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BOROUGH OF NEWCASTLE-UPON-TYNE.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

SANITARY CONDITION

OF

NEWCASTLE-UPON-TYNE,

WITH.

TABULAR RETURNS, DIAGRAMS, &c.,

OF THE

SICKNESS AND MORTALITY

DURING

THE YEAR, 1873.



A. REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.

1874.

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NEWCASTLE-UPON-TYNE:

ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.

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Map of Scarlet Fever.

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Chairman and Members of the Sanitary Authority

OF THE

BOROUGH OF NEWCASTLE-UPON-TYNE,

Gentlemen,—The death-rate of Newcastle during 1873 is, as appears by Table IV., 30·1 per 1,000 of living population, as estimated by the Registrar-General.

The rate of mortality from the seven principal Zymotic Diseases, viz., Small-pox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever, and Diarrheea, is 6.8 per 1,000 population. The rate of mortality of children under 1 year of age is 7.8 per 1,000 population.

The mortality of Newcastle is compared with that of other large towns in Tables V. to VII. inclusive.

The coloured Diagrams, and Tables VIII. to XIII., shew comparison of the health and ages at death of the population in the different districts of the Town at successive periods of 1873 and during the entire year.

In actual numbers the deaths from all causes have averaged 155 per fortnight. The maximum (190) was attained on each of the fortnights ending respectively August 23rd and September 6th. The minimum (122) occurred on the fortnight ending June 14th.

DIARRHEA.

The chief factors in the death-rate for this period have been Diarrhoea and Scarlet Fever; the former of these was excessive during August and the three first weeks of September. Above 23 per cent. of the deaths from all causes during these weeks was due to this cause alone.

The Table of Miasmatic Deaths (No. IX.) shews the number of fatal cases of Diarrhoea during the year, and their proportion to the population of each Registration Sub-district of the Town. The fortnightly Diagram illustrates the rapid rise and as sudden fall of the death-rate from this disease.

SCARLET FEVER.

As the mortality from Diarrhoea subsided, that from Scarlet Fever began to increase with great rapidity, and during the last seven fortnights of the year formed upwards of 18 per cent. of the general mortality.

Scarlet Fever has been prevalent during the whole of 1873, and excessive during much of the year.

Having been Resident Medical Officer of the Newcastle Dispensary until taking duty as Medical Officer of Health in September last, I have had the opportunity of watching this epidemic during much of the past year. Through the courtesy of my successor at the Dispensary, Mr. Geo. Tennant, who has kindly furnished much of the statistical information on the subject, I have been able to complete the coloured Diagram of Scarlet Fever, and to give on the Map the localities of cases of that disease under Dispensary treatment throughout the year.

THE PRINCIPAL CAUSES OF THE DEATH-RATE.

The present is not a fitting occasion to treat of the cause of death in its fullest sense, but opportunity is here presented to draw attention to a certain portion of the subject, the consideration of which is peculiarly the function of the Sanitary Authority, whilst the duty of bringing it forward especially belongs to the Officer of Health.

MIASMATIC DISEASES.

The portion to which I allude refers to diseases dependent not only on the negligence of individuals but occurring as the result of general sanitary imperfection and public violation of the laws of health. Under this head are to be considered the Miasmatic order of Zymotic affections, among which Small-pox, Measles, Scarlet and other Fevers hold important places. Each of these diseases is, in every case, the direct result of the introduction into the body of a specific poison which might have been kept out.

No case of either of the disorders above-mentioned ever happens spontaneously. Small-pox, Measles, and most of the Fevers are propagated by contact with an infected person or his apparel, &c. It is extremely difficult—often impossible—to trace contagion, especially in certain of the more "catching" Miasmatic diseases as, e.g., Scarlet Fever, yet the appearance of Scarlet Fever in the individual invariably depends on contagion from an infected person or infected discharges.

Diarrhœa, and probably Enteric Fever, are conveyed in a somewhat

different manner. Several individuals in a family may suffer at the same time from one or other of these complaints. This is no proof of contagion or yet of spontaneous origin. The poison of the disease has come from without, and will probably be explained by enquiry directed to the supply of water or milk, or the condition of the outlets from drains, &c.

It may almost be taken for granted that whenever an epidemic prevails there is some tangible cause to account for it. The converse of this also holds good, as the experience of the past year proves with regard to Typhus Fever, a disease universally recognised as the peculiar result of room-overcrowding. The recent inspection of tenements shews that in very few instances has the regulation limit of 300 cubic feet been exceeded; and, as might have been expected, Typhus has been scarce; indeed the statistics of both Dispensary and Fever Hospital shew that, as regards Typhus, the town has probably not enjoyed a healthier year than 1873 during the present century.

Above 24 per cent. of the deaths in the Borough during the year consist of Miasmatic diseases. This proportion of preventible diseases from which we suffer is excessive, and it is chiefly to Scarlet Fever that the preponderance in this class is due. By the Map which accompanies this Report it will be seen that the following Streets, &c., have suffered severely from Scarlet Fever:—Elswick East Terrace, Blandford Street, Temple Street, Centre Street, High Pitt Street, Stowell Street, The Friars, Rosemary Lane, the foot of Westgate Street, the Courts at the lower part of Pilgrim Street, Silver Street, and New Road and neighbourhood.

EFFECT OF SEWER GASES.

The elevated position of the Township of Westgate, considered in connection with the scanty rainfall during 1873, will doubtless help to account for the fact that a very large, if not the greatest, proportion of the cases of Scarlet Fever have occurred in this portion of Newcastle. From the decomposition going on in the sewers during the late exceptionally dry season, the gases naturally ascend to these higher streets, and from the condition of much of the tenement property in this locality, find ready access to the interiors of the houses.

