

Report to the General Board of Health on a preliminary inquiry into the sewerage, drainage, and supply of water, and the sanitary condition of the inhabitants of the township of Bishop Auckland in the county of Durham / by Thomas Webster Rammell, Superintending Inspector.

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13
PUBLIC HEALTH ACT

(11 & 12 Vict. Cap. 63.)

REPORT

TO THE

GENERAL BOARD OF HEALTH

ON A

PRELIMINARY INQUIRY

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

OF THE TOWNSHIP OF

BISHOP AUCKLAND,

IN THE COUNTY OF DURHAM.

By **THOMAS WEBSTER RAMMELL, Esq.,**

SUPERINTENDING INSPECTOR.



LONDON :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY,
FOR HER MAJESTY'S STATIONERY OFFICE

REPORT

TO THE

GENERAL BOARD OF HEALTH

OF

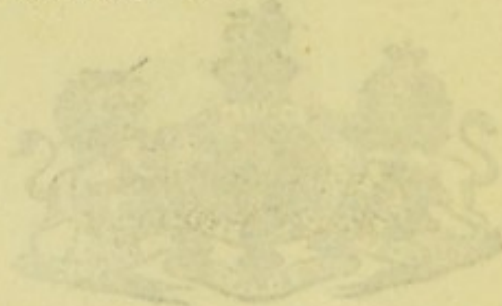
NOTIFICATION.

THE General Board of Health hereby give notice, in terms of section 9 of the Public Health Act, that on or before the 21st day of March next, being a period of not less than one month from the date of the publication and deposit hereof, written statements may be forwarded to the Board with respect to any matter contained in or omitted from the accompanying Report on a preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Township of BISHOP AUCKLAND, in the County of Durham; or with respect to any amendment to be proposed therein.

By order of the Board,

C. MACAULAY, *Secretary.*

Whitehall, 5th February 1853.



LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
STATIONERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

FOR THE GENERAL BOARD OF HEALTH.

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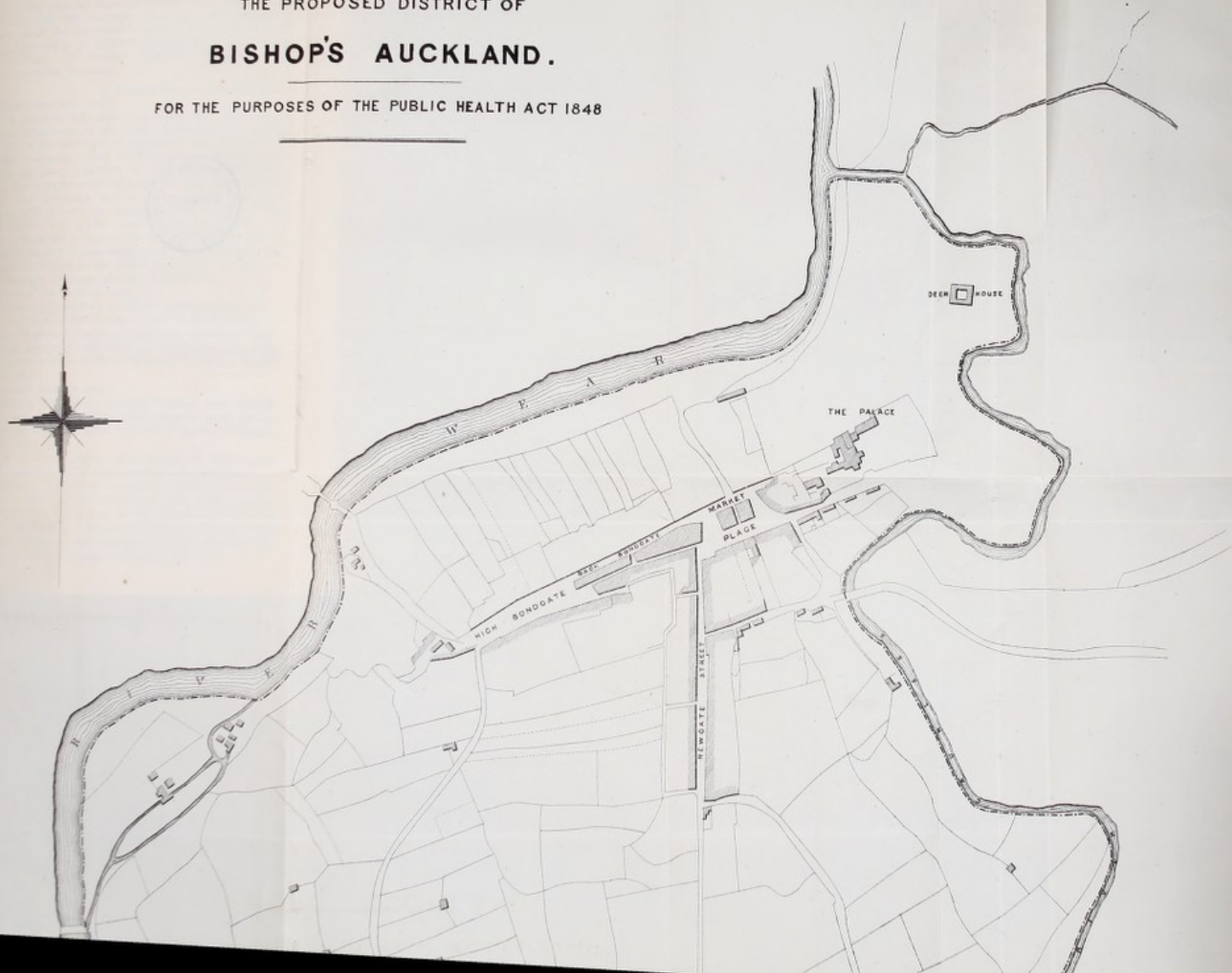
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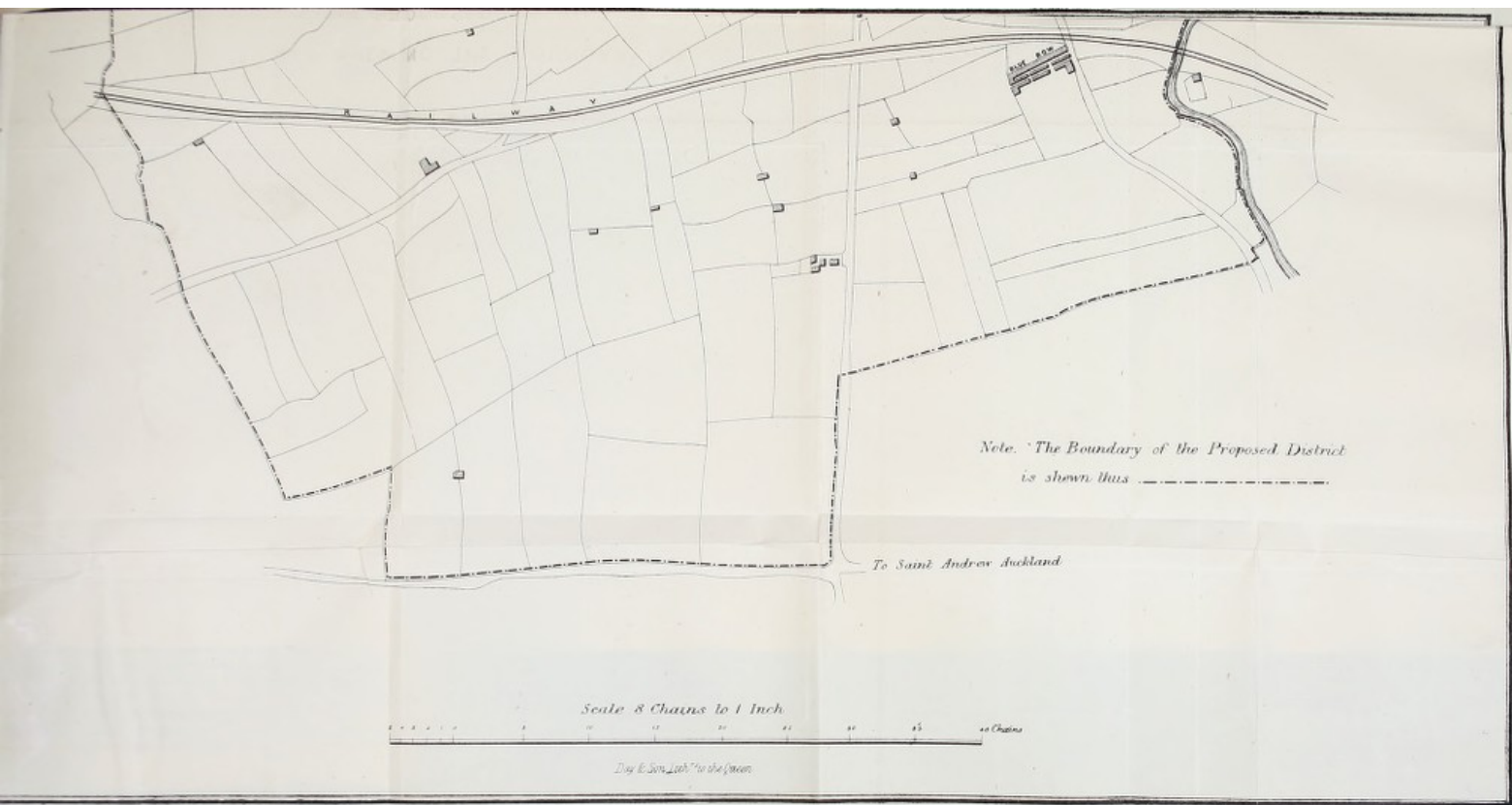
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MAP SHEWING THE BOUNDARY OF
THE PROPOSED DISTRICT OF

