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ANNUAL REPORT

OF THE

MEDICAL OFFICER

TO

The County Council

OF

NOTTINGHAMSHIRE,

FOR THE YEAR 1906.

BY

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Nottingham:

THOS. FORMAN AND SONS, SHERWOOD STREET.

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THE SHIRE HALL,
NOTTINGHAM,
June 15th, 1907.

MY LORDS AND GENTLEMEN,

I have the honour to present my eleventh Annual Report, which deals with the year 1906. It consists, as in former years, of an analysis of the Annual Reports of the Medical Officers of Health of the 26 Districts into which the Administrative County is divided for sanitary purposes, together with Tables of Vital Statistics derived from those Reports, and based upon the Forms of the Local Government Board. No new forms have been issued by the Local Government Board this year, but Tables VIII. to XI. have been improved. The forms issued by the Home Office for reports to them shewing the work done by Medical Officers of Health under the Factory and Workshop Act have also been extended and improved.

Although the statistics are confined to the year 1906, other matters relating to Public Health have been brought as far as possible up to the date of publication.

While trying to keep the Report as short as possible, I have at the same time endeavoured to make it permanently useful as a record of the state of the Public Health during 1906.

The estimated population for the year 1906 was **319,612,** shewing an increase of 3·07 per cent. on the population of 1905.

The birth-rate was **28·4,** which is the lowest hitherto recorded in this County, and ·2 per 1000 lower than in 1905.

The death-rate was **12·9,** which is **the lowest rate for this County of which we have any record,** and 1·1 per 1000 lower than in 1905.

When taken in groups of ten years and five years, the progressive improvement in the death-rate is seen to be most striking.

*Average death-rate for the		10 years	1861–70 = 21·7	per 1000
,,	,,	10 ,,	1871–80 = 21·4	,,
,,	,,	10 ,,	1881–90 = 19·6	,,
,,	,,	5 ,,	1891–95 = 16·6	,,
,,	,,	5 ,,	1896-1900 = 16·2	,,
,,	,,	5 ,,	1901–05 = 14·2	,,
,,	,,	the year	1906 = 12·9	,,

* For further details, see pages 14–19.

If the death-rate prevailing in the ten years 1861–70 had continued during the year 1906, there would have been **2812 additional deaths** for that year alone of persons now living. Even if the death-rate of 1905 had continued during 1906, 447 persons now living would have died.

In the face of facts like these, it is not possible to say that the care of the Public Health has been without effect.

The Reports of the Health Committee to the County Council, which are published every quarter, are a record of the sanitary administration, except as regards ordinary routine work; and it is unnecessary to reproduce them.

For the last nine months of 1906, I devoted my whole time to the work of the County Council, and was enabled to accomplish much more than in any previous year; quite apart from work for the Education Committee, consisting of four special Reports, the Medical examination of 73 Pupil Teachers, 63 Pupil Teacher Candidates, and many consultations and investigations concerning school closure and disinfection.

During the year, 28 Reports have been issued and circulated, including four for the Education Committee.

The correspondence of the Health Department involved the issue of 3,359 letters, compared with 2,992 in 1905.

Seventy-three journeys to different parts of the County were made, compared with 33 in 1905, many of them occupying the whole day, and including visits to more than one Sanitary District.

Every year the County Medical Officer is more frequently consulted by the Medical Officers of Health of the different districts in the County.

Eight Local Inquiries were held by Inspectors of the Local Government Board in connection with Sewage Disposal Works, and were attended by the County Medical Officer.

I also attended, as a delegate of the County Council, the Congress of the Royal Sanitary Institute at Bristol, and the National Conference on Infantile Mortality in London.

The administration of the Midwives' Act (of which a fuller account is given on pages 29–32) has been somewhat laborious, and has included 23 lectures, given by Miss Lessey (Midwives' Inspector), 525 visits of inspection, mainly by Miss Lessey, the investigation of two complaints against Midwives by the Committee, and a very large amount of correspondence.

In respect to River pollution, further progress has been made. During the year 1906, an Order of the County Court for five years was obtained against the Warsop Urban District Council for the pollution of the River Meden. Subsequently a scheme for sewerage and sewage disposal has been sanctioned, after Local Inquiry, by the Local Government Board.

A similar Order was obtained against the Retford Town Council for pollution of the River Idle and its tributaries, and some progress is being made with remedial measures.

The most serious and extensive pollution of the River Erewash continues to be caused by the sewage of the Borough of Ilkeston, against whom an Order of the County Court for five years has been obtained by the Derbyshire County Council.

An account of the rainfall in ten different districts in the County is given in Table XIII.

I have the honour to remain,

Your obedient Servant,

HENRY HANDFORD.

ANNUAL REPORT.

The Annual Report of the County Medical Officer is the *only* record of the Health of the Administrative County over which the County Council exercise jurisdiction.

The Report of the Registrar-General deals with the *Registration County*, which differs very essentially from the Administrative County both in area and population, including, as it still does, about 100,000 persons residing in Derbyshire, Leicestershire, Lincolnshire, and the West Riding of Yorkshire, in addition to the majority of the population of the Administrative County, and the whole of the population of the City of Nottingham; thus making a total of considerably more than half a million persons.

It is greatly to be regretted that public funds are employed in publishing statistics concerning life, death and disease, for areas which have no administrative existence—statistics of which the elected administrative bodies charged with the duty of looking after the Public Health, such as the Councils of Counties and County Boroughs, of Urban and Rural Districts, can make little or no use.

The Decennial Report of the Registrar-General, published in 1896, contains the following paragraph:—"In issuing a work like the present, which shows in detail the vital statistics of each of the 632 Registration Districts during a period of ten years, it is impossible not to feel regret that the elaborate series of tables therein contained cannot, except in a few instances, be utilized for definite administration purposes, because of the overlapping and confusion of areas, which still very frequently persist."

The methods by which these valuable statistics should be made available for the use of the administrative authorities most nearly concerned, is a matter for the consideration of the Registrar-General; but the existing anomaly is sufficiently serious to need the attention of Parliament.

Annual Reports.—The Reports were received on the following dates :—

Feb. 12th	Eastwood.
„ 15th	Misterton.
„ 16th	Warsop.
„ 20th	Carlton.
„ 21st	Mansfield.
Mar. 1st	Leake.
„ 1st	West Bridgford.
„ 2nd	Kirkby in-Ashfield.
„ 4th	Sutton-in-Ashfield.
„ 11th	Stapleford.
„ 14th	Blyth and Cuckney.
„ 16th	East Retford Urban.
„ 18th	Huthwaite.
Mar. 20th	Mansfield Woodhouse.
„ 25th	Basford.
„ 25th	Hucknall Torkard.
„ 28th	Southwell.
Apr. 4th	Worksop.
„ 10th	Newark Rural.
„ 10th	Newark Urban.
„ 11th	Beeston.
„ 11th	Arnold.
„ 13th	East Retford Rural.
May 8th	Skegby.
„ 11th	Kingston and Ratcliffe.
June 1st	Bingham.

The compilation of this Report has been greatly facilitated by Medical Officers of Health kindly sending *advance copies of their statistics* when there was a probability of the printed report being late.

Printing Annual Reports.—All the District Councils, except Bingham, and Misterton, now print the Annual Reports of their Medical Officers of Health. The advantage of printing these Reports has been so generally recognised, that it is unnecessary for me to refer to it further.

Medical Officers of Health.—No change took place in the personnel during 1906; but I regret to have to record the death, during April, 1907, of Dr. Joseph Ingram, for several years Medical Officer of Health for Warsop, after a long illness. There has, also, been a change in the Misterton Rural District, where Dr. J. Potterton-Ferguson, whose appointment was an annual one, failed to secure re-election in April, 1907, and has been succeeded by Dr. W. W. Farrar.

Area.—The area of the Administrative County amounts to 814¾ square miles, exclusive of water.

Population.—The *natural* increase of population for the year 1906, by excess of births over deaths, was 4849 or 15·1 per 1000 of the population, compared with 14·6, 16·9, 16·7 and 16·8 for the four preceding years.

The *estimated* population of the County at the middle of the year 1906, was 319,612, shewing an increase of **9527** or **3·07** per cent., compared with 6802 and 2·24 per cent. for 1905. This is much in excess of the natural increase, and indicates a considerable amount of immigration, chiefly into the coal mining portions of the Urban Districts.

The estimated increase in the Urban Districts was 8735, or 4·66 per cent. ; and in the Rural 792, or ·64 per cent. The estimated population of the County has been arrived at by adding together the populations of the 26 Districts, which have been estimated by each Medical Officer of Health for his own District, from local knowledge. Calculated according to the rate of increase shewn between the Census of 1891 and the Census of 1901, the population at the middle of 1906 would be 300,346. This is, no doubt, too small, on account of the rapid development of coal mining in certain districts ; and the local estimates, which have been carefully made, are nearer the truth, though probably they err on the side of excess.

The birth-rates and death-rates have been calculated upon the *estimated* population. But, now that we are six years from the last Census, the uncertainty as to the true population of the rapidly growing Urban Districts somewhat impairs the value of important statistics, and renders a quinquennial Census a matter greatly to be desired.

Births.—During the year, 9088 births were registered, corresponding to a rate of 28·4 per 1000 of the population; and shewing a falling off of only ·2 per 1000 compared with 1905. Nevertheless, the birth-rate for 1906 is the lowest of which we have any record in this County.

In the Urban Districts, 30 live births were registered for every 1000 of the population, and in the Rural only 25·9. At present, still-births are not registered ; and in many instances, the distinction between live-birth and still-birth is so fine as to leave the door open to many dangers.

In accordance with the Rules of the Central Midwives Board under the Midwives Act, notices of 123 still-births were sent to the County Council by certified Midwives during the year. These must be a very small portion of the whole number of still-births occurring in the County during the year.

Very much has been published by numerous writers, of very vayring authority, upon the question of the falling birth-rate ; but, however wide the divergence in other directions, there is a very general consensus of opinion, that one of the main causes is the artificial prevention of conception. This is not the place to discuss the ethics of the question.

The following observations of the Registrar-General, taken from the 68th Annual Report, confirm this opinion.—"The

Birth Registers in this country do not afford information respecting the age of the mothers, there are, therefore, no means of ascertaining the fertility of women at the several ages comprised in the child-bearing period; there are, however, sufficient grounds for stating that during the past 35 years approximately about 17 per cent. of the decline in the birth-rate (based on the proportion of births to the female population aged 15–45 years), is due to the decrease in the proportion of married women in the female population of conceptive ages, and about 10 per cent. is due to the decrease of illegitimacy."

"With regard to the remaining 73 per cent. of the decrease, although a proportion of the reduced fertility may be ascribed to the changes in the age constitution of married women, there can be little doubt that the greater part of it is due to deliberate restriction of child-bearing on the part of the people themselves."

From a consideration of the following tables, also taken from the 68th Report of the Registrar-General, it would appear that the loss of population from the falling birth-rate, is not quite so great, after a period of years, as would at first sight seem to be likely. This is owing to the fact that in districts with a low birth-rate, especially Agricultural Districts, the *proportion* of children that survive at the end of five years is greater than in many Urban Districts with a high birth-rate.

Mean Annual Birth Rates in the following Registration Counties for 1895–1900, and proportion of survivors at ages 1–5 years:—

Registration Counties.	Births to 1000 living at all Ages.	Proportion per 1000 of Population at all Ages. Survivors at					Of 1000 born, the number surviving at age 5.
		1 year.	2 years.	3 years.	4 years.	5 years.	
England and Wales	29·4	24·8	23·7	23·2	23·0	22·8	774
London	29·9	25·1	23·7	23·2	22·9	22·8	761
Leicestershire ..	30·6	25·7	24·7	24·3	24·0	23·8	778
Rutlandshire ..	23·5	21·0	20·5	20·3	20·2	20·1	858
Lincolnshire ..	27·5	23·6	22·8	22·5	22·4	22·2	809
Nottinghamshire ..	31·7	26·3	25·1	24·7	24·4	24·3	766
Derbyshire	31·1	26·5	25·4	25·1	24.8	24·7	792

For purposes of further comparison the figures for England and Wales, London, Lancashire, three typical Mining Counties, and three typical Agricultural Counties, are shown below :—

	Proportion of Children per 1000 of Population.				
	England and Wales.	London.	Lancashire.	Three Mining Counties (Glamorganshire, Staffordshire, and Durham).	Three Agricultural Counties (Herefordshire, Cambridgeshire, and Wiltshire).
At Birth ..	29·42	29·93	30·98	35·04	25·71
Survivors at—					
1 year of age .	24·82	25·07	25·36	28·95	22·88
2 years of age	23·65	23·74	23.70	27·36	22·28
3 years of age	23·23	23·23	23·12	26·78	22·08
4 years of age	22·96	22·95	22·75	26·42	21·94
5 years of age	22·77	22·76	22·49	26·15	21·83

"The general lesson to be drawn from the figures is that a high birth-rate does not necessarily involve a larger effective addition to the population than does an average, or even a low birth-rate. In too many cases, high birth-rates are associated with excessive sickness and mortality during the first few years of life, the result being that not only do fewer than a normal proportion of the children survive at the age of five years, but those who do survive at that age have fallen below the normal standard of physical fitness. In general, the localities with lower birth rates experience lower rates of child mortality."

"It is true that the figures worked out for England show that only in a few extreme cases is the numerical advantage of a high over a low birth-rate completely neutralised by excessive mortality during the first five years of life; but excessive mortality is almost inevitably associated with deteriorated health of the survivors, and similar influences may reasonably be supposed to affect children beyond the age to which the investigation could conveniently be carried. There is, therefore, some ground for the opinion that moderate birth-rates, associated with low mortality among children, may be more effective towards the up-keep of the population than high birth-rates associated with high mortality among children."

"In this connection I would remark that of the mortality in the first fifty years of life, about one-half occurs in the first five years. This proportion is, of course, not exact, but it represents a rough approximation to the facts both as regards healthy and as regards unhealthy populations, and it has the advantage of being easy to remember. The fact lends support to the opinion that excessive mortality among young children indicates deterioration among the survivors."

Illegitimate Births.—Table V. of the Forms issued by the Local Government Board now requires the legitimate and the illegitimate births to be entered separately; and this has been done in all the districts except one, namely, Eastwood. There were 371 illegitimate births registered out of a total of 8,948 (omitting Eastwood), or a rate of 41·4 per 1,000 births. In the Urban Districts the rate was 44·4 per 1,000, and in the Rural, 36·1.

The following tables and remarks from the Registrar-General's Report are interesting for comparison.

The proportions of illegitimacy in England and Wales at the four past census periods, and in the years 1903–4–5, were as follows:—

YEAR.	ILLEGITIMATE BIRTH-RATES.	
	In proportion to total Births.	In proportion to the Unmarried and Widowed Female Population aged 15—45 years.
	Rate per 1000.	Rate per 1000.
1870–2	55·6	17·0
1880–2	48·5	14·1
1890–2	42·8	10·5
1900–2	39·2	8·5
1903	39·3	8·4
1904	39·9	8·4
1905	40·2	8·2

Registration Counties.	Illegitimate Births to 1000 Unmarried and Widowed Females, aged 15—45 years.							Decrease per cent in each County in 30 years, 1870-2 to 1900-2.
	Three-year Periods.				Years.			
	1870-72.	1880-82.	1890-92.	1900-02.	1903.	1904.	1905.	
England and Wales ..	17·0	14·1	10·5	8·5	8·4	8·4	8·2	50·0
London ..	10·3	9·8	8·1	6·9	6·8	7·1	6·8	33·0
Leicestershire	19·9	16·1	11·4	8·6	8·1	7·6	8·1	56·8
Lincolnshire ..	22·3	18·5	14·2	12·2	12·2	11·9	12·2	45·3
Nottinghamsh.	24·5	21·7	15·4	12·7	12·8	12·3	12·7	48·2
Derbyshire ..	22·5	17·7	12·8	10·0	9·7	10·6	9·8	55·6

Among Registration Counties with populations exceeding 100,000 persons, the highest and lowest proportions of illegitimate births to 1,000 unmarried and widowed females aged 15–45 years in the year 1905 were as follows :—

Counties.	Highest Proportions per 1000.	Counties.	Lowest Proportions per 1000.
Norfolk	13·4	Lancashire	7·6
Nottinghamshire ..	12·7	Carmarthenshire ..	7·5
Suffolk	12·6	Warwickshire ..	7.5
Denbighshire	12·5	Kent	7·4
Shropshire	12·2	Hertfordshire ..	7·3
Lincolnshire	12·2	Hampshire	7·1
East Riding of Yorkshire	12·0	Essex	7·0
North Riding of Yorkshire	11·9	Sussex	7·0
Herefordshire	11·4	Cheshire	6·9
Cumberland	11·4	London	6·8
Staffordshire	11·3	Worcestershire ..	6·5
Durham	11·1	Devonshire	6·2
Cambridgeshire	10·2	Somersetshire ..	6·1
		Middlesex	5·9
		Gloucestershire ..	5·9
		Surrey	5·8

"It is difficult to explain the variations in the rate of illegitimacy in the several counties; it is worth noting, however, that a high proportion prevails in nearly all the Counties on the Eastern seaboard, and that while there are several Counties, such as Denbighshire, Shropshire, the North Riding of Yorkshire, Cumberland, Staffordshire, and Durham, which have both a high legitimate and illegitimate birth-rate, there are on the other hand several other Counties, for example, Kent, Hampshire, Sussex, and Devonshire, in which both the legitimate and illegitimate birth-rates are comparatively low."