Under your instruction the Borough Engineer has recently added several hundreds of Ventilators to the Sewers; this cannot fail to benefit the Public Health; indeed Scarlet Fever has declined considerably since their introduction.

DRYNE'S OF SEASON.

Not only is the want of rain made apparent in the manner already mentioned; the atmosphere, like the sewers, needs washing. The central streets and localities at a low level, where the air is apt to stagnate, and to which the carbonic acid and other impurities gravitate, suffer from dry weather as well as the higher streets, though from a different cause.

The supply of water for domestic and general use has also been affected by the scanty rainfall during the past year, as well as by the concurrent prevailing high winds, as was shewn to you in a special Report on the subject. Indeed, from the above-mentioned and other circumstances, a wet season will probably prove more healthy for Newcastle than the reverse.

CLOSENESS OF DWELLINGS.

An important condition affecting vital energy by means of the atmosphere is the amount of air-breathing space enjoyed by each person. This of course depends upon two states of overcrowding, individual and general. The vigilance of the Inspector and Sub-Inspector of Nuisances has, as has already been shewn, prevented the overcrowding of individuals to any great extent, with the good effect of reducing Typhus almost to a minimum. There is, however, an amount of overcrowding on the large scale, such as no Inspector of Nuisances can deal with, which concentrates the poison of all atmospheric Miasmata, while at the same time it robs the individual of the constitutional power to withstand them. By Table III. (which, although in some particulars merely an estimate, is constructed from the Census Tables and from information obtained at the Office of the Borough Engineer, and is sufficiently accurate for purposes of comparison) it appears that the Townships of Westgate and All Saints' have by far the largest population both of houses and persons to space built upon, and it is in those very localities that Scarlet Fever has been most prevalent during this epidemic. St. Andrew's and Jesmond, on the other hand, have the smallest number of houses and persons to built space, and have suffered least. The Township of Byker has suffered rather heavily in proportion from Scarlet Fever; this is probably in great part accounted for by the number of persons and houses to each acre of built space.

In such densely populated places as these, the difficulty of securing a vacant tenement of any kind is great, and to workmen with children (who need fresh air most) more so than to others, since the demand enables landlords to chose their tenants. Hence the labourer without a family often gets the best rooms, whilst he with a large one has to be

satisfied with the best he can get, even at the risk of overcrowding his family.

The evil of overcrowding in individual houses and tenements is generally acknowledged. In this Borough the regulations require that every person shall have 300 cubic feet of breathing space in the dwelling he occupies. It is obvious from what has been said that the sanitary action of this regulation must be unequal: that what is a fair amount of house-breathing space for an individual in one part of the town, is by reason of the impurity of the air from lowness of elevation or overcrowding on the large scale, absolutely insufficient in another.

The consideration of this question in its social and moral aspect is perhaps inadmissible to the pages of a Report on the Public Health. It is, however, within the scope of such a Report on these grounds to recommend the provision of a large amount of air space both within and around the dwellings of the poor; for as surely as overcrowding is a principal cause of the diseases of nutrition which so greatly swell our death-columns under the head of Atrophy and Debility, so also does it favour in the survivors that defective nutrition and development of brain which leads to crime.

PAVING, &c.

Of late years large numbers of new streets have been efficiently paved, flagged, and sewered. Newcastle is increasing rapidly, yet notwithstanding this and other difficulties of carrying out such important sanitary operations, you have shewn a thoughtfulness for the health of the inhabitants of this Borough that will tell for good in after years, in causing no less than 29 streets to be completed during 1873. These, as is natural, lie chiefly in the outskirts. In the more central parts of the town and elsewhere several streets still remain unpaved. I have furnished you with a list of these, and am glad to say they are at present under the consideration of your Committee.

HABITS OF THE PEOPLE AND CONDITIONS OF DWELLINGS, &c. AFFECTING HEALTH.

That many forms of disease depend on the habits of the people and the unwholesome state of their abodes needs very little proof; but as an enquiry into the causes of the death-rate should include some consideration of this question, I have endeavoured to gain information relative thereto from the returns furnished by the Inspector of Nuisances, which are tabulated for comparison with the Table of Deaths in the different classes of disease.

SUMMARY OF NUISANCES REMOVED FROM THE 1st SEPTEMBER, 1872, TO THE 31st DECEMBER, 1873,

Including the following cases under the Nuisance Removal Act :-

Rooms closed unfit for human habitation.

Rooms Whitewashed, Purified, and Repaired.

Yards, Passages, and Staircases cleansed. Dilapidated Privies and Ashpits repaired. Defective Drains and Gutters cleansed and repaired.

Swine and other Animals removed.

Water Closets cleaned and repaired,
Overcrowding.
Defective Waterspouts repaired.
Water Supply.
Branch Drains.
New Water Closets, Privies, Ashpits.
Stagnant Pools and accumulations of filth.

The number of Nuisances and the proportion borne by each Township and sub-district are as follow:—

Tows	smrs.		Average Number of Houses in Township to each Nuisance.	Borough portions of Registration Sub-Districts.	Average Number of Houses in Registration Sub- District to each Nuisance.	Number of Nuisances
Elswick St. John's . St. Nicholas' All Saints' . St. Andrew's Byker			$\begin{array}{c} 1.7 \\ 2.1 \\ 1.1 \\ 1.3 \\ 2.0 \\ 2.6 \\ 6.4 \\ 41.3 \end{array}$	Westgate St. Nicholas All Saints' St. Andrew's Byker	1·9 { 1·2 { 2·0 2·6 23·8 {	1,742 1,774 796 784 1,970 1,012 267 13
Total avera	age in B	orough			2.1	8,358

This Table does not throw much light on Zymotic and General Disease, for although the number of Nuisances in Byker, compared with the houses, was very small, yet the death-rate from Zymotic affections in that district, as is shewn by the Table of those diseases, was highest of all, as would probably be that of the general death-rate, were we able to distribute the cases of the Infirmary to the respective sub-districts from which they came.