BISHOP'S AUCKLAND.

FOR THE PURPOSES OF THE PUBLIC HEALTH ACT 1848

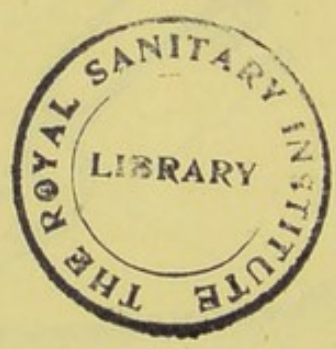




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PUBLIC HEALTH ACT (11 & 12 Vict. cap. 63.)

Report to the General Board of Health on a Preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Township of BISHOP AUCKLAND, in the County of Durham. By THOMAS WEBSTER RAMMELL, Esq.,
Superintending Inspector.

4, Trafalgar-square, Oct. 22, 1852.

MY LORDS AND GENTLEMEN,

A PETITION, duly signed by more than one-tenth of the rated inhabitants of the united townships of Newgate in Auckland, the borough of Auckland, and Bondgate in Auckland, commonly called the Township of Bishop Auckland, having been presented to your Honourable Board, praying that a superintending inspector might be directed to visit that township, and to make inquiry and examination, with a view to the application thereto of the Public Health Act, 1848, your Honourable Board was pleased to direct me to proceed to the parts, and to make a preliminary inquiry in accordance with the provisions of the Act, and with respect to the following matters; viz.—

The sewerage, drainage, and supply of water;

The state of the burial-grounds;

The number and sanitary condition of the inhabitants;

The Local Acts of Parliament (if any) in force within the town for paving, lighting, cleansing, watching, regulating, supplying with water, or improving the same, or having relation to the purposes of the Public Health Act, 1848;

The natural drainage areas;

The existing municipal, parochial, or other local boundaries, and the boundaries which may be most advantageously adopted for the purposes of the Public Health Act, 1848;

And as to other matters with respect to which your Honourable Board was desirous of being informed.

In pursuance of these instructions, I caused the proper notice to be issued of my intention to enter upon such inquiry at the Shepherds Inn, in the township of Bishop Auckland, on the 22d of September ultimo, when I should be prepared to hear all persons desirous of being heard before me upon the various subjects embraced in it.

On proceeding on that day to the place of meeting I found present a considerable number of influential ratepayers and others connected with the place ; amongst whom were the Rev. G. E. Green, the Vicar of St. Andrew's, Auckland ; Mr. R. Bowser and Mr. W. Tutton, solicitors ; Mr. J. Jobson, surgeon ; Mr. Gresley, secretary to the Bishop of Durham, and a magistrate of the county ; Mr. John Lee, land surveyor ; Mr. William Thompson, architect ; Mr. R. Joplin, registrar of births, &c. ; Mr. Greenwell, relieving officer ; Mr. Charlton Elliot, Mr. William Hodgson, Mr. J. H. Bainbridge, Mr. Roworth, &c. &c.

Having read the petition and proved the due publication and affixing of the notices as required by the Act, I briefly explained the object of the inquiry, and some of the leading provisions of the Act. I afterwards stated that I was ready to hear any one who wished to make any observations upon the subject. I may here observe, that the general feeling appeared to be decidedly favourable to the object with which the inquiry was instituted. Pending the proceedings I also had an interview with the Bishop of the diocese, who appeared to take much interest in the inquiry, and disposed to forward the carrying out of measures of amelioration it was intended to lead to.

I heard evidence on the 22d and 23d of September, and inspected the town and neighbourhood in the after part of each day.

