

Dr. F.W. Barry's report to the Local Government Board on the general sanitary condition and administration of the Cowpen urban district / [Fred. W. Barry].

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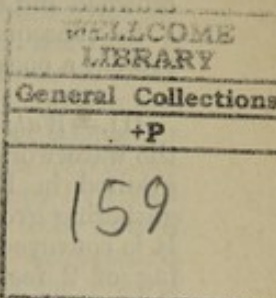


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Dr. F. W. Barry's Report to the Local Government Board on
the General Sanitary Condition and Administration of the
Cowpen Urban District.

GEORGE BUCHANAN,
Medical Department,
August 22, 1883.

Area, 1,737 acres; rateable value, 22,551*l*.
Population (1881), 10,003; inhabited houses (1881), 1,874.
Persons per house (1881), 5·3; persons per acre, 5·7.



I.—*Description*.—Cowpen, which is co-terminous with the township of the same name, is situated to the extreme north of the Tynemouth Registration District. For registration purposes it is included in the Blyth sub-district. It is bounded on the north by the River Blyth, on the south-west by the Bebside and Horton townships of the Tynemouth Rural Sanitary District, and on the south-east by the Blyth Urban Sanitary District. The whole district is divided into two wards, known as East and West Wards respectively. The former, which comprises Waterloo, Cowpen Quay, and Newsham Freeholds, formed, until 1881, the original district of Cowpen. This ward comprises the western and most populous portion of the town of Blyth, it being separated from Blyth proper only by a small tidal creek called "The Slake."

The West Ward, which, until 1881, formed a portion of the Tynemouth Rural Sanitary District, contains the original agricultural village of Cowpen, and the colliery villages of Cowpen, Isabella Pit, Bebside Colliery, &c. At the last-named place are some deserted iron works.

The distribution of the population, as ascertained in 1881, was as follows:—

Waterloo, 2,219; Cowpen Quay, 2,362; Newsham Freeholds, 484, in the East Ward; Croften, 537; Cowpen Colliery, 721; Isabella Pit, Kitty Brewster, and Cowpen village, 1,285; Hodgson's Mill, The Square, Buck's Hill, &c., 755; Bebside Colliery and Iron Works, 1,640, in the West Ward. The population of the East Ward has increased over 50 per cent. (from 3,187) between the census periods of 1871–1881, this increase, I understand, occurred chiefly during the first four years of the decade, in fact, there can be little doubt that the population reached 5,000 in 1875. Between 1875 and 1878 the population, in consequence of depressed trade, became diminished. Since 1879 trade has revived and the population has again increased.

The occupations of the inhabitants may be roughly classed in two divisions, corresponding with the wards, those living in the East Ward being mainly engaged in connexion with ship-building, and the Port of Blyth, whilst those in the West Ward, with the exception of such as are employed in agriculture, are exclusively coal miners.

II.—*Streets and Dwelling-Houses*.—A number of the streets in the Cowpen District are not yet properly constructed and paved, and in several of those which have originally had cemented footways, these have been allowed to fall into dis-repair, and present a most uncared for aspect. A large number of the houses in Waterloo and Cowpen Quay are apparently well constructed, and have sufficient air space around them for purposes of health, yet a very important portion of the dwelling accommodation provided for the working classes is such as must have an injurious effect upon the health of the inmates. A considerable number of the houses, some of which have been erected at a comparatively recent date, are grouped round yards which are approached by passages tunnelled under some of the houses. This necessarily leads to insufficient ventilation, and the evils arising from this are aggravated by the fact that the stagnant air of these confined yards is frequently fouled by the excremental and other nuisances which abound in them. The yards are frequently both unpaved and undrained, and often very sloppy and filthy.

In consequence of the great demand for houses, owing to the briskness of trade between 1871 and 1875, a large number were run up by speculative builders at that time.

Newsham Freeholds is a small village consisting of two rows of workmen's dwellings, built on the "flat" system, each house of two stories being divided into four two-roomed tenements.

In the colliery villages comprised within the West Ward the usual arrangement of miners' cottages in long rows is to be found. These appear to be of a fair class, and certainly with respect to air space, they present, as a rule, a pleasing contrast to the crowded and confined dwellings to be found in the East Ward.