The calculations are of use, however, in helping to explain the greater number of Constitutional and perhaps also of the Developmental classes of disease in certain sub-districts. Nuisances were most numerous in proportion to houses in the sub-districts of Westgate and St. Nicholas; and so was the proportion of deaths to population from these classes of disease. The incompleteness of this list as a means of explaining disease depends partly on the want of details which do not come under the supervision of the Nuisance Inspectors—such as domestic habits, &c., &c., many of which are known to be injurious to health, but are not available for purposes of classification or comparison.

HOUSE DRAINAGE.

Too high a sense can scarcely be entertained of the necessity, especially in outlying and rapidly-increasing districts of thorough inspection of all branch drains and their connexions at each end, before their closing in is sanctioned by the Officers of the Corporation. Even in some better-class houses the branch drains are laid down apparently without any regard to the purpose they should serve. Where, as may readily happen, junction of the pipes is incomplete, or where none exist, or where sufficient fall is not provided to the branch drain, the benefit of a main sewer is thrown away, and the danger to health becomes incalculable.

These and other defects would be prevented for the future, provided the Town Improvement Committee had power to lay the branch drains and charge the cost to the owners.

I have, in another place, brought this question before you, and understand that it will be dealt with in the new Bye-laws, which are in course of formation.

The list of conditions injurious to health here given, though tolerably extensive and more than enough to account for the death-rate, is far from complete. That some of the Tables and calculations have failed to show what might have been expected of them, is not altogether surprising. The factors of any death-rate are so numerous that it is rarely possible to specify any single cause as exceptionally prominent, or even to estimate the proper share of each in a given locality. For example, as the Map shows, Scarlet Fever has been extremely prevalent in Temple Street. Our house-to-house inspection did not afford us any special reason for this; many of the rooms were dirty, the yards were small and not well kept, the back street narrow, and at the time of inspection in need of the scavenger. But these are conditions generally existing in such places, and do not account for the special virulence of Scarlet Fever in that particular locality.

In the foregoing list many causes of the death-rate have doubtless escaped notice. There are also influences powerful in the production of

disease and the shortening of life which belong rather to the moral than the physical sanitarian, and whose effect though undoubted, can be but vaguely estimated. Foremost among them are to be considered the Engineers' Strike of two years ago, and the prevalence of Drunkenness. Some proof of the extent and ill effects of Drunkenness in this Town is afforded by the Governors of the Newcastle Infirmary, who report that 367 cases of accident to intoxicated persons received treatment in that Institution during the twelve months ending March, 1874. I believe the privation to which the wives and children of operatives were exposed during the late strike, and the dissipation consequent on the high wages and short hours of others since that time, have helped considerably to impair the constitutional vigour both of adults and of children—rendering them an easy prey to disease.

I have prepared a list of recommendations in connexion with this Report which will come before you in a separate form.

Before concluding, I beg to acknowledge my obligations to you for your courtesy and personal kindness to myself. I also take this opportunity to express my thanks to the Officials of the Corporation, with whom I have been brought in contact, for the assistance and politeness I have met with from one and all.

I have the honour to be,

GENTLEMEN,

Your obedient Servant,

HENRY E. ARMSTRONG, M.R.C.S.E., &c.,

MEDICAL OFFICER OF HEALTH.

Town Hall, Newcastle-upon-Tyne, May 11th, 1874.

BOROUGH OF NEWCASTLE-UPON-TYNE.

1873.

TABLE I.-AREA.

Registration Sub-Districts.	Acres.	Estimated built space in acres.
Westgate (including Elswick, excluding Benwell and Fenham) St. Andrew's (Township) St. Nicholas' (including Townships of St. Nicholas	1,032 1,440	510 240
and St. John) All Saints' (part of Township)	131 210	118 220 (entire Township
Byker (including Township of Byker, Heaton, and Jesmond, with 70 acres of All Saints' Township)		200 (Township of Byker and Jesmond)
Total	5,371	1,288

ELEVATION.—According to the maps of the Ordnance Survey the elevation varies from 12 feet above high water mark (the Quay) to 355 feet (Union Workhouse). The following are the elevations of certain localities:—

	Feet.	Inches.		Feet.	Inches
Byker Hill	192		Infirmary	120	
Lawson Street, Byker	122		Nursery Cottage, Scots-		
Ouseburn, Lead Works	21		wood Road	104	
Franklin Street, Shield-			WestgateRoad, at Elswick		
field	143		Lane	251	
Brandling Place	176		Ditto, at Clayton Street	144	5
Barras Bridge	156		Ditto, foot	97	
Foot of Grey's Monument	148		Barracks	281	5

TABLE II .- Houses.

Municipal Divisions.		Inhabited Houses at Census, 1871.	Houses Built from time of Census, 1871, to end of February, 1874.	Total,
1.—Elswick	 	3,523	350	3,873
2.—Westgate Township	 	3,020	90	3,110
3.—St. Andrew's Parish	 	2,613	85	2,698
4.—St. John's do	 	910	14	924
5.—St. Nicholas' do	 	552	7	559
6.—All Saints' do,	 	3,890	140	4,030
7.—Byker Township	 	1,368	370	1,738
8.—Heaton do	 	82	30	112
9.—Jesmond do	 	502	35	537
Total	 	16,460	1,121	17,581

At the census of 1871 the number of inhabited houses was 16,460, containing an average of 7.8 persons to a house, an increase of 2,481 houses since the census of 1861.

