

[Report 1896] / Medical Officer of Health, Bucklow R.D.C., Northwich R.D.C., Knutsford U.D.C., Middlewich U.D.C., Winsford U.D.C., Biddulph U.D.C.

Contributors

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1896.

ANNUAL REPORTS

AND

Vital Statistics.

The Rural Districts of
Bucklow and Northwich;

AND

The Urban Districts of
Knutsford, Middlewich,
❧ Winsford, and Biddulph. ❧

PREPARED BY

T. W. H. GARSTANG, M.R.C.S.,

The Medical Officer of Health of the Districts.

IN ACCORDANCE WITH INSTRUCTIONS FROM THE
LOCAL GOVERNMENT BOARD.

KNUTSFORD:

S. SIDDELEY, PRINTER, ETC., KING STREET.



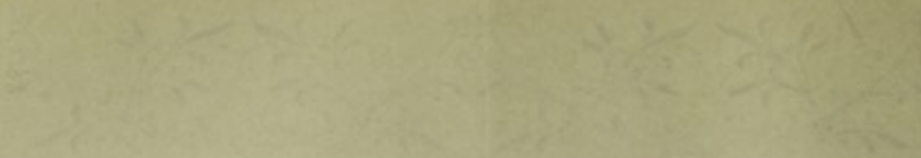


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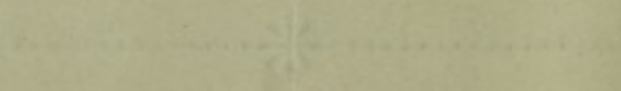


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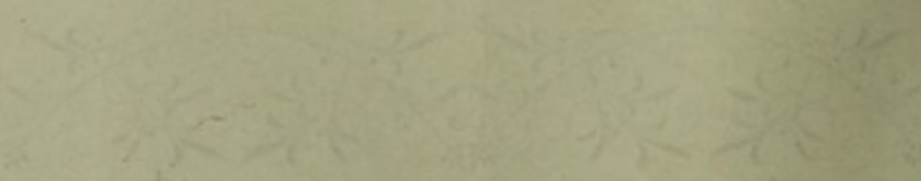


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KNUTSFORD URBAN DISTRICT.

Annual Report of Medical Officer of Health.

Population at Census, 1891, 4663, (4266, exclusive of Workhouse and Gaol).

Estimated Population in middle of 1896, 4891.
(4310, exclusive of Workhouse and Gaol).

Area in Acres, 1760.

Birth-Rate per 1000 living, 28.1.

Death-Rate per 1000 living, 17.8.

Death-Rate from Seven principal Zymotic diseases, 1.4.

Deaths under one year to 1000 Births, 165.

Population.—The total of 4891 is made up of the *average* number of inmates in the Workhouse, during the year, 235; the *average* number of persons in the Gaol, during the year, 346; and an estimated number of ordinary residents in the Township, 4310

$$235 + 346 + 4310 = 4891.$$

The estimated number is usually based on the supposition that the average increase, known to have occurred between 1881 and 1891, has been maintained in proportion between 1891 and 1896. This is naturally liable to error, especially as we get further away from the solid ground of the last Census. I have therefore applied a further correction, from the local knowledge of the Assistant Overseer; and the result is the adoption of a smaller number, 4310, as being probably correct, than the number 4510 which I have been using during the year for my monthly and quarterly Reports. (The number 4464, which I used for 1895, appears also to have been too large, if my present information be correct).

The Census.—As all Vital Statistics must be inaccurate, where based upon errors of estimation; and as on the other hand, correct Statistics are of real value, (and indeed essential to writers on Public Health,) it is clear that a Census taken every 5 years, (instead of every 10 years as at present,) would be an improvement of national value.

Special features of the Urban District.—The populations of the Workhouse and Gaol are exceptional in many respects, such as sex and age distribution; but more so in that the units are always changing, and they are drawn from many Districts with which this Report is not concerned. Thus at the Workhouse, in 1896, there were 484 admissions and 491 discharges; and at the Gaol 3169 admissions and 3141 discharges. These populations therefore are excluded from calculations of “Rates” in the following pages; and such calculations refer solely to the permanent ordinary population of the Urban District.

In my last Report, I referred to “four questions of the first rank,” which called for the immediate and careful consideration of the new Council. It is pleasant to record that three of these are far advanced towards solution, while the fourth is well in hand. This is a result of which the Council may legitimately be proud.

(1). *Cemetery.*—Negotiations have been commenced in connection with many sites, and in at least four cases have been pushed to a considerable distance. No final solution has yet been discovered; but there is good hope that a satisfactory arrangement is not very far off. That it has not already been concluded is not the fault of the Council, for more time and trouble have been devoted to this question than to any of the others.

(2). *Sewage Disposal.*—The effluent is examined from time to time by the Inspector of the Mersey and Irwell Joint Committee. There is distinct improvement during the year. Further modifications are in contemplation. I have frequently submitted for the consideration of the Council three alternative lines of progress, viz., (a) the construction of an additional settling tank, (b) enlargement of the filter-bed, (c) diminution of the volume of sewage to be treated, by diversion of the storm-water. It has not yet been found necessary to take action; but I still consider that the last-named is the simplest and cheapest improvement; and that it would be well to carry it out independently of any other arrangements.

(3). *Water Supply.*—The Light and Water Company has at last yielded to the public demand for a purer water, and is now boring for a new supply, which is to be derived from the gravels and sandstone at a considerable depth, in quantity sufficient for the supply of the Town, so that the use of the brook-water can be altogether discontinued, (cf. Report for 1895, p. 4, [3],) a consummation on which the inhabitants are to be congratulated. The boring had reached a depth of 330 feet at Christmas; and it is expected that water may be obtained at any time after 450 feet is passed.

(4). *Isolation Hospital.*—A joint application is now before the Local Government Board for the formation of a body to be known as the “Bucklow Joint Hospital Board,” on behalf of this Council and

six others. The erection of a Hospital may now be expected to be only a question of time. Several of the cases of Infectious disease which occurred during the year were suitable, and would have been gladly sent to the Hospital, if it had been in existence. Although the Bucklow Council, by reason of the size of its District, is now the predominant partner, it will always be on record to the credit of the Knutsford Council, that it was this Council's preliminary action in arranging a workable scheme with the Councils of Wilmslow and Alderley Edge, and in securing ground for a site, that rendered it possible in the Summer of 1896 for the larger scheme, which is only an expansion of your earlier one, to be got into working order, (under pressure from the County Council), with such remarkable ease and rapidity.

The position being now so satisfactorily advanced in all these matters, I have to draw the attention of the Council to another important question, viz. :—

(5). *Sanitary Conveniences and Scavenging.*—It appears from a list which has been prepared for me that there are nearly 350 houses which are not fitted with water-closets. This is more than one-third of the houses in the District; and after allowing for out-lying houses not served by the sewers, there still remains far too large a number provided with some form of cesspool or privy, and many of these are old-fashioned and ill-constructed. From this it follows that there must be serious soil-pollution, injurious to health, not to mention the nuisance caused by scavenging, whose reality is attested by the number of complaints made to me by householders.

Prevention of Infectious Diseases.—The entire absence of epidemics has pushed this question rather into the background. My attention was early given to the value of Sulphur Fumigation, and I satisfied myself that in the opinion of experts it was far inferior to that of the Perchloride of Mercury Spray. On August 4th I recommended the purchase of a Sprayer, but the Council has not yet sanctioned the expenditure. This is for the disinfection of rooms. For the disinfection of bedding, clothes, &c., which can only be satisfactorily effected by steam, there is no apparatus. It is probable that in course of time proper apparatus will be provided by the Bucklow Joint Hospital Board, and will no doubt be placed at the service of any resident in the Council's District. The Council has accepted (Nov. 3rd) my recommendation to offer to disinfect after deaths from Phthisis. Even if in many cases the householder refuses the offer, yet a good effect will be produced by this practical intimation that Phthisis is infectious; and in the future, greater care in adopting proper hygienic measures will diminish the number of preventible cases of this common and fatal disease.

Infectious Diseases.—Only 12 cases have been notified during the year; (as against 25 in 1895); and 7 of these have been cases of Erysipelas (including 1 in the Workhouse), which need no comment; leaving 5 cases of Scarlet Fever (as against 19 in 1895) as the total materiel for consideration. These cases were scattered, both in time, and in locality, and had no connection with each other. In four cases the disease was contracted outside the District; one occurred in a house which has been the site of several previous outbreaks. After this attack (in March) the house was thoroughly cleaned and disinfected; all the wall-paper was removed and the walls limewashed; some of the drains also were re-arranged. So far, these measures appear to have been effective. No deaths occurred from notifiable diseases; and in no single case was the disease communicated to another. The 11 cases are equal to a Case-Rate of 2·5.

Births.—The Births registered were 129, of which 9 occurred in the Workhouse, and 8 of these were of strangers. 121 is therefore the corrected number for the Urban District. The Birth-Rate is 28·1, which is 5 lower than last year. There were 8 illegitimate births, (as against 10 last year).

Deaths.—3 deaths occurred in the Gaol of persons belonging to Manchester (2) and Northwich (1) respectively. 46 deaths occurred in the Workhouse; 39 of which belong as follows:—Bucklow Rural District (17); Altrincham (8); Lymm (5); Ashton-on-Mersey (3); Sale (2); Wilmslow (2); Macclesfield (1); and unknown (1). The Medical Officers of Health of the places named have been respectively informed.

Of 118 deaths registered this leaves 77 belonging to Knutsford. The Death-Rate is 17·8, or 3 higher than last year. This is explained by (a) the population having been over-estimated last year, which correspondingly lowered the rate; and (b) a large increase in the deaths of children under 5 years of age, (from 18 to 31).

Infantile Deaths.—20 (as against 14). Classified as follows:—Convulsions 7, Premature 5, Debility 5, Diarrhœa 2, Pneumonia 1. 5 of these infants died within 24 hours, 2 more within a week, 3 more within a month, 3 more within 3 months, and 3 more within 6 months, of birth.

Zymotic Deaths—Whooping-Cough caused 3 deaths, in June, August, and September. The children were aged $1\frac{1}{2}$, $1\frac{1}{3}$, and 3 years. There were no deaths from Measles. Diarrhœa caused 3 deaths; a man of 77 in February, and two babies in July and November. The total zymotic deaths therefore are 6; equal to a rate of 1·4. This compares badly with last year; but last year was in this particular an exceptional year.

It is remarkable that no death is ascribed to Phthisis. Bronchitis and Pneumonia claim 12 victims, and Heart Disease 5. Of the deaths classed under the head of "all other diseases," 9 are ascribed simply to old age, 12 to paralysis and nervous disorders, and 4 to diseases of the liver.

One death is registered as "not certified," and four were the subject of Inquests. The first (69 years) is put down to Heart Disease; 3 of the Inquests were on children under one year of age, who died from convulsions or prematurity; and the last was on a man of 56, found dead, death ascribed to congestion of the lungs.

The Inspector's Report, appended, deals with the following matters:—Scavenging, Sewer-Ventilation, Common Lodging Houses, Slaughter Houses, Lighting, and Schools.

Water Analysis.—Two samples were examined in September; one was found good, the other bad. In the latter case notice is ordered to be served to close the well. As almost the whole District is supplied by the Water Company, it is not often that private supplies come under observation.

Unsound Meat.—There is no suspicion of any trade of the kind in this District.

Factory and Workshop Act, 1891.—H.M. Inspector of Factories has intimated his expectation that the Council's Officers will assist him, as they are required to do by the Act.

Adoptive Acts.—The Council has adopted all the usual Acts, except the Private Street Works Act, 1892.

I congratulate the Council upon the generally favourable character of this Second Annual Report; and I append those portions of the Inspector and Surveyor's Report which relate to his duties as Inspector.

T. W. H. GARSTANG,

Medical Officer of Health.

January 1st, 1896.

EXTRACT FROM COUNTY RETURN FOR 1895, SHEWING POSITION OF
KNUTSFORD AS COMPARED WITH 35 OTHER URBAN DISTRICTS.

	Best of 36 Districts.	Worst of 36 Districts.	The Knutsford figure.	Place of Knutsford in the list.
Birth-Rate	42·4	14·0	32·6	9
Death-Rate	9·1	26·0	14·7	15
Zymotic Death-Rate	0·3	6·5	0·4	2
Deaths under 1 year to 1000 births	25	233	92	5

[A] Table of DEATHS during the Year 1896, in the Knutsford Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							(i)	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)					
Knutsford Township	70	20	11	3	1	15	20	{ Under 5 ... 5 upwards	...	...	...	...
Workhouse	45	1	3	...	...	15	26	{ Under 5 ... 5 upwards	...	...	...	...
H.M. Prison	3	...	...	...	1	1	1	{ Under 5 ... 5 upwards	...	...	...	...
TOTALS.....	118	21	14	3	2	31	47	{ Under 5 ... 5 upwards	...	...	...	...

The subjoined numbers have also to be taken into account

Deaths occurring outside the district among persons belonging thereto.	...	...	...	...	...	...	...	{ Under 5 ... 5 upwards	...	...	...	...
Deaths occurring within the district among persons not belonging thereto.	41	1	1	...	1	14	24	{ Under 5 ... 5 upwards	...	...	...	...

* The heading of column 19 is left blank for the insertion of Influenza,

[B] Table of POPULATION, BIRTHS, AND OF NEW CASES
Officer of Health, during the year 1896, in the Knutsford Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Census 1891. (b)	Estimated to middle of 1896 (c)	Registered Births. (d)		Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
Knutsford Township	4266	4310	120	{ Under 5 ... 5 upwards	...	...	...	...
Workhouse	200	235	9	{ Under 5 ... 5 upwards	...	...	...	...
H.M. Prison	177	346	...	{ Under 5 ... 5 upwards	} Exempt from the Act.			
TOTALS.....	4643	4891	129	{ Under 5 ... 5 upwards	...	...	...	...

State here whether "Notification of Infectious Disease" is compulsory

SUPPLEMENTARY TABLE 1.

Shewing Births, Birth Rate, Deaths, and General and Zymotic Death Rates, and compared with 1895; and Deaths in Old Age and Infancy, and percentages of these to total Deaths; for the year 1896.

TOTAL.			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
Births.	Deaths.	Deaths from Zymotic Disease.	1895.	1896.	General.		Zymotic.		At 65 years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
					1895.	1896.	1895.	1896.				
121	77	6	33·1	28·1	14·8	17·8	0·44	1·4	23	20	30	26

SUPPLEMENTARY TABLE 2.

Shewing Deaths, Death Rates, and Zymotic Deaths, and Old Age and Infantile Deaths, in the Four Quarters of the year 1896.

QUARTER ENDING.	Total Deaths.	Death Rate.	DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.		Total Zymotic Deaths.	Phthisis
			At 65 years and upwards	Under One Year.	At 65 years and upwards.	Under One Year.		
March 31st.	19	17·7	5	6	26	32	1	—
June 30th..	23	21·2	6	1	26	4	1	—
Sept 30th..	18	16·6	8	4	44	22	3	—
Dec. 31st..	17	15·6	4	9	23	53	1	—

SUPPLEMENTARY TABLE 3.—BIRTHS.

	URBAN DISTRICT.		WORKHOUSE.		WORKHOUSE (STRANGERS.)		TOTAL.	RATE FOR DISTRICT.
	M.	F.	M.	F.	M.	F.		
1st Quarter..	13	19	—	—	—	1	33	29·8
2nd „	19	16	—	1	—	3	39	33·5
3rd „	13	10	—	—	1	—	24	21·2
4th „	17	13	—	—	1	2	33	18·7

INSPECTOR'S REPORT.

Sewers.—The main sewers of the District are all now working satisfactorily. That at the back of King Street has been cleansed. The Toft Road Sewer requires extending 93 yards. In Blackhill Lane also an extension is required to serve new houses. The King Street Sewer has been extended 64 yards, and now serves houses which formerly drained into the river Lily.

Drains.—The drains on a number of private properties have been put in thorough repair. Many were in a very bad state.

Ventilating Shafts.—Two new shafts have been erected, and corresponding man-holes closed. Nuisances from bad smells have thus been abated.

Scavenging.—All complaints have been attended to; and the work has been done in a satisfactory manner.

Railway Station.—The sanitary arrangements have been greatly improved.

Sewage Works.—The tanks and filters are in good working order. During the year 395 loads of Sludge have been sold.

Common Lodging Houses.

Slaughter Houses.

Schools.

} These have been frequently inspected,
and always found clean.

Water Supply.—The Water Company's water has been laid on to a block of property in Love Lane.

Surface-Water.—In my last Report I advised the Council to have the surface-water from the two main streets disconnected from the main sewer. I have however changed my opinion on further observation, and now advise the continuance of the connection, as this secures the more efficient flushing of the Out-fall Sewer, which is laid almost at a dead level. The additional volume of sewage to be dealt with does not seem to interfere with the proper working of the filters.

Sewage Effluent.—This has been examined several times by the Inspector of the Mersey and Irwell Joint Committee, with satisfactory results.

Lamps.—Several additional lamps have been fixed.

WALTER DOWNES,

INSPECTOR.

December, 1896.

INSPECTOR'S REPORT

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WALTER DOWNEY

Inspector

1895

MIDDLEWICH URBAN DISTRICT.

Annual Report of Medical Officer of Health.

Population at Census, 1891, 4001.

Estimated Population in middle of 1896, 4810.

Area in Acres, 1095.

Birth-Rate per 1000 living, 38·6.

Death-Rate per 1000 living, 16·8.

Death-Rate from Seven principal Zymotic diseases, 2·9.

Deaths under one year to 1000 Births, 134.

General.—During the first quarter of 1896 my department was under the charge of the County Medical Officer of Health; and coincidentally with my appointment came the resignation of your old Inspector. You have therefore had an entire change of Staff, since April, in this department.

Population.—A correct estimate of the population for the year under review is the first essential in preparing the Statistical Tables, which not only form the basis of my Report to you, but are also a portion of the materiel from which County (and other) Statistics are compiled. The further we get away from the solid ground of the last Census, the more the estimate is liable to error, from the occurrence of exceptional local conditions. In 1891 there were 771 houses and 3704 persons, in the District, (4·8 persons per house); or 4001 persons if the Area be added which was formally included in the Urban District in 1892. The number of houses in 1896 is 1002, so if the former proportion of "persons per house" still holds good, the population should be 4810. I find that the County Medical Officer's Estimate for 1895 was 4750, so it appears probable that 4810 is more likely to be correct for 1896 than the number 5100 which I have been using for my monthly and quarterly Reports, and which had been arrived at by theoretical and less reliable methods.