"In many respects illegitimacy is a calamity, and especially so to the children concerned; it may not be out of place, therefore, to quote again the remarks on this subject by D. Chr. Bernoulli, which appeared in the Sixth Report, relating to the year 1842:"—

"'The proportion of illegitimate children cannot serve as a standard of morality; nevertheless, a remarkable frequency of such children is without doubt in many respects a great evil. The invariable fact that the mortality among the illegitimate is far greater than among the legitimate, and that many more of them are still-born, shows clearly enough how much more unfavourable their position is from the first. Who can doubt that their bringing up is much harder and more difficult? That the existence of a class of men, bound to society by few or no family ties, is not a matter of indifference to the State? The great majority of foundlings are illegitimate, which of itself shows how little, as a general rule, the mothers can or will care for these children. It is beyond doubt that fewer illegitimate children grow up to maturity; that they get through the world with more trouble than children born in wedlock; that more of them are poor; and that therefore more of them become criminals. Illegitimacy is in itself an evil to a man, and the State should seek to diminish the number of these births, and carefully inquire to what circumstances any increase is to be ascribed.'"

In the following tables the birth-rates of the different districts in the County are given for the year 1906, and also for the past 10 years. From these it will be clear that the distinction into Urban and Rural Districts does not separate the high birth-rates from the low; but that the high birth-rates prevail in the coal mining and manufacturing portions of the County, whether they are denominated Urban or Rural, and the low birth-rates in the agricultural and residential portions.

Birth-Rate for 1906, per 1,000 of the Population.

Urban Districts.	Rate.
Mansfield Woodhouse	40·7
Huthwaite	36·8
Warsop	35·2
Sutton-in-Ashfield	33·8
Worksop	33·3
Mansfield	32·7
Kirkby-in-Ashfield	32·7
Arnold	30·5
Hucknall Torkard	29·2
East Retford	27·1
Carlton	27·1
Eastwood	26·9
Newark	26·1
Beeston	24·1
West Bridgford	14·7
Total Urban Districts	30·0

Rural Districts.	Rate.
Skegby	34·5
Misterton	31·5
Basford	28·4
Stapleford	28·4
Blyth and Cuckney	27·9
Newark	25·8
East Retford	23·3
Leake	23·1
Southwell	21·3
Bingham	20·6
Kingston and Ratcliffe	19·2
Total Rural Districts	25·9

Average Birth-Rate for the Ten Years, 1896–1905, per 1,000 of the Population.

Urban Districts.	Rate.
Huthwaite	43·3
Warsop	41·8
Kirkby-in-Ashfield	40·0
Mansfield Woodhouse	40·0
Sutton-in-Ashfield	39·0
Hucknall Torkard	36·8
Mansfield	33·6
Worksop	33·4
Eastwood	33·2
Arnold	31·3
Carlton	31·3
Beeston	29·8
Newark	28·9
East Retford	27·3
West Bridgford	19·4
Total Urban Districts	33·3

Rural Districts.	Rate.
Skegby	35·0
Stapleford	31·6
Basford	31·5
Misterton	27·8
Blyth and Cuckney	25·8
Newark	25·7
Leake	25·4
Southwell	24·3
East Retford	24·2
Bingham	23·1
Kingston and Ratcliffe	18·8
Total Rural Districts	27·6

Deaths.—The number of deaths registered in the County in 1906 was 4,148, compared with 4,451 in the previous year. *Of these 1,108, or more than one-quarter, occurred in infants under one year of age.*

Of the deaths registered in England and Wales during the year 1905, no fewer than 17·61 per cent. occurred in Public Institutions. In this County the proportion shown in the Annual Reports is only 6·7 per cent., and suggests an incomplete record.

The death-rate per 1,000 of the population was **12·9,** which is **the lowest rate of which we have any record,** and 1·1 per 1,000 lower than the previous lowest, which was in the year 1903. It has not been possible to obtain the death-rate for the Administrative County before the year 1891. For comparison of the death-rates in earlier years, it is necessary to have recourse to the Registration County, the composition of which is described upon page 6. These rates, including as they do the City of Nottingham, are no doubt slightly higher than those for the County alone would be if we could obtain them, but they are the only means of comparison available.

Registration County.		Administrative County.	
10 year Periods.	Death Rate (at all ages and from all causes)	5 year Periods.	Death Rate (at all ages and from all causes)
1861–1870	21·7	1891-1895	16·6
1871–1880	21·4	1896 1900	16·2
1881–1890	19·6	1901–1905	14·2
1891–1900	17·7	**1906 .. ..**	**12·9**

If the death-rate prevailing in the ten years 1861–1870 had continued during the year 1906, there would have been 2812 additional deaths for that year alone of persons now living. Even if the death-rate of 1905 had continued during 1906, there would have died 447 persons now living. In the face of facts like these it is not possible to say that the care for the public health has been without effect.

The Urban death-rate was **12·9** and the Rural **13·0**. Thus for the fourth year in succession the Rural death-rates have exceeded the Urban. A reference to Table XII. will show that this phenomenon is not confined to Nottinghamshire. The death-rate of the 142 "Smaller Towns" in England and Wales, as published by the Registrar-General, is lower by 0·6 per 1000 than the death-rate of "England and Wales less the 218 towns."

The higher death-rate of the Rural Districts is a fact. A complete and satisfactory explanation is difficult. It is *partly* owing, as stated in previous Reports, to the difference in age and sex constitution between the populations of the Urban and of the Rural districts. The Rural districts contain a larger proportion of males and of old persons, amongst whom the death-rates are higher.

By making the appropriate *corrections for age and sex constitution* of the Urban and Rural districts, assuming that the proportions of each sex remain the same as at the census of 1901 (and there is no information since that date), the rates are altered as follows :—

	Uncorrected.			Corrected for Age and Sex.		
	Whole County.	Urban.	Rural.	Whole County	Urban.	Rural.
1901	14·9	15·4	14·3	14·3	15·5	12·8
1902	14·4	14·8	13 8	13·8	14·9	12·4
1903	14·0	13·8	14·3	13·4	13·9	12·8
1904	14·4	14·2	14·6	13·8	14·3	13·1
1905	14·3	13·9	14 9	13·7	14·0	13·4
1906	12 9	12·9	13·0	12·3	13·0	11·7

It is further necessary to make additional corrections by the exclusion of the deaths of non-residents registered in the various districts, and the inclusion of the deaths of residents who have died in Asylums, Workhouses, and Hospitals outside the districts.

The necessity of making these troublesome corrections is well illustrated in such a case as that of Bingham, in wnich district the County Asylum is situated. Of the 222 deaths registered in the Bingham Rural District, 53 took place in the Asylum, and of these only one belonged to the Bingham Rural District. Consequently 52 deaths were deducted, thus reducing the Bingham death-rate from 15·7 to 12·3 per 1000.

In order to facilitate these somewhat troublesome corrections, the County Medical Officer has again, through the kindness of the Officers concerned, obtained the lists of deaths of residents in the County from the County Asylum, the Nottingham General Hospital, and the Basford Workhouse, and distributed them to the Medical Officers of Health of the various Sanitary districts. In addition, the deaths in the Mansfield Hospitals and Workhouse, the Newark Hospital and Workhouse, the Retford Hospitals and Workhouse, the Sheffield General Hospital, and other institutions, have been distributed by the Medical Officers concerned. The result is that the statistics are more accurate than in any previous year, and the net deaths are now 91 more than the total deaths registered in the County.

I have on many previous occasions offered a word of warning against drawing hasty conclusions from the general (uncorrected) death-rate. It is perfectly true that all sanitary progress must eventually be tested by the criterion of the

death-rate; but in our highly complex civilization the causes which influence the death-rate are very intricate and require much discrimination to avoid erroneous deductions.

For many years the deaths of persons belonging to a District which took place in Institutions, such as Workhouses, Hospitals, and Asylums, outside a District were excluded from the death-rate of that District, and also from the death-rate of the District in which the Institution was situated. Consequently, the death-rates generally were below the actual fact. I am glad to say that with few exceptions that source of error has now been eliminated.

I have also on previous occasions drawn attention to the influence of the age and sex distribution of a District upon the death-rate; and warned against the error of attributing the low death-rate of a District inhabited chiefly by young people, with a predominance of females attracted by the abundance of female labour, to sanitary conditions which can only rightly claim a portion of the credit.

Dr. Tatham, in his Analysis of the Causes of Death in England and Wales, in the 68th Annual Report of the Registrar-General, writes:—

"In further support of the contention in a recent Annual "Report regarding the necessity of correcting local death-rates "for sex and age differences of the living, it may be mentioned "that correction has increased the average death-rate for 1900-"1904 in the urban group by 4·1 per cent., whilst it has "decreased the average rate in the rural group by 11·9 per "cent."

This is well illustrated in Dr. Knight's Report for Carlton, where the death-rate for the Carlton portion of the district was 13·68, and for the Netherfield portion 8·14. The fact that in 1905 the figures were 13·48 and 9·58 shows that the contrast is not due to accident. The two portions of the district have the same water supply, similar drainage, a similar soil and similar occupations; but Netherfield is better housed, and to quote from Dr. Knight—

"To account for such difference in rates, it must be stated "that 24 of the 36 deaths of old people over 65 years of age "belonged to Carlton, and of the 49 deaths of children under

"1 year of age, 31 related to Carlton; such large proportions "resulting from Carlton being a much older part of the district "and containing *many more poor and aged people* than Nether- "field."

I have also, on previous occasions, explained the influence of a large proportion of domestic servants on the death-rate. This is very strikingly illustrated in the case of West Bridford, where the *chief* (though by no means the only) causes of the low death-rate are: the low birth-rate, the large proportion of domestic servants, and the age and sex distribution of the inhabitants.

The immense majority of domestic servants belong to the female sex, amongst whom the death-rate is always lower than amongst males. The large majority belong to the age-period 15–35, when the death-rate is normally nearly at its lowest. Finally, in case of serious illness they are sent home and, when the results are fatal, their deaths are tabulated in the districts where their homes are situated. Indeed, according to the method of adjusting the deaths of residents and non-residents required in the tables issued by the Local Government Board, the death of a domestic servant in her mistress's house would be tabulated in the district in which the servant's home was situated.

NETT OR CORRECTED DEATH-RATE FOR 1906 PER 1,000 OF THE POPULATION.

URBAN DISTRICTS.	RATE
Worksop	15·6
Newark	15·0
East Retford	14·9
Hucknall Torkard	14·9
Huthwaite	14·1
Arnold	13·6
Mansfield	13·4
Sutton-in-Ashfield	13·4
Warsop	12·6
Mansfield Woodhouse	12·2
Kirkby-in-Ashfield	11·9
Beeston	11·3
Carlton	11·1
Eastwood	10·1
West Bridgford	8·1
Total Urban Districts	13·1

RURAL DISTRICTS.	RATE
Misterton	18·2
East Retford	15·0
Leake	14·5
Southwell	14·4
Newark	14·2
Blyth and Cuckney	13·1
Basford	13·0
Bingham	12·9
Skegby	11·3
Stapleford	10·4
Kingston and Ratcliffe	7·2
Total Rural Districts	13·3

AVERAGE GROSS DEATH-RATE FOR THE TEN YEARS, 1896–1905 PER 1,000 OF THE POPULATION.

URBAN DISTRICTS.	RATE
Huthwaite	18·4
Mansfield	17·4
Worksop	17·1
Newark	16·9
Sutton-in-Ashfield	16·8
Mansfield Woodhouse ..	16·5
Hucknall Torkard	16·3
Warsop	16·2
Eastwood	15·5
East Retford	15·3
Arnold	14·8
Kirkby-in-Ashfield	14·8
Beeston	12·7
Carlton	12·3
West Bridgford	8·4
Total Urban Districts	15·6

RURAL DISTRICTS.	RATE
Bingham	16·5
Southwell	16·3
Skegby	15·2
Basford	14·5
Misterton	14·4
Leake	14·1
Blyth and Cuckney ..	14·0
Stapleford	14·0
East Retford	13·9
Newark	13·6
Kingston and Ratcliffe ..	13·0
Total Rural Districts	14·8

Zymotic or Epidemic Death-Rate.—The death-rate from the principal Epidemic diseases, namely, Small-Pox, Scarlet Fever, Whooping Cough, Fever (comprising Typhus, Typhoid, and Continued), Diarrhœa or Epidemic Enteritis, Diphtheria, and Measles, was 1·28 per 1000 for the whole County. The Urban rate was 1·53, and the Rural 0·89. This is the usual classification.

The deaths from Diarrhœa and Epidemic Enteritis form a very large proportion of the Zymotic deaths; and, consequently, the Zymotic death-rate is mainly influenced by them. But, unfortunately, the deaths from disorders of the intestine, of which Diarrhœa is the chief symptom, are arbitrarily divided into classes, some of which, such as Epidemic or Zymotic Enteritis are included among the Zymotic deaths, and others such as Simple Enteritis and Gastro-Enteritis are excluded, except as regards children *under one year of age*.

This arbitrary and uncertain method of classification makes the Zymotic death-rate of very little value as an index of the prevalence of epidemic diseases.

Infantile Death-rate.—Already some beneficial result can be detected from the widespread interest recently devoted to this important subject. Notwithstanding the fact that the unusual heat and drought of the summer of 1906 were unfavourable to infant life, the infantile death-rate fell to 121 per 1,000 births, **which is the smallest rate for this County of which we have any record.**

It is a most significant and important fact that until the last few years, during which public interest and attention have been successfully attracted to this subject, very little diminution of the infantile death-rate took place, as will be seen from the following table, giving the rate for forty years for the **Registration County,** which includes the City, and is, therefore, higher than the rate for the Administrative County alone:—

REGISTRATION COUNTY OF NOTTINGHAM.

10-Year Periods.	Infantile Mortality. Deaths under One Year per 1,000 Births.
1861—1870	170
1871—1880	164
1881—1890	154
1891—1900	164

In the **Administrative County** the rate was as low as 130 thirteen years ago, and as high as 160 only six years ago; that is to say, in the year 1900, after forty years, the general death-rate had fallen 21·1 per cent., while the infantile death-rate only fell 5·8 per cent. In the year 1906, compared with the ten years 1861–1870, while the general death-rate has fallen 40·5 per cent., the infantile death-rate has only fallen 28·8 per cent.

The rate for the 195,793 persons living in Urban Districts was 131 per 1,000 births; while the rate for 123,819 persons living in Rural Districts was only 104 per 1,000 births.

Hitherto, those interested in Infantile Mortality have been content to aim at reducing the rate to 100 deaths per 1,000 births, and have only considered any excess above 100 as likely to be capable of reduction without insuperable difficulty. Facts are now available in abundance which show that we are justified in aiming at a very much higher standard than that; and, indeed, with every prospect of success. Not only is the rate for the whole of the Rural Districts *now* only four above 100, but there are actually six Rural Districts and one Urban, with an aggregate population of 58,307—a sufficiently large number to very largely eliminate chance—each with an infantile mortality rate well below 100, and with a total rate of only 82!

It would be a great mistake to suppose that the question is one mainly, or even very largely, of town *versus* country life. West Bridgford, *practically* part of a big city, and actually having more persons to the acre than any other Urban District

in the County except Carlton, has a lower Infantile Mortality rate than any Rural District, except one, in the County; whereas Huthwaite, with merely the population of a large village (4,700), and only 3·7 persons per acre, has an average Infantile Mortality rate for the past ten years of 205, and in the year 1899 had 327!