From the census of 1871 to March 1874, 1,121 houses have been built, giving a total of 17,581 houses, which, considering them all occupied, contain an estimated average of 7.6 persons to each house.

The chief increase of houses took place in the outlying registration sub-districts of Westgate and Byker. Up to the census of 1871, in the former of these sub-districts the increase was at the rate of 30.6 per cent., and in the latter at the rate of 29.5 per cent. on the number in each at the census of 1861. During the three years following, the houses in the sub-district of Westgate are estimated to have increased at the rate of 6.7 per cent. on the number enumerated at the census in 1871. During the same period Byker sub-district is estimated to have increased at the rate of 21.1 per cent. on the number at the census of 1871.

The inhabited houses within the registration sub-districts of St. Andrew's and All Saints' increased from the census in 1861 to that in 1871 at the rate of 9.8 and 8.2 per cent.; during the past three years they are estimated to have increased at the rate of 3.2 and 3.6 respectively.

In the registration sub-district of St. Nicholas (including the Township of St. John's) the number of inhabited houses decreased at the rate of 9.9 per cent. between the census of 1861 and that of 1871; during the three years following an estimated increase of 1.4 per cent. has taken place. The calculations on the period subsequent to the census of 1871 are merely approximative, no means being afforded of computing the number of houses closed for habitation since that date.

TABLE III .- DENSITY.

BOROUGH Registration Sub-Dist	Esti	mated Number of Person Acre of built space.	Number of Persons to a House.	Estimated Number of In- habited Houses to each Acre of built space.	Corrected Rate of Deaths from Miasmatic Diseases per 1,000 In- habitants in each Sub- District.
Westgate (excl Benwell and F St. Andrew's St. Nicholas' All Saints' (& T Byker and Jesm Heaton	Cenham (7: 7: 10: Cownship) 14:	4 St. Nicholas St. John's 4 Syker Jesmond	 8 {8·2 7 8 {8 7 6·3 {6·5 6·1 3 8	$\begin{array}{c} 13.6 \left\{ \begin{array}{c} 17.2 \\ 11.7 \\ 11.2 \\ \end{array} \right. \\ 12.5 \left\{ \begin{array}{c} 14.7 \\ 11.5 \\ \end{array} \right. \\ 18.3 \\ \ldots \\ 11.3 \left\{ \begin{array}{c} 14.4 \\ 6.7 \\ \end{array} \right. \\ \ldots \\ \end{array} \right. \end{array}$	7·3 7·0 } 8·4 8·5 } 9·3

The out-lying Township of Heaton, which consists chiefly of scattered dwellings, is here separated from the registration sub-districts to which it belongs.

PERSONS TO EACH ACRE OF EACH REGISTRATION SUB-DISTRICT.

Registration	Persons to an acre.				
Westgate (excluding	Benwell	and	Fenhan	n)	53.7
St. Andrew's					13.1
St. Nicholas'					93.0
All Saints' (part of)					133.0
Byker					6.9
Average in en	tina Pos	lonal	1		24.7

TABLE IV.

POPULATION (estimated by the Reg middle of the year)		ieneral	to the	133,246
				1000
BIRTHS (in the 53 weeks ending Janu Annual rate of Births per 1,000 liv				5,652
Deaths (in the 53 weeks ending January Annual rate of Mortality per 1,000			on, 30·1.	4,059
EXCESS of registered Births over Deat	hs .			1,593
ESTIMATED increase of Population				1,933

TABLE V.

Annual Death Rate per 1,000 living in Newcastle for the past Four Years, Compared with the average rate in 21 Towns of the United Kingdom, is as follows:—

	18	70.	18	71.	18	72.	18	73.
First Quarter Second ,, Third ,, Fourth ,,	23.2	Annual Rate in New-castle. 28.3 22.8 27.0 23.6	Annual Average in 21 Towns. 29.0 24.8 25.9 27.8	Annual Hate in New- castle. 28.0 32.4 37.7 31.0	Annual Average in 21 Towns. 26.8 23.6 24.1 23.0	Annual Rate in New-castle. 28.0 24.1 27.1 26.2	Annual Average in 21 Towns. 25.6 22.7 23.8 25.4	Annual Rate in New castle. 29.4 27.0 29.9 33.4
Annual Rate	25.8	25.4	26.9	32.2	24.3	26.3	24.3	30.3

TABLE VI.

PER CENTAGE OF INFANTILE AND SENILE DEATHS TO TOTAL DEATHS IN EACH QUARTER.

		Average in 18 Large Towns.	Average in Newcastle.	Average in 18 Large Towns.	Average in Newcastle.
		Under 1	Year.	Over 60	Years.
First Quarter	 	 22.9	24.2	24.6	18.5
Second ,,	 	 24.0	22.0	20.9	17.0
Third ,,	 	 37.0	34.7	15.1	12.7
Fourth ,,	 	 24.2	22.8	20.7	14.5

TABLE VII.

DEATHS OF CHILDREN UNDER 1 YEAR AND PERSONS OVER 60 YEARS, IN NEWCASTLE, IN 1873.

			Number of	DEATHS.
			Under 1 Year of Age.	Over 60 Years
First Qu	arter	 	 236	181
Second	,,	 	 198	153
Third	"	 	 345	126
Fourth	,,	 	 271	173
	Total	 	 1,050	638

TABLE VIII.

RETURN OF DEATHS IN THE DIFFERENT CLASSES OF DISEASE PER 1,000 OF POPULATION IN EACH REGISTRATION SUB-DISTRICT.