In consequence of the recent improvement in trade, it is stated that there is at present a considerable amount of over-crowding in Waterloo and Cowpen Quay.

III.—*Water Supply.*—The water supply for the West Ward is mainly derived from the waterworks constructed by the Sanitary Authority, under a Provisional Order granted in 1875. The water is obtained partly from springs and partly from a gathering ground situated near Hepscott, at a distance of seven miles from Cowpen. It is conveyed in a 7-inch main to Bebside, where it is passed through a filter, consisting of 2 feet each of rubble, gravel, and sand, and thence into a covered service reservoir, having a capacity of 300,000 gallons. This water is said to be of excellent quality. It is distributed as a rule to the back yards of houses, and the supply is stated to be constant. There are, however, no means provided for the introduction of fresh air into the pipes during temporary intermissions.

Cowpen village is supplied from a surface well situated at the roadside.

Bebside Colliery village (population 1,640) is supplied with water from the colliery. This is drawn from a depth of 100 fathoms, and is said chiefly to consist of water from freestone strata situated at a depth of 60 fathoms. There are numerous workings above the level from which the water is drawn, and as there are some 250 men employed in the pit, besides a number of horses, the danger of animal pollution must be very great. The water is pumped into a large wooden tank, from which it is passed into an iron boiler, and from thence through a filter of sand, gravel, and charcoal to stand-pipes. These stand-pipes are in many instances at considerable distances from one another, thereby entailing a great deal of labour in fetching and carrying.

In addition to the fresh-water supply a number of the houses in Waterloo and Cowpen Quay are furnished with underground rain-water tanks, which in some instances have become a source of nuisance from the leakage into them of excremental filth from the neighbouring privy middens, and in other cases from their being used as receptacles for slops.

IV.—*Sewerage and Drainage.*—The Cowpen Local Board have themselves executed no sewerage works. Cowpen Quay and Waterloo have been sewered throughout by the Croft Estate Trustees. The sewage of Cowpen Quay is discharged by means of three outfalls into the River Blyth, and by two into "The Gut." The Waterloo sewers have eight outfalls into the Slake. Newsham Freeholds are sewered by sanitary pipes, which discharge into a cesspool with an overflow into "The Gut." Bebside and Cowpen village have been sewered by the Tynemouth Rural Sanitary Authority, and in most of the other parts of the district lengths of sewer have been laid down by private owners. None of the sewers, with the exception of those laid down by the Rural Sanitary Authority, have any means whatever of ventilation, and as the district is extremely flat, and the outfalls of the sewers are below high-water mark, the pressure from the tidal water, which is said in the cases of some of the sewers to fill them entirely, must cause the discharge of sewer air in dangerous proximity to houses. A number of houses at Kitty Brewster were noticed which were without any means of drainage. The only connexion between the houses and the public sewers is fortunately in most instances effected by means of a slop sink in the backyard. In some cases, however, sinks which are in direct communication with the unventilated sewers are situated in kitchens or back passages of the houses. In one house a connexion of this kind was noticed in which there had been two cases of enteric fever a short time previous to my visit. It is probably unnecessary to add that, as the Sanitary Authority have not seen the necessity for ventilating the public sewers, no provision has been made for the ventilation of private drains.

No means appear to have been adopted to drain the subsoil, and, in consequence, in many of the streets the cellars are very wet, and in some instances were, at the time of my visit, at least half full of water.

The tidal creek, known as "The Slake," which forms the boundary between the Local Board Districts of Blyth and Cowpen, is at present a source of considerable nuisance. At every ebb tide a large expanse of mud is left bare, upon which are deposited the



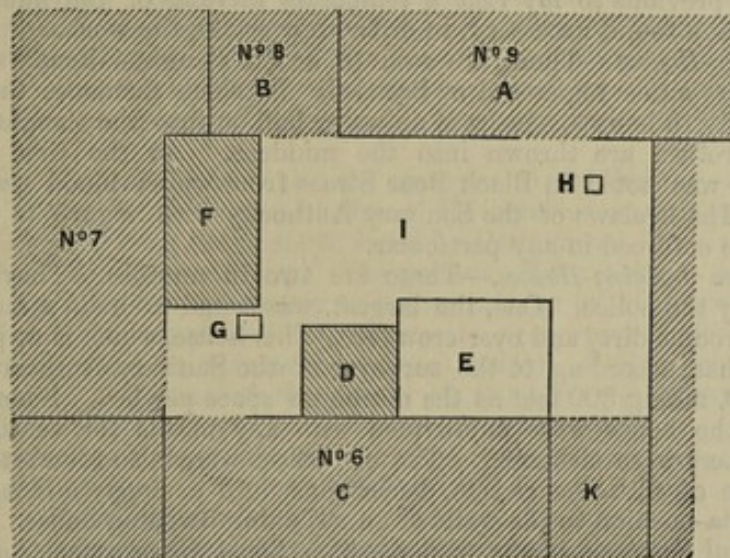
contents of the sewers opening into it, and animal and other refuse from the houses in its immediate neighbourhood.