It is true that the aggregation of houses and the conditions of female labour in towns are prejudicial to infant life; but the following quotation shows that in some of the most densely populated buildings of London, with 603 persons to the acre, the infantile mortality can be reduced to 84 per 1000 births:—

*"The forty-second annual report of the Governors of the Peabody Donation Fund contains some most satisfactory statistics relating to the health condition during 1906 of the **19,737 residents** of the buildings owned by the Trust. It is pointed out in the report that the birth-rate among the residents was equal to 30·5 per 1,000, exceeding the general London rate by 3·8; that the death-rate did not exceed 12·5 per 1,000, and was 3·2 below the mean rate in London; and that *the rate of infant mortality was only 84·9 per 1,000 births, against 133·0 in the whole of London.* It appears that the buildings occupy nearly 33 acres in various parts of the metropolis, and that the mean density of population on this area is equal to 603 persons per acre, or nearly ten times the mean density throughout London."

We may soon be in a position to show that an infant mortality rate of 80 per 1,000 births, which was found in 1874 by Mr. Charles Ansell, to be the rate prevailing among the upper and professional classes, is too high for the general population; and that a rate as low as 50 or 60 deaths per 1,000 births is not unattainable. *How is it to be done?* The reduction of the infantile mortality rate from 133 in London generally, to 84·9 in the Peabody buildings, notwithstanding a high birth-rate, shows that it **can** be done, as soon as those in authority can be convinced that it is *worth while.* The expense would be small—very small. Three hundred pounds per annum for the whole County would go a long way; and probably no similar sum has ever been voted with the prospect of doing an equal amount of good without pauperising.

Of the mortality in the first 50 years of life, about one-half occurs in the first five years.

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* *Lancet*, March 23, 1907.

Excessive infant mortality is almost inevitably associated with *deteriorated health of the survivors.*

This is shown by examining the death-rates up to five years, instead of for twelve months only, when it appears that a mortality which is excessive in infancy, continues to be in excess for the following four years, though in much less degree. The excessive mortality during infancy and up to five years of age, may go a long way to neutralize the benefits of a high birth-rate.

For instance, as the Registrar-General shows, in Rutlandshire, where the birth-rate is only 23·5 per thousand, at the end of five years 858 children out of every 1,000 born survive; and in Lincolnshire, with a birth-rate of 27·5, 809 survive at the end of five years; whereas in London, with a birth-rate of 29·9, only 761 survive at the end of five years, and in Nottinghamshire, with a birth-rate of 31·7, only 766 out of every 1,000 born alive survive at the end of five years.

It is a serious mistake to suppose that high rates of Infant Mortality only prevail in our big Cities. What are, by contrast, often called *Country districts* are suffering severely from this evil. I could quote a small Urban District with less than 5,000 inhabitants, which for the 10 years 1895–1904 had an average rate of Infant Mortality of 200 per 1,000 births—one year it reached 327! Another Urban District with nearly 10,000 inhabitants for the same 10 years had an average rate of only 82.

One *Rural* District, with a population of 6,000, for the same 10 years had an average rate of 162; and another, with a population exceeding 14,000, had an average rate of only 96.

In this County, the mining and manufacturing districts, whether otherwise Urban or Rural in character, have high rates, and the purely agricultural districts have low rates.

A large, though varying, proportion of the infants' deaths is constantly attributed to prematurity and to debility from birth. To remedy these conditions, care and attention are required by the mother during pregnancy: the chief among these being rest from factory work after the 5th month of pregnancy, suitable and abundant diet—but not overfeeding, and abstinence from or *very* sparing indulgence in alcohol.

Another considerable proportion of infants' death may be attributed primarily to the want of breast feeding. The reason commonly given for this is the sad but apparently convincing one that the "mother has no milk." This is a complex question, and the causes are multiple; but two factors stand out prominently:—

1st. Whatever may be the value of alcohol during pregnancy, there is a concensus of opinion that during lactation (suckling) the consumption of alcohol by the mother induces a diminution and sometimes a cessation of the secretion of milk.

2nd. That, especially in the poor and underfed, the consumption of one or two pints of milk daily **by the suckling mother,** rapidly results in an increased flow of milk.

This is a form of care and kindness well worth the attention of the benevolent.

When we come, of necessity, to artificial feeding, the first thing to recognise is that **the proper methods are not revealed to the poor mother by instinct, but require to be taught and to be learned.**

Even in domestic animals, in the more natural methods of feeding, experience is often required, as anyone may easily convince himself who has kept, *and observed*, such pets as pigeons and cats. The *young* mothers often neglect their young, but with more experience often become good mothers.

In the case of more valuable animals, such as cows, sheep, or horses, what owner of valuable stock would think of entrusting his young animals to the care of inexperienced shepherds or tenders?

Instruction is given *by means of lectures* in feeding the adult body (*cooking*); in clothing the body (*dressmaking*); in caring for simple injuries (*ambulance lectures* and first aid); and in what has been felicitously termed "*domestic economy.*" Why not in the care of the health during pregnancy, and in the feeding and care of infants?

But such instruction to be of the greatest utility must be given **individually** *and not in classes.* Many minds, especially among the poor, are so constituted as not readily to take in information given in the form of class lectures.

Neither can it be given entirely by means of leaflets*, for many can still neither read nor write easily.

When given to each individual separately with loving care and solicitude, with a determination to aid and assist rather than to find fault, and with infinite patience and perseverance, great benefits may be expected to result. But it is not everyone that is qualified by nature to be a Health Visitor.

It is of surpassing interest to note that the veteran Miss Florence Nightingale, to whom Hospitals and Nurses are so deeply indebted for such immense progress, was a pioneer also in regard to Health Visitors; although, forty years ago the term, "Health Visitor," was not in common use. It is equally sad to realize that, except in the large towns, the sanitary duties of a Nurse as exemplified in the Health Visitor have not shared in the progress of Hospitals and Nursing proper. Truly, we need a rejuvenated Miss Nightingale to explain to the world afresh the value of Health Visitors!

In the year 1865, in the Introduction to "The Organization of Nursing in a Large Town," Florence Nightingale wrote:—

"It is most satisfactory to find Nurses exercising certain "powers and influences in sanitary matters, such as obtaining "the cleansing and limewashing of unhealthy houses and "places. It improves the domestic habits of the poor; it "protects their health; it **prevents** disease. Similar sanitary "duties should always be associated with Nursing."

"Yet even now, though 'sanitary' has become almost a "cant word, of which we are tired, few educated persons, even "philanthropists, are practically acquainted with our Health "Acts, so as to call in their help in time of need."

† "So successful have been the results from the appoint- "ment of lady Visitors, that the Birmingham City Council "Health Committee have decided to add thereto. The new "staff will consist of 19 ladies, including a chief Inspector of "Midwives and a chief Inspector of Workshops. The experi- "ment began in 1899 by the appointment of four ladies, and "this number has been added to from time to time. They "visit the poorer parts of the city, and advise parents as to the "feeding of children and the necessity of cleanliness. No "charity is directly distributed by them, but they are in touch "with the various charitable associations."

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* A copy of the leaflet issued by the Health Department is enclosed.

† British Medical Journal, March 31st, 1906.

The Conference on Infantile Mortality which was held in London in the Spring of 1906, and which the County Medical Officer attended, shewed how complex was the problem with which we have to deal; but there was a general agreement that the most efficient single remedy was the Health Visitor; and in the few counties where they are at work, they have proved a great success. Many thousands of the Reports of the Conference have been sold. The only prospect of legislation resulting from the 'resolutions' of the Conference, is the "*Notification of Births*" Bill, which has passed its second reading. But to obtain much benefit from the Notification of Births, Health Visitors will be an absolute necessity.

RATE OF INFANTILE MORTALITY FOR 1906, PER 1000 BIRTHS.

URBAN DISTRICTS.	RATE.
Hucknall Torkard	163
Huthwaite	159
Beeston	147
Worksop	146
Kirkby-in-Ashfield	138
Sutton-in-Ashfield	138
Eastwood	135
Arnold	124
Carlton	124
Mansfield	120
East Retford	119
Warsop	119
Mansfield Woodhouse	118
Newark	109
West Bridgford	74
Total of Urban Districts	131

RURAL DISTRICTS.	RATE.
Newark	135
Stapleford	135
Misterton	131
Basford	110
East Retford	102
Skegby	98
Blyth and Cuckney	90
Bingham	85
Southwell	76
Leake	69
Kingston and Ratcliffe	0
Total of Rural Districts	104

AVERAGE RATE OF INFANTILE MORTALITY FOR THE TEN YEARS, 1896–1905, PER 1000 BIRTHS.

URBAN DISTRICTS.	RATE.
Huthwaite	205
Mansfield Woodhouse	178
Worksop	171
Sutton-in-Ashfield	170
Arnold	169
Eastwood	168
Hucknall Torkard	165
Kirkby-in-Ashfield	163
Warsop	157
Mansfield	155
Carlton	140
East Retford	137
Newark	135
Beeston	122
West Bridgford	82
Total of Urban Dis'ricts	156

RURAL DISTRICTS.	RATE.
Skegby	165
Basford	142
Stapleford	140
Misterton	126
Blyth and Cuckney	117
Southwell	111
Newark	109
East Retford	103
Bingham	99
Kingston and Ratcliffe	76
Leake	71
Total of Rural Districts	124

SCHOOL HYGIENE.

The present unsettled state of legislation regarding Elementary Schools, renders it very improbable that any serious progress in School Hygiene will be considered until other larger, though less important, matters have been determined. If, as has been foreshadowed, the Medical Inspection of School Children should become general, it must carry with it an improvement in the conditions, now so common, which injure the health of school children.

It is quite Utopian to expect practical benefit from the systematic teaching of Hygiene, even to the elder children, unless and until teachers qualified to give practical instruction are available.

The kind of teaching quoted by the Honourable M. A. Lawrence, Chief Woman Inspector of the Board of Education, as given by a "**Trained** Teacher of Domestic Science" in a school in the N. and N.E. division of England in 1907, is not calculated to improve the Health or the intelligence of the Children! **"If you have Cholera or Scarlet Fever in "the house, put some onions under the bed, and "they will sweep away all diseases!!!"**

But the best theoretical teaching is vastly inferior to the smallest amount of practical instruction; and in the daily life of the school the sanitation, ventilation, light and warming should be frequently employed as *object lessons*.

In some of the old schools, the ventilation is distinctly bad, and in some of the new ones it is not what it might be. There are still schools where opaque glass is used in the windows to the injury of the sight and health of the children. In cow-houses, bakehouses, blacksmith's shops and factories, the law requires the walls and ceilings to be whitewashed twice a year; but there are, or were, schools where neither painting, colour-washing, nor whitewashing had been done for four or five years. The sanitary conveniences should be a model for the neighbourhood, but too frequently they are not. The strict need of economy limits the washing and cleansing of schools to an extent that is doubtfully wise. These are the matters, and not the theoretical teaching of Hygiene, which would well repay a small increase of expenditure.

The following extracts from a recent Address by Sir Lauder Brunton, LL.D., F.R.S., on Physical Degeneration are well worth a little careful thought.

"Last night, I was talking to a gentleman whom you all "know, a gentleman who is not only known in Manchester, "but is known all over the world for his high scientific attain- "ments, Sir Henry Roscoe. He expressed his opinion that it "ought to be compulsory to examine the purity of the air in "schoolrooms, and that if more than nine parts of carbonic "acid in 10,000 of air were present, it ought to be a penal "offence for those who had charge of the room. He told me "that experiments had been made on the capacity of children "for learning in well ventilated and in close schoolrooms. It "has been found that the carbonic acid is a nerve poison, "which prevents the child from developing its proper ability. "I quite agree with him as to the necessity of ventilation, but "I do not know that I quite agree with him in regard to the "examination of the air in schoolrooms; because it seems to "me, that the better plan is to insist upon such free ventila- "tion that it would be impossible for the minimum of carbonic "acid ever to be reached, and so there would be no chance of "ever having to inflict any penalty for the accumulation of "carbonic acid in the schoolroom. Two or three years ago, I "went to Switzerland where they pay a great deal of attention "to education. I believe that in Switzerland the national bill "for military service is smaller per head than in any other "country in Europe, but the national bill for education is "higher than in any other country in Europe. In Switzerland, "during the summer, the schools are held out of doors. In "winter, when it is very cold, there is an interval between the "lessons. During that interval, the children are turned out of "the schoolrooms into the corridors or somewhere else, to "shout and play and warm themselves by running about, and "the windows are thrown open, so that the air, although very "cold, is very fresh, and the children come back again warm "with their play, into the well ventilated schoolroom. "Ventilation then is of the utmost importance."

"There is one disease in this country which is the dread "of most people; perhaps not on their own account, but on "account of their families. That is consumption. Consumption "is the disease which seems to pick out the flower of the "flock. It picks out some of the best athletes. It picks out "some of the most brilliant and cultivated. It picks out the "flower of the family. If there is a girl who is noted for her "beauty, for her wit, for her kindly disposition, that is the one "that consumption seems to fix upon. Yet, ladies and "gentlemen, consumption is a disease which it is within our "power to stop, and if we were only agreed one and all to "prevent it, in one generation, or less, it would become as rare

"in this country as leprosy is now. This can be done by "teaching the children. It is very hard to get grown-up "people to do anything, but if you catch the children young, "and teach them, they will grow up in the proper way. It is "the old story. Teach the child, bring him up in the way he "should go, and when he is old he will not depart from it. By "teaching children not to spit, and teaching them to avoid "the risk of infection, we shall stamp out tuberculosis in "this country."

The following is an extract from an Address by Miss S. A. Burstall, B.A., Head Mistress, Manchester High School for Girls, at a Conference in Manchester on the Teaching of Hygiene in Schools:—

"For my own part, I am inclined to think from practical "experience, that hygiene should be taught as a moral obliga- "tion rather than as a science lesson, that it should be taught "as part of the moral instruction which is given in various "ways in different schools. As we know, it was taught thus "in Old Testament times. The form-mistress in the secondary "school, the head teacher, or some other person in authority "in the ordinary elementary school, should give those instruc- "tions in an authoritative way. Of course, experiments may "be used to illustrate the teaching. *It is far more important "that the life of the school itself should bring about habits that "lead to health. The ventilation, which has been spoken of, the "physical exercises, the good personal habits, all these should be "included in the school life, in very close relation with the "teaching of hygiene.*"

The proper care of the mouth and the teeth is more a question of teaching than of expense. If the following rules, based upon the recommendations of the British Dental Association, were explained to the older children in a half-hour's object lesson, a beginning would be made without expense in a national reform.

(1) *The most obvious way to prevent decay is to remove the particles of food which cling to, and remain between, the teeth after eating—people could do much to save their teeth by simply rinsing out the mouth with water after each meal.*

(2) *The best and most rapid means of cleansing the teeth is by the thorough and careful use of a tooth brush.*

(3) *A simple, cheap and useful form of tooth powder is prepared chalk.*

(4) *Chemical preparations which claim to whiten the the teeth, are either incapable of doing so, or else injure the teeth.*

(5) *All surfaces of the teeth should be brushed—the outer, the inner, and the grinding surfaces.*

(6) *The brush should be used for the outer and inner surfaces, chiefly with an upward movement for the lower teeth, and a downward movement for the upper teeth, in order to clean between them. It is also important to brush the gums, in order to keep them in a healthy condition.*

(7) *The best time to use the tooth brush—if it can only be used once a day—is after the last meal, for it is during the period of sleep that destructive acids have most opportunity to act.* **It cannot be too strongly enforced that clean teeth do not decay.**

(8) *It must be remembered that chewing hard food keeps the teeth clean, and, in the case of children, improves the growth of the jaws. Therefore the use of hard food assists in preventing decay.*

(9) *The first teeth should also be kept clean, and any holes in them stopped.*

MIDWIVES ACT, 1902.

This Act, "to secure the better training of Midwives and to regulate their practice," came into operation, except as otherwise provided, on April 1st, 1903.

It will be easily understood that an Act of this kind was required, when it is stated that there is reason to believe that at least 60 per cent. of the births in England and Wales are attended by Midwives; and it is known from the Report of the Registrar-General for the year 1905 that in England and Wales 5,164 women died from causes associated with pregnancy or childbearing. Of these deaths, 1,734 were due to "Puerperal Fever," which is a preventable disease. It cannot be doubted that many of the other deaths also might have been prevented by greater skill and care.