Of the information thus obtained, I have now the honour to submit the following Report :—

GENERAL DESCRIPTION.—Bishop Auckland is the name of a township and market town in the parish of St. Andrew Auckland, in the extensive coal and iron district of the county of Durham, situate $10\frac{1}{2}$ miles S.W. from the city of Durham, and 252 miles N. by W. from London. The town is pleasantly situated on a considerable eminence, near the confluence of the rivers Gaunless and Wear. The neighbouring country is diversified in character, and generally fertile.

On the north-east side of the town are the palace and grounds of the Bishop of Durham. This palace was originally founded by Bishop Anthony Beck in the reign of Edward I. This edifice was subsequently enlarged, but was destroyed in the troublous times of Charles I.

The present building was erected after the Restoration, by Bishop Cosins. It is a spacious structure, surrounded with gardens and a very beautiful park, through which the waters of the Gaunless flow in a winding course.

The principal public building in the town is the Bishop's

chapel. There are also places of worship for the Society of Friends, the Independents, and the Wesleyan Methodists. A free grammar school was founded by James I.

Both the Gaunless and the Wear at times swell considerably with flood waters.

The township of Bishop Auckland contains about 1,200 acres, exclusive of the Bishop's park and demesne lands, which comprise about 800 acres, giving a total for the township of about 2,000 acres. There are no separate divisions within the township. The township forms a part of the parish of St. Andrew's Auckland, which includes, besides, the townships of St. Andrew's Auckland, St. Helen's Auckland, West Auckland, North Bedburn, South Bedburn, Binchester, Byer's Green, Counden, Counden Grange, Eldon, Even Wood and Barony, Escombe, Hamsterley, Hunwick and Helmington, Lynesack and Softley, Middleston, Midridge, Midridge Grange, Newfield, Newton Cap, Pollard's Lands, Shildon, East Thicky, Westerton, Windleston, and Wilton-le-Wear.

With the exception of Midridge Grange the whole of the above townships are within the parish of St. Andrew's Auckland, which is therefore of very considerable extent; some 12 or 14 miles long, and from 6 to 8 miles wide.

The town of Bishop Auckland is situated on the northern side of the township of that name, and also comprises some small detached portions of the township of Pollard's Lands. These portions, seven in number, consist for the most part of houses and gardens, the number of such houses collectively being about 40, and the population about 200: there are five of these detached portions in the heart of the town. There are other detached portions of Pollard's Lands within the township, but away from the town.

	Acres.
The area of Pollard's Lands within the town is -	34
The area of Pollard's Lands in other parts of the township - - - - -	340
Total - - - - -	<u>374</u>

The whole collection of houses making up the town of Bishop Auckland is therefore included in the township of Bishop Auckland and in that of Pollard's Lands. Besides the town of Bishop Auckland, there are some small collections of houses in isolated spots within the township, the more important of which are, Blue Row, situate on the road leading to St. Andrew's Auckland, about half a mile from the town, and containing about 300 inhabitants; and some

thirty houses near Closehouse, about two miles from the town.

There is no accurate map of the town of Bishop Auckland, with the houses laid down upon it.

Houses and Population.—The numbers of houses and population in the township of Bishop Auckland were as follow in the under-mentioned years respectively ; viz.—

		Population.	Houses		
			inhabited.	empty and building.	
In 1831	-	- 3,090	- —	-	—
„ 1841	-	- 3,740	- 671	-	36
„ 1851	-	- 5,099	- 998	-	38

The above includes the population and houses in the seven detached portions of Pollard's Lands, already mentioned, and which collectively contain about 200 persons.

The population of the town of Bishop Auckland, at the time of the census of 1851, was 4,400; the number of inhabited houses, 839; and 30 empty and building.

Mr. Joplin, the District Registrar, considers that the population of the town has increased by 150 since March 1851. This large increase is attributable to the extension of the colliery, coke, and iron works in the neighbourhood. It appears that a large number of persons live in the town who are employed at these works, some of them going as far as five miles to their labour.

Rateable Value.—The gross rateable value of houses and land in Bishop Auckland is 8,662*l.* 8*s.*, of which 6,219*l.* 10*s.* is in houses and gardens, and 2,448*l.* 18*s.* in land. The rateable value of the houses is four-fifths of the full value; that of land, nine-tenths of the full value.

Poor Relief.—There are 33 townships in the Bishop Auckland Union. The Union-house is situated in the town, in Newgate-street.

Mr. *George Greenwell*, the Relieving Officer, stated that the expenditure for the relief of the poor in the year ending 1851 was as follows : *—

	£	s.	d.
In-door relief	-	-	- 77 15 0
Out-door relief	-	-	- 680 12 0
Other expenses immediately connected with relief	-	-	- 124 9 0
Total	-	-	- £882 16 0

* These figures do not include the charges for casual relief for sickness, which are charged upon the whole Union; and which amount sometimes to a very considerable item, that for the half year ending September 1852 having been 17*l.* 19*s.* 6*d.* (See page 23.)

Industry.—Bishop Auckland is the centre of a considerable colliery and iron district, the works upon which are every day increasing. There is no manufacture carried on in the town itself. It is also the centre of a considerable agricultural district. There are markets on Thursdays and Saturdays, which, considering the size of the town, are largely attended.

Wages.—The wages at the iron works vary from 15s. to 20s. a week; at the collieries from 12s. to 20s. a week; agricultural wages from 12s. to 16s. a week.

Rental of Land.—The average rental of agricultural land is about 20s. an acre; accommodation land in the neighbourhood of the town fetching as much as 4l. an acre.

The land around the town is, two-thirds of it, pasture. Half the township is in grass; the rest arable.

Railway.—The Bishop Auckland and Weardale Railway passes through the township, and close to the town. It was completed in 1840.

VITAL STATISTICS.—The following is a table showing the numbers of Births and Deaths in the township of Bishop Auckland during the seven years 1845–51.

Years.	BIRTHS.	DEATHS.					
	Total births.	Under 5 years.	Above 5 and under 10 years.	Above 10 and under 20 years.	Above 20 years.	Total deaths.	Deaths from epidemic, endemic, and contagious diseases.
1845	164	44	7	9	44	104	18
1846	164	78	7	13	54	152	37
1847	167	55	9	3	75	142	29
1848	201	50	6	5	65	126	16
1849	176	55	10	11	45	121	8
1850	179	50	8	10	52	120	23
1851	255	58	7	6	61	132	10
Totals	1,306	390	54	57	396	897	141
Mean rates for each of the above years.	186 $\frac{4}{7}$	55 $\frac{5}{7}$	7 $\frac{5}{7}$	8 $\frac{1}{7}$	56 $\frac{4}{7}$	128 $\frac{1}{7}$	20 $\frac{1}{7}$

WILLIAM TROTTER,

25th Sept. 1852.

Superintendent Registrar.

From this return it appears, that—

1. Assuming 4,500 as the average number of the population during the period referred to, the mortality has been after the enormous rate of 28·6 in 1,000.