Registration Sub-District.	Westgate (W)* ex- cluding Benwell and Fenham.	St. Andrew's	St. Nicholas. (V. H.*)	All Saints'.	Byker,
Population (estimated to middle of 1873)	55,659	18,950	12,189	28,119	17,872
CLASS.	7.0	7.0	0.1	0.5	0.0
I.—Zymotic†		7.0	8.4	8.5	9.3
II.—Constitutional		3.6	5.8	4.5	3.9
III.—Local		9.3	17.8	12.1	12.2
IV.—Developmental	4.3	3.5	5.2	4.4	4.6
VViolent Deaths	0.5	0.5	5.2	1.1	1.1
VIViolent Deaths not classed	0.0	0.0	0.0	0.0	0.0
Sudden causes unascertained Causes not specified	0.2	0.3	0.5	0.3	0.2
Total	28.5	23.8	45.7‡	30.4	31.4

^{*}H (Hospital). *W (Workhouse). *V (Vagrant Ward).

[†] The deaths in the zymotic class are corrected by the distribution of those occurring at the Fever Hospital to the sub-districts from which they came.

[‡] The high death rate in this sub-district is explained by the deaths in the Infirmary, 157 in all, of which 99 occurred in persons not belonging to the Borough. In the Vagrant Ward also 14 deaths occurred, 5 were previously non-resident in the Borough.

TABLE IX.

RETURN OF DEATHS FROM MIASMATIC DISEASES FOR THE 52 WEEKS ENDING DECEMBER 27TH, 1873, CORRECTED BY DISTRIBUTION OF THOSE OCCURRING IN THE FEVER HOSPITAL TO THE REGISTRATION SUB-DISTRICTS, &C., FROM WHICH THEY CAME.

	Number in entire Borough.	Westgate	St. Andrew's	St. Nicholas.	All Saints',	Byker.	Beyond the Borough
Total Miasmatic deaths	. 975	390	115	95	213	160	2
INCLUDING Scarlet Fever	. 452	192	36	34	115	75	
Diarrhoea	0.0	85 27	39 11	25	54	38 14	
Measles Enteric Fever	* 4	23	7	6	13	4	1
Whooping Cough	90	8	3	6	8 2	7 6	";
Other Miasmatic diseases	710	51	18	16	15	16	
Total Miasmatic deaths per 1,000 population of each sub-district	7.4	7.	6.	7.7	9.7	8.9	
Deaths from Scarlet Fever per 1,000 population in each sub-district	3.4	3-4	1.4	2.7	4.1	4:1	
Deaths from Diarrhoea per 1,000 population in each sub-district	1.8	1.5	2.5	2.0	1-9	2.1	

For comparison with the present epidemic of Scarlet Fever, the following details are given of the outbreak of the same disease in 1866 to the end of December:—

Registration Sub-Distri Westgate	cts.	 		 	Deaths, 153
St. Andrew's		 		 	84
St. Nicholas'		 	***	 	44
All Saints'		 	***	 	166
Byker		 		 	53
			Total	 	500

The epidemic of 1866 began about the month of August and continued till the beginning of the following spring. The above statistics refer to 1866 only. The present epidemic has spread over the entire year.

TABLE X.
BIRTHS AND DEATHS IN THE DIFFERENT QUARTERS OF THE YEAR.

					Births.	Deaths.
First Quarter	***				1,413	977
Second Quarter					1,433	898
Third Quarter					1,347	994
Fourth Quarter, end	ing 3r	d Janu	ary, 18	74	1,459	1,190
Tota	ıl				5,652	4,059

18

TABLE XI.

DEATHS FROM ALL CAUSES IN EACH SUB-DISTRICT ACCORDING TO ORDER OF CLASSIFICATION OF THE REGISTRAR GENERAL.

CLASSIFICAT	ION OF	THE L	POINT	MAR OF	IN EIGHT		
	Westgate	st Andrew's	St. Nicholas	All Saints.	Byker.	To	TALS.
ORDER	Number of Deaths	Number of Deaths.	Number of Deaths.	Number of Deaths.	Number of Deaths.	Deaths from all causes,	Per-centage of Total Deaths in each of the different orders to total deaths from all causes,
CLASS I.		-					
ZYMOTIC DISEASES,							
1. Miasmatic	388	113	108	207	160	976	24.2
2. Enthetic	14	2	8	3	4	31	0.8
3. Dietic	9	6	12	6 216	2 166	35	0.8
CLASS II.	-111	121	120	210	100	1012	200
CONSTITUTIONAL DISEASES.							
1. Diathetic	40	13	14	13	9	89	2.0
2. Tubercular	200	56	57	115	61	489	12.1
CLASS III.	240	69	- 71	128	70	578	14.3
LOCAL DISEASES.							
1. Diseases of Nervous System	274	63	76	161	88	662	16.4
2. Diseases of Organs of	65	22	37	36	26	186	4.5
Circulation				00			10
3. Diseases of Respiratory Organs	206	67	58	101	70	502	12.5
4. Diseases of Digestive Organs	82	18	25	32	24	181	4.4
5. Diseases of Urinary Organs	23	5	13	4	4	49	1.0
6. Diseases of Organs of	10	1	3	5	6	25	0.6
Generation							
7. Diseases of Organs of Locomotion	1	1	2	1		5	0.1
8. Diseases of Integumen-	8		3	3	1	15	0.3
tary System	669	177		343	219	1625	40.3
CLASS IV.			211	010	215	-1020	40 5
DEVELOPMENTAL DISEASES.		1	-				
1. Diseases of Children	32	9	11	13	11	76	1.8
2. Diseases of Adults	8	1	2	4	1	16	0.4
3. Diseases of Old People 4. Diseases of Nutrition	70 131	27 31	10 41	34 75	14 57	155 - 335	3·8 8·3
4. Diseases of Nutrition	-241					582	14.4
CLASS V.							-
VIOLENT DEATHS.	01		70	0.0	00		
1. Accidents and Negligence	24	11	70	26	20	151	3-7
2. Homicide 3. Suicide	3		i	6		10	0.09
4. Executions						***	
	- 31	11		32	20		- 0.3
Violent Deaths not classed							
Sudden Deaths (causes un-	,	,		0			0.0
ascertained)	1	1	1	3		9	0.2
Causes not specified	13	5	3 ~	7	4	32	08
	14	- 6	7	10	- 4	41	1.0
Total	1606	452	•558	855	562	4033	
	-				-		