The operation of Section 2 of the Midwives Act, which made provision for existing Midwives being placed on the Roll, expired on March 31st, 1905.

The first complete Roll was published by the Central Midwives Board in July, 1905, and contained 22,308 names.

The third Roll was published at the end of May, 1907, and contains 24,338 names, an increase of 2,030 Midwives in two years.

During the year 1906, 181 Midwives notified their intention to practise in this County, and were entered on the local register. At the end of the year, 172 remained in active practice, the other 9 having left the County or ceased to practice as Midwives.

There were in the County, in addition, in 1906, 32 persons who possess the Certificate of the Central Midwives Board, and are on the Midwives' Roll, but did not notify, and who stated that they had no intention of practising as Midwives; 4 resident in Workhouses and therefore exempt from the supervision of the local authority; and 6 who state that they only practise as Monthly Nurses.

In addition to the Certified Midwives, there are in this County a considerable number—probably 150 or more—Midwives who possess no certificate. These women cannot be prevented from practising until April 1st, 1910, provided they do not call themselves Midwives, or profess to be specially qualified.

One uncertified Midwife who advertised herself on a brass plate as a "Certificated Midwife" was proceeded against in a Court of Summary Jurisdiction, under Section 1, Sub-section 1, of the Midwives Act, and fined.

Two charges against Midwives, made by persons unconnected with the County Council, were investigated by the Local Supervising Authority during 1906, under Section 8, Sub-section 2, of the Midwives Act. In the first a "*primâ facie*" was not established; but in the second a "*primâ facie*" case of negligence and misconduct was found, and reported to the Central Midwives Board, in July, 1906. The case was heard by the Central Midwives Board, in May, 1907, and the Midwife severely censured. In addition, the Local Supervising Authority were asked to furnish the Board with a report on the conduct of the Midwife at the end of three months.

Twelve cases of Puerperal Fever occurring in the practice of certified Midwives (compared with 13 in 1905), came to the notice of the Local Supervising Authority, and further details are given on page 57. Each case was investigated by the

Inspector of Midwives and the County Medical Officer, and arrangements made for efficient disinfection. It was only necessary to officially suspend one midwife.

During the year, 23 lectures have been given by Miss Lessey, the Inspector of Midwives, at Mansfield, Retford, Newark, and Nottingham. All the certified but *untrained* Midwives in the County were invited, and 92, or a little more than two-thirds, attended. The chief cost was the repayment of the railway fares of those Midwives who attended at least four out of six lectures, which was necessary to enable the poorer women to attend. The total cost of the 23 lectures has been £20 10s. 10d., and has been paid out of a grant kindly made by the Higher Education Committee.

In accordance with Section 8, Sub-section 4, of the Midwives Act, one Midwife convicted of an offence was reported to the Board in January, 1907. *Primâ facie* cases of negligence and misconduct were found against three other Midwives, and reported to the Board in April, 1907, but they have not yet adjudicated upon them.

The whole of the 181 Midwives who notified their intention to practice in this County in 1906 have been visited by the Inspector of Midwives, who has inspected their registers, bags of appliances, &c., and investigated their mode of practice, as required by the Rules of the Central Midwives Board. The majority have been inspected once a quarter, and a few, who require special attention, at more frequent intervals.

A large majority of the Midwives inspected, carry out the Rules satisfactorily, and shew a very distinct improvement in their mode of practice and in general cleanliness. A small minority give a very great amount of trouble by evading the Rules, by want of cleanliness, and general unsatisfactory conduct. A comparison of the number of Notices received under the Rules of the Central Midwives Board for 1905 and 1906 shews an increase of 50 per cent., although the number of Midwives was three fewer.

	Year 1905.	1906.
Records of sending for Medical help	177	282
Notices of still birth	68	123
Notices of death of child before arrival of doctor	12	19
Notices of death of mother before arrival of doctor	0	0
Changes of address notified to the Central Midwives Board	51	35
	308	459

This is the result of constant inspection, and of a better understanding of the Rules. Indeed, 65 Notices were not sent at the proper time, but were brought away by Miss Lessey as a result of her visits of inspection.

The information contained in the Notices required 33 special inquiries.

From an inspection of the Registers, which the Midwives are required to keep by the Rules of the Central Midwives' Board, it has been ascertained that 4,371 women were attended by certified Midwives during the year, 1906.

The new Rules of the Central Midwives Board were issued in April, 1907, and as they contain important alterations, Section E will be reprinted and distributed to the Midwives in the County.

The leaflet on Infant Feeding is being supplied to Midwives for use in their practice.

Dr. Champneys, Chairman of the Central Midwives Board and Physician Accoucheur to St. Bartholomew's Hospital, said at a public meeting, on May 17th, 1906. * "We had to "recognise that at the gate of life stands the Midwife. To her "belongs the power of warding off those dangers to the mother "and child which, in our present state of civilisation, were so "terribly to the fore. It was a serious thought that in spite of "the tremendous advance in medicine and surgery, the "mortality in child-birth was practically as high as it was "thirty years ago."

ISOLATION HOSPITALS.

The following extracts explain the additions that have been made during the year, together with the most urgent further requirements :—

Dr. Wills (Newark Urban) writes :—"The new Hospital "has been finished, so far as the wards are concerned, and it "has two for Scarlet Fever, containing together 12,000 cubic "feet."

"A third ward, entered by a door from the open air, is "designed for the isolation of Diphtheria, and contains 4,000 "cubic feet."

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* *Nursing Mirror*, May 26th, 1906.

"There are two sleeping rooms for Nurses, and you have "discussed the addition of caretaker's dwelling, laundry, "disinfecting chamber, and mortuary, to make the building "complete."

"The site you have obtained, I consider, is a good one, "although a little distant from the town; and the buildings "appear, so far as they have gone, to be satisfactory."

"The best of the wooden buildings were erected at a "considerable distance from the new buildings for the purpose "of receiving a few Small Pox patients. If the weather was "favourable, these wooden buildings would form a nucleus for "a tent Hospital, in case of necessity; but if the weather was "unfavourable, it would be necessary to clear and disinfect the "new buildings ready for use."

"But to control both Hospitals, it will be wise to erect a "caretaker's dwelling, in order to have everything ready for an "epidemic of any illness."

"A steam disinfector is required in order to disinfect beds, "pillows, mattresses, and cloth clothes, which cannot be "disinfected except by steam heat. This will be serviceable "for the town in outbreaks of Scarlet Fever and Diphtheria, "as well as for the two Hospitals. A small mortuary is also "required."

Dr. Nesbitt (Sutton-in-Ashfield) writes:—"This most "important fact once more emphasizes the necessity of prompt "and efficient isolation of cases of Enteric Fever, such as a "properly equipped Isolation Hospital would afford. Had "such an institution been available, we would have been saved "the danger and anxiety of at least 20 cases of Enteric."

Dr. Manners-Smith (East Retford Urban) writes:—"It "was deemed advisable by the Council to discontinue the "tenancy of the Longholme Hospital, and to convert Arlington "House for that purpose."

"So far the present premises have answered their purpose "admirably."

Dr. Jones (Hucknall Torkard) writes:—"It is to be re-"gretted that the Council did not succeed in their efforts to "provide an Isolation Hospital for the reception of persons "suffering from Scarlatina, Diphtheria, &c."

Dr. Wray (Basford) writes:—"Scarlet Fever was prevalent "throughout the year, subsiding somewhat during the summer

"months. I am glad to say advantage of removal to Hospital "was freely taken, and there appears to be a continued decrease "of prejudice to hospital isolation in the district generally."

Dr. Wills (Southwell) writes:—"Five cases of Scarlet "Fever were removed to the Isolation Hospital, which proved "of great value by taking those cases where means of isolation "were much needed."

Dr. Harvey Francis (Arnold) writes:—"We are still with-"out the means of Hospital isolation for Scarlet Fever, and I "can only repeat what I have said in former reports; that "either we ought to combine with other districts and have a "joint Hospital, or that the County Council should take the "matter up, and relieve us and similar districts of the difficulty."

NOTIFICATION OF INFECTIOUS DISEASES.

During 1906 the number of cases of Infectious Disease notified was rather smaller than in 1905, without making any allowance for increase of population. The proportion of cases removed to Hospitals for isolation and treatment was also slightly smaller. This does not indicate any diminished confidence in the usefulness of isolation Hospitals, but is explicable by the fact that in 1905, 90 cases of Small Pox were included, of which 89 were sent to hospital. In 1906 there were only two cases of Small Pox. If the 89 cases of Small Pox in 1905 were omitted, the proportion of the remaining cases of infectious disease sent to hospital would be 11·2, compared with 13·3 last year.

This shows that the use of the general infectious hospitals is slowly growing.

The incidence of Infectious Diseases was greater in proportion to population in the Urban Districts than in the Rural in the proportion of 9·7 to 5·6 per 1,000.

Year.	Number of notified cases.	Number removed to Hospital.	Per centage of removals.
1895 ..	1355 ..	11 ..	0·8
1896 ..	1808 ..	76 ..	4·2
1897 ..	1409 ..	93 ..	6·2
1898 ..	1624 ..	121 ..	7·4
1899 ..	2430 ..	148 ..	6·0
1900 ..	2292 ..	180 ..	7·8
1901 ..	1780 ..	159 ..	8·9
1902 ..	1443 ..	110 ..	7·6
1903 ..	1744 ..	286 ..	16·3
1904 ..	2022 ..	259 ..	12·7
1905 ..	2673 ..	380 ..	14·2
1906 ..	2607 ..	347 ..	13·3

NOTIFIABLE INFECTIOUS DISEASES.

SMALL POX.

During the year 1906, only two cases of Small Pox were notified in the County, and one of those was, without doubt, a wrong diagnosis.

The following table gives the number of cases which have been notified each year since 1895, and the number of deaths.

	SMALL POX.		
	Cases.	Deaths.	Case Fatality per cent.
1895	4	..	..
1896	1	..	..
1897	..	..	..
1898	..	..	..
1899	..	..	..
1900	..	..	..
1901	6	1	16·6
1902	2	0	..
1903	183	8	4·37
1904	101	3	2·97
1905	92	3	3·25
1906	2	..	0·00

CHICKEN POX.

Chicken Pox is not usually a notifiable disease, and is seldom dangerous to life; but it may give rise to great trouble on account of its close resemblance, in some cases, to modified Small Pox, with which it is not unfrequently confused. Sixty-three cases were notified during the year, 25 at Mansfield and 38 at Hucknall Torkard, where Chicken Pox was made temporarily notifiable. A very much larger, but unrecorded, number of cases is known to have occurred. In one Elementary School, Chicken Pox was found to be running its natural course unchecked. It was considered to be a "skin disease." Only one or two of the children had been under the care of a doctor, and those cases had not been correctly diagnosed! At the time this little local outbreak was discovered, all the children had been exposed to infection for many weeks, and a large number of them had suffered from the disease and were convalescent. It was not considered necessary, under the peculiar circumstances, to close the school, and the outbreak soon afterwards died out for want of fresh susceptible material.

SCARLET FEVER.

The following table shows the prevalence and fatality of this disease during the past twelve years :—

	SCARLET FEVER.		
	Cases.	Deaths.	Case Fatality per cent.
1895	540	26	4·8
1896	833	30	3·6
1897	824	29	3·5
1898	732	24	3·2
1899	1693	44	2·6
1900	1485	45	3·0
1901	1080	21	1·9
1902	829	13	1·5
1903	870	15	1·7
1904	984	20	2·03
1905	1559	33	2·1
1906	1468	28	1·9

The *fatality* in the Urban and in the Rural Districts was practically the same, being 1·9 per cent. in the Urban and just over 1·8 per cent. in the Rural, both being remarkably low rates.

The *incidence* of the disease in the Urban and in the Rural Districts varied rather more widely, the Urban Districts, as is usual, suffering more severely than the Rural. In the Urban Districts, 5·5 cases were notified in every 1000 of the population, while in the Rural Districts only 3·1 per 1000 were notified.

No statistics are available for comparing the incidence of Scarlet Fever in England and Wales during 1906, with the incidence in Nottinghamshire. The nearest approximation of value is the fact, derived from the Registrar-General's 68th Annual Report, that in 1905, 11·2 persons died of Scarlet Fever in each 100,000 of the population. In the Administrative County of Nottingham in the same year, 10·6 persons per 100,000 died, which is almost an identical rate.

Some trouble has arisen during 1906 both from Relapses and from Return Cases in connection with Isolation Hospitals.

By a Relapse is meant that a patient after passing through, what is to all appearance, an ordinary attack of Scarlet Fever, comprising sore throat, fever and rash, passes through a second similar, or even more severe, attack after two to five weeks. Speaking generally, it has been sought to explain such cases, when occurring in hospital, by assuming the first illness to have been wrongly diagnosed, and the second to have been Scarlet Fever caught in the hospital. But, in too many instances, the diagnosis of the first attack has been placed beyond doubt by the infection having spread to other cases which have run a typical course. And in other instances, relapses have occurred in cases treated at home, when hospital infection cannot arise.

By "Return Case" is meant the occurrence of a fresh case by infection from a case (the infecting case) returning home, apparently well and free from infection after eight or more weeks' detention in hospital. The infection is assumed to have arisen from the convalescent patient who has returned home, when the fresh case occurs within a fortnight of the return, and when no other source of infection can be discovered. Again, *speaking generally*, these cases cannot be explained by the convalescent infecting case having been kept less than the usual time in hospital, and sent home earlier than usual. The contrary would be nearer the fact. Many of these infecting cases have been detained ten, twelve or more weeks in hospital before being returned home. Some of these infecting cases have suffered from a discharge from the nose or ear at the time of their return; but others have not. Many of the latter, owing to fatigue, exposure to cold or other unknown cause, develop such a discharge after their return home, or suffer from a fresh sore throat. In such cases the discharge or the sore throat is believed to be the source of infection. There still remains, however, a minority of cases where no apparent or plausible reason for infectiveness can be assigned.

It has been suggested that the usual disinfecting bath should be taken, and a complete suit of disinfected clothing should be worn one week before the return home of a convalescent; and that this week should be spent in an isolated convalescent block, or in a special room in the administrative block. This procedure would, no doubt, reduce the number of "return cases" from an average of three per cent., which is usual in many hospitals, to a smaller figure; but it could not be guaranteed to abolish them.

It is important to remember that neither relapses, second attacks, nor return cases are confined to hospital patients. Both relapses and second attacks undoubtedly occur in cases treated at home. And the same may be said of return cases. Occasionally, children taken ill away from home, at school, or in friends' houses, bring back infection with them, and give rise to "return cases," notwithstanding all reasonable precautions. And, also, children prevented from returning home for ten or twelve weeks on account of a case of Scarlet Fever at home, have not, unfrequently, been known to fall ill within a fortnight of their return home, notwithstanding elaborate precautions in the way of disinfection.

It would appear, therefore, that in a *very small minority* of cases, the infection of Scarlet Fever persists in a convalescent, whether from a hospital or from a private house, in a manner with which we, at present, cannot cope.

Undoubtedly, where the figures are available, the fatality of hospital-treated cases of Scarlet Fever is usually less than that of home-treated cases. The convenience of removing a patient to a hospital and disinfecting the house, can hardly be questioned in the case of milk sellers, schools, shops, &c. Neither can the fact be questioned that the fatality of Scarlet Fever has greatly diminished in recent years. Many of those with most experience believe that hospital isolation and disinfection have had much influence, both in lowering the fatality and in diminishing the spread of Scarlet Fever. This, however, is still a matter upon which different opinions are held. Nevertheless, isolation hospitals have sufficient unquestioned advantages to make them a benefit to the community, and it is futile to expect absolute perfection.

Dr. Garrett (Worksop) writes: — "The first outbreak "occurred at the Workhouse; an entire family of five developed "the disease the day after they arrived in the town. The "following month, nine cases were notified."

"The majority of the cases were of a mild type, so mild "as to be, in many instances, overlooked by the parents, and "the children allowed to return to school."

"Inquiries at the schools led to the discovery of two "families, the children from which were attending different "schools while in the peeling stage of Scarlet Fever. In both

"cases the illness had been considered to be Measles by the "parents, and the children were directed by the School At- "tendance Officer to return to school."

"With the co-operation of the Principals of the Schools, "an attempt has been made to prevent any similar occurrences "in future."