The Census.—As all Vital Statistics must be inaccurate, where based upon errors of estimation; and as, on the other hand, correct Statistics are of real value, (and indeed essential to writers on Public Health,) it is clear that a Census taken every five years, (instead of every ten years as at present,) would be an improvement of national value.

Prevention of Infectious Disease.—A considerable advance has been made in this matter. All cases, as notified, are promptly visited by the Inspector, and if thought desirable, by the Medical Officer of Health also. Isolation is enforced more rigourously, and for a longer period, than has previously been attempted. Disinfectants are supplied; and the sick room ultimately “stoved” with Sulphur.

The number of cases was 37 in the First Quarter; it fell to 14 in the Second Quarter, (of which 10 were in April); and to 4 in the Third Quarter. There are 12 cases in the last Quarter, (but only 9 houses affected); as compared with 32 cases during the last Quarter of 1895. This is a satisfactory record; and *some* portion of the credit may, I think, be fairly given to your Sanitary Officers.

With regard to Sulphur Fumigation, I have satisfied myself that in the opinion of experts, its value and efficacy are far below those of the Perchloride of Mercury Spray. Accordingly I recommended (August 5th) the adoption of this system of disinfecting rooms; but the Council has not yet sanctioned the purchase of the needful Apparatus. For the disinfection of bedding, clothes, &c., which can only be satisfactorily effected by steam, there is no provision made.

The Council has accepted (Sept. 17th) my advice to offer to disinfect after deaths from Phthisis. Even if in many cases the householder refuses the offer, yet a good effect will be produced by this practical intimation that Phthisis is infectious; and in the future, greater care in adopting proper hygienic measures will diminish the number of preventible cases of this common and fatal disease.

Isolation Hospital.—At present none exists. Pressure is being exercised by the County Council for joint action between the four Authorities in the Northwich Union. This Council is willing to comply; but no agreement has yet been arrived at, or indeed appears likely.

Infectious Diseases.—January 16 cases, February 12, March 9, April 10, May 0, June 4, July 2, August 1, September 1, October 3, November 6, December 3. Total 67 (as against 53 in 1895).

Scarlet Fever.—55 cases. An epidemic was bequeathed to 1896 by the preceding year. 15 cases occurred in January (in 8 houses), one of which was fatal; 10 cases in February (affecting 5 more houses); 8 in March (affecting 5 more houses); and 9 in April (affecting 6 more houses). Total 42 cases (in 24 houses). After April there was

no epidemic, but merely scattered cases, viz. :—3 in June, 1 in September, 6 in November, and 3 in December; total 13 (in 9 houses); 1 in June and 1 in December proving fatal.

Diphtheria, or Membranous Croup.—One fatal case occurred in July, but did not belong to this District. It has been handed over to the Medical Officer of Health for the Northwich Urban District; and will not be counted against Middlewich. 2 other cases occurred in February, (one fatal). With these exceptions the District has a clean sheet.

Enteric Fever.—One case in July, (fatal); and one in October, are all.

Erysipelas.—8 cases, which need no comment, except one, a child of 3 years, who died from Erysipelas following severe burns.

The amount of Infectious Disease has therefore been small; the Case-Rate being 13·1; (82 per cent being Scarlet Fever); and the Death-Rate 1·2.

Births.—

	M.	F.	TOTAL.	RATE.
1st Quarter.....	29	30	59	49·2
2nd „	26	20	46	38·4
3rd „	24	17	41	33·8
4th „	15	25	40	33·0
TOTALS..	94	92	186	38·6

The Births exceed those of 1895 by 14, and the Rate is higher by 2·4 The average for the 4 years 1892-5 is 40·8; the present Rate is lower than that average by 2·2.

Deaths.—81, of which 2 occurred in the Workhouse, (as against 99 in 1895). The Rate is 16·8 and is lower by 4·4 The average for the 4 years 1892-5 is 19·1; the present Rate is lower by 2·3. 15 Deaths occurred in the First Quarter; 27 in the Second; 18 in the Third; and 19 in the Fourth.

One Death in November, due to drowning, belongs to Harecastle, and is not included in the above figures.

Zymotic Deaths.—Scarlet Fever 3, Diphtheria 1, Enteric Fever 1, Whooping-Cough 4, Diarrhœa 5; total 14. This gives a Rate of 2·9, and is precisely the same as 1895. The deaths from Scarlet Fever occurred in January, June, and December; at ages 9 months, 6 yrs., and 4 yrs. Diphtheria caused one death in February (a child of 2 yrs.) Enteric Fever one death in July, (a man aged 47 yrs.) Whooping-

Cough caused one death each in January, February, May, and July, (all children under 2 years of age). Diarrhœa caused 1 death in May (a man of 60 yrs); 1 in August, 2 in September, and 1 in December, (all children under 4 years of age).

Seven Inquests were held, 4 of which were on cases of death from injury; the drowning case already referred to; the child who died from burns; one case of suicide by hanging; and one case of an old woman who died from the effects of a fall.

The deaths ascribed in Table A to non-specified diseases, include one case of death in child-birth (aged 31), and one of death from alcoholism, but present no other special features.

Infantile Mortality.—25 deaths under 1 year of age, give a Rate of 134 per 1000 births. Last year it was 186; and the average, 1892-5, was 151. 5 were due to Convulsions and 4 to Teething; 3 to Prematurity and 3 to General Debility; 3 to Diarrhœa, 3 to Pneumonia, and 1 each to Scarlet Fever, Whooping-Cough, Phthisis, and Hæmophilia. The numbers for each Quarter were 6, 5, 7, and 7. 21 of the 25 were at, or under, 6 months old.

The Council has been asked, more than once, to adopt the Infectious Disease (Prevention) Act, 1890, but has not yet done so. All the other Councils with which I am connected have adopted it; but I have not as yet known any action taken under it. It appears to be kept in reserve, for emergencies; and is at once harmless and valuable. The Council has adopted all the other usual Acts.

Public Water Supply.—One of the most important events of the year has been the completion of the Water Works, and the installation of the public supply. The quality of the water has been tested, and is pronounced good.

Water Analysis.—One sample, from an existing well has been analysed, and condemned. The town's water has been laid on, to the premises in question.

Insanitary Property.—No District with which I am acquainted possesses so large a proportion of old and unsatisfactory cottages. A number of the worst cases were under the observation of the County Medical Officer of Health in March. The list was given to me in April, and the property has been under constant observation and inspection since. Fourteen of the worst cases have been declared unfit for habitation; in three of which repairs have been executed, which with improved sanitary conveniences (still required) will remove them from the list. There is some hope of the erection of new cottage property to a considerable extent in the near future.

The Sewage Farm.—This has been inspected by the County Medical Officer.

Sanitary Inspection.—The Council having appointed a new Inspector in April, considerable activity has been shewn in this work. The Inspector has reported a large number of houses as being without ashpits, and without privies, or with privies very dilapidated. Notices have been served in many cases; and some of them complied with. A special circular has been issued by the Council to the butchers in the town, warning them not to deposit offal in their manure heaps; several serious nuisances having arisen from this practise.

Scavenging.—This has for about 12 months been taken over by the Council. The work is now better done. Far too many of the houses are served only by old-fashioned privies, probably nine-tenths of the whole. This implies very serious soil pollution from leakages, and is probably sufficient to exercise a distinct and unfavourable influence on the health of the town.

Slaughter Houses.—These are frequently visited by the Inspector; and their condition is generally satisfactory.

Unsound Meat.—None has been detected during the past year, but there appears to be reason to believe that vigilance is required.

Common Lodging Houses.—There are 7, but only 3 are licensed. These are frequently inspected, and are found generally satisfactory. One prosecution for receiving lodgers without licence has been undertaken, a conviction obtained and a fine imposed.

Canal Boats.—These are inspected with regularity. Various infringements of the Act have been observed, and reported to the Council. So far they have been remedied, on notice served, without the necessity of legal proceedings.

T. W. H. GARSTANG.

January 4th, 1896.

EXTRACT FROM COUNTY RETURN FOR 1895, SHEWING POSITION OF
MIDDLEWICH AS COMPARED WITH 35 OTHER URBAN DISTRICTS.

	Best of 36 Districts.	Worst of 36 Districts.	The Middlewich figure.	Place of Middlewich in the list.
Birth-Rate	42·4	14·0	36·2	4
Death-Rate	9·1	26·0	20·8	33
Zymotic Death-Rate	0·3	6·5	2·9	31
Deaths under 1 year to 1000 births	25	233	186	27

[A] Table of DEATHS during the Year 1896, in the Middlewich Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							(i)	NEW CASES OF KNOWLEDGE			
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)		Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.
									1	2	3	4
Middlewich	81	25	10	4	2	24	16	{ Under 5 ... 5 upwards ...	...	2 1	...	1 ...
TOTALS.....	81	25	10	4	2	24	16	{ Under 5 ... 5 upwards ...	...	2 1	...	1 ...

The subjoined numbers have also to be taken into account

Deaths occurring outside the district among persons belonging thereto.	...	...	...	1	...	...	1	{ Under 5 ... 5 upwards ...	...	...	...	...
Deaths occurring within the district among persons not belonging thereto.	...	...	...	1	...	1	...	{ Under 5 ... 5 upwards ...	...	...	1	...

* The heading of column 19 is left blank for the insertion of Influenza,

[B] Table of POPULATION, BIRTHS, AND OF NEW CASES
Officer of Health, during the year 1896, in the Middlewich Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Census 1891. (b)	Estimated to middle of 1896 (c)	Registered Births. (d)		Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
Middlewich	4001	4810	186	{ Under 5 ... 5 upwards ...	...	55	1	1
TOTALS.....	4001	4810	186	{ Under 5 ... 5 upwards ...	...	55	1	1

State here whether "Notification of Infectious Disease" is compulsory

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																						
FEVERS.																						
Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, & Pleurisy.	Heart Disease.	Injuries.	All Other Diseases.	Total						
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22					
...	1	...	...	...	...	...	...	4	4	...	1	3	8	...	1	19	35					
...	...	...	...	...	...	...	...	...	1	...	1	4	...	...	3	26	46					
...	...	...	...	...	...	...	...	4	4	...	1	3	...	...	1	19	35					
...	1	...	...	...	...	...	...	...	1	...	1	4	8	...	3	26	46					

Area and Population of the District or Division to which this Return relates.

Area in Acres, 1095.

Population (1891) 4001.

" (Estimated to middle of 1896) 4810.

Death Rates { General.....16.8

{ Infant (under one year of age) ...134

} per 1,000 Population, estimated to middle of 1896.

} per 1,000 Births Registered.

in judging of the above records of mortality.

...
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	...	...	...	...
...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	...	...	...

or any other disease which it may be thought desirable to record.

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY, COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.										Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.	
FEVERS.											
Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.					
5	6	7	8	9	10	11	12	13			
...	2	...	...	...	...	8	...	...	...	NIL.	
...	2	...	...	...	...	8	...	...	

in the District—Yes. Since when?—1st January, 1890.

SUPPLEMENTARY TABLE 1.

Shewing Births, Birth Rate, Deaths, and General and Zymotic Death Rates, and compared with Average of last Four years; Deaths in Old Age and Infancy, and percentages of these to total Deaths; for the year 1896.

TOTAL.			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
Births.	Deaths.	Deaths from Zymotic Disease.	1892 to 1895.	1896.	General.		Zymotic.		At 65 years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
					1892 to 1895.	1896.	1895.	1896.				
186	81	14	40·8	38·6	19·1	16·8	2·9	2·9	17	25	21	31

SUPPLEMENTARY TABLE 2.

Shewing Deaths, Death Rates, and Zymotic Deaths, and Old Age and Infantile Deaths, in the Four Quarters of the year 1896.

QUARTER ENDING.	Total Deaths.	Rate per 1000.	DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.		Scarlet Fever.	Diphtheria.	Enteric Fever.	Whooping Cough.	Diarrhoea.	Phtisic.
			At 65 years and upwards	Under One Year.	At 65 years and upwards.	Under One Year.						
March 31st.	16	13·3	3	6	19	38	1	1	...	2	...	2
June 30th..	27	22·5	7	5	26	18	1	...	...	1	1	...
Sept 30th..	19	15·7	4	7	21	37	...	...	1	1	3	...
Dec. 31st...	19	15·7	3	7	16	37	1	...	...	...	1	...

NORTHWICH RURAL DISTRICT.

Annual Report of Medical Officer of Health.

Population at Census, 1891, 20,909.

Estimated Population in middle of 1896, 22,501.

Area in Acres, 54,301.

Birth-Rate per 1000 living, 37·0.

Death-Rate per 1000 living, 15·4.

Death-Rate from Seven principal Zymotic Diseases, 1·8.

Deaths under one year to 1000 Births, 126.

General.—In presenting my first Annual Report to this Council, I cannot omit a reference to the great number of years you were served by my predecessor, Dr. Fox; and to the fact that, shortly after his death, your last Annual Report was drawn up by the County Medical Officer of Health. It will be my earnest endeavour to qualify myself to follow worthily in the steps of these distinguished men.

Population.—The Public Health of a District is discussed (and compared with that of other Districts) by its Birth-Rate, Death-Rate, and Sickness-Rate. These "Rates" are all calculated from the actual figures in the various Returns, upon the basis of 1000 persons living during one year. The figures in the Returns being exact, it is clear that errors may nevertheless occur, if the population is not rightly estimated. The correctness of the information upon which such estimate is formed, is therefore of primary importance. It occurred to me that the Overseers (or Assistant Overseer) in each Township, might be able to give valuable assistance from local knowledge of any

exceptional circumstances affecting the population in that Area; and I accordingly issued a circular on Dec. 5th, 1896, inviting that assistance. I desire to acknowledge with gratitude the readiness with which it was given by the majority of those gentlemen. Out of your 37 Townships there are only three (viz, Nether Peover, Lach Dennis, and Rudheath) from which I have not received any reply; and in these cases I have obtained the information from the Registrars. The value of the information may be readily seen by comparing the figures which I have been using during the year for my monthly and quarterly Reports, and which I calculated theoretically, with those I now prefer to adopt as being in all probability more correct:—

The Estimated Population in 1896 for the Sub-District of	By Theoretical Calculation.	By practical information from the Overseers.
Weaverham	9000	8561
Northwich.....	9200	8092
Over	3100	3089
Middlewich	3000	2759
Total for Rural District	24300	22501

The net result is that my estimate is reduced by 1799 (or 7·4 per cent.), but the Sub-Districts are variously affected, for while Over is diminished by only 0·4 per cent., and Weaverham by 4·8 per cent., Middlewich on the other hand is lessened by 8·0 per cent., and Northwich by no less than 12·0 per cent. All per-centages will therefore be *inversely* affected to a similar extent.

The comparison of the estimate now adopted with the Census of 1881 and 1891 is as follows:—

SUB-DISTRICT OF	1881.	1891.	1896.
Weaverham.....	7371	8058	8561
Northwich	5225	7069	8092
Over	3078	3083	3089
Middlewich	2805	2699	2759
Total for Rural District	18379	20909	22501

In the Weaverham District the increase is almost entirely in the Township of Barnton. In the Northwich District, Winnington, which had an increase of 1440 between 1881 and 1891 shews an addition of 50 only since 1891; while Lostock Gralam which had an increase of 120 between 1881 and 1891 has since received upwards of 1000 new inhabitants. Allostock, Marston, and Wincham have slightly declined; Leftwich has slightly increased. The Over District is practically stationary for the 15 years. The Middlewich District fell 106 between 1881 and 1891, (the figures for 1891 now allowing for a transference of an area with 297 inhabitants to the Middlewich Urban District, which actually took place in 1892), and has now recovered one half that loss.

It is precisely the occurrence of these exceptional circumstances which renders purely theoretical calculations so often erroneous. Thus I consider the estimate adopted for 1895, viz., 22747 as decidedly too high.

The Census.—As all Vital Statistics must be inaccurate, where based upon errors of estimation; and as, on the other hand, correct Statistics are of real value, (and indeed essential to writers on Public Health,) it is clear that a Census taken every five years, (instead of every ten years as at present,) would be an improvement of national value.

Prevention of Infectious Disease.—A great advance must be recorded in this matter. All cases, as notified, are promptly visited by one of the Inspectors, and (if thought necessary on his Report) by the Medical Officer of Health also. As this has not been the custom in the past, it is only right to draw special attention to the enormous amount of new work required from the Inspector; a journey, (sometimes a long one), and a written report, arising from each case notified, and sometimes subsequent journies and reports also. I gladly record my appreciation of the energy with which Mr. Bennett has discharged these duties. My own visits have been paid in connection with 50 cases, during the year. Premises are examined and Nuisances abated. Every endeavour is made to secure Isolation, not only of a real nature, but for a sufficiently prolonged period. Leaflets, teaching the outlines of the appropriate hygienic treatment are left, disinfectants are supplied gratuitously; and the sick-room is eventually "stoved" with sulphur. I have given special attention to securing isolation for sufficiently long periods, and the value of this action is capable of easy demonstration by results. It is unfortunate for us that neighbouring Councils are not equally impressed with the protective value of this measure. Thus, Scarlet Fever was imported into Little Leigh from Dutton, in

the Runcorn Rural District, on August 11th, and the statement made by the patient, (a farm labourer aged 19 yrs.), to my Inspector, that no attempt at isolation was made in Dutton where the disease was prevalent, remains uncontradicted though twice submitted to the notice of the Medical Officer of Health for that District. Similarly, when we had at the end of September entirely cleared Scarlet Fever out of the Rural District, (not a case being notified during October,) it was very disappointing to find it breaking out again in November simultaneously in Davenham, Leftwich, Rudheath, Winnington, Barnton, and Lostock Gralam, townships with nothing in common except the fact that they all adjoin the boundary of the Northwich Urban District, where it is known (from the published Report of the Medical Officer of Health for October) that there had been 73 cases during August, September, and October, "without isolation, beyond the first week "or so."