^{* 101} of these cases came beyond the Borough; 99 died in the Infirmary, and 2 in the Fever Hospital.

TABLE XII .-- Ages AT DEATH.

	Westgate.	St Andrews	St Nicholas.	All Saints.	Byker.
Under 6 Years	795	200	211	468	318
6 Years and under 20 Years	124	39	48	82	59
20 ,, ,, 40 ,,	202	62	123	96	60
40 ,, ,, 60 ,,	179	63	110	98	58
60 ,, and above	306	88	66	111	67
Total (all ages) dying during the 52 weeks ending Dec. 27, 1873, 4,033.	1,606	452	558	855	562

TABLE XIII.

DISEASES OF CHILDREN DYING UNDER ONE YEAR OF AGE.

	-							1	REGIST	BATION	SUB-	DISTRI	CTS.
CLASS		-	CAUSE	OF DEAT	гн.			Westgate.	St Androw's.	St. Nicholas' and St. John's.	All Saints.	Byker,	Total.
	1		OP	DER 1.									
	Н	Measles						6	2		4	3	15
	Н	Scarlet Fever							3	2	7	6	28
	Н	Diphtheria										1	1
	il	Croup						2		1		3	6
ES	П	Whooping-co	ugh					7	1	1	2	3	14
AS	П	Simple contin	nued I	Fever							1		1
SE	П	Erysipelas			***	***	***	4					4
ā	П	Carbuncle		***							1		1
0	Н	Diarrhœa			***	***	***	48	20	12	28	27	135
H.	1	Rheumatism				***				1			1
I,—Zymotic Diseases.		Syphilis	OR	DER 2.				7	3	5	3	4	22
1	П	Sypunis			***	•••	***		0	0	0	*	22
H			Op	DER 3.						-		-	
	П	Want of Bres						4					4
	1	Purpura and						i					1
	П	z arpana ana	-cut	•				-					-
	П		OR	DER 4.									
	П	Thrush			***				1	***		1	2
	1							-89	-30	-22	-46	-48	23
ni.	1		OR	DER 1.									
GES		Dropsy						1					1
HY	H	A STATE OF THE PARTY OF THE PAR											
IS IS	П	Name of Street	OR	DER 2.									
OA .	{	Scrofula	***			***				1			1
66	1	Tabes Mesent	erica		***	***		20	3	5	12	9	49
II,—CONSTITU- IONAL DISEASE	1	Phthisis		***	***	***		4					4
II,—CONSTITU-	1	Hydrocephalt	15				***	7	1		4	4	16
F	1							-32	- 4	- 6	-16	-13	- 7
		Comi	A f	brond				101	94	28	62	61	30
		Carrie	ed for	waru	***		***	121	34	28	02	01	30

TABLE XIII.—CONTINUED.

DISEASES OF CHILDREN DYING UNDER ONE YEAR OF AGE.

F			REGISTRATION SUB-DISTRICTS.
	CLASS.	CAUSE OF DEATH.	Westgate. St. Andrew's St. Nicholas' St. John's. All Saints. Byker.
		Brought forward	121 34 28 62 61 306
	III.—Local Diseases,	ORDER 3. Laryngitis	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	l	Intussusception	4 1 5
	IV.—DEVELOP. MENTAL DIS.	Spina Bifida	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
	OLENT 18, &c.	ORDER 1.—(ACCIDENT OR NEGLIGENCE.) Burns and Scalds Suffocation Otherwise ORDER 2.—(HOMICIDE.)	1 1 1
	V.—VIOLENT DEATHS, &C.	ORDER 4. Sudden Deaths (Cause unascertained) Causes not specified or ill-defined	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
		DEATHS under 1 year per 1,000 Popula- tion in each Sub-district, &c	7.6 5.1 9.9 121 241 167 1,050 8 5 9.3 7.8

TABLE XIV.

LOCALITY OF SCARLET FEVER, ENTERIC, AND TYPHUS FEVERS.