"The Head Teacher of each School has kindly consented "to send to the Sanitary Inspector the names of children away "from school, known or thought to be suffering from infectious "disease, and for whom a Medical Certificate has not been "received. These houses are visited, and if it is found "necessary a certificate of exemption from school is granted, "and other necessary precautions taken."

"The School Attendance Officer is supplied with a weekly "list of children excluded on account of infectious disease, and "the Head Teacher is notified at once of the occurrence of "infection in any member of a family attending the school."

DIPHTHERIA AND MEMBRANOUS CROUP.

These two diseases, being usually caused by the same organism, are now generally classified together under the head of Diphtheria. It should be understood that Membranous Croup is usually Diphtheria affecting the larynx or windpipe.

The rapid increase which took place in this County in 1904 has been checked. The number of cases notified in 1906 was the same as in 1904, and when the large increase in population is considered, there is a slight proportionate decrease of cases.

The fatality per 100 cases is the smallest since 1895. Very possibly this may be due to the increasing use of antitoxin, which has robbed Diphtheria of some of its terrors, and which is now being supplied gratuitously by many Councils to poor patients.

	DIPHTHERIA and MEMBRANOUS CROUP.		
	Cases.	Deaths.	Case Fatality per cent.
1895	88	35	39·7
1896	142	38	26·7
1897	137	35	25·5
1898	119	26	21·8
1899	157	27	17·2
1900	182	32	17·5
1901	186	41	22·0
1902	209	29	13·4
1903	272	35	12·8
1904	447	63	14·1
1905	442	54	12·2
1906	447	53	11.8

It needs to be clearly understood that Diphtheria spreads by personal infection from one case to another, and that the influence of "drains" is secondary.

There are a great many instances on record where outbreaks of Diphtheria have been traced to infected milk; but "*there is no evidence of the dissemination of Diphtheria by the water supply.*"

The spread of Diphtheria is clearly favoured by the aggregation of young children in the elementary schools; bad ventilation, close personal contact of the children, the sucking of sweets and pencils, and the use of slates affording every facility for the propagation of the disease, through the instrumentality of undetected or convalescent cases.

There is probably no infectious disease in which properly arranged hospital isolation is more valuable, but yet extremely little hospital accommodation for Diphtheria exists in this County. Efficient hospital isolation is the direction in which relief from the continued spread of the disease is to be sought with most prospect of success.

Dr. Wray (Basford) writes:—"There has been a continued "increase in the prevalence of Diphtheria in the district, as "well as in the country at large, during the past year. This I "attribute to the existence of mild and unrecognised cases "attending school, and not so much to the insanitary conditions "of home surroundings, though no doubt the latter favour the "development of the disease. Considerable advantage has "been taken of the free supply of Antitoxin by the medical men "practising in the district, with apparently beneficial results."

One of the needs of the County is an arrangement by which doubtful disease products could be sent to a Laboratory for bacteriological examination at the public expense, as has been the practice for some time in many large towns and in a few counties.

The most needful examinations are those of "swabs" or rubbings of the throat in doubtful cases of Diphtheria, of the blood for the Widal reaction in Enteric Fever, and of the sputum for Tubercle Bacilli in the early stages of Consumption.

Disease is widely spread by mild and unrecognised cases, many of which it is difficult to diagnose by clinical methods alone, without the aid of bacteriological science as exemplified in a well-equipped laboratory. These methods are required much more for preventing the spread of disease than for the successful treatment of the individual patient. Hence, provision for the free examination of doubtful disease products becomes the duty of those public bodies whose function is the *prevention* of disease.

Enteric Fever.—The drought and high temperature in the late summer and autumn of the year 1906 were especially favourable to the spread of Enteric Fever. There was a large increase in the number of cases, as shown in the following table :—

	ENTERIC FEVER, including "Continued."		
	Cases.	Deaths.	Case Fatality per cent.
1895	300	44	14·6
1896	395	58	14·9
1897	277	41	14·8
1898	431	63	14·6
1899	343	46	13·4
1900	388	51	13·1
1901	257	34	13·2
1902	160	22	13·7
1903	187	31	16·5
1904	187	31	16·5
1905	206	36	17·4
1906	334	36	10·7

Fortunately, as so frequently happens in epidemics, the case fatality was low; with the result that, notwithstanding that the number of *cases* was increased by considerably more than half, the total number of *deaths* remained exactly the same as in 1905. The increase was mainly confined to the Urban Districts, where the numbers rose from 129 in 1905 to 265 in 1906; the increase in the Rural Districts being only 11. With the increase in the number of cases, the fatality fell in the Urban Districts from 13·1 per cent. in 1905 to the very low rate of 10·18 per cent. in 1906; and in the Rural Districts from the extremely high rate of 32·7 per cent. in 1905 to the moderate rate of 13·1 in 1906.

When we look more closely into the distribution of the cases among the Urban Districts, we find that the increase was chiefly due to epidemic outbreaks in Mansfield, Sutton-in-Ashfield, and Mansfield Woodhouse, and to less extensive outbreaks in Hucknall Torkard, Kirkby-in-Ashfield, and Skegby. It will be necessary, therefore, to give special consideration to each of these districts, and particularly to Mansfield, where the outlook at one moment appeared sufficiently threatening to justify an appeal to the Local Government Board for advice. Dr. Theodore Thomson was sent down, and his Report has now been published.

There has been a recrudescence of the Mansfield Woodhouse outbreak in 1907; and consequently, contrary to custom, an account of that is included in the 1906 Report, as it forms part of one series.

The meteorological conditions in 1906 were specially favourable to the local spread of Enteric Fever. Unusual heat and frequent drought favoured the production of dust, as well as the multiplication of flies, and increased the liability to the pollution of surface wells. The drought, also, was responsible for an exceptional scarcity of milk during August and September, and so opened the door to possibilities of contamination.

Consideration of these various outbreaks shows an important general resemblance, varied by two probable milk infections. It is far more instructive to review the outbreaks in the whole of these districts, which have so much in common both as to soil, water supply, occupation, scavenging, and habits, than to concentrate attention exclusively upon Mansfield.

Much, too, may be learned from the circumstances of Nottingham, with which all the districts mentioned are in constant communication, and where the experience of Enteric Fever is unfortunately so extensive.

The Nottingham water supply is derived from several deep wells in the pebble beds of the Bunter, each of them not very far distant from some of the various wells belonging to the District Councils to be described. But, notwithstanding the excessive prevalence of Enteric Fever in Nottingham in the past, no evidence has been forthcoming to connect it with the water supply; while there is much evidence to inculpate the conservancy system and personal infection. Dr. Boobbyer's statistics as regards the incidence of Enteric Fever on houses with privy middens and with tub closets, compared with houses with water closets, are too well known to need repetition. But it is necessary to repeat that infection may be carried by flies from privy middens or tub closets, or from any other collection of infectious refuse, for some distance to the inmates of houses provided with water closets.

The spread of infection from large heaps of refuse by means of dust or flies is illustrated in the following paragraphs from Dr. Boobbyer's Reports; and as he points out, what is true of the town and the large heaps is also true of the single dwelling and the tub or midden :—

CITY OF NOTTINGHAM.

* "Two outbreaks of Enteric Fever were a short distance, "in the direction of the prevailing winds, from a refuse tip "and depot."

† "The concentration of cases in neighbourhoods to the "leeward (in the direction of the prevailing winds) of the "refuse-heaps at the Eastcroft and Radford depots, which was "so well marked during 1899, was somewhat less apparent in "1900, but still sufficiently obvious. There is, of course, "nothing surprising in this concentration. What is true for "the single dwelling in this matter is true for the town. The "accumulation of such refuse in the immediate vicinity of "dwellings, single or multiple, is fraught with much danger to "the health of their inhabitants."

* Annual Health Report, 1899, p. 36.
† Annual Health Report, 1900, p. 43.

* "The only district in which a very noticeable concentra-
"tion of cases took place at one time was that part of Radford
"contained between the Alfreton, Ilkeston, and Hartley Roads
"and the River Leen. Close to the south-west boundary of
"the district stands the Radford refuse depot, with its huge
"accumulation of night-soil. This district is never entirely
"free from Enteric Fever, and during 1901 there were about
"123 cases, 90 of which occurred between July 21st and
"December 21st, notified as occurring within it."

This evidence has since been greatly strengthened by the fact that the Radford accumulation of night-soil was removed for one or two years, and the special aggregation of cases of Enteric Fever in the neighbourhood ceased. The accumulation was allowed to recur to a greater extent than ever, and the special incidence of Enteric Fever in the immediate neighbourhood likewise recurred.

The fact that epidemics of Enteric Fever are frequently caused by infection of the water supply, or of milk, is beyond dispute. Infected shallow wells were one of the causes of the outbreak at Mansfield Woodhouse in 1907, and infected milk was a cause at Mansfield Woodhouse, and probably at Mansfield. But it is foolish to so concentrate attention on these and similar causes, such as water-cress and shell-fish, as to neglect other considerations. The part played by personal infection and by local accumulations of filth in spreading Enteric Fever has been so seriously under-estimated that it becomes necessary somewhat to labour the point.

During the last three months of 1906 Mansfield suffered from a sharp attack of Enteric Fever. For the previous five years the number of cases had never exceeded 20 in any one year; but in the last quarter of 1906 there were 89 cases, namely, 31 in October, 45 in November, and 13 in December. On October 26th, Dr. Wills consulted me as to facilities for having samples of milk examined, because he suspected milk might be playing a part in the spread of Enteric Fever; and in consequence of a further communication, I went to Mansfield on November 3rd. At this date 60 cases had been notified in five weeks. The epidemic was evidently serious, and its future course could not with certainty be predicted. Several important interests were involved, and there was need of speedy action, which would entail considerable expense.

* Annual Health Report, 1901, p. 39.

I, therefore, advised :—

1. That the Local Government Board be asked to send a Medical Inspector to investigate the cause of the outbreak.
2. That a warning notice concerning the boiling of water, milk, &c., &c., which had been used on previous occasions, be revised and re-issued *at once*.
3. That a furnace be built at the Sewage Outfall Works, for the cremation of Typhoid excreta.
4. That an additional Sanitary Inspector be appointed temporarily, to cope with the greatly increased work.
5. That the milk shop premises where a suspicious case of illness had occurred, be efficiently disinfected.
6. That the cases of Enteric Fever be isolated in a Hospital; and that, if no other be available, the Scarlet Fever Hospital be emptied and disinfected.

I understand that all these recommendations were loyally and cordially carried out, with slight modifications, except that no cases were removed to the Hospital.

I also visited Mansfield, and consulted with Dr. Wills, on November 6th and 10th. Dr. Theodore Thomson, from the Local Government Board, came to Mansfield on November 12th, and the subsequent direction of affairs was left to be regulated by his advice; but the rapid and alarming progress of the epidemic had been checked by the measures taken before Dr. Thomson's arrival, and only 23 further cases arose in the subsequent eight weeks. Dr. Wills deserves much credit for the accuracy of his investigations and the precautionary measures taken during the earlier stages of the epidemic. It is at this period that the greatest difficulties arise, because public authorities are naturally reluctant to take drastic measures and incur unknown expenditure, with short time for consideration, unless the necessity for such a course has been amply proved. It is easy to wait too long, while the responsibility both for action and for inaction is great. It is usually easy to be wise after the event, but in this instance it was not so. After a long, patient, and most detailed investigation, extending over many weeks, with all sources of information thrown open to a representative of the Local Government Board, Dr. Thomson's report is singularly inconclusive. The Report clearly illustrates the difficulty and complexity of such investigations.

1—Dr. Thomson writes towards the end of his Report:—
"Review of all the facts and considerations that I have set "forth, leads to the conclusion that the evidence available, is "not such as to justify definite pronouncement as to the cause "of the outbreak of Enteric Fever in Mansfield and Mansfield "Woodhouse, in the latter part of 1906."

2—"That evidence has proved sufficient to exclude, with the "single exception of water supply, the several agencies generally "regarded as capable, either commonly or conceivably, of "propagating Enteric Fever, from suspicion of having played "any material part in the causation of the outbreak."

3—"As regards water supply, the evidence cannot justly "be held either to warrant its absolute exculpation or to afford "ground for its definite incrimination."

Without commenting at this stage on paragraphs 1 and 3, I am bound to state distinctly that I disagree with paragraph 2, even on the evidence contained in the Report.

From the character of the epidemic and from the mode of spread of Enteric Fever in this and neighbouring towns, it was not to be expected that the whole of the cases would be traced either to milk or to water. It is highly probable that several causes were co-operating. The occurrence of a severe epidemic of Enteric Fever in Mansfield in the last three months of 1906 at any rate is a fact; and it will not be disputed that considerable expenditure was thereby entailed. It would be wise, therefore, to take such precautions as prudence suggests—in order to prevent the recurrence of such an epidemic; and, if prolonged investigation has failed to reveal the cause of the epidemic, beyond the possibility of doubt, it will be necessary to act upon probabilities. Indeed, in the earlier stages of the epidemic, when preventive and precautionary measures are most likely to be successful, only suspicions and probabilities are usually available, and conclusive facts have not yet been reached.

As stated in the Inspector's Report (page 4.)—"Suspicion "fell, at an early stage of the epidemic, upon the milk supplied "by a particular Dairy in the town . . . . . Two cases of "obscure illness had occurred in this house, one in July, the "other on the 13th September. Neither case was notified as "Enteric Fever, but the medical attendant was uncertain "whether the first one was Enteric Fever or not. In his "judgment, the second case was not Enteric Fever, although "he was not satisfied as to the precise nature of the malady."

What then was it?

It is thus admitted that two cases of febrile illness occurred upon the premises of a milk-distributing business, and that the excreta were deposited in a pail closet in the back yard, near the premises where some of the milk was stored.

Dr. Thomson further writes (page 5) :—" If the inmate of " the dairyman's house suffering from illness in September had " in fact been the subject of Enteric Fever, there was opportunity " for flies, which were abundant during the month in question, " conveying the infective material of that disease from the pail " closet to the milk stored in the dairy in the back yard."

Whether these two cases of febrile illness were or were not Enteric Fever, will now probably never be known ; but I maintain that such a condition in connection with milk distribution was most dangerous.

The only safe course, in the interests of the public health, whenever illness likely to prove, or suspected to be infectious, arises on the premises of a milk distributing business, is at once to remove either the sick person or the milk from the premises.

Next, if we turn to page 7 of Dr. Thomson's Report, and study the very carefully compiled and elaborate statistics (which, of course, were not available in the earlier period of the epidemic when the necessary administrative steps had to be taken), we shall see that—" during the period September 16th—October 14th, *no fewer than 12 out of 14 persons attacked*, were customers of the Group A milk supply." That is, they obtained milk directly or indirectly from the premises mentioned above. This works out in the proportion of 4·7 cases of Enteric Fever per 1000 customers of Group A, compared with 1·2 per 1000 customers of other milk sellers, having no connection with Group A, or nearly *four to one*.

That this proportion did not continue in the two subsequent periods into which Dr. Thomson divided the three months, is only what would be naturally expected. The illness on the milk seller's premises was a short one ; the infection, if present, would have ceased ; and much attention was being directed to means for preventing the possibility of contamination of the milk.

Contrary to his final conclusion, already quoted, Dr. Thomson at this period of his Report, leaves the question of the infection of the milk *an open one*.

He writes :—Page 7. "As regards the excess of incidence "on Group A customers during the first period, it may be said "that, while this was sufficient to justify suspicion and "investigation, the numbers involved are too small to warrant "definite inference as to whether or not the milk supply in "question had a share in spreading the fever during September "and early October."

I have dwelt upon the question of the possible infection of the milk for three chief reasons :—

Firstly, because the recent outbreak at Mansfield Woodhouse in 1907, shews how easily and unsuspectedly this may arise.

Secondly, because in my judgment, from my own observation, and from the facts supplied by Dr. Wills, since confirmed and amplified by the evidence in Dr. Thomson's Report, milk was by far the most probable cause of the *first stage* of the epidemic. Then, with twelve cases, all treated at home, acting as centres of infection, it is not difficult to understand the subsequent spread of the disease by local infection, such as flies causing contamination of food, personal contact, &c., &c.