2. The annual mortality from epidemic, endemic, and contagious diseases has been after the rate of 1 to every 225 inhabitants ; and in one year, 1846, these preventible diseases killed 37 persons, being more than 1 in 120 of the then existing population, assuming it at about 4,400.

3. The deaths of children under 5 years of age have been 43 per cent. of the whole number of deaths.

GOVERNMENT.—There is no Local Act in force within the township.

Turnpike and other Roads.—There is one turnpike road within the township, called the Bowes and Sunderland Bridge turnpike road, and which, with a slight exception about to be mentioned, is, of course, repaired by the Trustees. It passes through the town by Newgate-street and Gib Chare. Owing to the peculiar wording of the Act the portion in Newgate-street is repaired by the township.

The remaining roads in the township are repaired by the inhabitants, in the customary manner. There are two surveyors of the highways, but who are not usually professional men, and receive no salary.

The expense is ordinarily defrayed by a 6*d.* rate, yielding about 220*l.* a year ; it has been known to require a 10*d.* rate. This includes the repair of pavements and foot-paths ; but where flags are laid down this is done at the expense of the owners of the respective houses.

The township roads appear to be kept in fair order, but as much cannot be said for the town pavements.

Lighting.—The town is lighted with gas by a joint stock registered company. The works were first constructed by a private individual, and opened in December 1835 ; but about seven years ago they were purchased by the present Company. The capital is 2,500*l.*, with power to raise it to 4,000*l.*

The works are situated at the southern extremity of the town, near the railway station. The pipes are laid throughout the town, with the exception of some new parts, viz., South-terrace, Tenters-street, and Etherley-lane.

There are from 50 to 60 public street lamps. The expense is paid by a rate levied upon the houses and gardens within the district lighted. The total annual amount is 86*l.*, which is raised by a 5½*d.* rate.

The gas is charged to private consumers, buying by the meter, at 5*s.* per 1,000 cubic feet ; to the rest by card, at so much per burner, according to the kind used, varying from 1*l.* to 2*l.* per annum. Mr. Browne and Mr. W. Green stated, that looking at the price of coal, the price charged for gas

was thought to be high. It has been reduced from 8s. to its present price of 5s. per 1,000 cubic feet.

DRAINAGE.—Surface and Subsoil Water.—Upon the whole the natural conditions of this district of country are healthy, the situation being high, and the conformation of the country offering great facilities for drainage and for the discharge of surface waters. The subsoil of the town is generally dry ; in some parts, however, this is not the case.

Mr. *Armstrong* states,—

“ The town is dry in parts, but not in others. The part comprised in the two Bondgates, the Market-place, and Newgate, as far as Gib Chare, is certainly dry. The subsoil here is a dry sand, or sand-clay. Newgate-street, southward of Gib Chare, has a variable bottom, composed of wet sand, gravel, or clay ; and in many cases contains water to a very large amount, insomuch that in sinking cellars parties have not been able to go lower than six feet from the surface. In South-road, where I live, the water in the substratum rose so high in the winter months as to run out at the cellar windows. The subsoil here is alternately clay, dyke, and quicksand, and continues so to near the railway station.”

Refuse Drainage.—The public drains of the town are very limited in extent, and rudely constructed. Such as they exist, they were laid down by the surveyor of the highways, assisted by a general subscription.

1st. A drain commencing at Castle Chare, running through the Market-place, and terminating in Fore Bondgate. The drain is open at the top of Castle Chare, and is so continued down to the river. It is of stone, 3 feet 6 inches high, by 2 feet 6 inches wide, and is about 250 yards long. It has upright sides, and a flat bottom.

It was laid down about 35 years ago ; and its condition is such that it is condemned on all hands as a nuisance to the passengers on the road along which it holds its course, which is considerable in length.

Mr. *Thompson* says,—

“ In Fore Bondgate this drain is laid nearly at a dead level, and clears itself only on occasions of heavy floods. The smell was intolerable before the stink-traps were put in. The drain, when last opened, was in a most filthy state ; there was, in some places, 1 foot 6 inches of deposit. A man was nearly smothered in it.”

2d. A drain commencing at the foot of Wear Chare, running up Wear Chare and along Back Bondgate to its head. This is a stone drain, is 2 feet 6 inches high by 2 feet wide, with upright sides, and flat top and bottom ; about 400 yards long.

The uppermost part of this drain has no opening, in consequence of the proprietor of a neighbouring house having objected to any further excavation being made in that direction. The result is, that the drain has no flushing, the flood waters passing down Fore Bondgate.

3d. A circular tile drain commencing in Gib Chare, and running along Newgate-street to the Market-place, 2 feet 6 inches in diameter, and 200 yards long.

4th. A circular tile-drain commencing in South Church-lane and running to Newgate End; a branch up South-road discharges into a field there. Diameter 2 feet, and part only 1 foot 6 inches; 200 yards in length.

These two drains, in all 400 yards in length, cost 110*l*. They are laid from 6 feet to 7 feet deep.

Mr. *Thompson*, who gave me many particulars upon the subject, stated,—

“The whole of these drains are intended for the discharge of surface waters from the streets and back yards; the collateral drains of back premises being put in at the expense of the owners or occupiers. A good deal of the slops finds its way into them, however, along the surface channels, which have mostly a very slight fall to the gullies. These surface channels, therefore, are a source of considerable nuisance, and in hot weather are particularly offensive.”

The present drains, with hardly an exception, are not low enough to drain the cellars of the houses, many of which are flooded after heavy showers. The water then has to be removed by pumping.

The southernmost portion of Newgate-street, from Durham Chare to the south end of Newgate, South-terrace, High Bondgate, Townhead, Etherly-lane, part of the Market-place, Bakehouse Hill, Great Gates, Carrs-place, and Blue-row, are entirely without drains.

In Tenters-street,—a new street,—a drain has been formed in front of the houses, but it has no outlet.

These undrained districts are extremely filthy, nuisances abounding on all sides; and, as will be seen under the head **SANITARY CONDITION**, they are the principal resorts of disease.

Mr. *W. Hodgson*, living in Newgate-street, called my attention to a nuisance in the immediate neighbourhood of his house, in a place called Raine's-yard. He said,—

“This place has no drainage whatever. There are a number of houses in a back yard, the filth from which is passed eventually on to the surface of the streets, where it stagnates upon a dead level until it is washed away by my servant. Not only is there no drainage from Raine's-yard, but there is no sewer in Newgate-

street. The nuisance is most offensive, and I can find no remedy, there being no Board to which I can apply for its abatement."