LOCALITY.		t ter.	-						ER.	2000			
cotswood road	-	1st Quarter.	2nd Quarter	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	frd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	ård Quarter.	4th Quarter.
cotswood road							1						-
	***					1				****	***		***
		6	***	***	2	***			1	***		***	
Churchill street		2	1	***	1 2		***	1	***	***	***	***	
litford street		3			1			1				***	
Vellington street		1		2	1000					***	***		
ancaster street	***	1 3	2	57-3	7	***		***	****	***	***		
Blandford street		75	100		1000					***	1		
Churchill cottages	•••	1	9	2	1	1							***
Derby street			-	1000	0.550	. 5					***		
Barrack square	•••	1	***				***			***			***
Herbert street		2			"				***	***			
Snow street			***		1		***			***			
Cempest street	•••	1					***	1	***	***	***	***	***
Hamilton street	***	1									***	***	**
underland street	***	1			1	***		***	***	***	***		
Moor street	***					1						***	
Hedley street	***	1			1	***		***				***	
Hill street		1	1		***					***	***	***	
Noble street					2	1							
Back Boundary stree		1	***	***		***							
Elswick east terrace		- 12		2	1			***		***		***	
Railway terrace		101	***		***					***		***	
Duke street										***			
Elswick villas	***		***			***		***	**			***	
Crispin street	***	1	1	***	***			***	***				
Diana street			***	***	1	1		***	***				
Frove street		1			2								
Buckingham street	•••		1					1					
Blenheim street	•••	1	***		5						***		
deorge street			4	2	2	1				***			
Victoria street							***			***			
Dene terrace		1								****		***	
Marlborough street					***		1			***		***	
Pottery lane			1					2					
l'ulloch street	***		1		3					***	1	***	
ycamore street					2				1				
Stone street					3								
Back George street			2										
New mills			1										
Lyneside terrace			3										
John street			1		2					***			
High Pitt street			1		1								
De Grey street	***				2								
Scotswood				***			1			***			
leynham street			1		1								
I weed street					1							***	
Portland terrace				1									
Garden street				2									
			-	-	-	-	-	-			-	-	-

LOCALITY OF SCARLET FEVER, ENTERIC AND TYPHUS FEVERS.

DEATHS I	N WI	estg.	ATE	SUB-	DIST	RICT-	— Cor	ıtinu	ed.			
	SC.	ARLET	FEV	ER.	EN	TERIC	FEV	ER.	T	PHUS	FEV	ER.
LOCALITY.	1st Quarter.	2nd Quarter	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	Srd Quarter.	4th Quarter.	lst Quarter.	2nd Quarter,	3rd Quarter,	4th Quarter.
Brought forward	42	23	11	45	6	3	5	2		2		
Railway street						1						
Alexander street			1	1								
Pitt street			2									
Bath Lane terrace			***					1				
Park road			1									
Oak street						***		1		***		***
Back Marlborough street			1									
Edward street				1								
Oaks place				1								
Crown street			***	3								
Gloucester road				3								
Hawes street		***		3		***		1	***			
Mansfield street		***		1	***			***	***			
Cottenham street	***	***	***	1		***	***		***	***		
Peel street				1		***		***	***			
Handyside street	***	***		1		***		***				***
Westgate hill			***	1								
Elswick street		***		6				***				
William street		***	***	3				***				
Bowman crescent		***		1					***			
Gloucester street	***			1						***		1
Bayley street				1				1		***	***	***
Middle Cross street				1		***	***					
Temple street				7		***			***	***		
Mill lane	***			6		***						***
Back lane		***		1								***
Cree's yard												
Ord street Brougham place				***				1				
Dawnsola mand			***	1	***							
Otombono otrock				1 2								***
Dules street				1		***						
Ohamal laws				1				***				
Disc storest				4					***			
Back Prospect place		***		3		***		***		***		***
Wille wless			***	1	***							***
Workhouse								1				
Havelock street				1								
Ryehill				i								
Hull street				i								
Milton street				1								
Clumber street				î								
Cambridge street				1								
Total	42	23	16	109	6	4	5	9		2		1

LOCALITY OF SCARLET FEVER, ENTERIC AND TYPHUS FEVERS.

DEAT	HS I	n St	. An	DREV	v's S	UB-D	ISTR	ICT.				
	sc	ARLET	r FEV	ER,	EN	TERI	CFEV	ER-	T	PHUS	S FEV	ER.
LOCALITY.	1st Quarter.	2nd Quarter.	Srd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Jst Quarter.	2md Quarter.	3rd Quarter.	4th Quarter.
Chester crescent Percy place Chester street Lambton place Belgrave terrace Northumberland street Leazes villa Back lane Back High Friar street Lovaine place Gladstone terrace Picton place Carliol street High Friar street St. Andrew's court Percy court St. Andrew's street Stamfordham place Hutton's court Smith's court Milton street Elswick court Franklin street Liverpool street Liverpool street Crescent place Lisle street Vine lane				··· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ··	· · · · · · · · · · · · · · · · · · ·	1	1			1		
North street Factory yard, Gallowgate Barracks Northumberland court		 1		1 1 1								
Total	6	7	11	11	1	1	1	3		1		
DEAT	HS IN	ST.	Nic	HOLA	s' St	јв-D	ISTRI	CT.				
Hanover street Hanover square Fever Hospital Forth banks Bigg market Carried forward	 1 1	 1 2 3		1 3 4		 1 1		 4 1	 1 5 6	 2 2		

LOCALITY OF SCARLET FEVER, ENTERIC AND TYPHUS FEVER.

DEATHS IN	ST.	NICH	OLAS	s' Su	B-DI	STRIC	T—(Conti	nued.			
	SC.	RLET	FEV	ER.	EN	TERI	FEV	ER.	T	YPHUS	S FEV	ER.
LOCALITY.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	and Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	and Quarter.	3rd Quarter.	4th Quarter.
Brought forward	2	3		4		1		5	6	2		
Queen's lane Westgate road Long stairs Thornton street Side Groat market	1 1 1 2			4 1		1						
Clayton street Infirmary Rosemary lane Stowell street Stowell square	i	i i i :::	3 1	2 1		i i 		" " " "			1 1	
Orchard st., Short's court Sandhill Denton chare Friars Vagrant Ward			:::	1 1 1 1 1				··· 2 ··· ·· ·· ·· ·· ·· ·· ·· ·· ·· ··				
Forth terrace Grey street Newgate street		::: -—	::	1 1	:::	:::	-	1 	-	:::		:::
Total	10	4	4	20	1	3		9	6	2	2	
DEA	THS	IN A	LL S.	AINT	s' Su	B-DI	STRI	CT.				
Ragged schools New road Gibson street Anchor bank Swirle	1 2	8	 1 1 1	1 3 7 								
Ouse street Sandgate Broad chare Blagdon street Buxton street	1 1	2	1 2 1	1 5 	1		1 1 					
Union terrace west Union terrace north Gosforth street Yorkshire street	2 1 2 		 ï		:::	::			:::	::		
Carried forward	10	5	8	18	1		2				***	

LOCALITY OF SCARLET FEVER, ENTERIC AND TYPHUS FEVERS.

