 per annum, so that the excess of births over deaths would account for little more than one-third of this increase, leaving two-thirds for immigration.

An immigration of this amount could scarcely fail to give a fallacious character to the average age at death, and to the health of the locality, yet, with these advantages, and taking the census of 1841, the per centage of deaths is 2·6 for the five years. In the adjoining district of Aberdare, one of a rural character, though containing immigrants to its iron works, the per centage of deaths is 2·17, the deaths being at the rate of 202 per annum, and the population being 9322 in 1841. In the Gelligaer district the per centage of deaths is 2·3.

The following table (III.), prepared from documents in the office of the Registrar-General, for 1840 and 1843, taken as illustrative years, shows (neglecting the class of gentry, of whom there were too few to afford any useful information) that while the average age of the tradespeople

\* This number was furnished by Mr. Edwards, Superintendent-Registrar, who was charged with taking the census in 1841, and corresponds with the registration district of Upper and Lower Merthyr. The area given in the population return, as published, only contained 34,977 persons, 19,068 males, 15,909 females. The parliamentary borough, including a portion of the adjacent county, contained 42,917 persons in 1841, 23,296 males and 19,621 females.

† Calculating from the information contained in the Quarterly Table, No. 2, 1844, published by authority of the Registrar-General, the per centage of deaths to the population for the six years, 1838-43, (taking the census of 1841) would be for the Aberavenny district 2·4, for Pontyool 2·3; and for the whole Merthyr Tydfil district (population 52,864) 2·57.

at death was for the males 32, that of the artisans (including puddlers, colliers, &c.) was only 17, and for the females 29 and 18. Abstracting the deaths under five years, the respective ages would be, for the males 48 and 35, and for the females 46 and 38, showing the great number of children of artisans or workpeople who die before five years of age. Of the 1882 of this class who died in the two years, 1011, or nearly 5 in 9 were under five years of age. Of the 150 deaths of tradespeople, 60, or 1 in 2·5 were under five years, which is still a considerable loss, though far less than among the class of artisans.

## APPENDIX.

Merthyr Tydfil.

Report on its Sanatory Condition, by Sir H. T. De La Beche.

TABLE III.

TABLE of the Deaths, by Consumption, and Epidemics, distinguishing Typhus, in the Districts of Upper and Lower Merthyr, in the Two Years 1840 and 1843; showing their Rank and Average Age at Death: also the Total Deaths in the same Period, and Average Age.

		MALES.					
		Consumption.	Epidemics.	Typhus.	Average Age of.	Total Deaths.	Average Age at.
GENTRY . .	{ Under 5 years . .	..	..	..	..	..	..
	{ 5 years and upwards	1	..	..	25	8	41
		1	..	..	25	8	41
TRADESPEOPLE	{ Under 5 years . .	1	2	1	1	31	10
	{ 5 years and upwards	14	2	9	35	43	48
		15	4	10	32	74	32
ARTISANS, &c.	{ Under 5 years . .	29	129	46	13	528	1
	{ 5 years and upwards	141	33	77	27	478	35
		170	162	123	16	1,006	17
		FEMALES.					
GENTRY . .	{ Under 5 years . .	..	1	..	1	1	1
	{ 5 years and upwards	2	..	..	40	3	40
		2	1	..	27	4	30
TRADESPEOPLE	{ Under 5 years . .	2	4	2	1	29	1
	{ 5 years and upwards	11	1	5	37	47	46
		13	5	7	25	76	29
ARTISANS, &c.	{ Under 5 years . .	27	108	25	11	453	1
	{ 5 years and upwards	113	28	61	29	393	38
		140	136	87	17	876	18

From this table it appears that 1 in 6 of the total deaths was from consumption, less than for Brecon, Swansea, Carmarthen, and Haverfordwest, but greater than for the Cardiff district. Of the deaths among the tradespeople, 1 in 5·3 was from consumption, and 1 in 6·07 among the artisans. Of the total deaths, 1 in 9 was from typhus, a greater number than for Swansea, Cardiff, Carmarthen, Brecon, and Haverfordwest, and forming a marked cause of death. There is scarcely any difference of loss from this disease between the tradespeople and artisans.

In order still further to ascertain any difference that might exist between the different classes of workmen employed at the iron works, the following table has also been constructed from documents in the Registrar-General's office for the same years; firemen, those engaged in the rolling mills, &c. being included under the general head of "Puddlers, &c." The females of the families are included under the heads of the classes of workmen to which they belong.

## APPENDIX.

Merthyr Tydfil.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.

TABLE IV.

TABLE of the Deaths by Consumption, &amp;c., of Colliers, Iron Miners, and Puddlers. &amp;c., in the same Districts and Periods, with their Average Age; and the Total Number of Deaths of the same Average Age.

		MALES.					
		Consumption.	Epidemics.	Typhus.	Average Age of.	Total Deaths.	Average Age at.
COLLIERS . .	{ Under 5 years . .	5	24	5	1 $\frac{3}{4}$	89	1
	{ 5 years and upwards	19	4	12	25	82	33
IRON MINERS	{ Under 5 years . .	9	26	12	2	125	1
	{ 5 years and upwards	36	7	14	25	103	33
PUDDLERS, &c.	{ Under 5 years . .	5	21	9	1 $\frac{1}{2}$	77	1 $\frac{1}{2}$
	{ 5 years and upwards	10	2	3	27	26	34
		15	23	12	9	103	9
		FEMALES.					
COLLIERS . .	{ Under 5 years . .	5	19	5	2	86	1
	{ 5 years and upwards	26	3	6	32	56	36
IRON MINERS	{ Under 5 years . .	5	22	4	1 $\frac{1}{2}$	90	1
	{ 5 years and upwards	28	3	15	28	83	35
PUDDLERS, &c.	{ Under 5 years . .	3	13	6	1 $\frac{1}{2}$	50	1
	{ 5 years and upwards	14	4	7	18	23	27
		17	17	13	10	73	9