My attention was early given to the question of the value of Sulphur Fumigation; and I satisfied myself that in the opinion of experts, it was far inferior to that of the Perchloride of Mercury Spray. I recommended (Aug. 7th) the adoption of this system of disinfecting rooms; but the Council has not yet decided to sanction the needful expenditure on apparatus. For the disinfection of bedding, clothes, &c., which can only be satisfactorily effected by steam, there is not, and never has been any Apparatus.

The Council has accepted (Sept. 18th) my suggestion to offer to disinfect after deaths from Phthisis. Even if the householder in many cases refuses the offer, yet a good effect will be produced by this practical intimation that Phthisis is infectious; and in the future, greater care in adopting proper hygienic measures will diminish the number of preventible cases of this common and fatal disease.

Notification of Infectious Disease.—On taking office, I found that the requirements of the Notification Act were complied with in a very half-hearted manner in this District, I found many cases notified too late for the proper precautions to be enforced; for instance, a case of Scarlet Fever notified only when peeling, no isolation having been attempted. Further I found that some medical men considered it only necessary to notify one case per house, however many there might be; for instance, two cottages were made the subject of two notifications only, though containing ten cases. From consideration of these facts I am compelled to believe that the statistics of infectious disease for the District for previous years are completely unreliable, as giving figures far below the truth. I found myself involved in a very large correspondence with local medical

practitioners, in my endeavours to place Notification on a proper basis; and although some were at first inclined to resent criticism, I am happy to be able to report that all were amenable to reason, and that I have every ground for belief that the Act is now being fully complied with, and all is going smoothly. Twice during the year suspicious circumstances have arisen which seemed to point to deliberate concealment of cases, but satisfactory proofs were not forthcoming, and in their absence I must decline to believe in the correctness of the rumours which reached me.

Isolation Hospital.—Mention must here be made of the Hospital at Marbury, which has been used this year for seven cases of Scarlet Fever, each urgent for special reasons connected with want of accommodation at home. The first case was admitted on Feb. 1st, and the second on Feb. 3rd. These were discharged on March 13th. The third was admitted April 18th, and the fourth May 2nd; these were discharged on June 10th. The fifth was admitted on June 12th, and the other two on July 1st. These were discharged on Aug. 6th, since which date the Hospital has not been in use. These cases are estimated to cost the Council from £12 to £15 each. I consider £100 too much to pay for isolating 7 cases out of 270; and a very slight increase in the expenditure would enable the Hospital to be kept open all the year round, with a permanent Staff; which would be of enormous assistance to your Officers in dealing with Infectious Disease. As it is, a case was refused admission on March 6th; two on July 24th; and one on Sept. 13th; in each of which cases admission was formally applied for. In the first of these, two further cases occurred in the same house six months afterwards; but it is possible there may have been a fresh infection. In the last-named another case followed in the same house in a fortnight. The Hospital cannot be considered to have been used to its full capacity.

Joint Isolation Hospital Accommodation.—This question has been pressed by the County Council on the attention of this, and neighbouring, District Councils. So far, no agreement has been arrived at, or even appears at all probable.

Infectious Diseases.—The number of cases of Notifiable Infectious Disease during 1896 was 270, (as against 129 in 1895.) They comprised 218 of Scarlet Fever, (as against 90); 15 Diphtheria and Membranous Croup (against 8); 20 Enteric Fever, (against 13); 3 Puerperal Fever, (against 4); and 14 Erysipelas, (against 14). The distribution is shewn in Supplementary Table I. (p. 36).

The distribution in point of time was as follows:—

	Scarlet Fever.	Diph- theria.	Enteric Fever.	Puerperal Fever.	Erysipe- las.	TOTAL.
January	22	—	—	—	4	26
February	20	—	1	—	1	22
March	23	—	3	—	—	26
April	29	—	—	1	1	31
May	11	2	1	—	1	15
June	23	1	—	—	—	24
July	11	3	2	1	1	18
August	12	4	3	1	—	20
September ...	13	2	4	—	—	19
October.....	—	—	4	—	2	6
November ...	25	1	1	—	1	28
December ...	29	2	1	—	3	35
	218	15	20	3	14	270

The above tables will assist you in following my further remarks on this very important subject. The number of cases to be considered is so large that it will be convenient to take the different Districts separately.

Over.—This was the most fortunate district. One case of Diphtheria occurred in Moulton in December; and one case of Erysipelas in Wimboldsley in January. Darnhall had one case of Scarlet Fever in each of the months February, June, July, and November. Marton had one case in July, and three in September. Moulton one in December. All these were probably off-shoots of the Winsford epidemic. There was no fatal case of infectious disease in the Over District.

Middlewich.—Stanthorne had one case of Erysipelas in January and one in April, (the same person); and Davenham one case in May. Davenham had one case of Puerperal Fever in July. Davenham had one case of Enteric Fever in February (fatal), the infection being taken at Latchford. Rudheath had another case in April, (fatal); the patient was in low condition after a severe operation. Scarlet Fever provided 34 cases. Bostock had 3 (one house) in February; infection

from Nottingham. Byley had 1 in May; infection from Middlewich. Kinderton had 2 (one house) in March; ditto. Davenham had a single case in January, 4 in November (3 in one house), and 3 in December. Rudheath had 2 (one house) in January; 1 in April, a convalescent school-boy removed from Northwich; 1 in September, 5 (3 in one house) in November, and 4 (3 in one house) in December. The latter cases in both Davenham and Rudheath are connected with an epidemic in the Northwich Urban District.

Weaverham.—Crowton had 2 cases of Erysipelas in January and October. 1 case of Puerperal Fever occurred in Barnton in April. Enteric Fever appeared once in Cuddington in March in a large house, where the origin was difficult to account for. The drainage was not well arranged, and some alterations were advised. One case occurred in Delamere in May; one case in Crowton in September, (imported from Altrincham); and one case in Oakmere in July, (imported from Salford). One case occurred in Barnton in March, (a canal boatman), and another in July. These are all so scattered, both in time and in place, that they do not require collective consideration. It is otherwise with the 6 cases in Acton. These all occurred in the latter part of the year, and within a small radius. The first case was notified on Aug. 5th, and proved fatal on Sept. 3rd (male 34 years). Two children, in the same row, (which consists of 2 pairs of semi-detached cottages), were notified on Sept. 22nd; and on Oct. 2nd the widow of the first case. On Nov. 14th a case was notified which proved fatal on the 15th, at a farm close by. The well-water was analysed, and found to be polluted. Finally on Dec. 18th the father was notified in the same house as the 2 previous children. I visited the locality and examined the premises on Oct. 6th, and reported to you that I was further informed that Enteric Fever had been appearing at intervals for some years past in this particular spot. All the drains were found faulty; and delivering into a ditch not many yards away; the privies were badly constructed with cesspools overflowing with storm-water, and together with the pig-styes, were too close to the houses. My impression is that the soil about the houses is simply saturated with the accumulated filth of years. Notices have been served to remove and rebuild the privies; and a drainage-scheme will shortly be taken into consideration.

Diphtheria —A single case at Weaverham in May; single cases in Delamere in July (fatal), November, and December; and 7 cases in Barnton, 2 in July, 4 in August, and 1 in September. A visit of

inspection and enquiry on Aug. 21st enabled me to report to you that Barnton was "full of sore throats" about this period; so that probably there were a good many more (slight) cases that were never reported. Two of the cases proved fatal. There was no other case in any part of the District during this epidemic. It was found impossible to associate the cases with any of the usual causes, viz., foul sewers, bad water, or school-attendance. The milk supply was from several sources. All were examined, without result. It is probable therefore that the disease was due to some of the obscure causes, (such as sub-soil temperature, and height of sub-soil water), which are not fully understood. The weather had been fine and warm during July and August; but towards the latter part of August a long period of steady rain set in; the majority of the cases, viz., the 4 in August, occurring immediately before the rain came on.

Scarlet Fever was notified 54 times. 1 case in Little Leigh in August has already been referred to. A slight epidemic prevailed in the Western Townships in the beginning of the year; and was believed to be connected with a similar state of affairs across the boundary, in the Tarvin Rural District. Delamere had 2 cases in January, 3 in February, 3 in April; Eddisbury 1 in January, 3 in February, 1 in March; Cuddington 5 in January, 1 in March; Oakmere 1 in January, 2 in February, 2 in March; Hartford 3 in March, 3 in April. The only fatal case was 1 in Eddisbury. No case has since occurred in any of those Townships, save only a single case in Delamere in November. This occurred in the same house where one of the previous cases had been. Several visits of enquiry were paid to the district, and on one occasion all the scholars in Delamere School were examined. Evidence was obtained of a boy being at a Christmas treat on the 22nd day after notification. Another boy was exposed without precautions in the fifth week. Many persons believed that the Sunday Schools and Christmas parties were responsible for many cases. The parents in general were supremely ignorant of the necessity of isolation. The disease disappeared coincidently with the enforcement of precautions, in which assistance was no doubt obtained from the scattered nature of the population. The township of Barnton remains to be considered. There were 2 cases in March, 2 in April, 1 in May, and 2 in June. These were believed to be connected with Winnington cases, to be presently discussed. 2 cases in August, 3 in September, 1 in November, and 9 in December, show a fresh epidemic, which may be purely local, or may depend upon inter-communication with Northwich (Town).

Northwich.—8 cases of Erysipelas occurred, 1 each in Anderton, Comberbatch, and Lostock, 2 in Winnington, and 3 in Marston. They require no comment save that the case at Lostock occurred in a baby, and might be connected with vaccination. 1 case of Puerperal Fever (fatal) occurred at Leftwich in August. Of Enteric Fever 1 case occurred at Marston and 1 at Lostock in August; 1 case at Winnington in September and 3 in October. The 3 latter are believed to be connected with the water supply from new wells sunk at new houses, and the Council is advised, if practicable, to extend their mains from Greenbank. Diphtheria appeared once in Comberbatch in September, and twice in Leftwich, in May and June. Scarlet Fever was notified 121 times. A single case at Allostock in April; 3 cases (one house) in Nether Peover in April; 1 case at Comberbatch in March, 2 in November and 1 in December, a case at Leftwich in April, 2 in November and 1 in December, need not detain us. Wincham had 1 case in January, 2 in June, and 1 in July; Marston had 1 each in April, June, August, and September; and Lostock Gralam had 4 in January, 5 in February, 1 in July, 4 in November, and 4 in December. (The last 8 in one house). This is hardly sufficient to discuss as an independent epidemic. Anderton had 1 case in May, 1 in June, and 2 in July; which might be connected with the preceding; or else with the Winnington epidemic, at which we now arrive. The disease appeared in Winnington in December, 1895, when there were 7 cases. These were followed by the monthly numbers: January 5, February 2, March 12, April 17, May 9, June 15, July 6, August 6, September 6, October 0, November 5, December 1; total for 1896, 79. Many visits and inspections were made. Whatever may have been the original source of infection, certain points become perfectly clear. The area comprises several streets of new and well-built cottages, tenanted by the workpeople of Messrs. Brunner, Mond & Co., owned by and built by the Firm. There is a good water supply. Scavenging on the pail system is carefully carried out. All the houses are drained. Everything has been done to make this a model village. The Firm even employs an Inspector of its own, and undertakes disinfection of infected premises, keeping a register of all existing cases. Why then has there only been one month in the year (October) free from the disease? First, no doubt, because of the presence of a large number of susceptible children. In the second place, undoubtedly, by careless intercourse between neighbours (and their children) quite irrespective of the existence or otherwise of any danger of infection. Thirdly, the intercourse among the children at the School. It has been very instructive to observe the effect of School closure. It was not until March, the fourth month of its presence, that the disease caused any uneasiness. The School was closed on March 31st and for the first half of April the disease still increased. But during the second half of April and first half of May there was so pronounced an abatement, that the School was reopened on May 11th. The cases immediately commenced to increase, and this continued till July 4th, when the School was again closed, and (including the Summer holidays) was not again opened until August 18th. By this time the disease had

practically disappeared. A few scattered cases, (many of them in houses previously infected), continued to occur in August and September, but the month of October shewed a clean record, (Sept. 28th to Nov. 7th). The occurrence of 5 cases (in 3 houses) in November, and 1 on the 1st of December,—since which date there is again a clean record to the end of the year,—need not cause surprise. Whether the susceptible material is exhausted, or whether the disease has ceased spontaneously, or whether Sanitary Administration has really exercised a controlling influence, is a question on which each will no doubt form his own opinion. As far as my own opinion goes, I certainly think that the facts and figures, adduced above, are in favour of the last-mentioned alternative. Considering that the population is estimated at 1900, and that upwards of 800 children attend the School, (some of course from other Townships), 79 is not an excessive number of cases for an epidemic spread over the whole year. The age-incidence is also very interesting. The earlier cases were mostly between 5 and 10 years; younger children were affected later. There were 2 cases under 1 year, 6 between 1 and 2 yrs., and 5 between 2 and 3 yrs.; or 12 which could not be School cases; there were 11 between 3 and 4 yrs.; and 11 between 4 and 5 yrs., or 22 which might or might not be attending School; 31 between 5 and 10 yrs., at School age; 7 between 10 and 15 yrs.; 3 between 15 and 20 yrs.; and 3 over 20 yrs. The deaths were 4, 1 in January, 1 in May, and 2 in June; at ages 9, 4, 3 and 3 yrs. respectively. Deaths, 5 per cent. of cases. Death-Rate 2·1. (Township of Winnington).

Other Infectious Diseases.—Measles and Whooping-Cough have both been prevalent. At Moulton the School was closed, on account of Measles, from February 15th to 29th. The Delamere School was closed for the same reason from April 15th to May 11th, no less than 60 cases occurring within a few days. The School at Little Budworth was closed for the same reason from September 14th to October 12th. In the absence of Notification, no more precise information can be given.

Births.—[See Supplementary Table II. p. 37].—This is arranged in such a manner that by reading it horizontally, the Quarterly figures, and yearly total for each District are given; by reading it vertically the District figures and totals for each Quarter.

The total number of births exceeds that of 1895 by 62. This fact, in addition to a smaller estimation of population (see para. 3), throws up the Birth-Rate to 37·0, as against 33·9 for 1895, and 34·2 for the four years 1892—1895.

Deaths.—[See Supplementary Table III. p. 37].—The total number 348 (including 4 which took place in the Victoria Hospital, and 2 in the Union Workhouse, both in the Northwich Urban District), is less by 35 than the number for 1895. The numbers per Quarter, 110, 79, 68, and 91, shew the usual summer and winter fluctuation, much more markedly than

in 1895. The Death-Rate, 15·4, is very satisfactorily less than in 1895, by 1·4; and this notwithstanding the smaller estimate of population, which would tend to throw it up. In addition to the deaths from Notifiable Diseases, already incidently discussed, viz.:—Scarlet Fever 10, Diphtheria 4, Enteric Fever 4, and Puerperal Fever 1, total 19; (see *antea*), Table A allows us to learn something more of the remaining Zymotic Diseases.

Measles.—This is shewn to have caused 9 deaths, viz., 3 in Delamere in April (ages 1, $\frac{3}{4}$, $1\frac{3}{4}$); 1 in Oakmere (age $\frac{1}{2}$) and 1 in Weaverham (age $1\frac{1}{2}$) in May; 1 in Acton (age 12) in November, and 1 in Barnton (age $1\frac{3}{4}$) in December; 1 in Winnington (age 2) in January, and 1 in Little Budworth (age 6) in September. These may be taken as indications of the prevalence of the disease at the places, and at the times, named.

Whooping Cough caused 9 deaths; 1 in Nether Peover (age $\frac{1}{2}$) in September, and 1 in Lostock Gralam (age $\frac{1}{4}$) in November; 1 in Crowton (age $\frac{1}{2}$) in November, and in December 2 in Weaverham (ages 1, and $\frac{1}{2}$), 3 in Acton (ages $\frac{3}{4}$, 2, $\frac{3}{4}$) and 1 in Barnton (age $\frac{3}{4}$). This points to a serious epidemic in the valley of the Weaver. Of the 18 deaths attributed to Measles and Whooping-Cough it will be observed that no less than 9 are under one year of age, and 7 more at, or under 2 years.

Diarrhæa is only recorded 6 times; 1 case (age 67) at Hartford in July, and 1 case (age 2) at Barnton in September, 1 case at Winnington in July and 1 case at Marston in August, (both under 1 year); and in December 2 cases at Lostock Gralam (aged 4 and $1\frac{1}{4}$).

Zymotic Deaths.—We have now surveyed all the deaths due to the “seven principal zymotic diseases,” and find a total of 41; which is equal to a Rate of 1·8 for the whole District. In 1895 there were only 8 deaths among the 129 notified cases; and 21 from the seven principal zymotic diseases; with a Rate of 0·9. The Mortality this year is therefore double that of last year, just as the number of notified cases is double.

Infant Mortality.—This works out at 126 per 1000 births, as against 138 in 1895. The causes of death are thus classified.

	Prema- turity.	Teething and Convulsions	Debility and Marasmus	Zymotic Diseases.	Bronchitis and Pneumonia.	Various.	TOTAL.
Weaverham...	7	8	12	7	8	2	44
Northwich ...	6	4	11	4	10	3	38
Over	3	0	4	0	2	6	15
Middlewich...	2	3	0	0	2	1	8

The total of 105 compares with 107 in 1895. The Seasonal distribution was, 34 in the first Quarter, 21 in the second, 21 in the third, and 29 in fourth; thus following the same rule as the general deaths.

Influenza is the cause of 4 deaths; in February a child (2 yrs.) at Weaverham, and a case (73 yrs.) at Crowton; in November a case (55 yrs.) at Rudheath; and in December a case (80 yrs.) at Weaverham.

Phthisis still maintains too high a place. 25 deaths (as against 23); 15 of them in the Northwich Sub-District.

Bronchitis and Pneumonia shew an improvement; 59 cases (as against 75).

Heart Disease.—32 cases (as against 28).

Injuries.—14 cases (as against 20). 5 drowned in the Weaver, 2 in the canal, 1 in a pond; 2 killed on the railway, 1 suicide (cut throat), 1 scalds, 1 shock from falls, 1 run over.

Inquests.—In addition to the above cases, inquests were held on 13 other occasions, when the verdict was one form or another of natural causes.

Uncertified Deaths.—Only occurred 3 times; 2 babies, and one in old age, all from natural causes.