And, thirdly, because the extreme difficulty of taking efficient steps to safeguard the interests of the community as regards the milk supply in question, without doing serious injury to the financial interests of the trader, greatly exercised Dr. Wills and myself in the earlier stages of the epidemic. Delay might be dangerous; and, on the other hand, hasty public action might entail serious consequences. In most epidemics the early evidence is not clear, and the fuller information necessary to incriminate a milk supply with certainty, *must consist of the actual continuance of the epidemic.* It is, therefore, in such instances, inconsistent with public safety to delay action in the face of reasonable apprehension, even though conclusive evidence may not be available.

It is often wise, under such circumstances, for the Local Authority to come to an arrangement with a milk seller by which he will *at once* withdraw the suspected milk from sale for a short period, **on receiving compensation,** without the *delay* and *publicity* necessitated by taking action under the Infectious Disease (Prevention) Act. If, by such means, a serious epidemic be checked, the expenditure in compensation is likely to be far less than the cost of the unhindered epidemic; and both friction and ill feeling are reduced to a minimum.

With reference to the question raised by Dr. Thomson of a possible contamination of the public water supply being responsible for the whole or the major part of the epidemic, the following considerations are of importance, and render such a cause in the highest degree, improbable :—

1. The drain upon the waterworks premises which was found to be defective does not carry sewage, but chiefly condensed water from the pumping engines.

2. Defective drains, such as described, even if they did carry sewage, could not give origin to Enteric Fever *in the absence of specific infection from a previous case.* But it is stated in Dr. Thomson's Report, page 10. "*There was entire "absence of history of suspicious illness in any of these houses "in the Autumn of 1906.*". . . . . "*There was not any "evidence at all of suspicious illness in the Autumn of 1906 "among the waterworks employees, their families, or visitors to "their houses.*"

3. The risk of the passage of surface infection through about 100 feet of the Bunter Sandstone into the wells or adits is very remote; but such as it may be, it is common to most of the water supplies of Nottingham and Nottinghamshire.

In Sutton-in-Ashfield during 1906, 59 cases of Enteric Fever were notified out of a population of 18,454. This is a proportion of 3·2 cases per 1000 of the population, or one in every 312 persons; compared with 102 cases in Mansfield, with a population of 29,000, which shews 3·5 cases per 1000 of the population, or one case in every 284 persons—a close approximation.

The average number of cases for each of the previous five years was 13·4.

Of the 59 cases, nine occurred during January, and 41 during the last four months of the year, coincident with the epidemic at Mansfield, which is about two miles distant, and connected by a frequent service of electric trams. There appear, therefore, to have been two separate outbreaks as described by Dr. Nesbitt, but it must be pointed out that during the whole year, Sutton-in-Ashfield was never entirely free from Enteric Fever for more than a few weeks at a time—indeed, not for a sufficient time to make it certain that convalescents had ceased to carry about with them the germs of the disease, which, it is known, sometimes remain for weeks after the complete restoration to health of the patient. The only two months during the year when no cases were notified were April and June.

The only thing common to all the Sutton-in-Ashfield cases was the water supply derived from a deep well in the Bunter, about three miles distant from the Mansfield well. No case of Enteric Fever is known or suspected to have occurred in the immediate neighbourhood of the well, which is isolated from habitations, and about two miles distant from the thickly inhabited part of Sutton.

Hucknall Huthwaite, with a population of 4700, also obtains its water supply from the Sutton mains; but during 1906, only four cases of Enteric Fever occurred, two in January and two in September. The average number for the previous five years being 4·2.

At Dr. Nesbitt's request, I visited Sutton-in-Ashfield on several occasions and assisted him in endeavouring to trace the origin of the unusual number of cases. We agreed that there was no sufficient evidence to point to infected water, milk, or shell fish. We also agreed that the evidence pointed to an imported case having spread by local infection, by means of dust, flies, or personal contact. The long duration and small intensity of the epidemic (the fact that Hucknall Huthwaite deriving ite water supply from the same source, was not involved in the epidemic), together with the fact that in the large majority of the cases, some connection with a previous case could be traced, renders the water origin of the disease highly improbable. And the same argument applies to Mansfield. It is most unlikely that both the Mansfield well and the Sutton-in-Ashfield well, three miles apart, should become mysteriously infected about the same time. Newark, Worksop, and East Retford obtain their water from the same formation (the Bunter pebble beds), and supply a population of upwards of 54,000. Only fourteen cases of Enteric Fever were notified during 1906 out of this population, which is a proportion of ·25 case per 1000 of the population, or one case in every 3877 persons.

At Kirkby-in-Ashfield, which adjoins Sutton-in-Ashfield on the south, the average number of cases of Enteric Fever for each of the five previous years was 23·6; but in 1906 the number rose to 27, which is a proportion of 1·7 cases per 1,000 persons, or one case for every 580 of the inhabitants. Kirkby-in-Ashfield has a water supply of its own from a deep well in the Bunter, more than a mile from the Sutton-in-Ashfield well, and thoroughly isolated from human habitations.

At Hucknall Torkard, further south, the average number of cases of Enteric Fever for each of the five previous years was 13; but in 1906 the number rose to 22, which is a proportion of 1·3 cases per 1,000 persons, or one case for every 750 inhabitants. Hucknall has a water supply of its own from a deep well in the Bunter, about three miles distant, and isolated from human habitation.

At Skegby, which adjoins both Mansfield and Sutton-in-Ashfield, the average number of cases of Enteric Fever for each of the previous five years was 3·4; but in 1906 the number rose to 15, which is a proportion of 2·4 cases per 1,000 persons, or one case in every 410 inhabitants. Seven of the 15 cases occurred in November and December, during the latter half of the Mansfield outbreak. Dr. Littlewood, the Medical Officer of Health, writes:—"There was no reason to suspect the water "supply in any of the cases. . . . . Taking the district "as a whole, it would be difficult to find one having a more "ample and pure supply. . . . . The two sources of "public supply are from the Sutton-in-Ashfield Urban Council's "mains, and from the Blidworth Waterworks direct."

There were **no** *cases during September and October, when the majority of the Sutton-in-Ashfield cases occurred, although the water supply was common to both.*

At Mansfield Woodhouse, which adjoins Mansfield on the north, the average number of cases of Enteric Fever for each of the previous five years was 4·4. In 1906 the number rose to 24, which gives a proportion of 2·8 cases per 1,000 persons, or one case in every 354 of the inhabitants. Of the 24 cases 17 occurred during October, November, and December, and were, therefore, coincident in time with the Mansfield outbreak. No special source of infection was discovered. The public water supply is derived from the mains of the Mansfield Corporation, but many houses still used shallow wells.

In 1907, although Enteric Fever had ceased to exist in epidemic form, scattered cases still continued, thereby providing *foci* for the wider spread of the disease, whenever the infection should be brought into contact with conditions favourable to its spread. As will be seen, those conditions were soon to arise.

In January, 1907, two cases were notified; in February, two; in the last week of March, six cases; in the first 15 days of April 29 cases were notified, and in the last 15 days of April eight cases.

Dr. Houfton, in his Report presented to the Sanitary Committee on April 29th, 1907, writes :—

"The history of the epidemic, so far as I can determine, "is as follows :"—

"The four cases occurring in January and February were "a continuation of the epidemic which prevailed in Mansfield "and Mansfield Woodhouse during August, September, and "October of last year, and concerning which the Inspector of "the Local Government Board has just issued his Report."

"The case notified on February 4th was in a house "deriving its water supply from a shallow well. This well "was also used by the inmates of five adjoining houses. I "judge that this well water became infected with the germs of "Enteric Fever derived from the case notified on the 4th "February. This would account for the cases notified on 23rd "March (3 cases), on 25th March (2 cases), on 28th March "(1 case), and 3rd April (2 cases), which were all in persons "using this particular well water. There is an adjoining well "situate within 30 yards of the well previously mentioned. I "judge this water also became infected, and this gave rise to "two of the cases notified on April 3rd. This second well "water was used by a milk seller for washing out the milk tins, "etc., and I judge the milk became infected in this way ; for of "the remaining 33 cases, 24 derived either the whole supply, "or had partaken of milk derived from this milk seller."

"This leaves nine cases still unaccounted for. One of "these, notified April 3rd, derived water from a well situate "within 50 yards of the previously mentioned wells. Another "case, notified April 15th, also derived water from a well still "nearer the first mentioned wells. Five of the seven remaining "cases, I am informed by the doctors in attendance, are very "doubtful cases of Enteric Fever. The remaining two cases "derive their milk supply from milk sellers who were using "water from wells, both situate within 50 yards of the other "wells previously mentioned."

On April 5th, in response to a letter from Dr. Houfton asking me to come over and advise with him, I visited Mansfield Woodhouse, and can confirm Dr. Houfton's Report. It was clear to me that the case notified on Feb. 4th, which was a very severe one with relapses, and was still ill at the time of my visit after nearly 11 weeks, had infected the well which was situated within a few feet of the back door, and within a few yards of more than one offensive privy midden. The well was

a shallow surface well, and the strata are porous. This well supplies water to six houses, and in four of these houses there were cases of Enteric Fever at the date of my visit. Most of the cottages in this immediate neighbourhood have privy middens, and several were in an offensive condition. The well used by the milk seller was about 30 yards from the first mentioned well, in the direction of the dip of the strata; and much nearer an offensive privy midden into which, before notification, enteric stools would be thrown. At the time of my visit, two members of the milk seller's household (chi dren) were ill with Enteric Fever; and although the milk was no longer being brought to the house before distribution, the persons distributing the milk lived in the infected house.

I advised—

1. That both the infected wells be closed at once, and a public supply provided.
2. That the privy middens (which were in a filthy condition) be condemned, and water closets provided.
3. That the infected excreta be put into closed pails and *burned.*
4. That warning leaflets be issued.
5. That the milk in question should not continue to be distributed by persons living in the infected house, or even visiting the house.

On April 11th I visited Mansfield Woodhouse again, and, from the facts supplied to me by Dr. Houfton, it is evident that at this stage the part played by the milk in question, in spreading the disease was even clearer than as described by Dr. Houfton at a later stage. This is of importance in connection with the Mansfield epidemic, as showing that in milk epidemics, when the source of infection is recognised early, and precautions are taken, the latter part of the epidemic cannot be traced to the milk, but is due to other well recognised causes of local infection.

On April 11th, thirty-three cases had been notified since (and including) March 23rd. Four of these, Dr. Houfton reported, were doubtful diagnoses. Of the remaining 29, eleven were in houses immediately around the three wells known to be infected, and obtained their water from them. The remaining 18 were not confined to this small area, but all obtained their milk from the milk seller, to whom reference has previously been made. At a later stage other sources of infection were involved.

In conclusion, the *facts* in connection with the Mansfield Epidemic have been most laboriously collected. There are, in addition, some doubtful points such as the nature of the illness of the two persons on the milk-seller's premises—Enteric Fever or some disease not diagnosed and not defined. The deductions to be drawn from the facts depend largely upon the point of view from which they are considered. The *doctrinaire* philosophy of the older school which rejects personal infection and local conditions as an important element in the development —especially the later development, of an epidemic naturally concentrates attention upon water or milk as the chief if not the only media of infection.

The experience of the United States in the War in Cuba, of the British Army in the Boer War, of Maidstone and even of Lincoln show the influence of local infection in the development of secondary cases at various stages of an epidemic. It need cause no surprise that facts such as these have not met with universal acceptance. The facts of the circulation of the blood, when discovered and expounded by Harvey, continued to be disputed for 50 years; and the efficacy of vaccination after 100 years, still finds opponents. But in my experience the history of the outbreaks I have described in the seven towns, which are all closely connected, both by situation, and by business relations, can lead to no other conclusion than that *local infection* has been an essential element in the spread of the disease. In the term local infection, I include the infection of shallow surface wells, as at Mansfield Woodhouse, and the two instances of milk infection at Mansfield Woodhouse and Mansfield, where infection clearly occurred *on the premises* and not at the farm.

Whether or not, surface pollution can pass through 100 or more feet of sandstone rock, no other source of water supply is available in this county and the water from the Bunter must continue to be used. The remedy, in addition, of course, to repairing the defects pointed out by Dr. Thomson, consists in removing all the centres of infection as far as possible from the sources of water supply, to one spot where they will be least likely to do harm. This would be accomplished by isolating the cases of Enteric Fever in a suitable hospital, which should be always available; and by burning all excreta and infectious material. Such a course would not only safeguard the water supplies, but would reduce the chances of the local spread of infection.

In my opinion, hospital isolation is the most important step.

The next most important, consists in the further extension of the water carriage system of excrement removal. The excreta of persons suffering from Enteric Fever are infectious in most cases before a diagnosis has been made, and, therefore, *before the case has been notified.* At this period, if tub closets are in use, the infected tub is not necessarily returned to the same house, but may be taken to an adjacent house and infect it. Flies setting on the excreta and carrying infection to the food on which they subsequently settle, do not confine their visits to the houses to which the closets belong, but may spread over a much wider area, and carry infection to considerable distances. Thus, the inmates of houses provided with water closets may be infected by flies coming from privies or tub closets belonging to other houses in the neighbourhood.

The following table shews the proportion of cases of Enteric Fever, per 1000 of the population, during the year 1906—

District.	Cases per 1000 Inhabitants.
Mansfield	3·5
Sutton-in-Ashfield	3·2
Mansfield Woodhouse	2·8
Skegby	2·4
Kirkby-in-Ashfield	1·7
Hucknall Torkard	1·3
Newark, Worksop and Retford, with the Villages receiving Water from them	·25
The whole of the *Urban* Districts of the County	1·3
The Rural Districts	·63
The whole County	1·04

FLY LIFE AND INFECTIVE DISEASE.

The "Lancet," *August 25th, 1906:*—

"The fly, like the worm, has its place and function in the economy of nature both for good and for evil. What the worm is to the soil the fly is to the air, exercising a depurative influence by its absorption of effluvia which, directly inhaled, would be mischievous, even fatal, to man. On the other hand, the fly may be the carrier and transmitter of pathogenic organisms which, introduced by puncture or even simple contact into the

human subject, are the proximate cause of infective disease. In 1888 Professor Angelo Celli, of Rome, observed that flies nourished on the typhoid bacillus transmit, by the medium of their fœces, the same malady in all its virulence—an observation amply confirmed just ten years later, in 1898, in the American concentration camps in Cuba during the war. Even prior to this, a similar observation, experimentally confirmed, had been made in Hamburg in the case of cholera. Flies during the necropsy of a victim to that disease, having alighted on the intestine, were inclosed in a glass receptacle so that the air and the movement might desiccate and neutralise the particles of choleraic virus, adhering to their wings and extremities, and were thereafter placed in a tube containing liquid gelatine. In 48 hours all the plaques were covered with colonies of the bacillus virgula. More recently, in Paris, it was shown that flies are the principal agents in diffusing cholera at short distances, thus explaining the fact that cholera epidemics diminish in intensity during winter when fly life is arrested by the cold. A still more recent study in this field is that of Professor Saverio Santori, of the Bacteriological Laboratory of the Roman commune, by which he demonstrates the fly as causing the dissemination of "infective intestinal maladies," particularly the summer gastro-enteritis of children in its acute form. He found that on the walking apparatus, the wings, the proboscides, and, in general, all over the bodies of the flies there were pathogenic bacilli not only in vast quantities but of the most varied forms, the latter observation seeming natural enough when we think of the infinity of soiled substances upon which the fly alights. At the same time, this variety of form in the bacilli was much less in the digestive tube one form so preponderating as to make all the others practically non existent. Professor Santori, in fact, from cultures derived from flies frequenting a Roman market place, succeeded in isolating a bacillus which, under the microscope, appeared mobile, short and stunted, its characteristics, morphological, cultural, and biological, and its pathological features corresponding exactly to that "speciale micro-organismo," which Dr. G. Volpino described some months ago in the "Archivio per le Scienze Mediche" as the "pathogenic agent" of the "infezioni viscerali" affecting infants in summer. The importance of this identification is manifest. It may explain the enormous diffusion of this gastro intestinal malady, particularly in the summer, and it also throws light on the fact that in these later years the malady, unlike other infective diseases, shows little or no signs of decrease. The practical, hygienic, corollary thence arising is, according to Professor Santori, to take special measures for lessening in our habitations, the excessive number of flies and for the prompt and thorough removal of the soiled or putrescent substances from which these flies transport and diffuse, in myriads, the pathogenic germs."

Puerperal Fever.—This term is still retained for the sake of convenience; and, as advised by the Local Government Board, is intended to include:—Pyæmia, Septicæmia, Sapræmia, Pelvic Peritonitis, Peri- and Endo-Metritis, occurring in the Puerperium.