Deficiency of Privy Accommodation.—It was stated that there are probably not more than a dozen waterclosets in the town. Where these lie conveniently to one of the public drains they communicate with them. Most of the respectable houses have privies communicating with covered cesspools. Amongst the inferior class of houses, the privy accommodation is scanty in amount, one or two privies being generally found allotted in common to all the houses in a court or alley. These privies have mostly open cesspits behind them, which, besides the privy-soil, receive all the house slops, and also ashes and vegetable refuse. Sometimes it appears that these cesspits discharge part of their liquid contents by overflow into the drains, when these lie convenient.

Numerous instances of deplorable deficiency in privy accommodation were brought under my notice. In the south end of Newgate-street is one privy serving for 40 persons; in Etherly-lane another serving for 40 persons; and these were not the only bad cases, nor the worst of them. In Back Bondgate there are 16 houses to one privy; at Townhead there are at least 40 houses, 30 of which have no privy at all. There are but three or four privies in this part. Of course, the condition of the privies resorted to by so many persons is filthy in the extreme, the privy soil accumulating either on the ground or in the pit until it is carted away.

One witness said, —

"The usual course of proceeding is to wheel the stuff out upon the surface of the street before it is put into the cart, and where it frequently remains all day. From 2s. to 3s. 6d. per load is paid for the better sort of manure."

Mr. *Wm. Trotter* says, —

"The practice of emptying privies in the day time at all hours is a great nuisance. I have known the contents brought into the street, and remain there the most part of the day before being carted away."

Nuisances.—Besides the nuisance produced by the collecting and removal of privy soil, there are various others.

A great number of pigs are kept in this place, mostly in confined and close yards, where the filth and stench resulting are intolerably oppressive.

A tan-yard, near Newgate-street, which drains into the town drain, emptying near the Wear, was complained of as frequently producing a most abominable stench.

The Rev. W. Green complained of the last-mentioned nuisance, as well as of others of various kinds. He said,—

“There is an extensive tallow manufactory in Back Bondgate which causes at all times a great nuisance. A tannery at the bottom of Wear Chare is a still greater nuisance. A north wind blows the stench all over the town.

“Slaughter-houses are numerous in the town, and without any provision for their registration or control. Each butcher kills on his own premises, and when and where he pleases. There are about a dozen slaughter-houses, and most of them are in the centre of the town, and in very confined yards quite unsuited for the purpose. Many of the butchers kill in the shop adjoining the street. The offal is kept in the pits till they are full, and then removed. A great nuisance arises from this. The blood is usually thrown on a dung heap. In one case it is washed into the sewer.”

Outlying Districts.—The outlying districts, Blue-row and the cottages near Close-house, are in an equally filthy condition with the town itself, and a great deal of sickness prevails in them.

Mr. W. Trotter stated that the Guardians had done what they could to improve the sanitary condition of the place, but that their powers were quite inadequate for the purpose. They had enforced the powers of the Nuisances Removal Act, and for a time some advantage was gained; but the improvement was only temporary, there being no power to prevent the creation anew of a nuisance after it had been removed.

WATER SUPPLY.—The town is supplied with water from wells on private premises, from a few natural springs, of which the principal one is at the end of Newgate-street, and also by means of a pipe, conveying the surplus water from a cistern in the Castle-yard to the Pant in the Market-place.

Most of the better class of houses have private wells: these wells are generally not more than 15 or 18 feet in depth, and none exceed 27 feet; they yield a hard water, and at times are known to fail in their supplies. It was stated by more than one witness, that during the drought of last autumn and the spring of the present year nearly all the wells were dry; and the town became dependent upon the supply from the Castle and upon the Newgate-street spring for drinking water, and upon the river Wear for water for other purposes. These supplies were brought to the houses in carts, the charge for the river water being 1s. a load of 50 or 60 gallons, and that for spring water 6d. a load.

Mr. R. Joplin states,—

“The Newgate-street spring never altogether fails, but its yield

is at times exceedingly small, so that persons going for water have to wait a long time for their turn. I have seen as many as one or two dozen of people waiting at a time; they will have to wait half an hour. People go to this spring from Townhead, full half a mile distant; at times from Market-street, about a quarter of a mile, and from that quarter of the town round the spring."

He adds,—

"This water is discoloured after heavy rains, and is then so muddy as to be unusable. They bring a great deal of water thence when it rains, generally for private wells."

With regard to the supply to the Pant, he states,—

"The supply here is very uncertain, and at times there is no water for days together. It depends much upon the quantity of water used at the Castle. The pipe has been laid down about eight years, the expense (about 150*l.*) having been defrayed by subscription. There is a tank calculated to hold about 700 gallons in the Pant, but it is in so bad a state of repair that it will only hold about 250 gallons. It is anybody's business, and therefore nobody's business, to repair it. The Bishop was a large contributor towards the expenses incurred; but there was a great deal of difficulty in raising the funds."

Owing to the deficient supply from the sources already spoken of, it is a very general practice, in the better class of houses, to catch the roof-water in tanks for washing purposes; but with all these precautions and expedients, the supply of water generally is almost always deficient, and sometimes is quite inadequate to the imperative demands of cleanliness and health.

Mr. *Joplin* says,—

"In dry seasons there is an actual scarcity of water, and the poorer classes suffer considerably on this account. The town was better off in this respect before the great increase of population, which has taken place of late years. The scarcity is now felt to be a great evil. It was in contemplation to form a company to supply the town with water; and with this view several public meetings were held, and professional opinions taken with reference to the source proper to be adopted. This project, however, was ultimately given up, it being resolved instead to take advantage of the Public Health Act; and the petition in virtue of which this inquiry was held was accordingly drawn up."

Mr. *Jobson*, surgeon, says,—

"I consider water to be the chief want in this place. There is, I know, a deficient supply, but I cannot speak to any defect in the quality of the supply."

Water Analysis.—The following is a report upon several samples of water from Bishop Auckland, by Mr. *P. H. Holland*:—

January 22, 1853.

REPORT on a Preliminary Examination of Specimens of Water from Bishop Auckland in the County of Durham.

The nine specimens of water from Bishop Auckland contained in nine pint bottles, corked, were labelled as follows :—

No. I.—*River Weir.*

This water was clear (except from a few floating particles of peaty matter, which quickly subsided) without colour, taste, or smell.

Tests showed the presence of sulphate of lime, and a small quantity of some chloride probably common salt, but no carbonate. It was $6\frac{1}{2}$ degrees of hardness, not reduced by boiling, after the lime was removed it was less than one degree of hardness. It therefore contains very little magnesia, or other hardening matter.

No. II.—*River Gaunless.*

This water was turbid from numerous floating particles of peat, too small to subside quickly. It became clear by filtering, but had still a slight brown tint, but scarcely any taste.

Tests showed the presence of sulphates, chlorides, and carbonates, with much lime and some magnesia. It was 19 degrees of hardness reduced by boiling without evaporation to 18 degrees, and by removing the lime to $7\frac{1}{2}$ degrees.