Water Analyses.—These have been undertaken for the Council by the Medical Officer of Health as follows:—

DATE. 1896.	LOCALITY.	RESULT.
Jan. 13.	Whatcroft	Very Bad.
„ 30.	Byley	Doubtful.
March 7.	„	Bad.
April 3.	Shurlach	Very Good.
„ „	Lach Dennis	Very Bad.
May 17.	„ „	„ „
June 24.	Occlestone	„ „
July 8.	Delamere	Very Good
Oct. 23.	Winnington	Bad.
Nov. 7.	„	Doubtful.
„ „	„	Good.
„ „	„	„
„ 17.	Acton	Doubtful.

The last 5 being all under suspicion of connection with Enteric Fever cases, it was advised to discontinue them for human consumption, independently of the result of the Chemical analysis.

Sewage Outfalls.—These have been inspected by the County Medical Officer, in company with your Medical Officer and Inspector; and have been reported upon by your Medical Officer, (Nov. 13th, 1896.)

Legal Proceedings.—A very important case was heard at the Northwich Petty Sessions on June 30th, when the Council summoned a labourer, of Wincham, for not notifying the existence of Scarlet Fever in his house. The Bench convicted, and imposed a nominal penalty, as this was the first case of the kind; but gave a strong warning that future cases would be dealt with more severely. Fortunately there have been no further cases. I believe the action taken has had a distinctly valuable effect.

H.M. Inspector of Factories for the Manchester District, which includes a portion of this Rural District, has intimated his expectation that he will receive the assistance of your Officers as laid down in the Factory and Workshop Act, 1891.

Adoptive Acts.—The Council has adopted all the usual Acts except the Private Street Works Act, 1892.

In conclusion I can only express my regret that the District has provided so rich material for such a lengthy Report; and my hope that it may be more fortunate in the next year.

I append extracts from the Inspector's Report.

T. W. H. GARSTANG.

Medical Officer of Health.

January 8th, 1897.

Extract from County Return for 1895, shewing position of Sub-Districts as compared with 30 Rural Districts and Sub-Districts having populations from 1012 to 12436.

	Birth-Rate.	Place in List.	Death-Rate.	Place in List	Zymotic Death-Rate.	Place in List.	Infants to 1000 Births.	Place in List.
Best of 34.....	35·9	...	10·7	...	0	...	0	...
Worst of 34 ..	20·9	...	23·8	...	4·3	...	189	...
Weaverham ...	32·9	3	18·9	29	0·5	10	140	23
Northwich.....	34·9	2	17·1	25	1·3	26	164	28
Over	32·1	4	12·9	6	0·9	23	111	16
Middlewich ..	35·9	1	13·7	11	0·7	14	82	7

[A] Table of DEATHS during the Year 1896, in the Northwich Rural

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							(i)	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)					
Registration Sub-Districts of												
Weaverham.....	136	44	19	5	3	32	33	{ Under 5 ... 5 upwards ...	2	1	2	2
Northwich	121	38	15	8	7	34	19	{ Under 5 ... 5 upwards ...	4	...	...	...
Over	46	15	4	3	...	12	12	{ Under 5 ... 5 upwards ...	...	...	...	...
Middlewich	39	8	2	3	2	11	13	{ Under 5 ... 5 upwards ...	1	...	...	...
TOTALS.....	342	105	40	19	12	89	77	{ Under 5 ... 5 upwards ...	7	1	2	2

The subjoined numbers have also to be taken into account

Deaths occurring outside the district among persons belonging thereto.	6	...	...	...	1	4	1	{ Under 5 ... 5 upwards ...	...	...	...	...
Deaths occurring within the district among persons not belonging thereto.	...	...	...	...	...	...	...	{ Under 5 ... 5 upwards ...	...	...	...	...

[B] Table of POPULATION, BIRTHS, AND OF NEW CASES
Officer of Health, during the year 1896, in the Northwich Rural

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. Registration Sub-Districts of (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Census 1891. (b)	Estimated to middle of 1896 (c)	Registered Births. (d)		Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
					Under 5 ... 5 upwards ...			
Weaverham.....	8058	8561	299	{ Under 5 ... 5 upwards ...	22	7	...	
Northwich (H)	7069	8092	363	{ Under 5 ... 5 upwards ...	47	...	...
Over	3083	3089	89	{ Under 5 ... 5 upwards ...	2	...	...
Middlewich	2699	2759	83	{ Under 5 ... 5 upwards ...	14	...	...
TOTALS.....	20909	22501	834	{ Under 5 ... 5 upwards ...	85	7	...	

State here whether "Notification of Infectious Disease" is compulsory

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																					
FEVERS.																					
Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, & Pleurisy.	Heart Disease.	Influenza	Injuries.	All Other Diseases.	Total				
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
...	2	...	...	...	...	...	6	7	1	...	...	11	...	1	...	32	63				
...	...	...	...	...	...	...	1	...	1	...	7	15	11	2	2	29	73				
...	...	...	...	...	...	...	1	2	4	...	6	14	1	...	...	21	53				
...	...	...	...	1	...	...	...	...	...	...	9	8	14	...	6	28	68				
...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	17	19				
...	...	...	...	...	...	...	1	...	...	...	1	4	1	...	4	16	27				
...	2	...	...	...	...	...	...	...	...	...	2	2	...	...	1	6	10				
...	...	...	...	...	...	...	...	...	...	...	2	2	5	1	1	16	29				
...	...	...	...	...	...	...	7	9	5	...	6	30	1	1	1	75	145				
...	4	...	...	1	...	...	2	...	1	1	19	29	31	3	13	89	197				

Area and Population of the District or Division to which this Return relates.

Area in Acres, 54,301.
Population (1891) 20,909.
" (Estimated to middle of 1896) 22,501.

Death Rates { General 15.4
Infant (under one year of age) } ... 126 } per 1,000 Population, estimated to middle of 1896.
per 1,000 Births Registered.

in judging of the above records of mortality.

...	...	...	...	...	...	...	...	...	...	1	...	...	...	3	2	6
...
...
...

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY, COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.											NUMBER OF SUCH CASES REMOVED FROM THEIR HOMES IN THE SEVERAL LOCALITIES FOR TREATMENT IN ISOLATION HOSPITAL.
FEVERS.											Scarlatina.
Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.					
5	6	7	8	9	10	11	12	13			
...	12	...	...	1	...	2	...	...	...
...	6	...	...	1	...	1	...	...	...
...	...	...	...	...	...	7	...	...	5	
...	...	...	...	...	...	1	...	...	2	
...	2	...	...	1	...	3	...	...	...
...	...	...	...	...	...	1	...	...	...
...	20	...	...	3	...	13	...	...	7	

in the District—Yes. Since when?—1st January, 1890. (H) Small Hospital in Marbury Township.

SUPPLEMENTARY TABLE 1.

Cases of Infectious Disease Notified, 1896, arranged according to Localities.

	Scarlet Fever.	Diphtheria and Membranous Croup.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Total.		Scarlet Fever.	Diphtheria and Membranous Croup.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Total.
Acton .....	...	...	6	...	...	6	Clive .....	...	...	...	...	...	...
Barnton	22	7	2	1	...	32	Darnhall	4	...	...	...	...	4
Crowton .....	...	...	1	...	2	3	Eaton .....	...	...	...	...	...	...
Cuddington.....	6	...	1	...	...	7	Little Bndworth	...	...	...	...	...	...
Delamere	9	3	1	...	..	13	Marton	4	...	...	...	...	4
Eddisbury	5	...	...	...	...	5	Moulton	1	1	...	...	...	2
Hartford	6	...	...	...	...	6	Wimboldsley ...	...	...	...	...	1	1
Little Leigh ...	1	...	...	...	...	1							
Oakmere	5	...	1	...	...	6	OVER	9	1	...	...	1	11
Weaverham ...	...	1	...	...	...	1							
WEAVERHAM..	54	11	12	1	2	80	Bostock	3	...	...	...	...	3
Allostock.....	1	...	...	...	...	1	Byley	1	...	...	...	...	1
Anderton.....	4	...	...	...	1	5	Davenham	8	...	1	1	1	11
Cogshall .....	...	...	...	...	...	...	Kinderton	2	...	...	...	...	2
Comberbatch ...	4	1	...	...	1	6	Lach Dennis ...	...	...	...	...	...	...
Leftwich	4	2	...	1	...	7	Rudheath	13	...	1	...	...	14
Lostock Gramam	18	...	1	...	1	20	Sproston .....	...	...	...	...	...	...
Marbury .....	...	...	...	...	...	...	Stanthorne ...	...	...	...	...	2	2
Marston	4	...	1	...	3	8	Whatcroft	7	...	...	...	...	7
Nether Peover	3	...	...	...	...	3	MIDDLEWICH..	34	...	2	1	3	40
Wincham	4	...	...	...	...	4	Weaverham ...	54	11	12	1	2	80
Winnington ...	79	...	4	...	2	85	Northwich	121	3	6	1	8	139
NORTHWICH...	121	3	6	1	8	139	Over.....	9	1	0	1	1	11
							Middlewich.....	34	0	2	0	3	40
							Grand Total...	218	15	20	3	14	270

SUPPLEMENTARY TABLE 2.—BIRTHS.

	1ST QUARTER.				2ND QUARTER.				3RD QUARTER.				4TH QUARTER.				TOTAL.			
	M.	F.	Total	Rate.	M.	F.	Total	Rate.	M.	F.	Total	Rate.	M.	F.	Total	Rate.	M.	F.	Total	Rate.
Weaverham	32	38	70	33·2	45	35	80	37·9	41	37	78	36·5	32	39	71	28·1	150	149	299	34·9
Northwich	51	53	104	47·4	45	48	93	42·4	41	45	86	42·1	28	52	80	39·2	165	198	363	44·8
Over.....	...	...	18	23·3	...	...	33	42·7	...	...	25	32·0	...	...	13	16·6	...	...	89	28·8
Middlewich	8	9	17	24·7	8	7	15	21·8	12	19	31	44·6	9	11	20	28·8	37	46	83	30·1
			209	37·2			221	39·4			220	38·8			184	32·8			834	37·0

SUPPLEMENTARY TABLE 3.—DEATHS.

	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.
Weaverham ...	39	18·4	24	11·3	32	14·9	42	16·6	137	16·3
Northwich.....	42	19·1	33	15·0	18	8·8	33	16·1	126	15·5
Over	16	20·7	14	18·1	10	12·8	6	7·6	46	14·8
Middlewich ...	13	18·8	8	11·6	8	11·4	10	14·4	39	14·1
	110	19·5	79	14·0	68	14·2	91	16·2	348	15·4

SUPPLEMENTARY TABLE 4.

Shewing Births, Birth Rate, Deaths, and General and Zymotic Death Rates, and compared with former Averages; Deaths in Old Age and Infancy, and percentages of these to total Deaths; for the year 1896.

	Total.			Birth-Rate.		Death-Rate.				Deaths.		Percentage to Total Deaths of Deaths.	
	Births.	Deaths.	Deaths from Seven principal Zymotic Diseases.	1895.	1896.	General.		Zymotic.		At 65 Years and upwards	Under One Year.	At 65 Years and upwards	Under One Year.
						1895.	1896.	1895.	1896.				
Weaverham	299	136	24	32·9	34·9	18·9	16·3	0·5	2·9	33	44	24	39
Northwich	363	121	13	34·9	44·8	17·1	15·5	1·3	1·6	19	38	15	30
Over	89	46	1	32·1	28·8	12·9	14·8	0·9	0·3	12	15	26	33
Middlewich	83	39	3	35·9	30·1	13·7	14·1	0·7	1·1	13	8	33	20
Whole District	834	342	41	34·2	37·0	16·9	15·4	0·9	1·8	77	105	22	31

SUPPLEMENTARY TABLE 5.

Shewing Population, Estimated, 1896; Total Deaths, Deaths from Special Diseases, and at Special Ages, in entire Sanitary District, the Registration Sub-Districts, and the individual Townships.

Population Estimated 1896.	REGISTRATION DISTRICTS AND TOWNSHIPS.	TOTAL DEATHS.	DEATHS FROM SPECIAL DISEASES.								TWO GROUPS OF AGES.		
			Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhoea.	Total Zymotic.	Puerperal Fever.	Phthisis.	At 65 Years and Over.	Under One Year.
550	Acton	14	...	...	2	1	3	...	6	...	...	3	7
2655	Barnton	39	2	2	...	1	1	1	7	...	2	10	11
544	Crowton	9	...	...	...	1	...	...	1	...	...	1	4
520	Cuddington	5	...	...	...	...	...	...	...	...	...	2	...
532	Delamere	11	...	1	...	3	...	...	4	...	...	3	2
286	Eddisbury	2	1	...	...	...	...	...	1	...	...	...	...
900	Hartford	15	...	...	...	...	...	1	1	...	...	4	5
410	Little Leigh	3	...	...	...	...	...	...	...	...	...	2	...
394	Oakmere	7	...	...	...	1	...	...	1	...	...	3	3
1770	Weaverham	32	...	...	...	1	2	...	3	...	5	5	12
8561	WEAVERHAM	137	3	3	2	7	7	2	24	...	7	33	44
480	Allostock	5	...	...	...	...	...	...	...	...	1	2	...
357	Anderton	5	...	...	...	...	...	...	...	...	1	1	...
86	Cogshall	1	...	...	...	...	...	...	...	...	...	...	...
400	Comberbatch	3	...	...	...	...	...	...	...	...	...	1	...
764	Leftwich	7	...	...	...	...	...	...	...	1	...	1	1
1900	Lostock Gralam	38	...	...	...	1	2	3	3	...	5	2	16
58	Marbury	1	...	...	...	...	...	...	...	...	...	1	...
909	Marston	17	...	...	...	...	1	1	...	2	...	3	5
220	Nether Peover	6	...	...	...	1	...	1	...	1	...	...	3
1181	Wincham	16	1	...	...	...	...	1	...	...	...	3	5
1737	Winnington	27	4	...	...	1	...	1	6	...	2	5	8
8092	NORTHWICH	126	5	...	...	1	2	4	12	1	12	19	38
173	Clive	4	...	...	...	...	...	...	...	...	...	1	...
337	Darnhall	7	...	...	...	...	...	...	...	...	...	1	1
24	Eaton	1	...	...	...	...	...	...	...	...	...	...	...
600	Little Budworth	8	...	...	...	1	...	1	...	...	...	2	4
636	Marton	6	...	...	...	...	...	...	...	...	...	3	3
1100	Moulton	19	...	...	...	...	...	...	...	...	1	5	7
219	Wimboldsley	1	...	...	...	...	...	...	...	...	...	...	...
3089	OVER	46	...	...	...	1	...	...	1	...	1	12	15
220	Bostock	1	...	...	...	...	...	...	...	...	...	1	...
200	Byley	1	...	...	...	...	...	...	...	...	...	...	1
635	Davenham	11	...	...	1	...	...	1	...	1	...	5	1
250	Kinderton	3	...	...	...	...	...	...	...	...	...	1	1
180	Lach Dennis	3	...	...	...	...	...	...	...	...	...	1	...
750	Rudheath	15	1	...	1	...	...	2	...	1	...	3	3
190	Sproston	2	...	...	...	...	...	...	...	...	...	...	1
204	Stanthorne	2	...	...	...	...	...	...	...	...	...	1	...
130	Whatercroft	1	...	...	...	...	...	...	...	...	...	...	1
2759	MIDDLEWICH	39	1	...	2	...	...	...	3	...	2	12	8
22501	ENTIRE SANITARY DISTRICT	348	9	3	4	9	9	6	40	1	22	76	105

INSPECTOR'S 23rd ANNUAL REPORT.

The Work of my department is strongly marked by continued increase in every branch, especially in the amount of travelling about the District required ; so much so, that I have never been able to take the fortnight's holiday which the Council sanctioned.

Public Works.—There are now works of water-supply in 23 Townships, and Sewerage Works in 11 Townships. The maintenance and development of these works, and continued extensions to meet the needs of an ever-increasing population, keeps the District, as a whole, in a fairly good Sanitary condition.

Water Supply.—The estimated population of the District will be nearly 23,000 and of this number nearly 17,000 are supplied with water and have had an uninterrupted service during the year ; also a supply to the Union Workhouse, (in the Northwich Urban District,) has been maintained ; of the remaining 6,000 about one half have fairly good supplies from pump wells ; but the rest are often sorely plagued for want of good water.

Infectious Disease.—Every notified case has been visited, dealt with, and reported on, requiring an enormous amount of travelling.

Sewers.—Extensions have been made in Rudheath and Weaverham. Plans of new out-fall works for Barnton, to cost £730, have been prepared and submitted to the Local Government Board, and a local enquiry has been held ; but the Board's decision has not yet been received.

In Sandiway joint action by the County and Districts Councils, in laying a new road-drain for 900 yards at a cost of £195, has removed a nuisance caused by flooding of both road and houses.

New Houses.—Plans of 59 new houses have been approved during the year ; bringing the number of houses in the District up to 4708. The powers of the Council under the Housing of the Working Classes Act have been brought into operation in the case of 4 cottages in Lostock Gralam with successful result.

Scavenging and Nuisances.—The number of houses scavenged weekly by contractors is 2236. Nuisances have been abated at 89 houses. In 7 cases summonses have been taken out.

River Pollution.—The Pollution of the Dane has again been brought into Court, and an Order obtained against the offending Company.

Canal Boats.—81 have been examined. 7 have been caused to undergo repair. One case has been warned for overcrowding, and one summoned for not being registered, and fined. It is again satisfactory to note that no case of Infectious Disease, so far as known, has been imported by Canal.

Slaughter Houses.—The Registered Slaughter Houses have had the requisite attention.

The office work in connection with the performance of the above duties has included writing 926 letters, and it may be safely concluded that the whole time of the Inspector and his Assistant has been fully occupied.

H. J. BENNETT,

SURVEYOR AND INSPECTOR.

Dec. 31, 1896.



BUCKLOW RURAL DISTRICT.

Annual Report of Medical Officer of Health.

Population at Census, 1891, 20,382.

Estimated Population in middle of 1896, 21,527.

Area in Acres, 58,925.

Birth-Rate per 1000 living, 22·7.

Death-Rate per 1000 living, 13·6.

Death-Rate from Seven principal Zymotic Diseases, 0·8.

Deaths under one year to 1000 Births, 100.

General.—In presenting my Second Annual Report to the Bucklow Council, I may briefly summarise what follows by saying at once, that 1896 has found plenty of work for, and has seen increased activity in, my Department; and that the results are highly satisfactory.