The following table gives the number of *notified* cases and deaths during the past twelve years. It will be noticed that the fatality varies so enormously as to be explicable only by incomplete notification.

	PUERPERAL FEVER.		
	Cases.	Deaths.	Case Fatality per cent.
1895	24	11	45·8
1896	18	2	11·1
1897	21	9	42·8
1898	12	5	41·6
1899	28	14	50·0
1900	21	18	85·7
1901	23	18	78·2
1902	20	9	45·0
1903	16	9	56·2
1904	17	14	82·3
1905	20	6	30·0
1906	12	7	58·3

These do not include the deaths from "diseases and accidents of parturition," which in 1906 numbered 27.

During the year, thirteen cases of Puerperal Fever were brought to the notice of the Local Supervising Authority under the Midwives Act, and special Reports upon them were received from the Medical Officer of Health of the District in each instance. Twelve cases occurred in the practice of certified Midwives, and the circumstances were further investigated by the County Medical Officer and the Inspector of Midwives. In one instance it was found necessary to suspend the Midwife from practice for a period, under Section 8 (3) of the Midwives Act, to prevent the spread of infection; but in the remaining cases it was found sufficient to advise the Midwives to cease practice for periods ranging from ten days to three weeks, according to circumstances, and steps were taken to see that suitable methods of disinfection were carried out. That these proved efficient, is shewn by the fact that in no instance was the infection carried to a second case in the practice of the same Midwife, after the process of disinfection had been completed.

One case was attended by an uncertified Midwife, whose methods of practice are not under the control of the Local Supervising Authority, or of the Central Midwives Board.

It is very important that all cases of Puerperal Fever, including the diseases previously enumerated, should be notified

to the Medical Officer of Health ; and although an improvement is observable, it is clear some cases are still omitted.

Sir Henry E. Roscoe, F.R.S., writes in his "Life and Experiences" :—

"In the York Road Lying-in Hospital in 1838, 26 per "cent. of the patients died from Puerperal Fever."

"The Hospital was often closed, but was re-opened in "1879 on strict antiseptic principles. The result has been "that there has been only one case in three years, or less than "one per 1000 patients."

NON-NOTIFIABLE INFECTIOUS DISEASES.

Measles.—How wide-spread was the epidemic of 1905, and how completely it exhausted the susceptible material in the shape of persons, especially children, unprotected by a previous attack, is seen by the remarkably small number of deaths in 1906, as shewn in the following table :—

Year.	Deaths from Measles.	Year.	Deaths from Measles.
1895	35	1901	105
1896	230	1902	77
1897	47	1903	42
1898	62	1904	50
1899	142	1905	177
1900	67	1906	7

Nevertheless, after an interval of about eighteen months, in the late Spring of 1907, a still more extensive, though less fatal, epidemic is again prevailing.

In the year 1905, 107 schools were closed for Measles, but in 1906 only thirteen were so closed. It is quite clear that the progress of education may be seriously impeded by the prevalence of Measles and the consequent school closure. It becomes important, therefore, to consider whether the amount of school closure can be lessened without injury to the Public Health.

More than 93 per cent. of the deaths from ***Measles*** *occur in children under five years of age.* Consequently, where children under five are still admitted to school, the interests of the Public Health will generally be met by closing the *Infants' Departments only.*

How soon should a school be closed, and for how long? Few epidemics are prevented, and very many run their natural course unmodified by school closure. To be effective as a means of checking the spread of an epidemic, the school must be closed early, after the first cases are detected. To wait until the attendance has been reduced to 50 or 60 per cent. and then close, has no influence upon the course of the epidemic, and is merely a means of saving the loss of the Government Grant.

"Probably the wisest course, under somewhat difficult "circumstances, is *to close the school after the first case for "such a period as to cover the time of onset of illness of the "first crop of cases.* The children affected would then develop "the disease at home instead of at school."

"For this purpose 7—9 days closure is generally sufficient, "and in many cases it is unnecessary to close the whole "department, for class closure has been found very efficient."

"A good rule for general application would be *to keep the "school open for a week after the day on which the infectious "child had attended, and then close for ten days.* This would "require slight modification according to the stage of the first "case whilst attending the school.

In 1906, only 47 schools were closed for infectious diseases of all kinds, compared with 142 in 1905.

Whooping Cough.—The following table shows that Whooping Cough was less fatal than usual in 1906:—

Year.	Deaths from Whooping Cough.	Year.	Deaths from Whooping Cough.
1895	61	1901	71
1896	51	1902	71
1897	129	1903	88
1898	40	1904	107
1899	37	1905	86
1900	109	1906	61

This disease, too, is chiefly fatal to young children. In the year 1905, in England and Wales, more than 97 per cent. of the deaths from Whooping Cough occurred in children under five years of age: a further reason for not sending children of that tender age to school, where so many diseases are caught. During the year eight schools were closed on account of Whooping Cough.

Influenza.—During 1906 there was a further reduction in the mortality from this disease.

Year.	Fatal Cases of Influenza.
1900	152
1901	23
1902	47
1903	45
1904	44
1905	47
1906	31

But in the latter part of the year and the Spring of 1907, there was a very extensive recrudescence, though fortunately not of a very fatal type.

Diarrhœa.—This disease is mainly of importance in connection with infant life, and in hot, dry seasons assumes the characteristics of a specific epidemic disease. The statistical uncertainties consequent upon a want of uniformity in nomenclature have been already mentioned under the heading of Zymotic death-rate. In 1906, there were 223 deaths certified from Diarrhœa, and 54 from Enteritis. Of this total of 277 deaths, 226 occurred in infants under one year of age, 33 in children between one and five, and only 18 in persons over five years of age.

Year.	Deaths from Diarrhœa.	Year.	Deaths from Diarrhœa.
1895	201	1901	205
1896	88	1902	85
1897	166	1903	123
1898	240	1904	242
1899	233	1905	116
1900	158	1906	223

The remedy most likely to prove effective is the personal instruction of the mothers by lady Health Visitors in the details of cleanliness and the proper feeding of infants, as has been already advised.

The great influence of different methods of infantile feeding upon the prevention of diarrhœa has been carefully investigated at Brighton by Dr. Newsholme; and the following statements are based upon information derived from the house-to-house visitation of 1,684 babies, spread over four years.

"So far as our local experience is concerned:—

"(1.) Breast-fed babies under one year of age have only "one-twelfth, and breast-fed babies under six months have "only one-sixteenth part of the share of deaths from diarrhœa "which would fall to their share were the deaths from diarr-"hœa evenly distributed among all the babies."

"(2.) Babies fed on cow's milk: these babies at all ages "under one had four-and-a-half times, and at ages under six "months had six times as many deaths from diarrhœa as they "ought to have had on the same supposition."

"(3.) Babies fed on condensed milk: these babies at all "ages under one had thirteen times, and at ages under six "months had eight times as many deaths from diarrhœa as "they ought to have had on the same supposition."

"It may be inferred further from the above facts that "judging by our local experience, it is twice as dangerous to "feed babies on condensed milk as on fresh cow's milk; that "it is fifty-four times as dangerous to feed a baby on cow's "milk, and 156 times as dangerous to feed a baby on con-"densed milk as on mother's milk."

"These facts emphasize the dangers of condensed milk or "even of fresh cow's milk for babies, and, incidentally, sup-"port the view urged in the 10,000 circulars distributed each "summer in Brighton, that babies should not be weaned "during the hot summer months."

THE PREVENTION OF ANKYLOSTOMIASIS.

Little has been heard of Ankylostomiasis during the past year, but the following experience of a country so near as Belgium may be of interest:—

*"The Consul-General for Belgium has just issued a Report on Ankylostomiasis in the mines of that country, which has just appeared as

* *The British Medical Journal*, March 30, 1907.

a Foreign Office Blue Book. With few exceptions, we are told, every mine in the country is infected; but the disease, which a few years ago affected more than half the workers employed, is now practically under control. In November, 1904, laws were passed for the checking of the spread of Ankylostomiasis. These were applicable only to the province of Liege, the most infected district. *They compelled the installation at the surface of properly fitted closets, to the number of one or more to every 25 miners. Below ground portable buckets with hermetically closed covers must be provided.* The closets must be cleaned after the descent of every gang, and the buckets have to be brought to the surface at least every twenty-four hours. The cleansing is to be done by steam or boiling water, and must be superintended by special persons. No other latrine usage is permitted. The miners must undergo examination whenever required, the cost of the examination and the wages forfeited by the workman examined being chargeable to the mine-owner. Finally, it is in the power of the authorities to compel the removal of mud and the checking of running water in the galleries. No funds were voted by Government, but the provincial authorities of Liege granted a subsidy which helped to pay the miners undergoing treatment, each man receiving 1fr. 50c. a day, as well as free hospital attendance, a sum which was further augmented in most cases by the mine-owners, thus giving the patient nearly 17s. a week during his treatment. This system has worked very well, the men no longer refusing to submit to treatment on account of loss of wages. In addition, *miners were instructed to take various precautions as to drinking water, washing their hands in clean water before meals, and not putting pipes or food or spoons and forks upon the ground. The miner was also instructed to change his clothes on coming out of the pit, and to take a thorough bath, numerous bathrooms with hot, cold, and shower baths being provided.* These laws and precautions only held good for the province of Liege. Hainaut suffering less, they were not enforced there, and the consequence has been that the disease has increased alarmingly; so much so, indeed, that last September the laws obtaining in Liege were extended to Hainaut province also. The mine-owners in Hainaut, however, disclaim the prevalence of Ankylostomiasis in their mines, and do not give any assistance to the subsidy of the provincial authorities, so that the miners will have less inducement to submit themselves for treatment, and the task of stamping out the disease will be harder. The total number of miners in the Liege district is about 34,000, and of these 1,251 underwent treatment last year. The average number of days taken in the treatment of each case is eleven, but in Hainaut the patient enters the Dispensary on Monday and leaves it on Saturday. Thymol is apparently little used as a remedy, extract of male fern, eucalyptus, and chloroform being preferred."

Tuberculosis.—The following table shews the number of *deaths* from Phthisis or Consumption (that is, tuberculosis of the lungs), and also from "Other Tuberculous Diseases," that is, tuberculosis of any other organ except the lungs. We have no record of the *cases*, as tuberculosis is not yet a notifiable disease. It is frequently estimated that for each death there are six other cases of Pulmonary Consumption which have not yet terminated. That method of calculation would give 1,602 persons suffering from Consumption in the County, besides those suffering from "other tuberculous diseases."

Year.	Deaths from Phthisis.	Deaths from other Tuberculous Diseases.
1895	287	..
1896	233	..
1897	308	..
1898	303	..
1899	266	..
1900	256	184
1901	238	153
1902	229	173
1903	262	150
1904	256	167
1905	281	140
1906	267	160

The proportion of deaths from Pulmonary Phthisis, or Consumption of the Lungs, per 1,000 of the population, is given in the following tables for the last four years; and also the deaths from "*Other* Tuberculous Diseases," and from "*All* Tuberculous Diseases":—

Deaths from Phthisis per 1,000 of the Population.

	Whole County.	Urban Districts.	Rural Districts.
1903	·88	·80	1·01
1904	·84	·79	·92
1905	·90	·93	·86
1906	·83	·84	·82

Deaths from OTHER Tuberculous Diseases per 1,000 of the Population.

	Whole County.	Urban Districts.	Rural Districts.
1903	·50	·53	·46
1904	·55	·59	·48
1905	·45	·48	·40
1906	·50	·51	·48

Deaths from ALL Tuberculous Diseases per 1,000 of the Population.

	Whole County.	Urban Districts.	Rural Districts.
1903	1·39	1·34	1·48
1904	1·39	1·38	1·40
1905	1·35	1·41	1·27
1906	1·33	1·35	1·30

A comparison of the four years shews a progressive improvement in the Phthisis death-rate for the Rural Districts, which for the last two years has been lower than that for the Urban Districts, as should always be the case. The rate for the whole County is, also, the lowest of the four years; but for the Urban Districts, it is higher than during the first two years.

For *all* Tuberculous diseases there is, likewise, a progressive improvement, except for the Urban Districts, which show a very slight increase over the rate for 1903.

The next two tables give the average death-rates of the different districts from Phthisis (Tuberculosis of the lungs), for the ten years 1896—1905, and from "other Tuberculous Diseases," for the six years 1900—1905.

It would be more simple to give the deaths from *all* tuberculous diseases for the past ten years in one table; but, unfortunately, the statistics in the possession of the County Council relating to tuberculosis affecting other organs than the lungs, do not go further back than the year 1900.

AVERAGE DEATH-RATE FROM PHTHISIS FOR THE TEN YEARS, 1896–1905.

URBAN DISTRICTS.	Per 1000
Sutton-in-Ashfield	1·54
Newark	1·26
Beeston	1·19
Mansfield	1·04
Arnold	0·96
East Retford	0·89
Worksop	0·87
Mansfield Woodhouse	0·86
Hucknall Torkard	0·83
Eastwood	0·81
Carlton	0·77
Huthwaite	0·72
Kirkby-in-Ashfield	0·71
West Bridgford	0·68
Warsop	0·41
Total Urban Districts	0·98

RURAL DISTRICTS.	Per 1000
Bingham	1·17
Newark	1·01
Southwell	0·98
Stapleford	0·93
Basford	0·90
Misterton	0·79
Blyth and Cuckney	0·73
Skegby	0·72
Kingston and Ratcliffe	0·72
East Retford	0·68
Leake	0·67
Total Rural Districts	0·90

AVERAGE DEATH-RATE FROM OTHER TUBERCULOUS DISEASES, FOR THE SIX YEARS, 1900–1905.

URBAN DISTRICTS.	Per 1000
Sutton-in-Ashfield ..	1·50
Warsop	1·15
Eastwood	0·76
Mansfield Woodhouse	0·71
Kirkby-in-Ashfield ..	0·69
Newark	0·63
Hucknall Torkard ..	0·53
Beeston	0·47
Mansfield	0·45
Carlton	0·45
East Retford ..	0·43
Huthwaite	0·43
Worksop	0·43
Arnold	0·35
West Bridgford ..	0·30
Total Urban Districts ..	0·61

RURAL DISTRICTS.	Per 1000
Skegby	0·92
Stapleford	0·84
Blyth and Cuckney ..	0·57
Basford	0·53
East Retford ..	0·42
Newark	0·36
Southwell	0·34
Bingham	0·33
Leake	0·31
Misterton	0·13
Kingston and Ratcliffe ..	0·00
Total Rural Districts ..	0·47

Dr. Wills (Blyth and Cuckney), writes:—"It was decided "at the November Meeting to offer disinfection of bedding "where death had taken place from Pulmonary Consumption."

Dr. Wills (Mansfield), writes:—"We have been able, in "Mansfield, to disinfect the rooms and send the bedding to "your steam disinfector, from houses where Consumptives "have died, but this will not satisfy you long, since precaution "ought not only to be taken at the end of the illness, but as "early as possible after the commencement of the disease, so as "to assist persons to take the necessary care with their "expectoration, and prevent the disease spreading to others."

Dr. Beale (East Retford Rural), writes:—"In this "connection, perhaps, I may be allowed to quote from Dr. "Huber: 'It is during adult life that Consumption achieves "its fell work—in the periods when young people should "entertain wholesome anticipations of matrimony; when "husbands should be strong to work for and maintain their "families; when wives should have strength to rear their "children; and when men and women generally should have "physical and mental capacity, so that they may accomplish "the world's work. One-eleventh of all the pauperism, costing "in England and Wales, £10,500,000 a year, arises from "Consumption; one-quarter of all the deaths arising during "the wage-earning period (fifteen to fifty-five years of age), are "due to Consumption, leaving many widows and children to "receive aid from the poor laws, friendly societies and charity "organisations.'"

"In some enquiries I have been making recently amongst "tuberculous persons, I met many who could definitely trace "the infection to a fellow worker in office or shop."

MILK SUPPLY.