The residuum left on evaporation burns with a peaty smell.

No. III.—*Tynnburn.*

This water contained suspended particles of peat, had a dark brown tint, and foul boggy smell, contains much peaty matter dissolved as well as suspended, and is quite unfit for a town supply.

Tests showed the presence of sulphate of lime, very little chlorine, and no carbonate. It was $4\frac{1}{2}$ degrees of hardness, not reduced by boiling, but entirely removed by precipitating the lime.

No. IV.—*Pant.*

This water is rather turbid, from fine floating particles of peat, which slowly subside, becomes nearly clear, and quite so on filtration, but is still slightly tinted, and has a perceptible smell and taste. It is not nice water, though not very objectionable.

Tests showed the presence of sulphates in large quantity, and also chlorides and carbonates, with lime.

It was 12 degrees of hardness, softened by boiling without evaporation to 11 degrees, and by removing the lime to 7 degrees. The residue left by evaporation burnt with peaty smell, proving the presence of vegetable matter in solution.

No. V.—*White Oakes.*

The water was turbid from suspended peaty matter, became clear and nearly colourless by filtration, had rather a flat taste.

Tests showed the presence of sulphates, chlorides, and carbonates, lime and magnesia. It was 18 degrees of hardness,

reduced to $17\frac{1}{2}$ degrees by boiling, without evaporation, and to 7 degrees by removing the lime. The residue left by evaporation was brownish in colour, and burnt with a peaty smell.

No. VI.—*Etherby Spring.*

This water was nearly clear, became quite so by filtering away the floating particles of peat; had a slight brownish tint and peaty taste.

Tests showed the presence of sulphates and chlorides in large quantity, a little carbonic acid, and much lime. Left a brownish residue on evaporation, which burnt with peaty smell.

Its hardness was 18 degrees, reduced by boiling without evaporation to 14 degrees, and by removing the lime to 2 degrees.

No. VII.—*Newgate End.*

The water was discoloured, had large quantities of peat, both suspended and dissolved, had dark brown tinge and boggy taste.

Tests showed the presence of sulphate of lime in large quantity, and chlorides and carbonates in small quantity.

Its hardness was $11\frac{1}{2}$ degrees, reduced by boiling to 11 degrees, and by removing the lime to half a degree. It left, on evaporation, a black residue, which burnt with peaty smell.

No. VIII.—*Hodgson's Well.*

The water was rather turbid, had a brownish tinge, and slight peaty taste. Became clear by filtration, but was still tinted, and the residue left on evaporation was brownish, and burnt with peaty smell.

Test showed the presence of sulphates, chlorides, and carbonates, all in considerable quantity; also lime and magnesia.

Its hardness was above 40 degrees, reduced by removing the lime to $11\frac{1}{2}$ degrees.

No. IX.—*Bowser's Well.*

This water was bright and clear, except a few floating particles of peat, and a very slight brownish tinge, hardly enough to be objectionable.

Tests showed the presence of sulphates, chlorides, and carbonates, all in considerable quantities; also lime and magnesia. It left, on evaporation, a brownish residue, which burnt with a slight peaty smell.

Its hardness was 36 degrees, reduced by boiling to 10 degrees, and by removing the lime to $8\frac{1}{2}$ degrees.

None of these specimens of water, except perhaps the first (that from the River Weir) are such as should be recommended for a town supply. They all contain peaty matter in solution, those in which it is small in quantity are very hard, those which are not too hard for economical use being unfit for a town supply, because of the large quantity of vegetable matter in solution. Neither of these objections apply to the water of the Weir, if it can always be obtained in the state of the specimen sent, but before it is definitely determined to obtain a supply from that river, a larger quantity of its water should be sent for more exact examination.

Water from—	Hardness in degrees of Dr. Clark's scale.		
	Degrees.	After boiling without evaporation.	After removing lime.
1. River Weir - -	6½°	6½°	0½°. Clear.
2. River Gaunless - -	19°	18°	7¼°. Slightly tinted.
3. Tynnburn - -	4½°	4½°	0°. Very peaty and foul.
4. Pant - -	12°	11°	7°. Rather tinged.
5. White Oakes - -	18°	17½°	7°. Slightly tinged.
6. Etherby Spring - -	18°	16½°	2°. Nearly clear.
7. Newgate End - -	11½°	11°	0½°. Very peaty.
8. Hodgson's Well - -	40½°	- -	11½°. Slightly tinged.
9. Bowser's Well - -	36°	10°	8½°. Nearly clear.

(Signed) P. H. HOLLAND.

DWELLINGS OF THE LABOURING CLASSES.—The rental of the majority of the cottages occupied by the working classes varies from 4*l.* to 6*l.* a year. There is a larger description of cottage which lets at a rental of 7*l.* a year.

The practice of taking in lodgers prevails to a considerable extent, particularly amongst the Irish, and there is much overcrowding in consequence. Mr. *Joplin* states,—

“The cottages are mostly divided into separate tenements, and amongst the Irish a single family rarely occupies more than one room. Indeed, I have known as many as three or four families crowded into a single room, and without a bed, chair, or table. A few stones are put in a circle round the fire for seats, and straw or shavings will serve them to lie upon. The parts of the town occupied by the Irish are certain parts of Back Bondgate, Townhead, and Newgate, being principally back yards.

“The English labourers in the collieries live in a better description of cottages than the Irish, but still they have only parts of a house for a family. Most of them have two rooms, for which from 4*l.* to 5*l.* 10*s.*, and even 6*l.* a year is paid. They live in a very different manner to the Irish, and their houses are generally decently furnished; many of them are very cleanly.”

Lodging-houses.—There are 29 lodging-houses in the town, not one of which has as yet been registered, but which, it was stated, were about to be registered under Lord Shaftesbury's Act. Most of these houses are the most miserable places which it is possible to conceive as the abode or resting-place of man. Three of them are a little better than the rest, and indeed are the only ones which can be considered at all decent. The ordinary charge for a bed is 2*d.* a night, at all except at the three better houses, where 3*d.* is charged. The keeper of one of these houses,—one of the better sort,—it appears, contracts with the Union officers for

the night accommodation of the casual poor, a practice which it is impossible to approve of, tending, as it does, alike to promote vagabondage and immorality, and to spread the seeds of infectious disorders.

Wm. Brown, the Superintendent of Police, who gave evidence upon the general condition of these lodging-houses, particularly described that referred to me as most miserable as affording an instance of excessive overcrowding. He said,—

“One of these houses is kept by Nathan Green, who contracts with the Auckland Union for the casual paupers. He has 2*d.* a night for adults, and 1*d.* for children under 7 years of age. This house contains 10 rooms.