Population.—The Public Health of a District is discussed, (and compared with that of other Districts), by its Birth-Rate, Death-Rate, and Sickness-Rate. These "Rates" are all calculated from the actual figures in the various Returns, upon the basis of one thousand persons living during one year. The figures in the Returns being exact, it is clear that errors may nevertheless occur if the population is not rightly estimated. The correctness of the information upon which such estimate is formed is therefore of primary importance. It occurred to me that the Overseers, (or Assistant-Overseer), in each Township might be able to give valuable assistance from local knowledge of any exceptional circumstances affecting

the population in that Area; and I accordingly issued a circular on Dec. 5th, 1896, inviting that assistance. I desire to acknowledge with gratitude the readiness with which it was given by those gentlemen. Out of your 30 Townships, there is only one (viz. Peover Inferior) from which I have not received any reply; and one other (viz. Tabley Inferior) from which the reply did not contain any information. The value of these Returns may be readily seen by comparing the figures which I have been using during 1896 for my monthly and quarterly Reports, (and which were calculated theoretically,) with those which I now prefer to adopt as being in all probability more correct:—

Estimated Population in 1896 for Sub-District of	By Theoretical Calculation.	By practical information from the Overseers.
Altrincham	9630	9985
Lymm	3650	3150
Knutsford	3470	3584
Wilmslow	4650	4808
Total for Rural District	21400	21527

The difference in the totals is only an increase of 127 (or 0·6 per cent.), but the Sub-Districts are variously affected, Altrincham being raised by 355 (3·7 per cent.), Knutsford by 114 (3·3 per cent.), and Wilmslow by 158 (3·4 per cent.), while Lymm on the contrary is diminished by no less than 500 (13·7 per cent. All percentages will therefore be *inversely* affected to a similar extent.

The comparison of the present estimate with the Census of 1881 and 1891 is as follows:—

SUB-DISTRICT OF	1881.	1891.	1896.
Altrincham	7560	8894	9985
Lymm	3243	3390	3150
Knutsford.....	3760	3661	3584
Wilmslow	?	4437	4808
Total for Rural District	?	20382	21527

In the Altrincham District the greatest increase is in Hale, but the other Townships all share, except Ashley which shews a nominal decrease. In the Lymm District the increase in 1891 was temporary, and due to the presence of men working on the Ship Canal. It was confined to the Townships of Carrington and Partington. The true tendency is shewn by the 1896 estimate, and is a decrease so slight that the permanent population may practically be considered to have been stationary for 15 years. The same applies to the Knutsford District, where the Townships of Peover Superior and Toft are chiefly responsible for the slight decrease. In the Wilmslow District (in which, owing to some rearrangement of boundaries, the 1881 figures are not readily available), there is now an increase over 1891, which is practically confined to the Township of Northenden.

Prevention of Infectious Disease.—The precautions detailed in my last Annual Report continue to be systematically carried out. My attention was early given to the question of the value of Sulphur Fumigation; and I satisfied myself that in the opinion of experts it was far inferior to that of the Perchloride of Mercury Spray. I recommended (Aug. 12th) that a Sprayer should be purchased; and the Council readily gave its sanction. This is but one instance out of many which prove that the Bucklow Council is determined to be in the van, in all matters of Scientific Sanitation. The Sprayer is somewhat heavy to carry about; but in all other respects it has now practically demonstrated its right to the title of the best Disinfectant at present known. Its business is the disinfection of rooms. The disinfection of bedding, clothes, &c., can only be satisfactorily effected by steam, and for this we have as yet no apparatus. It is probable that in course of time, proper apparatus will be provided by the Bucklow Joint Hospital Board, and will no doubt be placed at the service of any resident in the Council's District. The Council has also (Sept. 23rd) accepted my recommendation to offer to disinfect after deaths from Phthisis. Even if the householder in many cases refuses the offer, yet a good effect will be produced by this practical intimation that Phthisis is infectious; and in the future, greater care in adopting proper hygienic measures will diminish the number of preventible cases of this common and fatal disease.

Isolation Hospital Accommodation.—This question has been kept well to the front during the year, and has made such rapid progress that this Council, with six Urban Councils (Alderley Edge, Ashton-on-Mersey, Knutsford, Lymm, Sale, and Wilmslow), has an application now before the Local Government Board for the formation of an Authority to be known as the "Bucklow Joint Hospital Board," and to be formed of representatives of the said Councils, and we may confidently hope that within a reasonable time those Districts will be in possession of an Isolation Hospital (or Hospitals). More than once during the year have applications been made to your Officers to remove cases to Hospital, and it has always been humiliating to confess that no such provision has been made. When

it is remembered that on October 10th, 1894, the Council permitted its then Chairman to resign rather than move in the matter of Isolation Hospital Accommodation, the change of opinion which has taken place within two years is no less astonishing than noteworthy and satisfactory. For the interval which must yet necessarily elapse, before a Hospital can be erected and made ready for use, a request has been addressed to the Altrincham Urban District Council for permission to make use of their Hospital, for cases of emergency, under proper arrangements. At the time of writing, their reply has not been received.

Infectious Diseases.—	1895.	1896.
Scarlet Fever	39	31
Diphtheria	18	9
Enteric Fever	12	19
Puerperal Fever...	3	1
Erysipelas	5	5
Small Pox	2	0
Total.....	79	65
Case-Rate...	3·7	3·0

Improvement is shewn in every case except Enteric Fever. The number of Notifications shews a reduction of 17·5 per cent. on those of 1895, which themselves were 23 per cent. below 1894. The position is most satisfactory. The cases were distributed as shewn in Supplementary Table I.

Scarlet Fever.—31 cases. In the Wilmslow District 2 cases occurred in Northenden in January. None since. In the Knutsford District 1 case occurred in Pickmere in March, (infected from Northwich Rural District); 1 in Tabley Superior in May, (infection from elsewhere); and 2 cases (in one house) in Ollerton, in May and June. In the Lymm District, 1 case occurred in March and 1 in August, in High Legh; 2 cases occurred in July, (in one house), and 2 cases in August, (in one house), in Carrington, (infection from the Sale Urban District;) and 1 case in Partington in October. In the Altrincham District, Dunham Massey had 2 cases in April, 1 in June, and 2 in August; Timperley had 1 in March, 3 in July, and 1 in November, and Hale had 2 cases in June, (in one house), 3 in August, 2 (in one house) in October, and 1 in November. These cases were all kept well in hand; there was never any fear of an epidemic; or any danger to Public Health; and it is therefore unnecessary to detail at length the information as to probable origin, &c., of each case. No case proved fatal. The District is to be congratulated on the fact that out of 25 separate centres of infection, no extensions of the disease arose.

Diphtheria and Membranous Croup.—9 cases. These diseases are now recognised as identical. In the Knutsford District there were no cases. In the Lymm District there was 1 case at Bollington in April, (fatal). The well-water was analysed, by the Medical Officer of Health, and found to be extremely polluted. The well has been closed, and a soft-water tank substituted. In the Wilmslow District there were 2 cases (in one house) in Northen Etchells in June, (both fatal). The well-water was found much polluted. The well has since been thoroughly cleaned, and partially lined; and the water is now much improved. The other 6 cases occurred in the Altrincham District; 1 case in Hale in May, (fatal); 1 case in Dunham in July, (fatal); 1 case in Timperley in November, (fatal); 1 case in Dunham in August and 1 in December, and 1 case in Hale in September. The mortality from Diphtheria, amounting to 66 per cent. of notified cases, is most striking. An attempt was made, but without success, to obtain the admission of one case into the Infectious Hospital at Altrincham. The cases enumerated were so scattered and disconnected, that it is not easy to assign their several causes.

Enteric Fever.—19 cases. The Knutsford District had 1 case at Oller-ton in January, in which the infection appeared to have been derived from Crewe. The Wilmslow District had 2 cases in Northenden; 1 case in March, a child, occurred in a block of property which just previously had been the subject of report to the Council on account of its insanitary condition; the other, in November, was contracted elsewhere, and only accidentally located in Northenden. The Lymm District had 2 cases in High Legh in March, one a man recently arrived from London, the other on a farm where the water was notoriously bad. Also one case at Partington (fatal) in August; the water here also was condemned on examination, and the well has been closed, and water now obtained from the Manchester Corporation Mains. Another case occurred in Partington in October, and one in Carrington in November; these were also attributed to bad water, and both now share in the new supply. The Altrincham District had one case (fatal) at Dunham in July. The drinking water was here obtained from a small stream, (at the foot of the garden), which was polluted with sewage. Also one case in Hale (fatal), in July, cause not ascertained. The remaining 9 cases were in Timperley; 1 in June, which resulted in reconstruction of closets and erection of vent-shafts to a block of cottages; 3 in July and 1 in September, (all in one house), the infection believed by the persons concerned to have been taken at Shudehill Market, in the first instance, but there was a sewer-ventilating grid in the road opposite the cottage which may have had something to do with it, and which was sealed up, and replaced by a vent-shaft; also in July and August two cases of children who had been sleeping in a room containing a lavatory where it is possible that leaky pipes may have admitted sewer gas; also a case in November, attributed to bad water; and one in December on premises

which were found to be in a terribly insanitary state. No case (except of course those occurring in the same house) was traced to have any connection with any other case. Partington, Hale, and Dunham had one fatal case each; or 16 per cent. of the total cases. It may be said generally that insanitary conditions were found in most of the cases.

Puerperal Fever.—Only 1 case has occurred. This was in Peover Superior in October, (fatal).

Erysipelas.—5 cases, which do not need particularisation.

In all, therefore, there were 10 deaths among 65 cases, or 15 per cent. Case-Rate, 3·0; Death-Rate, 0·4.

Births.—Supplementary Table II. (p. 57) is so arranged that by reading it horizontally the Quarterly numbers and rates are given for each District; by reading it vertically, the District numbers and rates are given for each Quarter. Referring to the Supplementary Table IV., it will be observed that the Birth-Rate for the whole District is almost the same as for 1895, being less by 0·1; the Rate in the Altrincham District having declined by 1·8, and in the other Districts having risen by 2·1, 2·0, and 1·2 respectively. Reference to the table giving the County figures for 1895 will shew that the Rate is one of the lowest in the County.

Among the 506 Births Registered, 18 were illegitimate, viz.:—Altrincham 10, Lymm 2, Knutsford 0, and Wilmslow 6.

Deaths.—11 deaths occurred in St. Anne's Home (Consumption Hospital) Dunham Massey, belonging to Manchester (6), Salford (1), Oldham (1), Dukinfield (1), Bury (1), Blackpool (1). These have been reported to the respective Medical Officers of Health of the places named; and are deducted from the 283 registered in the District. But we must then add 17 deaths belonging to the District which took place in the Union Workhouse (Knutsford Urban District), and 4 in the General Hospital (Altrincham Urban District), so that 293 is the corrected number; (compared with 314 in 1895); which is equal to a Rate of 13·6 (as against 14·9 in 1895). Supplementary Table III. will give the Quarterly, or District, figures, as required. The incidence is fairly level throughout the year, the third Quarter shewing a decline from, and the fourth Quarter a rise above, the mean.

Reference to Table A will now enable us to complete a survey of the Deaths from the Seven principal Zymotic Diseases. We have already discussed incidentally the fatal cases of Diphtheria (6), (Membraneus Croup

being included as identical); and of Enteric Fever (3); and we now find one death attributed to *Measles*, in Northenden, in March (age 5 months); 3 deaths attributed to *Whooping Cough*, viz., 2 in Tabley Inferior in June, and 1 in Plumbley in December, (ages, 6 months, 7 years, and 3 weeks); and 4 deaths attributed to *Diarrhœa*, viz., 2 in Timperley, (age 1 month and 23 months), and 1 in Dunham (age 69 yrs.), at the end of July, and 1 in Timperley, (age 72 yrs.), in the beginning of August. All were therefore at the extremes of life, and at the most common period of the year. We thus get a total of 17 deaths (compared with 16 in 1895) with a precisely similar Death-Rate of 0·8.

Phthisis —19 deaths, (as against 14 in 1895).

Bronchitis, &c.—61 deaths, (as against 50 in 1895).

Heart Disease.—34 deaths (as against 24).

Influenza.—This occurs 4 times only. 1 case in the Workhouse belonging to High Legh, (male, 52 yrs.), in February; 1 case in Timperley in February, (age 6 months); 1 case in Dunham in March, (age 42 yrs.), complicated with premature labour; and 1 case in Hale in May, (age 45 yrs.), complicated with Pneumonia.

Injuries.—At High Legh in April a man (age 50 yrs.) received accidental injuries to his head; and at Partington in October a man (age 20 yrs.) committed suicide by shooting himself; at Northenden in May a woman (age 52 yrs.) was drowned in the river.

Inquests were held, in addition to the 3 above, on 3 cases in the Altrincham District; 1 in the Lymm District; and 1 in the Wilmslow District, as follows:—

May,	Timperley,	Female, 44 yrs.,	Alcoholism.
August,	Ashley,	Male, 37 yrs.,	Syncope from hurrying to catch a train.
September,	Timperley,	Male, 38 yrs.,	Epilepsy.
February,	Carrington,	Male, 64 yrs.,	Syncope (Pneumonia).
May,	Northenden,	Female, 3 months,	Convulsions.

Infantile Deaths.—These have been classified as follows :—

	Prematurity, Debility and Marasmus.	Bronchitis and Pneumonia.	Teething and Convulsions	Measles, Whooping Cough and Diarrhœa.	Various.	TOTAL.
Altrincham ...	3	7	3	1	3	17
Lymm..	1	3	1	...	...	5
Knutsford ...	6	4	1	2	...	13
Wilmslow ...	5	3	4	1	1	14
	15	17	9	4	4	49

The number of Infantile Deaths to 1000 Births is therefore—

	1895.	1896.
Altrincham	134	75
Lymm	118	66
Knutsford	81	144
Wilmslow	182	121
	133	100

which shews a most gratifying reduction for the whole District, and also for three of its sub-divisions; the Knutsford District alone having a worse record, which appears to be due to an increased number of premature births, and cases of lung diseases.

Uncertified Deaths.—Only 1 is recorded; at Ashley in December, an infant of 3 months, from Convulsions.

Public Scavenging.—Besides the areas in Hale and Dunham, of which the Scavenging is undertaken by the Council, and carried out by Contractors, a new Area, comprising the whole of the Township of Timperley, has been formed on the advice of the Medical Officer of Health, and a contract was accepted for Scavenging in March last. In the case of Northenden, some local opposition caused delay, but a practical lesson in the difficulty of enforcing individual action by summons ultimately led to the acceptance of a similar recommendation. Work will be begun early in the new year.

Water Supply.—The Townships of Partington and Carrington are now supplied by the Mains of the Manchester Corporation; (cf. Report for 1895, p. 9). Some townships are very badly off, and their development is hindered by the absence of good water. The Council has never hitherto exercised its powers to provide any public supply. One possible site for public water-works has however been under the consideration of the Medical Officer of Health, and will be laid before the Council forthwith for discussion.

Water Analysis.—4 Samples have been submitted to the County Analyst; in connection with requirements of the County Council. All were condemned.

The Analyses undertaken by the Medical Officer of Health were as follows:—

NO.	DATE.	TOWNSHIP.	REASON FOR ANALYSIS.	RESULT.
1	Feb. 4	Dunham Massey ...	Proposed Extended Supply ...	Very Good.
2	" "	" " ...	" " " ...	"
3	" "	" " ...	" " " ...	"
4	" 14	Mobberley.....	Suspected Pollution	Good.
5	" 29	Aston-by-Budworth	Suspected cause of sore throats	Doubtful.
6	March 21	High Legh	Illness on Premises	Very Bad.
7	" "	"	" "	"
8	" 31	"	" "	Bad.
9	" "	"	New Supply.....	Good.
10	April 3	Baguley	"	Bad.
11	" 26	Mobberley.....	Suspected Pollution	Good
12	" 30	Bollington.....	Fatal case of Diphtheria	Very Bad.
13	June 28	Northen Etchells...	" "	Doubtful.
14	Aug. 29	Mobberley.....	Illness on Premises	"
15	" "	Timperley.....	" "	Bad.
16	Sept. 19	Pickmere	Suspected Pollution	"
17	Oct. 4	Northen Etchells...	Illness on Premises	Doubtful.
18	" 10	Bollington	Proposed New Supply	Very Bad.
19	Nov. 29	Carrington	Illness on Premises	"
20	" "	Timperley.....	" "	"

In addition to these, the Medical Officer of Health has analysed 25 samples of water within the District for private persons, with the following results: Very good, 5; Good, 2; Doubtful, 4; Bad, 8; Very bad, 6.

School Closing.—The School at Lower Tabley was closed for a fortnight in June on account of Whooping-Cough. The School at Shadow Moss (Northen Etchells) was closed for a fortnight in October on account of an outbreak of contagious skin-disease.

Adoptive Acts.—All the usual Acts have been adopted.

Insufficiency of Staff.—The District covers nearly 60,000 acres, and is, roughly, 13 miles from North to South, and 14 miles from East to West; many of the out-lying Townships having no means of communication but roads, and those bad; indeed in the case of Partington the roads are the very worst I know anywhere. The Inspector's time is largely occupied with duties as Surveyor; duties of themselves sufficiently important, but diminishing the time available for duties as Inspector, in regard to ordinary nuisance inspections. Add to this, inspections of Canal Boats, and of Hackney Carriages, and I venture to say that when the time required for visiting and watching cases of infectious disease is also considered, it becomes an absolute impossibility for any special work to be done either with respect to Workshops or to Dairies and Cowsheds. If the Acts dealing with these matters are to be really administered, an increase in the Staff of the Department is an obvious necessity. We have escaped this year with a minimum of infectious disease; but if we should happen to have at any time an epidemic at all wide-spread, my demands on the Inspector's time would alone suffice to disorganise much of his other work. In the neighbouring Rural District of Northwich it has been found necessary to appoint an Assistant Inspector, and both Officers are fully occupied. The Sanitary requirements of the Bucklow District are not less important than those of Northwich.

I cannot conclude without expressing my gratitude to the Council for the uniform kindness shewn me during the year. The preparation of the various Reports which have been periodically laid before you has been rendered a labour of love by the knowledge that my recommendations would receive prompt and sympathetic consideration.

T. W. H. GARSTANG.

Medical Officer of Health.