According to this document the average age of the colliers, iron miners, puddlers, &c. is about the same, and that of the females of the two former somewhat higher, while those of the females of the puddlers, &c. is much lower, appearing as if deaths among the young female children and young girls of this class much reduced the average age at death. The great mortality among the children of this class under five years lowers its average age at death, for all ages, to only nine years, while that of the others is much higher, and nearly equal for the two, 15 $\frac{1}{2}$  and 16 years. It appears that, while the average ages at death of the females belonging to the families of the colliers and iron miners, who perished from consumption, epidemics, and typhus, at five years and upwards, were respectively 32 and 28 years, that for the females of the puddlers, &c. was only 18 years. Of the 176 deaths of the latter class, 127, or above 7 out of 10, were under five years of age. Of the total deaths among the colliers (313), 5 $\frac{1}{2}$  out of 10, were under five years. Of those among the iron miners, (401) about 5 $\frac{1}{4}$  were under five years. With respect to consumption, this table gives 1 in 4.3 of the total deaths for the males of the collier class, and 1 in 2 for the females; 1 in 2.8 for the males of the iron miners class, and 1 in 3 for the females; 1 in 2.6 for the males classed under puddlers, &c., and 1 in 1.6 for females, the ages of all being five years and upwards. Of those who died of typhus of the collier class, 1 in 17.5 under five years, and 1 in 7.7, above that age are represented to have so perished; of the miner class, 1 in 13.4 under five years, and 1 in 6.4 among those above it; and of the puddlers, &c., 1 in 5.8 under five years, and 1 in 4.9 above that age.

With regard to medical attendance for the poor, the plan adopted by the four iron companies, of each providing medical attendance for the workmen employed by the respective companies, and their families, in some measure removes the want of hospitals and infirmaries, of which there are none, since so large a proportion of the population is employed directly by these companies. The poor, not belonging to the works, are attended by the medical officer of the Union. Each person employed in the works pays a certain sum, apparently 2d. in the pound, to a sick fund, receiving medical attendance when required.

The tables given above being only for two years, they can be regarded as little else than approximations, but still, allowing for this, and also for the imperfect registration of the classes, more especially in the three divisions of that of artisans, &c. into colliers, miners, and puddlers, &c., there remains evidence of considerable mortality among the poorer orders, much of which may be referred to the state of the air they breathe from causes, some of which, no doubt, may be modified by themselves, but leaving others that can only be removed by public aid and regu-

lations. Merthyr Tydfil, with Pen y Daran and Dowlais, may be regarded as chiefly a large cottage town, without any public care for supply of water, drainage, or cleansing, the open character and small height of its straggling buildings, and consequent exposure to sun and air, saving its population from still greater evils than those to which they are now exposed from the filth so abundant in it.\*

## APPENDIX.

Merthyr Tydfil.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.

## REPORT on the SANATORY CONDITION of BRECON.

By SIR HENRY T. DE LA BECHE.

*Situation.*—This town, which has been selected for comparison with Merthyr Tydfil, and as an example of a county town in South Wales, surrounded by a rural population, and itself containing no manufactories, is agreeably situated at the confluence of the Honddu (a minor stream, taking its rise at the distance of about 14 miles among the high ground on the north) with the Usk; another small stream, the Tarrel, rising in the range of the Vans of Brecon (the highest land in South Wales, 2862 feet above the sea), about seven or eight miles distant, also joining the Usk close to the town.

The greater part of Brecon stands well on ground rising northerly from the Usk; but the portion which is on the south of that river, named Llanfaes, is flat, and not much raised above the usual bed of the river. Much of the Wotton is also flat.

*Climate.*—Though Brecon can scarcely but feel the influence of the mountainous country in which it is placed, yet, as the valley of the Usk becomes considerably extended in the neighbourhood of the town, it cannot be considered as very much embedded among hills and mountains, but as having a somewhat open and airy character, the winds, though broken in their force by the surrounding high lands, still sweep over the surface beneficially. No record appears to have been taken of the temperature or fall of rain, but being elevated between 500 and 550 above the level of the sea at Newport, as ascertained by the canal extending from Brecon to that port, it is cooler than on the coast, at the same time that there is much rain, as might be expected from its position.

*Geological Character of the Ground.*—The northern part of the town stands on beds of the sandstones and marls, usually termed the Old Red Sandstone, which are covered considerably by gravel drift in places, especially on the lower ground. Llanfaes, on the south of the Usk, is on alluvial ground, in which there would appear much gravel. The northern part of the town may be considered as naturally dry, and even the southern portion is not far otherwise under ordinary conditions. With the exception of the flat ground of Llanfaes, and of the Wotton, some of which would require care, the rest of the town possesses great natural facilities for drainage.

*Floods.*—From the bridge, and the arrangement of the buildings on each side of the Usk near it, impediments to a free discharge of freshets might be expected, and accordingly the district of Llanfaes is sometimes flooded. Mr. Bevan, mayor of Brecon, in his replies to the questions of the Commissioners, observes—

3. "One street, called Llanfaes, in the parish of St. David's, is liable to be flooded by the river Usk, upon very high floods, once perhaps in every five or six years."

Mr. Baylis, county surveyor of Brecknockshire, in his replies to the same questions, says—

3. "The beds of the Usk and its tributary streams rising very rapidly, these rivers are subject to be swollen after heavy rain; and some of the houses near the banks of the Usk are inundated almost every winter. The water has been known to rise three feet in one of the principal entrances to the town" (Bridge-street, Llanfaes).

4. "The piers of the Usk bridge are much larger than necessary, and obstruct the free passage of the flood-water. Piers at least one-half their present dimensions would be of sufficient strength to support that structure; or every other pier might be taken away, and the upper part of the bridge reconstructed with arches of larger span, so as to afford additional space for the passage of the flood-water."

*Drainage and Supply of Water.*—The town is partly under the control of Commissioners of Paving, Sewers, &c., and in part only under the Highway Act, the jurisdiction of the Commissioners not extending over the whole area comprised within the town. Those parts coming within the power of the Commissioners, are, from the information of the mayor, such as are situated in the parish of St. John the Evangelist, and in the chapelry of St. Mary.

There is no survey of the town having reference to a system of levels from a common datum. "This," observes Mr. Baylis, "is very much to be regretted, as no efficient system of drainage can be established without such preliminary information."