The blind portion of the creek between Waterloo Bridge and Crofton is said to have become much more objectionable since the open or river end has been partially filled in.

V.—*Excrement and Refuse Disposal*.—The ordinary midden privy is almost universally the form of closet in use throughout this district, and, as constructed and managed, it embodies in the worst form all the sources of nuisance inherent in this form of closet accommodation. Indeed, there are few, if any, parts of the Tynemouth registration district where the evils resulting from this means of excrement disposal, as adopted in Cowpen, are equalled, and in none where they are exceeded. The midden privies are in a large proportion of instances unroofed, hence they are rendered sloppy by means of rainfall, and in addition they are frequently so constructed as to receive the rainfall from the adjoining closet roofs. This sloppy condition of contents is increased in Waterloo and Cowpen Quay in consequence of the middens being below the level of the ground, and the ground itself being waterlogged. They are also so constructed as to render the proper admixture of ashes and excreta impossible. The middens in the country portion of the district are, as a rule, common to two privies, but, in many instances, four, and in some as many as eight closets discharge into one midden. In any position these middens would constitute a serious nuisance, but the danger to health is increased enormously in the town by the fact that these receptacles with their foul decomposing contents are situated in close confined yards, in some cases all but filling up the spaces between the houses, and in others actually adjoining them. Thus the thorough fouling of the air is ensured, and in some instances the walls and foundations of houses are saturated with excremental filth. Many of these conditions were especially noted to exist in their worst forms in close proximity to houses in which there had lately been cases of enteric fever.

The following sketch shows the arrangements in one instance where enteric fever has recently prevailed in Wanley Street:—

Scale $\frac{1}{4}$ inch to 1 foot.



REFERENCES.

- A.—Dwelling-house in which there was a case of enteric fever in 1882.
- B.—Passage leading to a dwelling-house in which two cases of enteric fever occurred in 1882. There is a sink directly connected with an unventilated sewer in this passage.
- C.—Dwelling-house in which a case of enteric fever occurred in 1882.
- D.—Privy.
- E.—Uncovered privy midden, the sloppy contents from which soak into foundation of house C.
- F.—Coal-houses.
- G.—Inlet to rain-water tank into which slops are thrown.
- H.—Gully to take surface drainage of yard.
- I.—Yard.
- K.—Covered passage giving access to street.

Examples might have been obtained where the circumstances were nearly, if not quite, as bad in other parts of the town. Many of the middens are of enormous size, one I measured being of such an area that, taking the average rainfall at 27 inches, it would, quite irrespective of slops and other liquid thrown into it, receive nearly 4,000 gallons of rain per year, whilst it had a cubical capacity of nearly 700 feet.

The Sanitary Authority have done little or nothing beyond causing a few middens to be roofed over to limit the evils resulting from this system, and in some property which has been recently erected the middens are so constructed as to embody many of the worst faults already noticed as existing in the older ones. The pit was of large size, with the closet discharging into it at the farthest point from the door where the ashes are thrown in, and although this midden had been roofed, it was sunk below the level of the surrounding soil, and was in consequence flooded with sloppy refuse.