January 13th, 1897.

Extract from County Return for 1895, shewing position
of 4 Sub-Districts as compared with 30 other Districts and
Sub-Districts (after excluding those with population
under 1000).

	Birth-Rate.	Place in List.	Death-Rate.	Place in List.	Zymotic Death-Rate.	Place in List.	Infantile Deaths to 1000 Births.	Place in List.
Altrincham ...	24·3	23	14·5	16	0·9	23	134	20
Lymm	22·0	33	10·7	1	0·2	5	118	18
Knutsford	23·5	25	14·2	13	0·8	19	81	6
Wilmslow	22·7	29	21·0	32	0·8	19	182	32
Best Return ..	35·9	...	10·7	...	0 0	...	0	...
Worst Return..	20·9	...	23·8	...	4·3	...	189	...



[A] *Table of DEATHS during the Year 1896, in the Bucklow Rural*

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (Columns for Population and Births are in Table B.) Registration Sub-Districts of (a)	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							(i)	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Croup. 4
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)					
Altrincham	111	17	11	5	6	43	29	{ Under 5 ... 5 upwards ...	...	...	1	1
Consumption Hospital	11	...	1	...	3	6	1	{ Under 5 ... 5 upwards ...	...	...	1	...
Lymm	41	5	1	1	4	13	17	{ Under 5 ... 5 upwards ...	...	...	1	...
Knutsford.....	45	13	...	1	3	11	17	{ Under 5 ... 5 upwards ...	...	...	...	...
Wilmslow.....	75	14	4	3	1	30	23	{ Under 5 ... 5 upwards ...	...	...	1	...
TOTALS.....	283	49	17	10	17	103	87	{ Under 5 ... 5 upwards ...	...	...	3	1

The subjoined numbers have also to be taken into account

Deaths occurring outside the district among persons belonging thereto.	21	...	...	...	2	9	10	{ Under 5 ... 5 upwards ...	...	...	...	...
Deaths occurring within the district among persons not belonging thereto.	11	...	1	...	3	6	1	{ Under 5 ... 5 upwards ...	...	...	...	...

[B] *Table of POPULATION, BIRTHS, AND OF NEW CASES
Officer of Health, during the year 1896, in the Bucklow Rural*

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. Registration Sub-Districts of (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Census 1891. (b)	Estimated to middle of 1896 (c)	Registered Births. (d)		Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Croup. 4
Altrincham	8894	9985	225	{ Under 5 ... 5 upwards ...	...	7	1	1
Lymm	3390	3150	71	{ Under 5 ... 5 upwards ...	...	1	1	...
Knutsford.....	3661	3584	90	{ Under 5 ... 5 upwards ...	...	...	...	...
Wilmslow.....	4437	4808	105	{ Under 5 ... 5 upwards ...	...	1	...	...
TOTALS.....	20382	21527	491	{ Under 5 ... 5 upwards ...	...	9	2	1

State here whether "Notification of Infectious Disease" is compulsory

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.

FEVERS.											All Other Diseases.	Total					
Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.							
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
...	2	...	...	...	...	...	...	...	2	...	...	12	1	1	...	10	28
...	...	...	...	...	...	...	...	...	2	...	8	13	12	2	...	43	83
...	...	...	...	...	...	...	...	...	...	...	5	...	...	...	1	5	10
...	1	...	...	...	...	...	...	...	...	...	1	3	...	...	2	5	6
...	...	...	...	...	...	...	...	2	...	...	...	4	9	1	17	17	35
...	...	...	...	1	...	...	...	1	...	2	1	4	...	...	7	13	13
...	...	...	...	...	...	1	...	...	...	...	...	6	3	...	18	32	32
...	...	...	...	...	...	...	1	...	...	...	8	4	...	...	12	18	18
...	...	...	...	...	...	...	...	...	...	...	...	13	9	1	25	57	57
...	...	...	...	...	...	...	1	2	2	...	...	23	1	1	...	32	66
...	3	...	...	1	...	...	1	2	2	2	23	36	33	3	108	217	217

Area and Population of the District or Division to which this Return relates.

Area in Acres, 58,925.

Population (1891) 20,382.

" (Estimated to (middle of 1896) 21,527.

Death Rates { General.....13.6
Infant (under one year of age) } ...100
per 1,000 Population, estimated to middle of 1896.
per 1,000 Births Registered.

in judging of the above records of mortality.

...
...	...	...	...	...	...	...	...	...	...	...	1	2	2	...	1	15	21	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...
...	...	...	...	...	...	...	...	...	...	...	5	...	...	...	5	5	10	...

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY, COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.

FEVERS.										
Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.				
5	6	7	8	9	10	11	12	13		
...	1	...	...	...	...	...	...	...	...	...
...	10	...	...	...	...	2	...	...	...	...
...	6	...	...	...	...	...	...	...	...	...
...	1	...	...	1	...	2	...	...	...	...
...	1	...	...	...	...	1	...	...	...	...
...
...	2	...	...	...	...	...	...	...	...	...
...	17	...	...	1	...	5	...	...	...	...

Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.

NIL.

SUPPLEMENTARY TABLE 1.

Cases of Infectious Disease Notified, 1896, arranged according to Localities.

	Scarlet Fever.	Diphtheria and Membranous Group.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Total.	Case-Rate.		Scarlet Fever.	Diphtheria and Membranous Group.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Total.	Case-Rate.
Ashley .....	...	...	...	...	...	...		Agden .....	...	...	...	...	...	...
Baguley .....	...	...	...	...	...	...		Aston-by-Budworth .....	...	...	...	...	...	...
Dunham Massey	5	3	1	...	..	9		Bollington.....	1	...	...	...	...	1	
Hale.....	8	2	1	...	1	12		Carrington	4	...	1	...	...	5	
Timperley	5	1	9	...	1	16		High Legh	2	...	2	...	...	4	
								Millington.....	...	...	...	...	...	...
ALTRINCHAM..	18	6	11	...	2	37	3.7	Partington	1	...	2	...	...	3	
								Warburton .....	...	...	...	...	...	...
Bexton.....	...	...	...	...	...	...		LYMM	7	1	5	...	...	13	4.1
Marthall .....	...	...	...	...	...	...			
Mere.....	...	...	...	...	...	...		Mobberley .....	...	...	...	...	...	...
Ollerton	2	...	1	...	1	4		Northenden	2	...	2	...	...	4	
Peover Inferior..	...	...	...	...	...	...		Northen Etchells ...	...	2	...	...	1	3	
Peover Superior ..	...	...	...	1	...	1		Styal.....	...	...	...	...	...	...
Pickmere	1	...	...	...	...	1									
Plumbley.....	...	...	...	...	...	...		WILMSLOW	2	2	2	...	1	7	1.5
Rostherne .....	...	...	...	...	1	1									
Tabley Inferior..	...	...	...	...	...	...		Altrincham	18	6	11	...	2	37	
Tabley Superior ..	1	...	...	...	...	1		Lymm	7	1	5	...	...	13	
Tatton .....	...	...	...	...	...	...		Knutsford	4	...	1	1	2	8	
Toft .....	...	...	...	...	...	...		Wilmslow	2	2	2	...	1	7	
KNUTSFORD...	4	...	1	1	2	8	2.2	Grand Total.....	31	9	19	1	5	65	3.0

SUPPLEMENTARY TABLE 2.—BIRTHS.

	1ST QUARTER.				2ND QUARTER.				3RD QUARTER.				4TH QUARTER.				TOTAL.			
	M.	F.	Total	Rate.	M.	F.	Total	Rate.	M.	F.	Total	Rate.	M.	F.	Total	Rate.	M.	F.	Total	Rate.
Altrincham	26	25	51	21.8	25	25	50	20.1	20	30	50	20.0	38	36	74	29.4	109	116	225	22.5
Lymm.....	11	10	21	26.7	7	9	16	20.3	6	7	13	16.3	12	14	26	32.8	36	40	76	24.1
Knutsford	9	12	21	23.6	15	14	29	32.5	11	9	20	22.7	10	10	20	22.7	45	45	90	25.5
Wilmslow	19	18	37	30.8	12	13	25	20.2	16	15	31	25.6	14	8	22	18.6	61	54	115	23.9
	65	65	130	24.2	59	61	120	22.4	53	61	114	21.2	74	68	142	26.2	251	255	506	23.4

SUPPLEMENTARY TABLE 3.—DEATHS.

	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Total.	
	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.
Altrincham ...	26	11.1	28	11.4	28	11.3	41	16.3	123	12.3
Lymm	14	17.8	9	11.4	9	13.8	11	13.6	43	13.6
Knutsford	9	10.1	19	21.3	9	10.2	11	12.5	48	13.6
Wilmslow	25	20.8	20	16.2	16	13.0	18	15.2	79	16.4
	74	13.8	76	14.2	62	11.4	81	14.9	293	13.6

SUPPLEMENTARY TABLE 4.

Shewing Births, Birth Rate, Deaths, and General and Zymotic Death Rates, and compared with former Averages; Deaths in Old Age and Infancy, and percentages of these to total Deaths; for the year 1896.

	Total.			Birth-Rate.		Death-Rate.				Deaths.		Percentage to Total Deaths of Deaths.	
	Births.	Deaths.	Deaths from Seven principal Zymotic Diseases.	1895.	1896.	General.		Zymotic.		At 65 Years and upwards	Under One Year.	At 65 Years and upwards	Under One Year.
						1895.	1896.	1895.	1896.				
Altrincham	225	123	9	24.3	22.5	14.4	12.3	0.9	0.9	35	17	28	14
Lymm	76	43	2	22.0	24.1	10.4	13.6	0.2	0.6	17	5	39	12
Knutsford..	90	48	4	23.5	25.5	11.2	13.6	0.8	1.1	18	13	37	27
Wilmslow ..	115	79	3	22.7	23.9	20.7	16.4	0.8	0.6	26	14	33	18
Whole District	506	293	18	23.5	23.4	14.9	13.6	0.8	0.8	96	49	33	17

SUPPLEMENTARY TABLE 5.

Shewing Population, Estimated, 1896; Total Deaths, Deaths from Special Diseases, and at Special Ages, in entire Sanitary District, the Registration Sub-Districts, and the individual Townships in 1896.

Population Estimated 1896.	REGISTRATION DISTRICTS AND TOWNSHIPS.	TOTAL DEATHS.	DEATHS FROM SPECIAL DISEASES.							TWO GROUPS OF AGES.	
			Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhoea.	Total Zymotic.	Phthisis.	At 65 Years and Over.	Under One Year.
400	Ashley	3	...	...	...	...	...	...	...	...	2
884	Baguley	11	...	...	...	...	...	3	3	4	1
2115	Dunham Massey ...	23	...	1	1	...	...	1	3	1	8
3875	Hale	46	...	1	1	...	...	...	2	2	13
2711	Timperley	40	...	1	...	...	...	3	4	2	9
9985	ALTRINCHAM R.S.D.	123	...	3	2	...	...	4	9	8	34
100	Agden	2	...	...	...	...	...	...	...	...	1
375	Aston-by-Budworth..	6	...	...	...	...	...	...	...	...	2
223	Bollington	2	...	1	...	...	...	1	...	...	...
420	Carrington	10	...	...	...	...	...	...	1	5	1
844	High Legh	6	...	...	...	...	...	...	1	3	...
280	Millington	4	...	...	...	...	...	...	...	3	...
498	Partington	9	...	...	1	...	...	1	1	1	2
410	Warburton	4	...	...	...	...	...	...	...	3	...
3150	LYMM R.S.D.	43	...	1	1	...	...	...	2	3	18
115	Bexton .....	...	...	...	...	...	...	...	...	...	...
223	Marthall	4	...	...	...	...	...	...	...	4	...
401	Mere	7	...	...	...	...	...	...	...	3	...
275	Ollerton	6	...	...	...	...	...	...	...	1	3
132	Peover Inferior	5	...	...	...	...	...	...	1	2	1
470	Peover Superior	8	...	...	...	...	...	...	...	2	2
219	Pickmere.....	5	...	...	...	...	...	...	...	...	2
381	Plumbly	5	...	...	...	1	...	1	...	2	2
407	Rostherne	2	...	...	...	...	...	...	...	1	...
150	Tabley Inferior	3	...	...	...	...	2	2	...	1	1
477	Tabley Superior.....	1	...	...	...	...	...	...	...	...	1
149	Tatton.....	1	...	...	...	...	...	...	...	1	...
185	Toft.....	1	...	...	...	...	...	...	...	1	...
3584	KNUTSFORD R.S.D.	48	...	...	...	...	3	...	3	1	18
1300	Mobberley	16	...	...	...	...	...	...	...	6	3
1810	Northenden	35	...	...	...	1	...	1	6	8	8
758	Northen Etchells ...	18	...	2	...	...	...	3	2	7	...
850	Styal	10	...	...	...	...	...	...	...	5	3
4808	WILMSLOW R.S.D.	79	...	2	...	1	...	...	4	8	26
21527	ENTIRE SANITARY DISTRICT	293	...	6	3	1	3	4	18	20	96

INSPECTOR'S REPORT.

Systematic inspection of the entire District has been carried on with increased energy during 1896; and the more important results are given under their various heads in this, my Eleventh Annual Report.

Scavenging.—The Contactors in Hale, Dunham, and Timperley, are doing their work well. In addition, special care has been taken to cleanse and disinfect Ashpits &c., where there have been cases of disease notified.

Nuisances from Manure Deposits.—The notice boards erected by the Council early in the year on the Canal Bank at Timperley have had a good effect in preventing deposits other than temporary. The Cheshire Lines Railway has also, at the request of the Council, discontinued the reception of manure on the Siding near Victoria Road, Hale.

Hale Moss —Long standing and recurring nuisances arising from the unfenced and neglected state of the Moss will be remedied by the agreement jointly entered into by the Trustees of the Stamford Estate, this Council and the Altrincham Urban Council. About 25 acres of "No Man's Land" will ultimately be fenced and drained.

New Sewage Schemes.—The rapid increase of population in Hale (East Ward), and Dunham (Broadheath), renders extensions of main sewers a pressing necessity. The Hale Scheme, including purchase of land for Outfall, promises to be costly. The main sewer from Washway Road, Timperley, to the outfall Tanks will require relaying.

Sewage Effluents.—The 4 Outfalls are the object of constant inspection by the Officers of the Mersey and Irwell Joint Committee. The monthly reports of analyses give varying results, but on the whole are satisfactory.

River Weaver Watershed.—At the request of the County Medical Officer, a Special Report has been furnished on the pollution of the Weaver tributaries. In the Bucklow District are only a few brooks, which are not much polluted.

A difficulty has arisen at Dark Lane Tanks owing to the reception of spent tan-liquor in the Sewer, whose natural water is impregnated with iron. The County Analyst characterises this liquor as "Chemical refuse" which can be legally excluded from the Sewer. An undertaking has been given by the Tanner to dispose of it otherwise. The pollution of Timperley Brook by waste matters from a Steam Laundry has also been the subject of complaint; and formal notices have been served under the Rivers Pollution Prevention Act 1876.

Canal Boats.—During the year 80 Canal boats have been examined in 43 inspections. The Bridgewater Canal is too well watched to allow of many infringements of the Act being noted. Carrington Manure Wharf has been regularly visited, and the boats (considering the nature of the traffic) found in good repair and clean. The 80 Boats were registered for 290 adults, and carried 119 men 39 women and 7 children. The latter were all under school age save one, a boy of 9 years, who appeared to be receiving Education of a satisfactory nature. The irregularities met with comprised 3 cases; one where no certificate was producible on board, and two cases of deficient markings. All these were amended as proved by subsequent inspection. No case of Infectious Disease was met with, nor were any legal proceedings found necessary.

New Buildings.—Hale, Dunham, Timperley, and Northenden have been the scenes of building activity. One summons was taken out in Hale for infringement of bye-laws. A conviction was obtained and a fine imposed. The publication of the case has had a salutary effect. I recommend to the Council the employment of the "water-test" to all new House drains, as a means of saving much time and trouble subsequently.

New Bye-Laws, in the matter of new buildings, and also of Hackney Carriages, are now before the Local Government Board.

Overcrowding.—Thirteen cases have been investigated and reported on. A prosecution was undertaken in one case at Timperley, with successful result. Overcrowding is common in Pickmere during the summer months.

Housing of the Working Classes Act.—Five cases of insanitary property have been dealt with under this Act; and in each case the property has been rebuilt by the owners without necessity of legal proceedings.

Dairies and Cowsheds.—This is new branch of my work of Inspection. A Register has been compiled shewing 81 cowkeepers, 108 Dairymen, and 49 purveyors of milk. Many inspections have been made of the latter, and various improvements effected in drainage and ventilation of premises. Inspections of Cowsheds will be undertaken as opportunity arises.

Workshops.—This is another new branch of Inspection, which there has not yet been time to arrange. H.M. Inspector of Factories has handed me a list comprising 10 Workshops registered in Northenden, 5 in Dunham, 4 in Hale, and 1 in Timperley. It is probable this list requires revision.

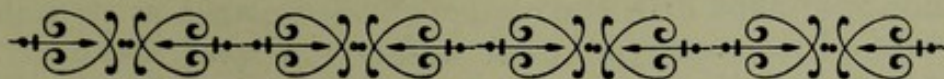
Vent Shafts.—Seven additional Vent Shafts have been erected, each of 6 inch diameter. Road grids have been closed correspondingly; in each case remedying a nuisance complained of.

Disinfection.—This has been carried out personally in 28 cases. A Sprayer is now in use, in place of Sulphur.

New Offices.—Suitable accommodation has been provided in the block opposite the Offices of the Urban District Council in Altrincham. The central situation, and fixed hours of attendance, ought to be a great convenience to the ratepayers generally.

J. Mc. D. Mc. KENZIE.

SURVEYOR AND INSPECTOR.



Inspector and Constables. This is now placed in my work
Inspector. A Report has been compiled showing the
the men and the progress of work. Many alterations have been
made of the latter, and various improvements effected in drainage and
ventilation of the mines. Inspectors of Constables will be instructed
As opportunity arises

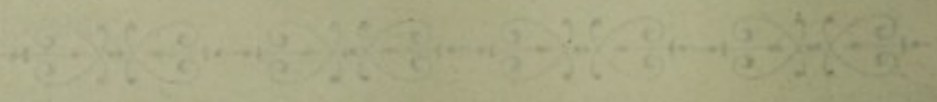
Wexford. This is another new branch of inspection which
there has not been time to arrange. J. M. Inspector of Constables has
been appointed to Wexford registered in Northampton, 2
in London, 4 in Hiale, and 1 in Tipperary. It is probable this list
requires revision.