The Act under which the Commissioners exercise their powers is an old one of 1775 (16 George III., cap. 56), and is remarkable as including clauses for a supply of water for the inhabitants. It is for "Supplying the Borough and Town of Brecknock and Liberties thereof with Water; and for Paving, Cleansing, Regulating, and Lighting the Streets, Lanes, and Public Passages there; and for widening and making commodious some of the said Streets, Lanes, and Passages."

\* At the conclusion of his answers to the questions of the Commissioners, Mr. James, Chairman of the Board of Guardians, says:—

"I have given brief answers, to the best of my ability, to most of the questions annexed. Upon the whole, I beg to state my decided opinion that no town in England or Wales of the extent and wealth of Merthyr Tydfil is so much in want of proper regulations as to cleansing, lighting, paving, and watering, and there is no chance of such being ever accomplished except by some compulsory means enacted by the Legislature; and as an individual deeply interested in house property of every description, I beg to recommend that all rates for effecting the desired object should be levied upon the owners and not upon the occupiers of houses."—Merthyr, 23d July, 1844.



## APPENDIX.

## Town of Brecon.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.

This Act appointed many Commissioners, among whom were the Bailiff, Recorder, Aldermen, Common Council, and Town Clerk, the Burgess of the borough, the Vicar of Brecknock, the Archdeacon of Brecknock, and the Vicar of St. David's for the time being, with 117 other persons who were especially named.

In case of death, removal of residence from the borough, or neglect to act for the space of one year, except in the case of Commissioners by virtue of their offices, the remaining Commissioners elect others into their places, ten days' notice being given.

The qualifications of the Commissioners are, either possessing in their own right, or that of their wives, 10*l.* per annum in lands, houses, &c., or being a tenant of 15*l.* per annum, residing in the town or liberties, the penalty for acting without proper qualification being 50*l.*

The Commissioners at all meetings defray their own expenses, and are not capable of acting while they hold any place of profit under the Commission, or have any share or interest in any beneficial contract in the execution of the powers of the Act, under a penalty of 10*l.* for each time of acting.

Commissioners who are justices of the peace may act as such in the execution of the Act, except when personally interested.

Five Commissioners constitute a quorum, and no acts are valid unless done at a public meeting. The books kept are open to the inspection of the rate-payers under the Act at all reasonable times. The Commissioners appoint and remove the treasurer and other officers, who give security, and account to the Commissioners.

The Commissioners have extensive powers for supplying water to the town. Any nine or more of them may

"Enter into any of the rivers, brooks, rivulets, or water springs within the said borough of Brecknock, or the liberties thereof, and make and erect any weir, dam, dam-head, pond, cistern, reservoir, engine or engines, buildings, or any other device or devices whatsoever for the raising of water, and conducting and conveying of the same into and for the use and benefit of the inhabitants of the said borough and liberties thereof; and lay any pipe or pipes, main or mains, trough or troughs, or to form, make, and perfect any aqueduct or aqueducts, or other matter or thing whatsoever, in the bed or beds of such river, brook, rivulet, or spring, or across, over, under, through, on the side or sides thereof, and from time to time to alter, repair, and continue the same; and also from time to time to cut and dig any channel, main, cut, or duct in and through any of the grounds, pieces or parcels of land, highways, streets, lanes, causeways, pitchings, or any other place or places whatsoever within the said borough or liberties thereof, for the purpose of laying down, altering, repairing, or continuing such pipes, or of forming, making, or perfecting such aqueducts or other requisites for conveying water thereby into the said borough and its liberties, and every part thereof, for the use of the inhabitants."

They are empowered to treat with the owners of lands and tenements considered necessary to be used for the supply of water; but it does not appear in what manner they could compel a passage through such lands and tenements. It was provided that the bore of the pipe taking water from the river Honddu should not exceed four inches; and no other supply being taken but from this river, all the water received in the reservoir, whence the town is supplied, comes through a pipe with this diameter.

The Commissioners are enabled to contract for the supply of water into the borough, and with private persons for supplying their houses; the money received to be in the first place applied to the supply of water, and if there is any overplus, such overplus is to be applied to the other purposes of the same Act, and "to no other use or purpose whatsoever."

The owners or occupiers of houses agreeing with the Commissioners for a supply of water pay for their private pipes, make good the pavement disturbed for laying them down, and keep such pipes in repair.

In case the terms agreed upon (termed rates in the Act) are not paid half-yearly, the Commissioners are empowered to enter the premises and distrain in the same manner as landlords for the arrears of rent.

The Commissioners are not empowered or obliged to repair or cleanse any places included in the Turnpike Acts. They may cause the streets, &c., under their jurisdiction to be cleansed in any manner they may think proper, sell the refuse, cinders, &c., and contract with any parties for their removal, the money arising from the sale to be applied to the general purposes of the Commission, the inhabitants being enabled to dispose of any refuse, cinders, &c., within their premises, as they may think proper.

The inhabitants are compelled to sweep the footpaths before their houses, extending to the next kennels, between 2 and 6 P.M., under the penalty of 2*s.* 6*d.* for every neglect, and may have the sweepings as their property. The scavenger or contractor removes the refuse in and between the kennels at times appointed by the Commissioners, under penalty of 20*s.* for each neglect.

The Commissioners are empowered to remove any sheds, pent-houses, walls, spouts, &c., considered as obstructions or nuisances; and in case the occupiers neglect or refuse to remove such obstructions or nuisances, after 20 days' notice given, the Commissioners may cause this to be done at the expense of the occupiers.

In case any nuisance is made or erected contrary to the regulations of the Commissioners, the offending parties forfeit 40*s.*, and 2*s.* per day until the nuisance is removed; and any master or workman employed to erect any building, or do that which is a nuisance, is liable to a penalty of 20*s.*

A penalty of 2*s.* is incurred for each pig by parties permitting swine to wander about in the streets, and they are to be impounded; and in case the penalty and expense of pouncing are not paid within six days, the swine are sold, the overplus being paid to the owners.

A penalty of 20*s.* may be levied for throwing ashes and filth upon the footways, or for riding on the footways.

The occupiers may be rated, for the purposes of the Act, at a sum not exceeding 1*s.* in the pound of the yearly rent or yearly value of the "houses, shops, warehouses, yards, gardens, lands, tithes, and premises" as have been usually rated for paving, &c., the rate to be signed or allowed by two justices of the borough. The rates to be levied in case of refusal, after 10 days' demand, by distress under the warrant of two justices of the borough. Incoming and outgoing occupiers, to pay proportionable shares of the rates which may be due.