This state of things being so universal, it would seem almost invidious to single out any as examples; but probably the arrangements to be found in Clive Street, York Street, Soulsby Street, and Wanley Street in the town district, and Kitty Brewster in the country district, are amongst the worst in the district. The scavenging is performed by the Local Board, the ashpits being emptied as they become full; but, as they are at present constructed, the emptying of them is stated to lead to a greater nuisance from the consequent exposure of walls, impregnated and plastered with excrement and filth, to the sun and rain, than the leaving them filled with ashes and refuse. In such blocks of houses as are unfurnished with back roads, notably in some of the streets above mentioned, the refuse has either to be carried through the houses or wheeled through the covered passages leading from the backyards. The filth so removed is stated to be then heaped on the roadway—a whole street being done at once by the scavengers—in readiness for the cart men when they think fit to appear. It may readily be imagined that the inhabitants are not, under the circumstances, very anxious to have their receptacles cleaned out. The Local Board possess no regular dépôt for the refuse obtained from the middens, and, in consequence, it is frequently disposed of in most objectionable places. At the present time it is being deposited in the Slake near the railway, and on the raised surface so obtained building may, at some future time, possibly take place, and hence there is a fear that this material, which contains a large amount of excreta and vegetable refuse, may some day constitute the foundation of dwelling-houses.

The staff employed by the Sanitary Authority for this duty is apparently too small, as a short time previous to my visit a temporary increase of the number of persons employed had been found necessary, in order to overtake the work.

VI.—*Slaughter-Houses*.—There are said to be six slaughter-houses in the district, none of which are either registered or licensed. In some instances they are situated in close proximity to houses, and have no water laid on into the slaughter-house itself. The offal and refuse are thrown into the middens. At the time of my visit a slaughter-house was noted in Black Boar Street from which blood was running into the roadway. The byelaws of the Sanitary Authority with regard to this subject do not appear to be enforced in any particular.

VII.—*Common Lodging-Houses*.—These are two in number. They are registered and inspected by the police. One, the largest, was found to be in a most abominable condition—the rooms dirty and over-crowded. This house, which is at present licensed for 75 lodgers, has, according to the surveyor of the Sanitary Authority, only accommodation for 43, taking 300 feet as the minimum space per bed. Some of the rooms at the top of the house were unprovided with any means for ventilation, and the smell and stuffiness were sickening. The out offices were also found to be in a most disgusting state of filth, the closets discharging into a sloppy midden, which in its turn was in juxta-position to the walls of an adjoining dwelling-house.

VIII.—*General Sanitary Administration*.—The Local Government Act was adopted in 1864 for that portion of the district known as Waterloo and Cowpen Quay. The district was extended in 1868 so as to include the village of Newsham Freeholds, and a Provisional Order was granted in 1881 by which the whole of the township of Cowpen was included within the Cowpen Urban Sanitary District. This district as formed up to 1881 is known as the East Ward, and that portion added in 1881 as the West Ward.

Cowpen was inspected by Dr. Airy in 1872 in consequence of the marked prevalence of "fever" during the preceding year. In his report he called attention to (1) the polluted water supply, (2) the want of sewer ventilation, (3) the defective system of excrement disposal and removal, and (4) the want of hospital accommodation. Since that time the Sanitary Authority have provided an abundant water supply,

and for this purpose loans of 8,500*l.* in 1876 and 2,700*l.* in 1878 were sanctioned by the Local Government Board with regard to the East Ward. With respect to the sewer ventilation and to the improvement of the means of excrement disposal, apparently little or nothing has been done, with the exception of the roofing of a few middens, and the removal of some which were in close proximity to, or actually under, houses. With regard to property erected prior to the establishment of a Local Board, it appears that the clerk has hitherto held the view that the Sanitary Authority had not the power to secure the abatement of such nuisances as required structural alterations, and consequently many nuisances have not been efficiently dealt with which exist on such property.

The Tynemouth Rural Sanitary Authority, who before 1881 had sanitary charge of the western portion of the township, effected the sewerage of Bebside and Cowpen village, for which a loan of 1,000*l.* was sanctioned in 1876, and in 1878 a loan of 500*l.* was sanctioned for the water supply of a certain portion of the same district.

With regard to hospital accommodation, the Sanitary Authority pay a small sum annually to the maintenance of the cottage hospital at Blyth, but the Authority have never made any practical use of this provision. The only cases of fever which have been removed to the hospital from Cowpen being pauper cases, the cost of their maintenance has devolved upon the Tynemouth guardians.

There is no apparatus for the efficient disinfection of clothing, bedding, &c. in the district, nor any mortuary accommodation.