	Ft.	In.		Ft.	In.		Ft.	In.
One of these measures	- 15	9	by	13	4	and	8	2 high.
Another	”	- 12	10	”	13	4	”	7 7 ”
Another	”	- 13	5	”	10	7	”	7 7 ”
Another	”	- 18	0	”	15	0	”	6 0 ”
Another	”	- 15	8	”	7	3	”	6 0 ”

“With respect to others of the rooms, some had sloping ceilings, and I was obliged to average the height as follows :

	Ft.	In.		Ft.	In.		Ft.	In.
One	- 24	0	by	14	0	-	average height	- 7 5
Another	- 7	9	”	5	0	-	”	- 7 5
Another	- 13	2	”	8	3	-	”	- 7 6
Another	- 13	2	”	8	3	-	”	- 7 6
Another	- 6	9	”	6	8	-	”	- 6 0

“The last is a sort of cupboard, without light or ventilation ; it contains one bed. They have in all 22 beds. I have known it, from repeatedly visiting it during the night, to have from 35 to 45 inmates at the same time. In one room alone in this house I have counted as many as 17 persons at the same time,—men, women, and children,—all sleeping together indiscriminately.”

The witness states that “this is one of the best lodging-houses in the town.” He gives some general statements as to the condition and conduct of the inmates of these abodes. The first is a remark which I have heard made frequently of similar houses in other towns :—

“The practice is universal in these lodging-houses for the lodgers to sleep quite naked, entirely without clothes. The motive I have heard assigned for this is, that by so doing they are less liable to catch any infectious disease, also less liable to get vermin upon their clothes.”

He adds,—

“Hitherto no control whatever has been exercised over these houses. From an inspection I have made amongst them this morning, I am satisfied that, from their filthy state and the over-

crowding of beds, a considerable number of them cannot be passed as fit to be registered. I have found 7 beds in one room 24 feet by 14 feet, and 7 feet 5 inches high. In another room, 16 feet 3 inches by 13 feet, and 7 feet high, I found 6 beds. Nothing can exceed the filthy condition of most of these houses, and some are even dangerous from dilapidation, or from faulty construction. The Irish houses are the worst; it is almost dangerous to enter them, from their shocking state of filth."

Mr. William Trotter, Clerk to the Guardians, put in the following particulars of the crowded state of Townhead and Back Bondgate, upon an inspection made the previous evening:—

POPULATION at TOWNHEAD and BACK BONDGATE.

TOWNHEAD.

State of Twenty-two Houses.

In 1 room	-	-	7, male and female.
1 "	-	-	4, "
2 rooms	-	-	11, "
1 room	-	-	5, "
1 "	-	-	2, "
3 rooms	-	-	6, "
5 "	-	-	11, "
2 "	-	-	6, "
2 "	-	-	6, "
1 room	-	-	1, "
1 "	-	-	5, "
1 "	-	-	2, "
2 rooms	-	-	8, "
2 "	-	-	6, "
2 "	-	-	5, "
2 "	-	-	3, "
1 room	-	-	4, "
1 "	-	-	4, "
2 rooms	-	-	4, "
2 "	-	-	10, "
1 room	-	-	8, "
1 "	-	-	12,* "
<hr/> 37 rooms.			<hr/> 130 inhabitants.

The number of rooms signify *all* the house in each case.

* In this room (which, I think, cannot be more than 9 feet square), *twelve* persons, young and old, were to sleep on Monday night.

BACK BONDGATE.

State of Twenty-two Houses.

In	1 room	-	-	7, male and female.
	1 "	-	-	10, "
	2 rooms	-	-	7, "
	2 "	-	-	7, "
	1 room	-	-	7, "
	1 "	-	-	4, "
	2 rooms	-	-	7, "
	1 room	-	-	9, "
	1 "	-	-	8, "
	1 "	-	-	6, "
	1 "	-	-	3, "
	1 "	-	-	4, "
	1 "	-	-	5, "
	1 "	-	-	4, "
	2 rooms	-	-	8, "
	1 room	-	-	13,* "
	1 "	-	-	7, "
	1 "	-	-	5, "
	1 "	-	-	5, "
	2 rooms	-	-	7, "
	2 "	-	-	7, "
	2 "	-	-	6, "
<hr/>				
	29 rooms.			156 inhabitants.
<hr/>				

The number of rooms signify *all* the house in each case.

SANITARY CONDITION.—It will be seen on reference to the table of births and deaths, page 9, that the deaths from epidemic, endemic, and contagious diseases make a very heavy item in the annual mortality of this place. The cases of sickness not terminating in death are, of course, more numerous, and inflict a heavy charge upon the parochial funds, to say nothing of the loss entailed upon the community by the interruption of the industry of those of its members who are so afflicted. The medical evidence, corroborated by the testimony of the clergyman of the parish, fully established the fact that these visitations of disease are attributable to local causes. Mr. *Jobson*, surgeon, residing in the town, states,—

“I have practised in this district for twenty years. Typhus fever has frequently prevailed in this place; we have cases of it every year, usually in the autumn and winter months. There were some cases of malignant cholera also here in 1832. These

* In this small room were two men, with their respective wives and children (of various ages), preparing to lie down. The odour of the place was quite offensive.

cases occurred in the most confined and dirty parts of the town; two cases in what is called Wear Chare, and the other two in Back Bondgate-street. Typhus is found in the narrow streets and entries, and in the most confined and dirty parts of the town. It was more prevalent 14 or 15 years ago than of late years. It was very often occasioned through the occupation of cottages before they were in a dry and fit state. Excessive crowding also was clearly traceable as a cause. We have had frequent epidemics and measles, and sometimes of a very fatal character. Small-pox also we have had frequently, but it is not so common now, in consequence of the greater attention paid to vaccination. Ague is not common here. I have seen two or three cases within the last four years amongst men employed in draining the land.

"I was formerly Union surgeon, but I have resigned that office, and cannot speak so well now as to the haunts of fever. The worst cases, however, have been usually confined to the worst drained and most filthy parts of the town. The numerous small open drains in the town tend materially to vitiate the atmosphere. I consider the worst localities to be Raines-yard, Fenkell-street, the yards in Back Bondgate and Townhead. These are the worst drained, and in them undoubtedly the most sickness is found.

"I consider this part of the country naturally a healthy one. The town stands upon a dry situation. I have not the least doubt, that if the town was better drained and supplied with water, its health would be improved."

The Rev. *G. E. Green*, incumbent of Bishop Auckland, states,—

"I can speak to the worst localities in the town being those mentioned by Mr. Jobson. I would add Peacocks-yard in Newgate-street to the east. There is also often a great deal of illness in South-terrace. The last-named place is on the road from Bishop Auckland to St. Andrew Auckland. These houses are tolerably good, but they are placed low, and there is a ditch behind them. The state of the drainage of the places named is of the worst description, and the overcrowding excessive. I have known many instances of two or three families living in one small room. Etherly-lane, near Townhead, is a most filthy place. There the houses are very much overcrowded, and I have seen a good deal of illness in them.