The Commissioners have power to exempt, at their discretion, poor persons from the payment of rates.

Persons considering themselves aggrieved have a power of appeal, within three months, to the quarter sessions of the county, the determination of which is final, the justices having the power to amend the rates complained of, should they consider it right.

Actions to be brought against persons on account of this Act must be so before the expiration of six months after the offence has been committed, and 21 days' notice given; and if it should appear that this was not done, and that reasonable amends were tendered before the action was commenced, then the jury are to find for the defendants, and the latter are entitled to recover treble costs. Persons who bring actions by order of the Commissioners recover, upon conviction, double costs.

An instance of apparently neutralizing opposition to this Act, on the part of an influential person, is shown in a clause which provides, "That nothing herein contained should extend, or be construed to extend, to empower the Commissioners for the time being to assess any of the freehold lands whereof *Penoyre Watkins*, Esquire, is now seized, lying within the said borough or the liberties thereof." The lands then exempted continue so to the present time.

The sewerage of the town is of an insufficient kind, and is little more than surface drainage in the chief streets, into which it is stated that the refuse from some houses, including matters discharged from privies or water-closets, is delivered. Mr. Bevan says,—

7. "There are drains in all the principal streets, some of which act as sewers."

Mr. Baylis, who has been at much trouble to collect information on this head, observes,—

6. "The regulations for the drainage of the town are very defective, as will appear from the survey I have prepared of the town and drainage, (alluding to a plan sent in, with the drainage marked upon it), and the annexed table, showing the size of the various drains."

"Silver-street, Heol Hwnt, Mill-street, &c., are generally in a very disgraceful state, and full of holes, where water stagnates; this state of things must be very detrimental to the health of the inhabitants. In the streets above mentioned, and others in the town, ashes and other filth are commonly thrown from the houses, where it is suffered to accumulate until the streets are rendered almost impassable, but as they are not principal thoroughfares, they escape the notice of the authorities. It has occurred to me that if an officer were appointed as an inspector of nuisances, &c., for the town, so as to suppress these abominable practices, the comfort of the inhabitants would be promoted, and the general health of the town improved."

7. "There are no sewers in the town with the exception of a small one, 2 feet diameter, in Castle-street. The drainage of the town is effected very inefficiently by means of small surface-drains, and many of them are much too small to take the surface-water away during heavy rains."

8. "The houses of the middle and upper classes are provided with proper water-closets or necessities, but for the poorer orders one is made to serve for several houses, and these are in many instances placed in exposed situations, in others, close to dwelling-houses in confined courts. There are many cottages entirely without such conveniences. The necessities empty generally into open cesspools, which are cleansed by manual labour, and the contents carted away for manure."

"The only houses in the town where the necessities empty into the sewer are situated at the northern end of the Struet and in Berkeley-place and Castle-street, and these sometimes emit offensive smells from the want of being trapped; those in Castle-street are situated in a small area under the flagging in the street, and opening out of the kitchens."

"As the taps are situated close to them, water can be turned on at any time to cleanse them."

"Some of the houses in the town have deep cesspools or wells, into which the necessities discharge themselves, the liquid refuse and drainage from the houses also run into them, which converts the whole into a fluid, and this is supposed to pass off through the gravelly strata. They have not been opened or examined for several years, but an offensive effluvia arises from them in rainy weather."

9. "A few of the respectable houses have drains communicating with the drains in the streets, but the inhabitants of the cottages almost invariably throw their refuse waters, &c., into the streets, more especially those at the lower end of the Struet, Llanfaes, the Wotton, and the smaller streets."

10. "The drains are not constructed on a plan to cleanse themselves efficiently. Upon a recent examination of them, I found considerable accumulation had taken place in them, in fact they were perfectly useless for the purpose intended. I have been informed that they had not been cleansed before for several years. The drain in the Wotton has not sufficient fall to cleanse itself, and this is the only part of the town where there are cesspools (catch pits) to receive the filth and sediment."

"The drains are not trapped to prevent the escape of noxious and offensive gases, nor are there any means adopted to prevent accumulations from taking place in them."

"If a sufficient system of sewerage were established in this town, water could be readily obtained from a higher level so as to wash the sewers, and prevent any deposit from taking place in them."

\* Table of Drains in Brecon.

	n.	in.		n.	in.
Bridge-street, Llanfaes . . . . .	1	6 square	Back Church-street . . . . .	1	0 square
Priory Hill . . . . .	1	2 "	Lower High-street . . . . .	1	0 "
Struet . . . . .	1	3 diameter	The Bulwark . . . . .	1	6 "
Castle-street . . . . .	2	0 "	Continued from County Hill to		
Hon-lane . . . . .	1	0 square	River . . . . .	1	6 "
Ship-street . . . . .	1	3 "	Church-street . . . . .	1	0 "
Bell-yard . . . . .	1	0 "	Wotton . . . . .	1	6 by 1ft. 2in.
Upper High-street, one . . . . .	1	2 diameter	Glamorgan-street . . . . .	1	0 square
Ditto another . . . . .	1	0 square	Lion-street . . . . .	1	2 "
Wheat-street . . . . .	1	2 "			

## APPENDIX.

## Town of Brecon.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.



## APPENDIX.

## Town of Brecon.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.

11. "Local regulations for the efficient sewerage of this town, and the cleansing and repairs of drains on some scientific and systematic plan, are very much required; at present there are not any."  
12. "A large proportion of the liquid refuse of the town is thrown into the street, and, where there are no drains, either soaks into the subsoil, or remains stagnant on the surface."  
13. "The form of the sewer in Castle-street is cylindrical, and of 2 feet diameter. The cost per running foot is 2s. 8d. The other drains in the town are square, with side walls of dry masonry, with a flat covering stone from 3 to 4 inches thick upon them. They vary in size from 12 to 18 inches, and the cost per running foot varies according to the size.

A 12-inch culvert costs 2s. 6d. per running yard.	
A 15-inch       ,,       3s. 3d.       ,,	
An 18-inch     ,,       4s. 0d.       ,,	

"There are but few of the houses with drains communicating with the drains in the streets. When they exist, they are about 1 foot square.