The *Medical Officer of Health*, who was only appointed in August 1882, receives a salary of 40*l.* per annum, half of which is repaid from the parliamentary grant. He appears to have made himself acquainted with the sanitary circumstances of his district. He makes a report at each monthly meeting of the Sanitary Authority, and has apparently given the Authority sound advice with regard to many of the defective conditions noted in this report. He receives a regular weekly return of all births and deaths occurring in his district from the registrar, and this is supplemented by an immediate notice of deaths from infectious disease. The former medical officer, who held the appointment from 1874 up to the middle of last year, and who holds similar appointments in the Blyth Urban and Tynemouth Rural Sanitary Districts, had also repeatedly drawn the attention of the Sanitary Authority to the want of drain ventilation, and the nuisances arising from the present system of excrement and refuse disposal, and other matters. These were especially referred to in his annual report for 1881, and the Sanitary Authority at that time requested him to suppress certain passages in his report, bearing upon some of these very points, before forwarding it to the Local Government Board. This course he very properly refused to adopt, as his remarks were fully justified by the facts of the case, and on the question of his re-appointment coming up shortly afterwards, the Sanitary Authority dispensed with his services.

The *Inspector of Nuisances*, who is also the surveyor to the Sanitary Authority, gives his whole time to the duties of these offices. He receives an annual salary of 40*l.* (half of which is repaid from the moneys voted by Parliament) for his services in the former, and 30*l.* in the latter capacity. The present officer has not held his appointment for very long. He has apparently a fair knowledge of his district, but his time is far too much taken up at present in securing the temporary abatement of the ever recurring nuisances, which arise from the present system of filth disposal. It is also doubtful whether in a district of the extent of Cowpen, one officer can efficiently discharge the duties of both Inspector of Nuisances and Surveyor.

The Board possesses a code of *byelaws* with respect to—

- (a.) New streets and building;
- (b.) Slaughter-houses;
- (c.) Prevention of nuisances from snow, filth, &c.;
- (d.) Cleansing of footways, &c.;
- (e.) Common lodging-houses;

which are very much out of date, having been sanctioned by the Home Office as far back as 1865.

The *byelaws* with regard to new streets and buildings are extremely indefinite in what is prescribed, very deficient in numerous respects, and very one-sided, inasmuch as the Local Board may practically demand what they choose, regardless of whether it is necessary or proper; and the form of the *byelaw* is such as in effect to deprive the person aggrieved of obtaining an appeal or hearing on the merits of any particular case of alleged infraction. As examples of the deficiencies of these *byelaws* I may refer to the fact that regulations with respect to space in front of houses, foundations,

whether as regards stability or health, provision of damp course, &c. are conspicuous by their absence, whilst the indefiniteness of the regulations with regard to thickness of walls, flues, ventilation of drainage, construction of waterclosets, privies, ashpits, &c., when compared with the requirements laid down in the model byelaws of the Local Government Board, amounts to grave deficiency.

IX.—*Mortality Statistics and Prevalence of Disease.*—In the subjoined table are given the mortality statistics for the Cowpen* Urban Sanitary District for the 10 years, 1873–82. The population has been estimated in accordance with local information as noted in the first paragraph of this report.

MORTALITY STATISTICS for the URBAN SANITARY DISTRICT of COWPEN,
for the 10 Years, 1873–1882.

Year.	Estimated Population.	Total Deaths from all causes registered in the District.	Total Deaths corrected for Workhouse.	Corrected Death Rate per 1,000 living.	Deaths from							Death Rate from Diseases in Columns 5-11 per 1,000 living.	Births.	Deaths under 1 Year of Age.	Deaths under 1 Year of Age per 1,000 Births.	
					Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	"Fever."	Diarrhoea, Dysentery, &c.					
Columns.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	
1873	-	4,150	183	183	44.1	1	—	52	2	1	8	6	16.9	191	50	262
1874	-	4,200	113	115	27.4	—	—	12	1	—	6	5	5.7	194	27	139
1875	-	5,000	129	133	26.6	—	1	—	—	2	5	6	2.8	246	57	232
1876	-	4,900	108	109	22.3	—	2	9	—	4	—	4	3.9	228	39	171
1877	-	4,800	91	96	20.0	—	—	1	—	—	3	—	0.8	211	27	128
1878	-	4,800	86	89	18.5	—	1	—	1	—	4	4	2.1	178	32	180
1879	-	4,900	101	102	20.8	—	—	16	—	1	1	1	3.9	164	36	219
1880	-	5,000	103	107	21.4	—	2	5	—	2	4	7	4.0	191	29	152
1881	-	5,065	101	105	20.7	—	—	—	—	1	3	3	1.4	233	40	172
1882	-	10,003	197	200	20.0	—	—	1	—	—	8	2	1.1	414	51	123
Mean of 10 years, 1873-1882	5,282		121	124	24.2	0.19	1.13	18.18	0.76	2.08	7.96	7.20	4.3	225	38	178
Mean of 10 years, 1873-1882	Blyth Registration Sub-district -		22.6		0.05	3.00	16.30	1.40	3.05	6.05	8.65	3.8	—	—	—	167
	Tynemouth Registration District -		22.0		0.05	2.48	13.25	0.72	4.77	4.42	10.16	3.6	—	—	—	155
	England and Wales -		20.8		0.79	3.76	6.94	1.27	5.03	4.22	8.45	3.0	—	—	—	145
Rates per 10,000 of the population per annum.																