"I can speak to the very bad condition of the lodging-houses, and to the sickness prevailing amongst them."

Mr. *G. Greenwell*, the relieving officer, after speaking of the serious charges laid upon the Union for sick relief, said,—

"Most of the sickness has been in those localities the list of which was given by Mr. Jobson. Diarrhoea has lately been very bad, and we have had two cases of cholera within the last two months."

This witness put in the following return of the sum paid in casual relief on account of sickness, principally diarrhoea

and dysentery, in the town of Bishop Auckland, in the half year ending 22d September 1852.

	£	s.	d.
Patrick Conner, Back Bondgate	0	9	0
Trainer, Ann, Townhead	0	1	6
Murphy, Thomas, Back Bondgate	0	10	0
Hardy, Luke, Back Bondgate	1	3	6
Mordon, Edward, Back Bondgate (died of cholera)	1	1	0
Howley, James, Back Bondgate (died)	0	10	0
Noghera, Charles, Back Bondgate (died)	0	10	0
White, George, Back Bondgate	0	2	6
Dolan, John, Back Bondgate	0	3	0
Evans, George, Peacock-yard	0	4	6
Eling, John, Backway	2	3	10
Lindsay, William, Back Bondgate	0	5	0
Mooney, James, Back Bondgate	0	2	6
Foster, James, Back Bondgate (died of typhus-fever)	1	11	4
MacGill, Henry, Newgate-street (died from diarrhoea)	0	6	6
Gibson, William, Back Bondgate	0	3	0
Buley, Mary, Back Bondgate	0	6	10
Finister, John, Back Bondgate (died)	0	10	0
Mooney, Thomas, Back Bondgate	2	10	6
MacQuire, Mary, Back Bondgate	0	9	6
Gibbon, George, Gib Chare	0	4	0
Moses, Thomas, West Terrace	2	12	0
M'Cannan, James, Back Bondgate (died of raging fever)	1	1	0
Pickering, Joseph, Townhead	0	16	0
Conyan, John, Townhead	0	2	6
	£ 17	19	6

G. GREENWELL, Relieving Officer.

BURIAL GROUNDS.—There is no burial-ground in the town except that attached to the Friends Meeting-house in Newgate-street. Not more than two burials a year take place here.

Members of the Church of England, and all denominations of dissenters, except the Friends, are buried in the churchyard at St. Andrew's Auckland, $1\frac{1}{4}$ mile distant. This churchyard was enlarged by the addition of an acre of ground about 12 years ago. It now contains about $2\frac{1}{4}$ acres.

The Rev. Mr. Green states,—

“There is ample burial accommodation here for some years to come. The greater part of the ground is dry, but the north-west

corner is damp ; water a few inches deep will stand in the graves at that part ; but few graves have been dug there. There would be no difficulty in draining it, the soil being chiefly gravel."

This witness put in the following list of the number of burials since 1841 :—

Burials in the parish of St. Andrew Auckland in the years 1841—51.

1841	-	-	-	-	-	163
1842	-	-	-	-	-	225
1843	-	-	-	-	-	166
1844	-	-	-	-	-	153
1845	-	-	-	-	-	178
1846	-	-	-	-	-	230
1847	-	-	-	-	-	216
1848	-	-	-	-	-	189
1849	-	-	-	-	-	178
1850	-	-	-	-	-	194
1851	-	-	-	-	-	193
1852 up to August 30th	-	-	-	-	-	143

(This refers to the whole parish, and must not be confounded with the township of Bishop Auckland.)

SUMMARY OF CONCLUSIONS.

1. That the township of Bishop Auckland is situate in the extensive coal and iron district in the county of Durham ; and the works in that neighbourhood are every day increasing.

2. That with a rapidly increasing population no adequate steps have been taken to provide the means of cleanliness and health amongst them.

3. That the substratum in many parts of the town is in need of drainage.

4. That a very limited extent of drains for refuse purposes exists in parts of the town, and that such drains have for the most part been so unskillfully constructed that they do not answer the purpose for which they were intended, and are themselves a nuisance, being loaded with deposit, and emitting the most offensive exhalations. That by far the greater part of the town is without any provision for drainage, and that here the refuse matter of houses is frequently cast upon the surface of the highways.

5. That there is a great deficiency of privy accommodation, and that where privies exist they are generally in connexion with open cesspools, the condition of which is filthy in the extreme, whilst the mode of emptying them entails a nuisance upon the surrounding neighbourhood.

6. That there is much overcrowding in the dwellings of the working classes, and excessive overcrowding in the common lodging-houses within the town.

7. That there are many nuisances resulting from the carrying on of offensive trades in the town.

8. That there is a great deficiency of water, at times amounting to absolute scarcity, there being no public provision for the purpose; and that the quality of the water usually obtained from wells is hard, and impure in other respects.

9. That the sanitary condition of the inhabitants is bad, typhus fever and other epidemic, endemic, and contagious diseases frequently prevailing, and the average deaths from these causes being more than 20 yearly out of a population of between 4,000 and 5,000. That the gross mortality during the seven years 1846-51 was after the rate of 28·6 in 1,000.

10. That the burial accommodation for the inhabitants of this township is sufficient for some years to come.

11. That there is no Local Act in force within the township, nor any powers to deal with the various evils above detailed, and to provide for the amelioration of the sanitary condition of the inhabitants.

12. That the comfort and health of the inhabitants would be promoted, and their condition improved by—

- a.* Drainage of the substratum of parts of the town.
- b.* An efficient system of surface and refuse drainage.
- c.* A plentiful supply of pure water.
- d.* Adequate privy accommodation, in connexion with efficient drainage and water supply.
- e.* The improvement of the roadways, and removal of many offensive nuisances.
- f.* Improvement in the dwellings of the working classes, and regulations for preventing overcrowding therein and in common lodging-houses.

RECOMMENDATIONS.

I. THEREFORE RECOMMEND—

I. That the Public Health Act be applied to the township and town of Bishop Auckland.

II. That the boundary of the district within which the Public Health Act be so applied, be that defined by the dotted line on the plan accompanying this Report.

III. That the Local Board to be elected under the Public Health Act consist of nine persons.

IV. That the qualification for members of the Local Board be possession of real or personal estate, or both, to the value of not less than 500*l.*, or a rating to the relief of the poor of the parish of St. Andrew's Auckland upon an annual value of not less than 20*l.*

I have the honour to remain,

My Lords and Gentlemen,

Your most obedient servant,

T. W. RAMMELL,

Superintending Inspector.

*The General Board of Health,
Whitehall.*