14. "The drains in this town are cleansed by manual labour, but at no stated periods. As they have not been emptied for some time past until recently, the annual expense must be very trifling."

Mr. Bevan, the mayor, in answer to similar questions, from 8 to 14 inclusive, observes:—

8. "Most of the houses have necessaries."  
9. "Under the Local Act, the occupier of every house is compelled to keep a trough under the eaves of his house, the whole of the water from which is carried into the sewers (drains) by pipes."  
10. "Yes, the sewers (drains) empty themselves into the rivers Usk and Honddu."  
11. "The Commissioners have full powers under the Local Act."  
12. "All the liquid refuse is carried into the sewers (drains), and by them into the rivers Usk and Honddu."  
13. "A large square gutter covered with flat stone slabs."  
14. "They (the drains) are cleansed by the order of the Commissioners, at the average annual expense of about 10l."

From the absence or scarcity of drainage in the poorer parts of the town, which seem to be chiefly under the Highway Act, and the scarcity of necessaries among the smaller cottages, the inhabitants usually throw their slops and refuse into the streets, a not uncommon practice even with those who keep the interior of their houses neat and clean. This custom may be considered as usual and common among the poorer classes of this part of the country.

With respect to the duties of the scavenger, the mayor observes:—

15. "A scavenger contracts for cleansing the streets, at a salary of 20l. per annum, besides the manure which he collects, which he also takes for his own benefit. The streets are cleansed twice every week."  
18. "The scavenger has a place in a back street for the deposit of the manure."  
19. (Enforcement of cleansing and prevention of nuisances.) "The Commissioners under the Local Acts are vested with full powers."

In this answer, Mr. Bevan alludes to a recent Market Act for Brecon, which also provides against nuisances, such as the accumulation of ashes, &c., for which penalties, not exceeding 60s., can be levied. By the same Act, the corporation may erect slaughter-houses, and when such slaughter-houses are erected, no cattle, &c., are to be slaughtered elsewhere in the town.

With regard to cleansing, Mr. Baylis states that—

15. "The principal streets are swept every week, but this, at some seasons, is not so often as is required. The expense incurred by the borough is 20l. per annum, the scavenger taking the manure also. The sweepings are frequently allowed to remain in the streets many hours. The footpaths are swept by the inhabitants at their discretion."  
16. "Many of the small streets, courts, and alleys, which are inhabited by the poorer classes, are not swept at all, and the refuse, ashes, &c., are allowed to accumulate until the smell becomes intolerable, when it is disposed of to the farmers in the neighbourhood."  
17. "The houses of the respectable inhabitants are provided with dust-bins, which are emptied as often as they require, but the majority of the poorer classes throw their refuse into the streets."  
18. "The contractor for the scavenger's work is a gentleman who occupies a large farm in the neighbourhood, where the manure is taken."  
19. "There are Local Acts for cleansing the town (the Market and the Borough Acts), but the responsible authorities do not generally enforce the same, nor is the commission of nuisances prevented, except in the principal streets."

**Supply of Water.**—It has been seen, that by the Local Act the Commissioners have the power to supply the town with water, transferring any profits that may arise from such supply, either to improvements in the supply, if required, or to the general purposes of the Act. The only works constructed by the Commissioners are those at the town-end of the Priory walks or groves, to which water is led from the river Honddu, taken up in a leet, a short distance further up the stream. The water is there raised by a water-engine a few feet to a small reservoir, through a 4-inch pipe, as limited by the Act, whence it falls by its own gravity through the mains and pipes to the houses supplied. No pains are taken to filter this water, so that when the river is coloured by matter mechanically suspended during floods, the leet waters are coloured also, and pumped up into the reservoir. This discoloration continues a long time in the leet, and the bottom necessarily becomes muddy. Very simple contrivances would remedy this evil, and the water be rendered, to the inhabitants supplied, in good condition, and applicable to other than the common household purposes, for which it is now used.

Respecting the supply of water, the mayor observes:—

28. "The water is brought from the river Honddu in a water-course; it is then pumped up into a reservoir by an engine, from whence the town is supplied by pipes laid down the principal streets."  
29. (The distribution.) "By the Commissioners, under the Local Act."  
30. (Number of houses supplied.) "About 170; no tanks; several houses keep large tubs."  
32. "The poorer classes are supplied with water from wells. Some are supplied by tradespeople, but that is contrary to the contract under which the water is supplied."

## APPENDIX.

## Town of Brecon.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.

33. (Complaints made of water.) "None."  
34. "The whole rental payable to the Commissioners for water is about 100l. per annum; the price per annum for every house where there are only two in family, is 10s. 6d.; if more than two, 4s. per head; 1l. 11s. 6d. is the highest charge for one house, which cannot be increased. All inns, two guineas per annum."  
35. (Quantity supplied.) "No particular quantity. As much as they require."  
36. "The price of water cannot be enhanced except by an order at a meeting of the Commissioners. For a deficiency in quantity there is redress by applying to the Commissioners."  
37. "Deficiency in supply can be remedied by taking water from the river Usk, but it would require the erection of a new water-engine."  
38. (Use of filters.) "In some private houses."  
39. (Water kept on.) "In the winter, all night In the summer, 12 hours every day."  
40. (System of stand-pipes.) "None."  
41. (Water constantly kept on in the mains.) "Yes."  
43. "Fire-plugs have only recently been laid down. They are on the main-pipes in the principal streets."  
44. (Average number of fires.) "Two fires during the last 10 years."  
46. "Yes; in consequence of the bad state of the engine, a new one has recently been purchased by the corporation for the use of the town."

Under the head of "Supply of Water," Mr. Baylis gives the following answers:—

26 and 27. (After noticing the mode of supply, he adds):—"The site of the reservoir is very injudiciously chosen, being situated below the Priory church-yard, and within 160 feet of it. There are several excellent springs in the neighbourhood. Many persons who can, obtain their water from them, and use it in preference to the water from the waterworks. The streets of the town are not watered. The authorities are now engaged in putting fire-plugs, for the supply of the fire-engine. The fire-plugs are awkwardly constructed, and are covered with large flag-stones, instead of a proper cast-iron socket, &c."