Upon an examination of this table it will be found that the various conditions which have been adverted to as likely to affect the health of the population have, in fact, had a marked influence on the mortality of the district. The general mortality (24.2 per 1,000 living) is in excess of that for the Tynemouth Registration District (22.0), and nearly 4 per 1,000 above that of England and Wales (20.8), it is, however, in this respect satisfactory to notice that this rate has steadily fallen from 44.1 in 1873 to 20.0 per 1,000 in 1882.

The death rate from fever, which was *enteric fever*, has been 7.96 per 10,000 living. This is the highest death rate from fever throughout the whole union. During the same period of 10 years it was 3.4 in London, 4.5 in the large towns and cities of England, and 4.4 in the Tynemouth Registration District. With respect to the "fever" mortality, we find that, contrary to the usual experience, there has been no falling off in the rate in recent years, as many as eight deaths occurring in a population of 10,000 during 1882, in fact, I was informed by medical gentlemen practising

* It must be remembered that the statistics, with the exception of those for 1882, refer to the original or East Ward portion of the district which has been under the jurisdiction of the Cowpen Local Board for some 17 years.

in the district that enteric fever is endemic in the East Ward, and an examination of the table shows that in only one year (1876) there was no death registered from this cause. Several cases of enteric fever occurred in the autumn of 1882, and with regard to 18 of these, situated in Croft, Wanley, Soulsby, Gladstone, and Clive Streets, I made inquiries personally, and in nearly every case I found such filthy surroundings, and the channels by which the infection might have been conveyed so numerous, that it was impossible to trace the particular one that caused the mischief.

Similarly, the proportion of children dying within the first year of life, to 1,000 births registered, has been greater in Cowpen, during the period under review, than in any other Sanitary District (with one exception) within the Tynemouth Registration District. The death rate amongst children under one year of age, during the 10 years referred to, was 178 per 1,000 of the births registered, or in other words more than one child out of every six born in Cowpen has failed to live out the first year of its existence. The Sanitary Authority should bear in mind that the infant death rate is one of the most sensitive tests of the sanitary circumstances of a district, and is specially increased when infants are exposed to an atmosphere tainted with excremental and other filth.

Scarlatina was fatally epidemic in 1873, when it caused no less than 52 deaths in a population of under 5,000 persons. In 1874, 12 deaths; in 1876, 9 deaths; in 1879, 16 deaths; and in 1880, 5 deaths were registered from this cause. The mean rate (18.18 per 10,000 living) for the 10 years is considerably in excess of that for the whole Registration District (13.25), and nearly three times as great as that for England and Wales (6.94) during the same period, such mortality undoubtedly strongly indicating the necessity for the provision of some means for isolation, and for efficient disinfection in the district.

In the foregoing report I have dwelt especially on the sanitary circumstances of the East Ward, as it is for the condition of this portion of the district that the Sanitary Authority are mainly responsible. Prior to my leaving the district I took the opportunity of showing some of the grosser nuisances noticed in this report to some of the members of the Sanitary Authority, lest it should be supposed that my account of them had been exaggerated.

FRED. W. BARRY.

June 1883.

RECOMMENDATIONS.