Four Sights. Seven additional Vent Sights have been erected,
each of 6 inch diameter. Road works have been completed
in each case (including a nuisance complained of)

Distillation. This has been carried out previously in 28 cases.
A Spitzer is now in use, in place of Stillpot.

New Office. Suitable accommodation has been provided in the
back opposite the Office of the Urban District Council in Birmingham.
The central situation, and fixed hours of attendance, ought to be a
great convenience to the ratepayers generally.

J. Mc D. Mc KERRIN
Inspector and Director



WINSFORD URBAN DISTRICT.

Annual Report of Medical Officer of Health.

Population at Census, 1891, 1,0440.

Estimated Population in middle of 1896, 10,605.

Area in Acres, 5,780.

Birth-Rate per 1000 living, 36·1.

Death-Rate per 1000 living, 14·9.

Death-Rate from Seven principal Zymotic Diseases, 1·8.

Deaths under one year to 1000 Births, 130.

General.—In laying before you my first Annual Report for this District, I must not omit a sympathetic reference to the number of years you were served by the late Dr. Fox; and a note of the fact that your last Annual Report was prepared for you by the County Medical Officer of Health, who also was in charge of my Department during the first Quarter of 1896. It will be my earnest wish, and endeavour, to follow these distinguished predecessors with such care and zeal that your interests may not suffer from my necessarily more limited experience. I desire also to express my appreciation of the kindness shewn me on my appointment by Mr. Oakes, the Inspector, and by Mr. Shorrocks, the Surveyor, and of the trouble they took to make me thoroughly conversant at once with the more salient features of the District.

Population.—A correct estimate of the population for the year under review is the first essential in preparing the Statistical Tables, which not only form the basis of my Report to you, but are also a portion of the material from which County (and other) Statistics are compiled. The further we get away from the solid ground of the last Census, the more the estimate is liable to error, from the occurrence of exceptional local conditions. The population in 1891 was 10440. Dr. Fox's estimate for 1894 was 10600. Dr. Vacher's estimate for 1895 was 11294, and he specially mentions in his Report that he considers the 1894 estimate too low. Feeling that I was hardly competent to decide the question, I appealed to the Assistant Overseers of Over and Wharton, and received their estimate of their respective townships for 1896 as follows:—

$$\text{Over, 7000} + \text{Wharton, 3605} = 10605.$$

Accepting this as probably correct, we find 1896 back at the figures of 1894. The explanation is probably due to the depression in the Salt trade which may have led to a certain diminution of population below the point it ought to have reached in theory. Following the 1895 estimate, I have been using the number 11500 for my monthly and quarterly Reports; but if the present estimate be correct, it is less by nearly 8 per cent., and conversely all "Rates" which have been calculated during the year ought to have been correspondingly so much higher. This is an excellent example of the variation from theoretical results which is constantly being caused by "exceptional local conditions."

The Census.—As all Vital Statistics must be inaccurate, where based upon errors of estimation; and as, on the other hand, correct Statistics are of real value, (and indeed essential to writers on Public Health,) it is clear that a Census taken every five years, (instead of every ten years as at present,) would be an improvement of national value.

Prevention of Infectious Disease.—A considerable advance has been made in this matter. Isolation is enforced more rigorously, and for a longer period, than has previously been attempted. Disinfectants are supplied, and the sick-room ultimately "stoved" with Sulphur. In 1895 there were only 47 cases notified, but it is to be observed that 31 of these occurred in the last Quarter. Most of them were cases of Scarlet Fever, and the epidemic spread in the beginning of 1896 practically unchecked, so that of 64 notifications in the first Quarter 54 were Scarlet Fever, and of 69 notifications in the second Quarter 65 were Scarlet Fever. After this the notifications fell to 40

in the third Quarter (35 Scarlet Fever), and to 24 in the fourth Quarter (19 Scarlet Fever); but the ultimate result is even better than these figures shew, as, if taken by monthly returns December had only 5 notifications, and only 2 were Scarlet Fever. After allowing that much susceptible material has been used up by the epidemic, and also after allowing for the operation of all natural causes, I think the above figures (for fifteen months) will convince the most sceptical that Sanitary Administration has had much to do with (what I may fairly call) the *stamping out* of a very serious and wide-spread epidemic; and that *some* portion of the credit reasonably belongs to your Sanitary Officers.

The efforts made to cope with the Scarlet Fever epidemic were markedly successful in one instance. A case occurred in Delamere St. (the first during the year, save one case in May) on Aug. 31st. The child was removed to High St. and originated other cases there. Four further cases occurred in Delamere St., in different houses, on Sept. 14th. A visit of investigation on the 17th failed to implicate the Schools; but information was obtained on the 21st which subsequently (Nov. 16th) led to a prosecution, at the Over Petty Sessions, for exposure of a child while in an infectious condition. A conviction was obtained and a nominal fine inflicted. The case has been a warning to others; and I believe the result to have been practical and satisfactory. A further local investigation on Oct. 5th satisfied me that the Schools were then undoubtedly invaded, further cases having occurred among the scholars, mainly those resident in the near neighbourhood of Delamere St. The Schools were promptly closed, from the 6th to the 26th, and every known case was put under close surveillance at home for enforcement of strict isolation. About 20 cases, in all, occurred, and there were 2 deaths. The epidemic disappeared in this locality as suddenly as it had arisen. Further information of a most interesting character was subsequently obtained. The first case (Aug. 31st) occurred in the house of a man who was employed to milk the cows at a certain small farm. At least one (if not more) of the next cases was in a house supplied with milk from that farm; and these cases were earlier than those which subsequently were traced to the School. Although the number of cases is too small to afford conclusive proof, we have at all events a very probable suggestion of the different stages of this particular local epidemic, whose beginning and end were clearly definable.

With regard to Sulphur Fumigation, I have satisfied myself that in the opinion of experts, its value and efficacy are far below those of Perchloride of Mercury Spray. Accordingly I recommended (Aug. 5th) the adoption of this system of disinfecting rooms; but the Council

has not yet sanctioned the purchase of the needful Apparatus. For disinfection of bedding, clothes, &c., which can only be satisfactorily effected by steam, there is no provision made.

The Council has accepted (Sept. 23rd) my advice to offer to disinfect after deaths from Phthisis. Even if in many cases the householder refuses the offer, yet a good effect will be produced by this practical intimation that Phthisis is infectious; and, in the future, greater care in adopting proper hygienic measures will diminish the number of preventible cases of this common and fatal disease.

Isolation Hospital Accommodation.—The small Hospital belonging to the Council has been repaired during the year, and has been maintained in readiness to receive any case of Small-pox or Cholera. None such having occurred, it has not been brought into actual use.

Pressure is being exercised by the County Council on the four Authorities of the Northwich Union in the direction of providing a Joint Isolation Hospital on a larger scale. At present no agreement has been arrived at, or indeed appears at all likely.

Notifiable Infectious Diseases.—Total 197 (against 47 in 1895).

Erysipelas —17 cases have occurred, at ages varying between 10 and 71 years. None fatal.

Puerperal Fever —2 cases in August and September respectively. Neither fatal. Cautions were addressed to the nurses in attendance.

Diphtheria and Membranous Croup.—5 cases. A child, aged 3 years, died in William St., Over, in January. This case does not appear in the list of Notifications received. The others were in Wharton, viz.:—2 in March and 2 in June. The first two were in one house in Station Road, Wharton, aged 25 and 23 years. Both recovered. The others were in separate houses, but both in Princess St., Wharton; and were both fatal, (ages 8 months and 10 months).

Enteric Fever.—One case occurred in April (male, 29 years,) and proved fatal.

Scarlet Fever.—173 cases, (Over 103, Wharton 70). This epidemic was so widely spread that it would be difficult to give any detailed account of it, beyond its statistics. These have already been partly alluded to. It attained its maximum in March and April when there were 30 and 29 cases respectively. In Wharton, there were

15 cases in School Road, 11 in Wharton Road, 10 in Station Road, 9 in Crook Lane, 7 in Ledward St., and 18 scattered. In Over there were 29 cases in High St., 15 in Weaver St. and branches, 8 in Delamere St., 8 in Dingle Lane, 6 at Way's Green, 7 in Gladstone St., 8 in John St., and 22 scattered. The fatal cases were 7; 1 in February, 1 in March, 2 in May, 1 in June, 2 in October; one child was 6 years old, the remainder were under 5 years; four of them under 3 years.

The Notifiable Diseases give a Case-Rate of 18·5, and a Death-Rate of 1·0, for the year. (Scarlet Fever formed 88 per cent. of the whole).

Births.—Total Number 383. Rate 36·1.

	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		TOTAL.	
	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.	Total.	Of which Illegitimate.
Over	65	1	69	1	59	3	62	2	255	7
Wharton ...	27	2	37	4	34	1	30	4	128	11
	92	3	106	5	93	4	92	6	383	18

(See also Supplementary Table I. p. 70.)—The Quarterly Rates for
 Over are 37·3, 39·5, 34·9, and 36·7.
 Wharton ,, 30·1, 41·2, 37·4, ,, 33·0.

The Annual Rate for Over is 36·4; for Wharton is 35·5.

The Annual Rate for the whole District is 0·3 below the average of four years last past; but exactly equal to that of 1895. The illegitimate Births are 2·7 per cent. of the total number in Over; 8·6 per cent. in Wharton.

Deaths.—158, (of which 3 occurred in the Workhouse, in the Northwich Urban District), as against 219 in 1895. This gives a Death-Rate of 14·9, comparing most satisfactorily with 19·3 in 1895; and being also 2·5 below the average of the last four years. The mortality was highest in the Second Quarter. (See Supplementary Table II. p. 70).

Zymotic Deaths.—We have already incidentally noted the 7 deaths from Scarlet Fever, 3 from Diphtheria (and Membranous Croup), and 1 from Enteric Fever. Table A now enables us to see that there were also 3 deaths from Measles and 5 from Diarrhœa. The deaths from Measles occurred in January, February, and August, at ages: 3 years, 13 months, 2 years. The deaths from Diarrhœa occurred in January, April, July (2), and August; the first was a child of 3 years the remainder were all infants under 6 months. The total number is therefore 19; which gives a Rate of 1·8, which is very satisfactorily less than the 2·6 of 1895.

Infantile Mortality.—Deaths under 1 year of age, 51, (as against 68); proportion per 1000 Births, 130, as against 166. This again shews a substantial improvement on 1895. These deaths are classified as follows:—Convulsions, 15; Prematurity, Debility, and Marasmus, 12; Bronchitis and Pneumonia, 11; Diarrhœa, 4; Various, 9.

Influenza.—One death, at age 73 years, in April, and one, at age 69 years, in October, are ascribed to Influenza, (as against 3 in 1895).

Bronchitis and Pneumonia.—20 deaths, as against 52 in 1895, would appear to shew improved climatic conditions. This is one of the most striking contrasts between the two years which can be found.

Injuries.—2, (as against 8). 1 case of suicide (by hanging); one case by accident, nature not specified.

Inquests were held on the above cases; and also on 4 others, in all of which death was declared due to Syncope, or Heart Disease. The ages were 48, 29, 69, 78 years.

Uncertified Deaths occurred, without inquest held, six times; one, a man of 79, who died of old age; the others children of a few days or months old, who died of Convulsions, &c.

Sewage Works.—The system of filtration in use is unique, but there is reason to believe that it gives a fairly good result. The filters have been inspected by the County Medical Officer of Health.

Scavenging.—This District, like many of its neighbours, suffers from serious soil-pollution, owing to the retention of ancient ill-constructed privies and cesspools. The year having been an exceptionally healthy one, the nuisance has not made itself obtrusively manifest; but it is morally certain that sooner or later some outbreak of disease will be connected with it, and the Council will be called upon to enforce some more modern and hygienic system of excrement disposal.

Legal Proceedings.—

(A). *For Non-Notification of Infectious Disease*—(See page 63).

(B). *Unsound Meat*.—On May 2nd, a seizure of bad meat was made; the case was a clear one, but the summons was dismissed by the Court owing to a technical irregularity in the proceedings. The carcase was destroyed. On September 4th a carcase was seized, and destroyed; in connection with which a conviction was obtained, a fine of 10/- imposed, and the Slaughter House License revoked.

On November 14th a quantity of meat was seized in the Market, and destroyed; a conviction was obtained, and fines of £5 and £3 imposed.

On December 9th a carcase was seized and destroyed. A conviction was obtained, and a fine of £20 imposed.

It is to be hoped that the progressive increase in the punishments may have a salutary and deterrent effect.

School Closing.—The Meadow Bank School was closed for 10 days in May, owing to an extensive outbreak of Measles. The closing of Delamere St. Schools has been above referred to.

Adoptive Acts.—All the usual Acts have been adopted, except the Private Street Works Act, 1892.

The Inspector's Report, appended, deals with the details of local administration.

The year appears to compare favourably with the preceding year, in all respects, except alone the prevalence of infectious disease.

T. W. H. GARSTANG.

Medical Officer of Health.

January 20th, 1897.

EXTRACT FROM COUNTY RETURN FOR 1895, SHEWING POSITION OF WINSFORD AS COMPARED WITH 35 OTHER URBAN DISTRICTS.

	Best of 36 Districts.	Worst of 36 Districts.	The Winsford figure.	Place of Winsford in the list.
Birth-Rate	42·4	14·0	36·1	5
Death-Rate	9·1	26·0	19·3	28
Zymotic Death-Rate	0·3	6·5	2·6	28
Deaths under 1 year to 1000 births	25	233	166	23

[A] *Table of DEATHS during the Year 1896, in the Winsford Urban*

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							(i)	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)					
Winsford	155	51	15	8	6	37	38	{ Under 5 ... 5 upwards ...	...	6 1	1 ...	2 ...
TOTALS.....	155	51	15	8	6	37	38	{ Under 5 ... 5 upwards ...	...	6 1	1 ...	2 ...

The subjoined numbers have also to be taken into account

Deaths occurring outside the district among persons belonging thereto.	3	...	...	...	...	...	3	{ Under 5 ... 5 upwards ...	...	...	...	...
Deaths occurring within the district among persons not belonging thereto.	...	...	...	...	...	...	...	{ Under 5 ... 5 upwards ...	...	...	...	...

[B] *Table of POPULATION, BIRTHS, AND OF NEW CASES
Officer of Health, during the year 1896, in the Winsford Urban*

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Census 1891. (b)	Estimated to middle of 1896 (c)	Registered Births. (d)		Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
Winsford (H)	10440	10605	383	{ Under 5 ... 5 upwards ...	...	93 80	1 2	1 ...
TOTALS.....	10440	10605	383	{ Under 5 ... 5 upwards ...	...	93 80	1 2	1 ...

State here whether "Notification of Infectious Disease" is compulsory

District, classified according to DISEASES, AGES, and LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.

FEVERS.											All Other Diseases.	Total						
5 Typhus.	6 Enteric or Typhoid.	7 Continued.	8 Relapsing.	9 Puerperal.	10 Cholera.	11 Erysipelas.	12 Measles.	13 Whooping Cough.	14 Diarrhoea and Dysentery.	15 Rheumatic Fever.								
...	1	...	...	...	...	...	3	...	5	...	4	12	6	19	2	2	33	66
...	...	...	...	...	...	...	...	...	...	...	4	12	6	19	2	2	41	89

Area and Population of the District or Division to which this Return relates.

Area in Acres, 5,780.
 Population (1891) 10,440.
 " (Estimated to middle of 1896) 10,605.

Death Rates { General.....14.9
 Infant (under one year of age) ...1.30 }
 (per 1,000 Population, estimated to middle of 1896.
 per 1,000 Births Registered.

in judging of the above records of mortality.

...
...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	3
...

OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical District; classified according to DISEASES, AGES, and LOCALITIES.

SICKNESS IN EACH LOCALITY, COMING TO THE OF THE MEDICAL OFFICER OF HEALTH.

Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.

FEVERS.								
5 Typhus.	6 Enteric or Typhoid.	7 Continued.	8 Relapsing.	9 Puerperal.	10 Cholera.	11 Erysipelas.	12	13
...	1	...	...	2	...	17	...	...
...
...	1	...	...	2	...	17	...	...

NIL.

SUPPLEMENTARY TABLE 1.

Shewing Births, Birth Rate, Deaths, and General and Zymotic Death Rates, and compared with Average of last four years; Deaths in Old Age and Infancy, and percentages of these to total Deaths; for the year 1896.

TOTAL.			BIRTH RATE.		DEATH RATE.				DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.	
Births.	Deaths.	Deaths from Zymotic Disease	1892 to 1895.	1896.	General.		Zymotic.		At 65 Years and upwards.	Under One Year.	At 65 Years and upwards.	Under One Year.
					1892 to 1895.	1896.	1895.	1896.				
383	158	19	36.4	36.1	17.4	14.9	2.6	1.8	41	51	26	32

SUPPLEMENTARY TABLE 2.

Shewing Deaths, Death Rates, and Zymotic Deaths, and Old Age and Infantile Deaths, in the Four Quarters of the year 1896.

QUARTER ENDING.	Total Deaths.	Rate per 1000.	DEATHS.		PERCENTAGE TO TOTAL DEATHS OF DEATHS.		Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Diarrhoea.	Influenza.	Phthisis.
			At 65 years and upwards	Under One Year.	At 65 years and upwards.	Under One Year.							
March 31st.	38	14.4	12	11	32	29	2	1	2	1	1	1	1
June 30th..	50	18.9	11	17	22	34	3	2	1	1	1	5	5
Sept. 30th..	37	13.8	10	11	27	30	...	...	1	3	...	9	9
Dec. 31st...	33	12.6	8	12	24	36	2	...	...	...	1	6	6

INSPECTOR'S REPORT.

During the year 1896 the following Sanitary Work has been carried out :—

The District inspected twice. Notices served 133 ; resulting in rebuilding of 21 closets, and repairs to 112 cess-pools.

Nightsoil removed and closets cleansed 3 times during year ; (third round not quite complete).

Ashpits cleared monthly.

Water Supply good in quantity and quality.

Sewers good ; regularly flushed and disinfected.

Scavenging done by men employed by the Council.