28. "The water is distributed by means of cast-iron pipes, four inches diameter, as mains, from whence branch-pipes convey it into the houses. The only parts of the town that are supplied with water from the waterworks, are the Street, High-street, Bulwark, Lion-street, Glamorgan-street, Ship-street, and Castle-street; but as this is only a small portion of the town, it would be a great public benefit to extend it throughout. The main-pipe is too small for the proper supply of even the present consumers, and allows no scope for an increased consumption."

30. "There are about 1500 houses in the town and suburbs, some of which are unoccupied."  
31. "The water is laid on to 170 houses. Some of them have tanks, but the great majority have only taps."

32. "The poorer classes obtain their supply of water either from the river, pumps, or draw-wells, and some are in the habit of begging it from those supplied by the waterworks."

33. "The water obtained from the waterworks, in consequence of not being filtered, is not in a pure state at all seasons."

36. "In the event of the quality or quantity being deficient, the consumer has no means of redress that I am aware of."

37. "If the supply of water is deficient in quality, the law should compel the responsible parties to filter it, and also to afford a supply adequate to the wants of the inhabitants."

38. "There are very few filters in use in this town."

39. "The water is kept on constantly day and night in the winter, and 12 hours a-day in the summer months, except in dry seasons, when the supply is inadequate. At this season (July, 1844) the water is turned on about three hours a-day."

40. "There is no system of stand-pipes adopted for cleansing the fronts of the houses."

41. "When the supply of water is adequate, the pipes, I believe, are kept constantly charged, but until lately the inhabitants had no efficient fire-engine. I have recommended the authorities to have a larger reservoir for the supply of the town, and to adopt the high-pressure system, so that a supply of water may be ready at any moment to throw over the buildings in case of fire, as I have observed frequently in other towns, that so much time has been lost in procuring the fire-engines, and getting them properly to work, that the buildings have been complete ruins before they have arrived, and have been brought to bear upon them."

42. "In the event of a fire it would be about half an hour before a supply of water could be obtained at the extreme point from the waterworks, and the fire-engine be brought to bear on the premises."

43. "A supply of water can be obtained from the waterworks for the protection of the churches and the public buildings in case of fire, as far as the mains extend, except in dry seasons. In other situations the supply must be obtained from the rivers, wells, &c."

44. "Two fires have occurred within the last two years. I am informed that no fire had taken place at Brecon for 10 years before."

45. "There are no fire-proof buildings or party-walls to prevent the extension of fire in Brecon. Many of the buildings in this town are very old, and contain a great proportion of timber, which is partially decayed or affected with the dry rot. Lath and plaster walls also predominate. If a fire were to take place in many parts of the town, the conflagration would be awful, and no human aid or skill could prevent their total destruction."

46. "A good fire-engine has lately been purchased by subscription and presented to the town; the police have the care of it, and would officiate as firemen in case of need."

**Habitations of the Poor.**—Though the chief streets of the town have a fair appearance, and many houses of the more wealthy inhabitants are large and good, Brecon generally, in its principal thoroughfares, having a good appearance for a country town, there are many poor cottages in it, chiefly in the back street of Llanfaes, Hoel-Hwnt, Kensington, Mill-street, and other places. These cottages most frequently consist of two rooms, the upper being the sleeping place for the whole family, and for the most part very ill-ventilated. Indeed, in many of these cottages, the upper room windows seem never to be opened, and in some there are no means of doing so. The rent of these cottages appears to vary from 2l. to 5l. per annum. A general view of the proportion of the small tenements to the large may be obtained from the following Table of the rating of the inhabited houses, furnished by Mr. Davies, superintendent registrar.



TABLE 1.

An ACCOUNT of the NUMBER of INHABITED HOUSES rated in the under-mentioned Parishes under the following Classes.

Parishes.	At £5 and under.	Above £5 and under £10.	Above £10 and under £20.	Above £20 and upwards.
St. John the Evangelist's and Castle.	396	43	24	23
St. Mary's.	204	93	115	108
St. David's.	236	31	14	11
College.	13	8	3	..

From this it appears that out of 1322 houses enumerated, 849 were rated at 5*l.* and under, and 1024 at 10*l.* and under, or 64 per cent. at and under 5*l.* and 77 per cent. at and under 10*l.*

Respecting the cottages, Mr. Bevan remarks that—

50. "They are principally built with stone walls, and have tiled roofs; some of the old buildings have thatched roofs; and there is one family to each cottage."

On the same head Mr. Baylis observes that—

50. "The cottages of the poorer classes are generally small, inconvenient, and slightly constructed. They are built of bad materials, rough rubble-stone masonry, and very inferior mortar, so that in wet seasons the damp penetrates through the walls, and there is no arrangement made for drainage. The roofs of some of them are covered with thatch. Considering Brecon as a small town, the rents of these small cottages, containing from two to three rooms, appear extremely high. They exact from 3*l.* to 6*l.* per annum, when the first cost of the building and land could not exceed from 30*l.* to 50*l.*"

51. "Generally speaking, only one family resides in each house, and the average number is about five persons. The rooms in the cottages generally vary from 10 feet by 8 feet to 12 feet by 10 feet."

52. "The air of many of the cottages appears much vitiated, but this is not surprising, when we consider the many inconveniences to which the poor are subject, being confined in small rooms, having in some cases a bad supply of water, and no arrangements for ventilation. Some of the (bed) chambers in the cottages have only a small skylight in the roof, which admits the light imperfectly, and not being made to open, cannot be used for ventilation."

53. "Although Brecon is situated within 20 miles of the coal mines, with a good water conveyance (canal), the price of coal delivered at the houses is 17*s.* 6*d.* per ton. This high price places it, in a great measure, out of the power of the labouring classes to obtain a sufficient supply. They have small grates in their houses. Proper kitchen ranges, with ovens, have only been very recently introduced to the superior class of houses in Brecon. Most of the cottages have no grates in the (bed) chambers."