DEATHS	IN AL	L SA	INTS'	SUB	-Dis	FRICT	r-c	ontin	ued.			
	sc	ABLE	r fev	ER.	EN	TERI	C FEV	ER.	T	YPHU	s FEV	ER.
LOCALITY.	1st Quarter.	gnd Quarter.	Srd Quarter.	4th Quarter,	1st Quarter.	and Quarter.	Srd Quarter.	4th Quarter.	1st Quarter.	and Quarter,	3rd Quarter.	4th Quarter.
Brought forward .	10	5	8	18	1		2					
Wall knoll			1	1	1		1					
OL 33 L days d	1											
W	1											
	2		2	2								
			1									
	1				***	***		***				
	1		1	2			1	***				
	5	1		1								***
		1		1						***		***
Anomia miana	1			3						1.44		
Amenda kannaaa					***		1			***		
TT	1									***		
Ci				3						***		
This whee	2											
N.F. W	1		1	1				1				
0. 1	2		1	1								
Date on Allend Assessed			1									
	1											
						1	1					
			***	1	***							
Laidlaw's yard, Pilgrims		1										
Old Queen's head yard, &	C		***	5		***	***					
				1			***					
NY		1			***	***	***		***		***	
D. J. Lant.		2	1	ï	***	***	***			***	***	
D J				2						***	***	
433		1										
/Y						1						
Clastic 1 street		1										
Charles and an arms			1									
Dad Laura				2								
Millar's hill				1	***							
London wharf				1								
		***		2					***		***	
				2 2	***	***						
		***	***					***		***		***
		***		1		***	***	***	***	***	***	***
				1 1			***			***		***
717 1				1						***		
Wesley terrace				-						***		•••
Total	29	14	18	57	2	2	6	1				

LOCALITY OF SCARLET FEVER, ENTERIC AND TYPHUS FEVERS.

	SCA	RLET	FEVI	ER.	EN	CERIC	FEVI	ER.	TYPHUS FEVER,				
LOCALITY.	1st Quarter,	gnarter.	grad Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	gnarter.	ård Quarter.	4th Quarter.	
Robson street Albion row James place Byker buildings North row Cook street Wilfred street Rosedale terrace St. Peter's Bywell terrace Stoddart street Quality row Albion row Union North terrace Stepney street Clifford street Ballast hills Gosforth street St. Lawrence Oswald terrace Union East terrace Brough's buildings Sadler terrace Prospect terrace Ouseburn Stepney road Heaton street Byker hill Johnson's Houses Leighton street Burton street Gardner's buildings Thompson street Jesmond vale Cragg hall Windsor terrace Byker bank Corbridge street Watson terrace Byker bank Corbridge street Watson terrace Watson terrace Byker bank Corbridge street Watson terrace	1 1 2 1 1 1 1 7 1 1 1 1 2 2 6									1			
Total	. 30	12	14	15			1	3	4	1		1	

SUMMARY OF TABLE XIV.

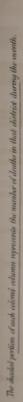
		So	SCARLET FEVER.					ENTERIC FEVER.					TYPHUS FEVER.				
		1st Quarter.	2nd Quarter.	3rd Quarter.	4th quarter.	Total	1st Quarter.	and Quarter.	srd Quarter.	4th Quarter.	Total.	1st Quarter.	2nd Quarter.	8rd Quarter.	4th Quarter.	Tota	
St. Nicholas' All Saints'		6 10 29	23 7 4 14 12	16 11 4 18 14	109 11 20 57 15	190 35 38 118 71	6 1 1 2	4 1 3 2 	5 1 6 1	9 3 9 3	24 6 13 10 4	 6 4	2 1 2 	2	1	3 1 10 6	
Grand Tota	als	117	60	63	212	452	10	10	13	24	57	10	6	2	2	20	

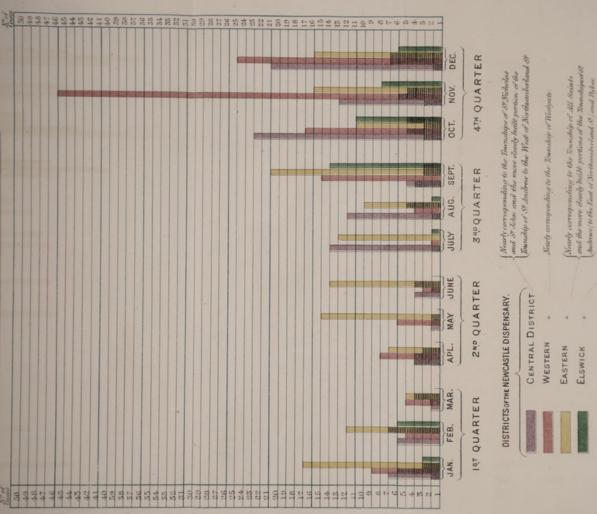
NEWCASTLE-ON-TYNE; A. REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.



BOROTCH OF NEWTASTLE IPON TYNE, 1875.

Diagram of the Monthly Returns of Scarlet Fever treated at the Newastle Dispensary.





Kenty corresponding to the more closely built portion of the Inenship of Elevick.