Common Lodging Houses.—There are four (in High Street,) regularly inspected and found to comply with the byelaws.

Slaughter Houses.—There are 19 registered, (as against 15 in 1895) ; which are regularly inspected.

Canal Boats.—Three-fourths of the vessels are registered under the Merchant Shipping Act, that trade on the River Weaver. Very few Canal boats come to Winsford.

Schools.—These have all been disinfected by Sulphur Fumigation ; some of them twice during the year.

RALPH OAKES,
INSPECTOR.

January 15, 1897.

INSPECTOR'S REPORT

During the year, from the following number of ships has been

inspected, and the following number of certificates issued:

At various times, and at various places, a number of ships

have been inspected, and the following number of certificates

issued, and the following number of ships have been

inspected, and the following number of certificates issued:

At various times, and at various places, a number of ships

have been inspected, and the following number of certificates

issued, and the following number of ships have been

inspected, and the following number of certificates issued:

At various times, and at various places, a number of ships

have been inspected, and the following number of certificates

BIDDULPH URBAN DISTRICT.

Annual Report of Medical Officer of Health.

Population at Census, 1891, 5,290.

Estimated Population in middle of 1896, 5,500.

Area in Acres, 5,057.

Birth-Rate per 1000 living, 34·2.

Death-Rate per 1000 living, 16·4.

Death-Rate from Seven principal Zymotic Diseases, 2·5.

Deaths under one year to 1000 Births, 138.

Retrospect.—The year 1896 has seen many changes in the personnel of the Council and its Officers. I had myself only just become your Medical Officer of Health, when your late esteemed Clerk, Mr. Wade, was seized with the illness which terminated fatally on March 28th; and two days later the old Council also passed out of existence, and was replaced by a larger body representing the new Wards into which the District had been divided.

Population.—A correct estimate of the population for the year under review is the first essential in preparing the Statistical Tables which form not only the basis of my remarks to you, but also a portion of the information which is collected and utilised by the County Medical Officer, and is also registered at the Local Government Board's Office. The further we get away from the solid ground of the last Census, the more the estimate is liable to error from the occurrence of exceptional local conditions which, perhaps only temporarily, unduly raise or depress the numbers of the population. It is therefore after consultation with the Township officials, and the careful consideration of possible causes of error, that I have decided to adopt the figure 5500 as the probable population of the District at the middle of 1896.

The Census.—As all Vital Statistics must be inaccurate, where based upon errors of estimation; and as, on the other hand, correct Statistics are of real value, (and indeed essential to writers on Public Health,) it is clear that a Census taken every five years, (instead of every ten years as at present,) would be an improvement of national value.

The Notification Act.—Considerable laxity appears to have prevailed generally in carrying out this Act. Notifications have in several instances been sent in very late; and more than once, in investigating the origin of a case, reference has been made by the householder to some pre-existing case in the neighbourhood, of which there is no record among the Notifications received. The attention of the medical practitioner in question has been called to each case as it has arisen; and I hope that now the position is better understood, and the Act more promptly and fully complied with. The receipt of only 2 Notifications during the last Quarter is therefore to be interpreted as shewing a real absence of notifiable cases.

Prevention of Infectious Disease.—There is not much to record. The Council possesses a small Hospital, but does not make use of it for ordinary cases; reserving it for a possible outbreak of Small-pox. The Inspector has instructions to visit every case of notified infectious disease, and enforce efficient isolation for a sufficient period; also to supply disinfectants, and ultimately "stove" the sick-room with Sulphur. I am unable to say from personal observation how far these instructions are carried out. Fortunately there have not been any serious demands upon the Department during 1896.

The Council, on my recommendation (Sept. 29th), has reverted to the use of Sulphur for fumigation, instead of the comparatively useless "Sanitas Oil"; but has not yet accepted my further advice to substitute the Perchloride of Mercury Spray for the Sulphur fumigation. In the opinion of experts the Spray is far more efficacious. Its use is however limited to the disinfection of rooms; the disinfection of clothes, bedding, &c., can only be effectually performed by steam, and for this there are very few Districts, except where large Hospitals exist, which possess any special Apparatus. The Council has further accepted (Sept. 29th) my recommendation to offer to disinfect after deaths from Phthisis. Even if in many cases the householder refuses the offer, yet a good effect will be produced by this practical intimation that Phthisis is infectious; and, in the future, greater care in adopting proper hygienic measures will diminish the number of preventible cases of this common and fatal disease.

Notifiable Infectious Diseases.—There have been 55 cases during the year. (The numbers for 1895 are not available for comparison. Cf. Report for 1895, para. 2).

Scarlet Fever.—38 cases, in 24 houses. In January there were 6 cases, February 3, March 16, April 1, July 5, August 5, September 1, November 1. Except during March there was no fear of a serious epidemic. In many cases the infection was ascertained to have arisen outside the District. There is nothing further of importance to say about this disease, except that it was fatal in 3 instances; one each in January, February, and March; ages 3, 2, and 1 year.

Diphtheria, including *Membranous Croup*, which is now believed to be identical, occurred 4 times and all the cases were fatal. 1 occurred in April, 2 in June, and 1 in September, at ages $1\frac{1}{2}$, 3, 3, $1\frac{1}{2}$ years. The two cases in June occurred in Tunstall Road, Bradley Green.

Enteric Fever.—3 cases occurred in September, children in one house in Biddulph Park. An inspection of the premises was made, and various Sanitary improvements recommended. None of the cases were fatal.

Puerperal Fever.—6 cases. 2 fatal, (April and July). Of the other cases, 2 in August and 1 in September appeared to be possibly connected; and strict cautions were addressed to the nurses in attendance.

Erysipelas.—4 cases, which do not require special mention.

The amount of Notified Infectious Disease has therefore not been unduly large. The Case-Rate is 10·0; and the Death-Rate 1·6.

Births.—Total 188. Rate 34·2.

	M.	F.	TOTAL.	RATE.	Of which Illegitimate.		
					M.	F.	TOTAL.
1st Quarter . .	20	21	41	29·9	2	1	3
2nd „ . .	22	23	45	32·8	0	1	1
3rd „ . .	30	19	49	35·3	2	1	3
4th „ . .	23	30	53	38·1	2	2	4
TOTAL	95	93	188	34·2	6	5	11

The total number is 20 less than 1895; though 17 higher than 1894. The Rate is 3·9 less than 1895; though 2·7 higher than 1894. The Quarterly Rates are somewhat unusual in shewing a progressive increase throughout the year.

Deaths.—Including 1 in the Union Workhouse, 90, (against 87 and 77 in preceding years). The Rate is 16·4, and is lower by 0·4 than the previous year; and by 1·1 than the average for 4 years 1892-5. The Quarterly numbers of Deaths were 23, 27, 20, 20; shewing a somewhat unusual distribution; the excessive mortality of the Second Quarter being largely due to Zymotic Diseases.

Zymotic Diseases.—We have already considered the deaths from Scarlet Fever, 3; Diphtheria, 4; and Puerperal Fever, 2. Table A now allows us to see also that *Measles* has caused 3 deaths; these were 2 in May and 1 in June, at ages 1 year, 9 months, 9 years; *Whooping-Cough* 2 deaths; both were in April, at ages 4 months and 3 weeks; and *Diarrhœa* 2 deaths; both were in August, at ages 2 months and 3 weeks. Thus we get a total of 16 deaths from the principal zymotic diseases, which is equal to a Rate of 2·9; or

excluding Puerperal Fever, 14 deaths, and Rate 2.5. This is very satisfactorily lower than the 3.3 Rate of 1895.

Phthisis.—9 deaths (against 6). 2 were tuberculous diseases of children; the remainder varying from 6 to 62 years.

Bronchitis and Pneumonia.—15 deaths (against 16). No less than 11 were among children under 5 years.

Heart Disease.—5 (against 11).

Influenza.—2 (against 4). These have not been thought worth a special column in the Table. One, in June, at age 6, was complicated with Meningitis, and appears in Col. 21; one, in November, at age 3, was complicated with Pneumonia, and appears in Col. 17. Neither occurred in adults, nor, so far as known, was evidence of any epidemic.

Injuries.—Only one death. This occurred in December. A man, aged 36, was killed accidentally in a mine. Inquest held.

Inquests—In addition to the above, only one other inquest appears to have been held. This was in October, on a woman of 69. Verdict, Syncope.

Uncertified Deaths.—4 cases; a child of 11 months, in June, Convulsions; a man of 59, in July, Pneumonia; and 2 in October, one was a woman of 61, who burst a blood-vessel; the other, a child of 3 weeks, who died of Convulsions.

Infantile Deaths.—26, (against 30). Classified as follows:—Premature 1, Malformation 1, Zymotic Diseases 5, Bronchitis 6, Convulsions 6, Debility 6, Phthisis 1. The Rate per 1000 Births has fallen from 144 to 138. Nearly one half of the 26 deaths, viz., the 11 from Zymotic Diseases and Bronchitis, were clearly preventible. The remarks made under this head in my last Report may be considered still applicable. The most pitiful part of a Medical Officer's Report is that which tells of the tremendous annual waste of infant human life, and most of it due to simple ignorance.

Water Analysis.—One sample was examined for the Council by the Medical Officer at the end of April, and pronounced fairly good.

School Closure.—The Biddulph Moor Schools were closed from May 4th to June 8th on account of Measles.

Inspections have been made by the Medical Officer, (along with the Inspector), in all cases reported to him.

Scavenging.—An alteration in the system was introduced this year, by advertising the Scavenging for each of the three Wards separately. The object in view was however not attained, as one Contractor secured all three Contracts. The work is not performed as regularly or as thoroughly as it ought to be.

Sewage Disposal.—The County Council, acting under the Rivers Pollution Prevention Act, is asking for further Sewage Works to be erected. The amount of Sewage which is dealt with comprises only a small portion of the District, viz., part of Bradley Green. The existing arrangements are admittedly unsatisfactory, and the question of their improvement has been considered, but no action has yet been decided on.

Inspector's Report.—As the Inspector has not kept a written record of his work, he is unable to supply me with a Report for insertion here ; and he is also unable to fill up the printed form asked for by the County Medical Officer. This matter has been remedied for 1897, and a proper Report will be made out next year.

In the absence of such information on the present occasion, I am obliged to dismiss some of the subjects very briefly and in general terms. Slaughter-houses and Bake-houses have been regularly inspected, and kept clean and lime-washed. The meat offered by travelling vendors is closely watched. There are no Common Lodging Houses, and no Canals, in the District. No work has been done under the Dairies, Cowsheds, and Milkshops Order, 1895 ; nor under the Factory and Workshops Act, 1891.

Adoptive Acts.—All the usual Acts have been adopted.

Summary.—The comparison of 1896 with 1895 is uniformly favourable to 1896. This ought to be an encouragement to the Council to persevere in the path of Sanitary Reform. Pure air, pure water, unpolluted soil, and unadulterated food go a long way towards securing a good Health-Return.

T. W. H. GARSTANG.

Medical Officer of Health.

January 26th, 1897.

EXTRACT FROM COUNTY RETURN FOR 1895, SHEWING POSITION OF
BIDDULPH AS COMPARED WITH 34 OTHER URBAN DISTRICTS.

(N.B.—Biddulph has a larger acreage, in proportion to population, than any other Urban District except one).

	Best of 35 Districts.	Worst of 35 Districts.	The Biddulph figure.	Place of Biddulph in the list.
Birth-Rate	49·1	22·8	38·1	15
Death-Rate	12·5	26·9	15·9	8
Zymotic Death-Rate	0·5	6·0	3·3	27
Deaths under 1 year to 1000 births	59	288	144	10

[A] Table of DEATHS during the Year 1896, in the Biddulph Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (Columns for Population and Births are in Table B.) (a)	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							(i)	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
	At all ages. (b)	Under 1 year. (c)	1 and under 5. (d)	5 and under 15. (e)	15 and under 25. (f)	25 and under 65. (g)	65 and upwards. (h)					
Biddulph	89	26	19	3	3	19	19	{ Under 5 ... 5 upwards ...	...	3	1	3
TOTALS.....	89	26	19	3	3	19	19	{ Under 5 ... 5 upwards ...	...	3	1	3

The subjoined numbers have also to be taken into account

Deaths occurring outside the district among persons belonging thereto.	1	...	...	...	...	...	1	{ Under 5 ... 5 upwards ...	...	...	...	...
Deaths occurring within the district among persons not belonging thereto.	...	...	...	...	...	...	...	{ Under 5 ... 5 upwards ...	...	...	...	...

* The heading of column 19 is left blank for the insertion of Influenza,

[B] Table of POPULATION, BIRTHS, AND OF NEW CASES
Officer of Health, during the year 1896, in the Biddulph Urban

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Public Institutions being shewn as separate localities. (a)	POPULATION AT ALL AGES.			Aged under 5 or over 5. (e)	NEW CASES OF KNOWLEDGE			
	Census 1891. (b)	Estimated to middle of 1896 (c)	Registered Births. (d)		Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Group. 4
Biddulph (H)	5290	5500	188	{ Under 5 ... 5 upwards ...	{ ...	38	...	4
TOTALS.....	5290	5500	188	{ Under 5 ... 5 upwards ...	{ ...	38	...	4

State here whether "Notification of Infectious Disease" is compulsory

Errata.



Page 3, lines 12 and 13 of 1st para. Insert "more"
between "probably" and "correct."

„ 6, line 2 of 3rd para. For "46" read "45."

„ „ „ 3 „ „ „ "39" „ "38."

„ „ „ 4 „ „ „ "8" „ "7."

„ „ „ 12 „ „ „ "31" „ "33."

„ 7, Date of Report „ "1896" „ "1897."

„ 17, „ „ „ "1896" „ "1897."

„ 48, 2nd Table, last Col. „ "66" „ "70."

„ „ „ „ „ "121" „ "133."

Appendix.

In preparing the various Tables in the foregoing Reports—some of which have entailed a great amount of labour—I have become strongly impressed by the fact that the value of the figures depends greatly upon the possibility of comparing them with those of previous years and of neighbouring Districts. I therefore make no apology for appending a final Table, which will afford much interesting information to those who care for Statistics. It gives the "Rates" for Six Years, for Twelve Districts; the Four Sub-Districts of each Rural District being taken separately. (*Note* :—The Rural Sub-Districts must not be confounded with Urban Districts of similar names). For the figures for 1894 and 1895 I am indebted to the County Returns for Cheshire and Staffordshire; for previous years to Dr. Fox's Tables, (from which some of these Rates are now calculated for the first time); and for 1896 to the present volume of my own Reports.

I strongly recommend to every Member of a District Council the study of the County Returns when published. It is very interesting reading; and its perusal will greatly enlarge the capacity for rightly estimating the conditions of the different Districts, when considered separately.

T. W. H. GARSTANG.

Knutsford,

February 1st, 1897.

COMPARATIVE STATISTICS for the SIX YEARS 1891 to 1896.

	BIRTH-RATE.						DEATH-RATE.						ZYMOTIC DEATH-RATE.						INFANTILE DEATHS to 1000 Births.					
	1891.	1892.	1893.	1894.	1895.	1896.	1891.	1892.	1893.	1894.	1895.	1896.	1891.	1892.	1893.	1894.	1895.	1896.	1891.	1892.	1893.	1894.	1895.	1896.
Altrincham, R..	24.0	23.6	23.7	23.0	24.3	22.5	15.8	15.3	15.8	12.8	14.5	12.3	} 0.41	} 0.89	} 0.74	0.8	0.9	0.9	} 114	} 113	160	141	134	75
Lymm, R.	22.2	25.2	24.7	19.9	22.0	24.1	17.7	15.4	13.7	10.5	10.7	13.6				0.2	0.2	0.6			82	54	118	70
Knutsford, R....	26.5	26.8	25.0	24.1	23.5	25.5	19.4	17.1	20.9	18.2	14.2	13.6				0.8	0.8	1.1			118	120	81	144
Wilmslow, R....	25.0	24.5	26.8	22.3	22.7	23.9	12.0	13.4	18.7	12.5	21.0	16.4				1.0	0.8	0.6	71	100	182	133		
Weaverham, R.	31.2	33.0	35.7	31.2	32.9	34.9	15.0	18.6	17.6	15.2	18.9	16.3	} 0.45	} 1.52	} 0.92	1.6	0.5	2.9	} 132	} 129	159	130	140	147
Northwich, R....	42.2	38.2	33.0	38.3	34.9	44.8	14.8	20.7	15.2	17.2	17.1	15.5				2.6	1.3	1.6			203	153	164	105
Over, R.	36.1	29.8	33.4	24.0	32.1	28.8	18.4	18.2	16.9	13.3	12.9	14.8				0.3	0.9	0.3			87	135	111	167
Middlewich, R..	31.2	41.4	29.0	33.3	35.9	30.1	13.9	16.4	15.3	13.0	13.7	14.1				1.0	0.7	1.1	161	100	82	96		
Knutsford, U...	...	...	...	...	32.6	28.1	13.8	12.0	15.0	13.8	14.7	17.8	...	...	...	...	0.4	1.4	...	...	...	92	165	
Middlewich, U..	40.0	39.3	40.0	43.1	36.2	38.6	21.0	22.4	20.0	11.3	20.8	16.8	2.3	0.2	2.4	0.6	2.9	2.9	172	166	164	87	186	134
Winsford, U. ...	36.3	32.2	36.3	35.1	36.1	36.1	19.2	18.9	17.0	14.2	19.3	14.9	1.4	0.9	0.8	1.8	2.6	1.8	173	159	159	117	166	130
Biddulph, U....	39.2	33.0	38.0	31.6	38.1	34.2	18.5	14.0	20.4	14.2	15.9	16.4	2.3	0.4	2.4	0.5	3.3	2.5	173	154	170	157	144	138

COMPARATIVE STATISTICS

	BIRTH RATE		DEATH	
	1901	1902	1901	1902
A	240	235	158	155
B	235	230	175	170
C	230	225	195	190
D	225	220	185	180
E	220	215	170	165
F	215	210	155	150
G	210	205	145	140
H	205	200	135	130
I	200	195	125	120
J	195	190	115	110
K	190	185	105	100
L	185	180	95	90
M	180	175	85	80
N	175	170	75	70
O	170	165	65	60
P	165	160	55	50
Q	160	155	45	40
R	155	150	35	30
S	150	145	25	20
T	145	140	15	10