**Lodging-houses.**—From the returns of the police, it appears that there are eight lodging-houses in the town, averaging two bed-rooms for lodgers in each house, with two beds in each room. There are generally eight lodgers in each house, two in each bed, paying 3*d.* each. On the average the vagrant lodgers stay two nights, which would give 11,680 per annum. It should be observed, that when closely questioned, the lodging-house keepers, whose character at Brecon is stated to be good, by the police, were found to reckon, as is rather common with this class of persons, a man and his wife, with two or three children, and who sleep in the same bed, as only two, because it is customary only to charge 6*d.*, as for two, for the whole. After inspecting this class of houses in different towns, the lodging-houses in Brecon appeared fairly clean, especially as to the beds, but there was the usual absence of proper ventilation and drainage. The mayor states (55) that "the police officers have strict orders from the borough magistrates to visit the lodging-houses nightly."

**Public Walks.**—In this respect Brecon is well provided. The "Captain's Walk," so called from having been frequented by French officers on parole here during the late war, is an agreeable promenade on the side of the Usk, and the Priory walks extend for about a mile along the steep, picturesque, and wooded right bank of the Honddu, from the priory to the northward.

**Health and average Age at Death.**—The population of Brecon somewhat more than doubled itself during the 40 years ending 1841, as appears from the following table:—

TABLE 2.

POPULATION of BRECON from 1801 to 1841 inclusive.

	Persons.	Increase in 10 Years.
By the census for 1801 . . .	2,576	..
" 1811 . . .	3,177	601
" 1821 . . .	4,193	1,016
" 1831 . . .	5,026	833
" 1841 . . .	5,214	188

This would give the greatest increase between 1811 and 1821, and the least between 1831 and 1841. In the account of the census for 1841, as published, the number given as the population of the town, deducting 289 for part of Llywell parish (added to the former parliamentary borough), in order properly to compare with the district for which the census was taken in 1831, was 5412. The above number of 5214 was obtained from Mr. Davies, who took the census, and the difference of 202 is due to the numbers in the barracks, &c., purposely omitted in the latter amount of population. Even with the addition of these 202, the rate of increase between 1831 and 1841 was smaller than for any of the preceeding 10 years.

The following is a general statement by Dr. Lucas, physician at Brecon, of the health of the town.

## Medical Report by Dr. Lucas.

"The general condition of Brecon may, upon the whole, be pronounced healthy. It is rarely visited by epidemics; and when they have occurred they have been much confined to those parts of the town in which cleanliness and efficient drainage have been least attended to.

"A striking instance of the effect of inattention to these particulars was afforded in 1839-40. The epidemic gastric fever, which in that year prevailed over a great part of the kingdom, extended also to Brecon. It was general over the whole town; but the ill-drained, ill-ventilated, and dirty districts at the head of the Struet, Bayley-Glâs, and Kensington were particularly infested by it. There is another district of the town equally, or even more favourable, to the propagation of fever than any of those named, viz., Llanfaes, and especially that part of it called Heol-hwnt, which lies low, near the level of the river, is flat, and entirely without drainage. In the two preceding years, Heol-hwnt had been inundated by the rivers Usk and Tarrall, and by this means the accumulated filth of years had been effectually scoured away. It is a fact that this district, in which disease is usually so rife, was comparatively free from the epidemic of 1839-40.

"The worst parts of the town are the districts already mentioned. In these the houses are generally small, having on the ground-floor one or sometimes two rooms, and low, small, close bed-rooms under the roof above. They are generally in tolerably good repair; very few, indeed, are not weather-proof. They are almost universally unprovided with privies. The gutters run in front of the houses, and on the surface, not underground, and are, of course, often exceedingly offensive, both to sight and smell. The windows are not always made to open; and when they are, this class of people have generally a great dislike to the admission of fresh air into their dwellings. But with all their imperfections, the dwellings and physical circumstances of the poorer classes of Brecon are of a better order than I have observed in other towns with which I am acquainted.

"It would be very difficult, even with the most carefully kept registers, to form any calculation of the average duration of illness amongst the working classes, sufficiently correct to enable a true result to be deduced from it. The illness of a working man might be taken to commence at the time it compelled him to give up work, and to terminate as soon as he was able to resume his labour; but they rarely apply for medical advice until they have first tried the effect of rest and their own remedies upon their complaint. Often these are sufficient, and thus a not inconsiderable portion of sick workmen do not enter at all into the calculation. Of those who seek medical advice, as soon as their more urgent symptoms have subsided, many cease to come to their medical adviser, whether it be at his own house or at a public institution, and thus they are lost sight of. Consequently it is chiefly the more serious cases; those sick who, having laboured under severe inflammatory or other dangerous disease of important organs, have excited more interest and been more particularly attended to up to the close of their illness,—it is these cases mainly which would form the elements of such a calculation. But an average so deduced would obviously be deceptive.

"The parochial poor in their illness may be attended by the surgeon of the district, under the usual regulations of the New Poor Law. Those who do not receive parochial relief may receive medical aid, as in or out door patients, at the county and borough infirmary.

"This institution, established in 1835, is supported by voluntary contributions, and patients from any part of the kingdom are admitted into it on the recommendation of a subscriber. The average annual number of patients is rather above 500. Its income, arising out of annual subscriptions and a small permanent fund, amounts at present to about 300*l.* With this it is enabled to have eight patients continually in the house, and affords relief to as many applicants for out-door assistance as choose to apply to the subscribers for a recommendation.

"Brecon, July 27th, 1844.

"PRESTWOOD LUCAS."

Taking the deaths during the five years ending the 31st December, 1843, at 713, as given in the following table, and the population of 1841, at 5214, both furnished by Mr. Davies, superintendent registrar, the rate of mortality is 2·7 per cent., a very high rate considering the proportion of houses rated at 10*l.* and upwards, the absence of any manufactures apparently unhealthy, and the situation of the town. It is one equal to that of Newcastle, Leeds, Sheffield, Ashton and Oldham, Bury, Wigan, Macclesfield, Birmingham, and Exeter.

TABLE 3.

TOTAL NUMBER of BIRTHS and DEATHS registered in the Borough of BRECON for Five Years, ended 31st December, 1843.