(1.) It is important that, with a view to prevent the spread of infectious diseases in their district, the Authority should provide, either by themselves or conjointly with some other Authority, (a) a place for the isolation and treatment of all persons who are suffering from infectious diseases, and who cannot be properly lodged and accommodated in their own homes; (b) some apparatus for the efficient disinfection of infected clothing, bedding, &c.; and (c) a proper mortuary.

(2.) The Sanitary Authority should at once take into consideration what method for the disposal of excrement and refuse, will be best adapted to the circumstances of their district, in place of the midden privies, which, as at present constructed, are a source of nuisance of the gravest kind, and cannot fail to be injurious to health.

In the East Ward, in those parts where efficient sewers and an adequate water supply are at hand, waterclosets may be used with advantage in many cases, particularly where closets are necessarily placed near to dwelling-houses. In cases where fixed receptacles for excrement are retained they should be reduced to the smallest practicable dimensions, and so constructed as to keep out all unnecessary moisture and facilitate the mingling of ashes with excrement.

In the West Ward, where, in consequence of the large supply of coal, the amount of ashes to be disposed of is excessive, some form of pail-closet in which the excreta are collected, apart from the bulk of the dry refuse, may not improbably be found preferable.

All privies that cause nuisance should be efficiently dealt with as such.

(3.) No refuse from midden privies should ever be used for filling up sites which may be built upon. No such sites now containing such deposit should be built upon until all material impregnated with animal or vegetable matter shall have been properly removed by excavation or otherwise from such site.

(4.) No unnecessary delay should be allowed to occur in carrying the town water into every portion of the district not having a proper supply. In the outlying districts skilled advice should, if necessary, be sought as to the best means of carrying out this recommendation.

In view of the occasional intermissions which must be expected to occur in the professedly constant water service, arrangements should be made for admitting air freely into the mains during periods of intermission. All polluted supplies should be dealt with in accordance with section 70 of the Public Health Act, 1875.

(5.) The sewers should at once be freely ventilated by means of properly constructed ventilators. On this subject the Authority should consult the official "Suggestions as to plans for main sewerage, drainage, &c." Private drains should also be ventilated and disconnected from the interior of the houses. The system of sewers should also be improved and extended so as to provide effectual means of sewerage to all parts of the district.

Effectual means should be taken in conjunction with the Blyth Urban Sanitary Authority to prevent the nuisance which is at present caused by the noisome condition of "The Slake," either by filling it up or by diverting the sewers which have their outfall into it.

(6.) In all cases where nuisance arises from the ill-paved and uneven condition of back streets and common court yards, the Sanitary Authority should take steps to cause such streets or yards to be properly levelled, channelled, and repaired or paved.

(7.) The Sanitary Authority should give their earnest attention to the abatement of the many grave nuisances, excremental and other, existing within the district, and to this end should cause diligent inspection of it to be made, and should enforce the abatement of all conditions causing nuisance or injury to health which may be discovered within it. Where nuisances are caused or aggravated by the want, or bad construction, of structural appliances, or are of a kind likely to recur, the Authority should not be content with the mere abatement of them for the time being, but should require, and, if necessary, seek for a justice's order to enforce the execution of such works as may be necessary to prevent the recurrence of the nuisance.

(8.) The very important provisions of the Public Health Act of 1875 with regard to common lodging-houses should be carried out in their entirety, and the Sanitary Authority should take care that all houses which are so used are duly registered, that unfit houses are excluded from the register, and that all the provisions of the Act or of the byelaws of the Authority itself respecting such houses are duly and systematically enforced.

(9.) All existing slaughter-houses should be registered, and then strictly subjected to the byelaws relating to them. Any which are then found to constitute a nuisance should be dealt with as such. Any new slaughter-houses should be duly licensed, and no new ones should be sanctioned within the populous portions of the district. The provision of a public slaughter-house also deserves the consideration of the Authority.

(10.) With a view to securing the more efficient inspection and removal of nuisances than is at present possible, the Inspector of Nuisances should perform the duties specified in the Board's Order of March 10th, 1880, and no duties other than those which properly appertain to an Inspector of Nuisances should be laid upon him.

(11.) With a view to the adoption of some of these recommendations, and to facilitate the efficient sanitary administration of the district, the Authority should revise their byelaws, and in effecting this revision they should consult the Model Code issued by the Local Government Board.