Years.	Births.			Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
1839	71	71	142	59	58	147
1840	67	73	140	60	76	136
1841	80	78	158	60	79	139
1842	82	80	162	62	62	124
1843	84	75	159	52	85	167
Total.	384	377	761	353	360	713

From this table it appears that the increase by births during the five years has been only 48, or at the rate of 9·6 per annum, and the superintendent registrar considers that the births are well registered. The increase in the population of Brecon between the years 1831 and 1841 was 188, or at the rate of 18·8 per annum, showing that the births amount to only one half of this increase. The immigration is no doubt small, but as far as regards deaths, it rather tends to make the rate of mortality really higher, as these immigrants seem to have come into the town at ages above five years.

The following table (4) furnished by Mr. Davies, will afford a view of the mortality in

## APPENDIX.

## Town of Brecon.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.

different parts of the borough. It will be seen that in the parish of St. John and in the Castle district the rate of mortality is 2.86 per cent., in St. Mary's 2.32 per cent., and in St. David's 3.3 per cent. No very useful conclusions can be drawn from the College district, being so small. The rate of its mortality is only 0.96 per cent. As a whole, these different rates of mortality correspond with the areas imperfectly drained and cleansed, the habitations of the poorer classes, and with those inhabited by the more easy and affluent, where not only the houses are better, their inhabitants not subjected to the same chances of disease and death, but where also drainage and cleansing receive more attention.

TABLE 4.

NUMBER of DEATHS registered in the several Parishes under mentioned within the Borough of BRECON for Five Years, ended 31st December, 1843.

Years.	Parish of St. John the Evangelist and the Castle.	Parish of St. Mary.	Parish of St. David.	Extra Parochial Township of Christ's College.	Total.
1839	61	42	44	..	147
1840	48	42	45	1	136
1841	37	53	47	2	139
1842	50	39	35	..	124
1843	71	50	44	2	167
Total per Cent. .	267	226	215	5	713

## POPULATION in 1841.

St. John's and Castle . .	1,865
St. Mary's . . . . .	1,945
St. David's . . . . .	1,300
College . . . . .	104
Total . . . . .	5,214

From the following table (5), constructed from the returns furnished by Mr. Davies, the superintendent registrar, it appears that the deaths under five years formed nearly one-third of the total deaths, being 1 in 3.1. Of these deaths under five years, 1 in 4 was among the gentry; nearly the same among the tradespeople (1 in 3.97); 1 in 2.9 among the artisans and labourers; 1 in 3.6 among the paupers; and 1 in 2.2 among the undescribed; the total number of deaths among the latter class, 124, somewhat embarrassing the results obtained. As probably a large proportion of this class may be referable to that of the artisans and labourers, the latter, as might be expected from the influences to which their children are most exposed, lose the largest proportion of their children under five years of age.

TABLE 5.

EXTRACTS from REGISTRIES of DEATHS for the Brecon Registration District; Years, 7th June, 1837, to 7th June, 1844.

Class.	Total Deaths.			Average Age at Death.			No. of Deaths from Consumption.			No. of Deaths from Epidemic Diseases.			No. of Deaths from Diseases not stated.			No. of Deaths from other Diseases.		
	Under 5 Years.	5 Years and upwards.	All Ages.	Under 5 Years.	5 Years and upwards.	At all Ages.	Under 5 Years.	5 Years and upwards.	All Ages.	Under 5 Years.	5 Years and upwards.	All Ages.	Under 5 Years.	5 Years and upwards.	All Ages.	Under 5 Years.	5 Years and upwards.	All Ages.
Gentry, &c. .	9	27	36	Yrs. Mo. 1 0	Yrs. Mo. 48 3	Yrs. Mo. 36 5	..	3	3	5	..	5	..	3	3	4	21	35
Tradesmen, &c. .	66	195	261	1 6	49 4	37 3	4	55	59	28	17	45	3	10	13	31	113	144
Artisans, La- bourers, &c. }	167	326	493	1 3	44 10	30 1	15	102	117	74	36	110	4	19	23	74	169	243
Undescribed .	57	67	124	0 8	56 1	30 7	2	15	17	19	4	23	..	..	..	36	48	84
Paupers . .	24	63	87	1 4	57 2	41 10	3	18	21	10	3	13	..	1	11	41	41	52
Totals and Averages .	323	678	1,001	..	..	33 3	24	193	217	136	60	196	7	33	40	156	392	549

The same table shows that while the average age of the gentry was 36 years 5 months, and that of the tradespeople 37 years 3 months (a somewhat unusual advantage on the side of the latter class), the average age of the artisans and labourers was 30 years 1 month; the undescribed class being nearly the same. The deaths under five years being subtracted, the average age at death of the different classes was respectively, 48 years 3 months, 49 years 4 months, 44 years 10 months, and 56 years 1 month; the tradespeople still preserving an advantage over the gentry, while the average age at death of the undescribed class amounts to 56 years 1 month. The average age at death of all classes for the seven years is 33 years 3 months.

According to the same table, 1 in 4.6 of the total deaths was from consumption;—1 in 12

among the gentry thus dying; 1 in 4.4 among the tradespeople; and 1 in 4.2 among the artisans and labourers; pointing out a considerable difference in the deaths under this head between the gentry and the two other classes, and little difference between the latter.

Of the total deaths 1 in 5.1 appear to have died from epidemic diseases. Of these, 1 in 7.2 was among the gentry (all under five years); 1 in 5.8 among the tradespeople; and 1 in 4.5 among the artisans and labourers. Combining consumption and epidemic diseases, deaths from these causes, as given among those of death noticed in the table (961), were 1 in about 2.3.

Of 997 deaths in the seven years, Mr. Davies has furnished the subjoined statement as to the ages:—

1 to 2	2 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100	Above 100
250	78	49	21	34	50	50	39	35	31	30	28	31	38	53	55	40	44	23	12	3	3

Of these 997 deaths, which differ from the full returns for the time by only 4, nearly one-third (330) are of 50 years and upwards, 271 of 60 years and upwards, 180 of 70 years and upwards, and 85 of 80 years and upwards; affording an instance of a high rate of mortality, combined with numerous examples of advanced age. Many old persons are now to be seen at Brecon, and probably the returns will continue annually to exhibit numerous cases of persons living to advanced age in this town.

## APPENDIX.

## Town of Brecon.

Report on its  
Sanatory Condi-  
tion, by Sir H. T.  
De La Beche.