It is fitting that the subject of the milk supply should be considered immediately after that of Tuberculosis, as they are closely connected. The Royal Commission in their Second Report, which appeared in the Spring of 1907, give the fullest details of the investigations which, they consider, have proved the identity of the Tubercle Bacillus in human beings and in cows, and the inter-communicability of tuberculous disease by means of milk. For several years nothing was done to carry into effect the Dairies, Cowsheds, and Milkshops Order of 1899 (which forbids the sale of milk from cows with Tuberculosis of the Udder), on the ground that a Royal Commission had been appointed to decide whether Tubercle in human beings and in cows was one and the same disease, or two different diseases incapable of being communicated from animals to man, and had not yet reported. It is sad to record that although the Royal Commission, after several years' labour, have now reported their conviction that a large number of deaths of human beings every year are due to tuberculous disease conveyed by means of milk from cows to man, little further progress is being made in the direction of carrying out the preventive measures provided by legislation in the year 1899. In those few places where systematic inspection of milch cows has been practised, it has been found that from *one to three* cows in every thousand have been suffering from tuberculous disease of the Udder, sufficiently advanced to be easily detected. The milk of one cow so diseased may contain many millions of tubercle bacilli at each milking; and where the milk is mixed with that of healthy cows before sale, very many gallons of milk may be infected by one cow. Three cows in a thousand are capable of doing much injury; but their destruction would not involve any serious financial loss!

Anomalous as it may seem, the legislative power to prevent the addition of water, even pure water, to milk, is efficiently carried out; but little is being done to prevent the contamination of milk with a poison from which it is said one-seventh of mankind die!

Equally true is it that large sums of money are being spent to obtain public, and private, water supplies free from all trace of impurity; although the preventable impurities so very frequently present in milk, are at least equally dangerous to health, and yet are accepted as inevitable!

It is unnecessary to repeat the numerous details contained in the Special Report upon the Administration of the Dairies,

Cowsheds, and Milkshops Orders in the County, prepared at the request of the Diseases of Animals Committee, and presented to the County Council in April. A few copies remain, and the County Medical Officers will be glad to supply one to anyone interested.

The table shows the present position of the Administration of the Dairies, Cowsheds, and Milkshops Orders; and the following extracts from the Annual Reports of the Medical Officers of Health in the County, show how much is being done in some districts, without friction; and how little in others.

Dr. Wills (Southwell), writes:—"The Inspector of Dairies "and Milk Shops describes the cowhouses in Southwell "supplying milk as good, in all cases excepting two, where the "lighting is said to be bad."

"The cowhouses and dairies in your district have been "inspected by your Inspector of Dairies."

"His report upon the cubic space, ventilation, lighting, "drainage and water supply is satisfactory in every respect, "except lighting, which in five instances is described as bad; "and in a report I made to you on the cowhouses, I mentioned "that the lighting was a very important matter, because if a "place is not well lighted it will not be kept clean. In "addition to that, animals deprived of sufficient light become "unhealthy; and want of light is looked upon as one of the "chief causes predisposing to tubercular disease."

"Another important matter I have noticed is the flooring "of the cowhouse, which is so closely connected with drainage "and cleanliness; for if there is not a floor impermeable to "wet, the drainage soaks in and causes nuisance."

"Of this we had recently a striking example.—A cow-"keeper, I noticed, had very offensive clothing; I examined "the sheds his cows occupied, where I found the brick floor was "laid loose, and the urine of the cows soaked in among them, "and caused the offensive smell I had noticed in the cow-"keeper."

Dr. Garrett (Worksop), writes:—"Seven new cowsheds "have been registered this year, making the total number "inspected in the district seventeen."

"In several sheds, improvements have been effected, "giving more light and better ventilation and drainage."

"From inquiries, it appears that an honest effort is being "made at most places to carry out the precautions as to "cleanliness, etc., suggested in the Regulations adopted by the "Council last year, a copy of which was sent to each "cowkeeper."

"There is still room for much improvement in the "direction of keeping the animals cleaner and freer from "adherent matter, which may find its way into the pails "during milking."

"The cowsheds are kept in a better state of repair, and "more attention given to cleanliness than previously; the "owners readily agreeing to try and remedy any insanitary "defects."

Dr. Manners-Smith (East Retford Urban), writes:—"The "Sanitary and Highways Committee are considering the "desirability of framing Regulations under Article 13 of the "Dairies, Cowsheds and Milkshops Order, of 1885, and hope, "shortly, to make a recommendation to the Council."

Dr. Jones (Hucknall Torkard), writes:—"The cowsheds "were regularly inspected, especially in the Winter months, as "the animals are turned out to graze during the Summer. I "am glad to report a decided improvement in the condition in "which the cows are kept, greater care as to cleanliness "being observed."

"Dr. Hunter (West Bridgford), writes:—"The cowsheds "we found to be, as a rule, the most dilapidated of all the farm "out-buildings. They are built of any old material, badly "lighted and with no system of ventilation, while the drainage "is of a very doubtful character.

"The 'grips' or 'gutters,' as well as the floors generally, "were covered inches deep in manure, or straw saturated with "manure and urine, while the hind-quarters of the cows "themselves were caked with lumps of dried manure. It is "under these conditions that our milk supply is obtained. It "is impossible to avoid milk contamination under such "conditions."

Dr. Wray (Basford), writes:—"From these, you will find "it is your duty to supervise the milk trade in your district, "keep a register, and from time to time give public notice that "registration is required, and the mode of such registration."

DAIRIES, COWSHEDS and MILK-SHOPS ORDERS, 1885, 1886 and 1899.

Questions issued to the Urban and Rural District Councils, by direction of the County Council, November 6th, 1906, and replies.

	Questions—1 Are Cowkeepers, Dairymen and Purveyors of Milk registered in the Borough, or Urban or Rural District, according to Article 6 (1) and (2) of the Dairies, Cowsheds and Milk Shops Order of 1885?	2 Have Regulations been made under Article 13 of that Order?	3 If so, are they in the form of the model Regulations of the Local Government Board?	4 Are the requirements of Articles 9, 10, 11 and 12 of the Order of 1885 duly complied with throughout the Borough or Urban or Rural District?	5 Have any steps been taken under the Dairies, Cowsheds, and Milk Shops Order of 1899, to ascertain whether the milk of cows suffering from Tuberculosis of the Udder is being sold for human food?
URBAN DISTRICTS.					
MANSFIELD ..	Yes.	Yes.	Yes.	Yes.	As far *as possible*. Special powers have also been obtained under the Mansfield Corporation Act, 1901.
NEWARK	Yes.	Yes.	No. They were made previous to issue of Model Regulations by Local Government Board.	Yes.	Yes. Cows inspected three times during the winter months by a Veterinary Surgeon.
EAST RETFORD	Yes.	† No.	No.	Yes.	† No.
ARNOLD	Yes.	* No.	No.	Yes.	* No.
BEESTON	Yes.	Yes.	?	Yes.	No.
CARLTON	Yes.	Yes.	Yes. The Regulations were duly approved at the time.	Yes.	No. The Council has no official qualified to undertake these duties.
EASTWOOD ..	No reply.	Yes.	Yes.	Yes.	No.
HUCKNALL HUTHWAITE	No.	Draft Regulations submitted to L.G.B.	?	No.	No.
HUCKNALL TORKARD	Yes.	Yes.	Yes. With slight variation.	Yes.	Appointment of Veterinary Surgeon under consideration.
KIRKBY-IN-ASHFIELD	No reply.	Draft Regulations submitted to L.G.B.	?	No.	No.
MANSFIELD WOODHOUSE	Yes.	Yes.	Yes.	Yes.	No.
SUTTON-IN-ASHFIELD	Yes.	Yes.	Yes.	Yes.	No reply.
WARSOP	Yes.	Yes.	Yes.	Yes.	Under supervision of Medical Officer of Health and Sanitary Inspector. No Veterinary Surgeon.
WEST BRIDGFORD	Yes. Purveyors of milk only; not cowkeepers.	No.	No.	No.	No.
WORKSOP ..	Yes.	Yes.	Yes.	Yes.	‡ Medical Officer of Health and Sanitary Inspector have authority to call in Veterinary Surgeon.
RURAL DISTRICTS.					
BASFORD ..	†Yes. *Persons who apply* are registered.	† No.	No.	Article 10 so far as practicable.	† No.
BINGHAM	Yes.	Regulations sent to L.G.B. for approval.	"Substantially."	Yes.	No Veterinary Surgeon employed.
BLYTH and CUCKNEY	Yes.	Yes.	Advisability of adopting Model Regulations to be considered.	Yes.	No.
EAST RETFORD	Yes.	No.	No.	Yes.	* No.
LEAKE	Yes.	Yes.	Not in the form of the existing Model Regulations.	Yes.	A Veterinary Inspector has not been appointed by the District Council.
MISTERTON ..	Yes.	Yes.	Yes.	Yes.	No.
NEWARK	Yes.	Yes.	Not exactly.	Yes.	No.
SKEGBY	Yes.	Yes.	Yes.	Yes.	No.
SOUTHWELL ..	Yes.	No	No.	Yes.	No.
STAPLEFORD ..	Yes.	Yes.	Yes.	Yes.	Inspector is authorised to call in Veterinary Surgeon when Tuberculosis of the Udder is suspected.
NOTTS. PARISHES ADMINISTERED BY SHARDLOW	No.	No.	No.	?	No.

* The Medical Officer of Health is making a Report. † The matter is in the hands of a Committee. ‡ The District Council are considering the advisability of appointing a Veterinary Surgeon to act regularly.

"In my Annual Report for 1899, I alluded to the above, "and in consequence, you appointed a Committee on April "3rd, 1900, to consider the question of adopting Regulations; "each member was supplied with 'Hadden's Handbook' and "'Abstract of Enactments applicable to Cowkeepers, etc.,' "and the Committee met on May 9th, 1900, and decided not "to draft Regulations."

Dr. Knight (Carlton) writes:—"The only other defect "requiring interference in some instances was the requirement "of limewashing; but I believe in each case the matter was "attended to on notice being called to the matter."

"An outbreak of Diphtheria in one part of the district "was traced to a dairy, and immediate steps were taken to "prevent further mischief."

From Sutton-in-Ashfield it is stated:—"The cowsheds "have been regularly and frequently visited, and a marked "improvement is taking place in the cleanliness and sanitation "of these premises, which still leave considerable room for "further improvement."

"Two of the worst cowsheds in the district were con- "demned. One of them has since been pulled down, and the "other is not now used as a cowshed."

"Three samples of water from wells in use on milk farms "were submitted for analysis during the year, and in one case "the water was found to have been previously polluted with "sewage so as to be unsafe for use, and steps are being taken "to close the well."

Dr. Wills (Blyth and Cuckney) writes:—"I think it "would be a good thing if the principal cowkeepers were "registered, so that your Inspector of Dairies could look them "over occasionally, and see that the drainage and sheds were "in good order, as it seems difficult to decide who is a milk "seller, and it is desirable that all places should be kept "properly, as much in the interests of those who keep the "animals as it is in the interests of those who consume the "milk."

Dr. Wills (Mansfield) writes:—"The cowhouses require "improvement in some instances. It is desirable that a "Veterinary Inspector should examine the cows supplying "milk."

Dr. Irvine (Huthwaite) writes:—"Your Council has under "consideration the question of adopting the Model Regula- "tions, as drawn up by the Local Government Board."

"Up to the present time there has been no registration of "cowsheds, dairymen, or purveyors of milk."

"The habit of using inferior and dusty bedding was again "found at one of the sheds."

"Nine milk sellers' premises in the town have been "inspected."

"The Council have not yet decided to take any definite "steps with regard to the appointment of a veterinary in- "spector to examine the cows, in order to prevent the sale of "milk from animals suffering from tuberculosis. The ques- "tion, however, is under consideration."

Dr. Harvey Francis (Arnold) writes:—"There are about "thirty cowsheds in the district, and they have been inspected "by the Sanitary Inspector and myself during the year. "There are a very few which are perfect; many have slight "faults which could be easily remedied at a slight cost, and "some are so bad in every respect, that they ought to be "pulled down altogether."

"As examples of the last I quote my notes taken at the "time of inspection:—

"Of one I write: 'The walls are of old boards; the floor "is very badly dilapidated; there is practically no light or "ventilation.'"

"Of another: 'Bad in all respects; light, drainage, and "cubic capacity all deficient; very dirty; large manure heap "kept too near the cowshed.'"

"And of another: 'A tumble-down place; wants renovat- "ing altogether; yard badly kept.'"

"In September I met the Sanitary Committee, and we "discussed the question, and decided to propose to the Council "that the Local Government Bye-laws be adopted. This, "however, was not done, and it was eventually decided that "this question of bye-laws should be postponed for a few "months, and in the meantime the owners should be warned "that they must put their cowsheds into a proper condition."

Dr. Beale (East Retford Rural) writes:—"In September, "1906, a letter was received from the Local Government "Board asking for a special report to be made upon the state "of the dairies, cowsheds, and milkshops in the Rural District "of East Retford."

"I applied to the Clerk to the Council for a copy of the "register of cowkeepers and dairymen. This list had been in "existence for some years; but registration had not been "enforced at all, and was looked upon as a purely voluntary "matter. Consequently, there were only thirteen names on "the list, and of these some had retired from the business. "At my request the Clerk advertised for three weeks in the "local press showing the obligation upon all cowkeepers to "register themselves; as a result of this, there was one fresh "name added to the register; but from my knowledge of the "district, I was acquainted with others who carried on the "trade of cowkeepers and milk sellers, but who did not "register themselves. There may have been others of whose "existence I am at present unaware. In these circumstances, "any report I make must, of necessity, be imperfect."

"The cowsheds, as a rule, are not well lighted, and venti- "lation is far from good. Usually, lighting is effected by what "light can enter by the half door."

"The milking is done by any one on the farm. No pre- "cautions are taken to ensure the hands of the milkers being "clean, and cleansing the cows' udders is an unheard-of "proceeding."

*"The question has arisen whether the model bye-laws "should be adopted in this Sanitary district. There can be no "doubt but that their provisions are excellent, and much to be "desired in the milk trade, and that the milk supply would be "cleaner were they in operation."

WATER SUPPLY.

The following extracts from the Annual Reports of the Medical Officers of Health give a fair representation of the needs of some districts, and of the progress made in others. It is too late in the day to doubt the benefits to health which follow the provision of a permanent and abundant supply of pure water. Unfortunately, the necessary expenditure of money is usually large, and presses severely upon the small rural districts where the want of water is often greatest. But the provision of a proper supply of pure water is a permanent improvement, which increases the value of property, as well as benefiting health. The only way in which many of the villages

* On June 8th, 1907, the Council decided that it was *not* desirable to make regulations.

can obtain a permanent supply is by **combination,** and for some of them the matter is already urgent. Each year there is a further drain upon the underground water supplies of the County, for the use of the large centres of population, and the time may soon arrive when the country districts not yet supplied may find themselves too late.

In the Rural Districts, which, nowadays, cannot afford to neglect anything which will further their interests and improve their position, the value of an abundant supply of pure water is very seriously under-estimated. The need of water for agricultural operations is, of course, known; but the advantage of pure water as drink for cattle over the foul and filthy water commonly used is not appreciated. The need of an abundance of *pure* water for dairying purposes is constantly being taught at Dairy Colleges and elsewhere, and is gradually being realised. But whenever a systematic endeavour is made to ascertain the quality of the water in use at a large number of dairy farms, the magnitude and urgency of the question of the water supply to Rural Districts will be more fully understood.

Dr. Wills (Blyth and Cuckney) writes :—"The chief owner "conferred another most important benefit on Blyth after you "brought to his notice the bad report of the Analyst on Blyth "well waters."

"He has bored 200 feet, and obtained a valuable supply "of water from the new red sandstone, which has been dis- "tributed to the greater part of the place."

"This is the greatest improvement, so far as I can re- "member, that has been made in the district for many years."

"It is not clearly understood by the public how great a "boon a good water supply is to a village, because people do "not know the beneficial influence it has upon the health and "prosperity of a place until they are taught by experience."

"Carlton drainage needs improvement, but I pointed out "that the water supply of the village seemed of more importance "than the drainage."

Dr. Mackenzie (Kirkby-in-Ashfield) writes :—"Our new "Waterworks were completed in 1901, and the district was "soon furnished with an excellent supply of water. Unfortu- "nately, the original well was found to be incapable of supplying "a district of such rapid growth, and this year the Council was "compelled to drive new headings in order to bring the supply

"up to the demand. As was inevitable during these operations, "sand and grit found its way into the old well, producing great "discolouration and no little sediment."

Dr. Wray (Basford) writes:—"A scheme for the water "supply of the Parish of Strelley has been completed during "the past year. These works comprise about 2½ miles of cast "iron mains with hydrants, stop valves, and air valves, the "water being conveyed from the Nottingham Corporation "mains at Kimberley."

"The expenditure entailed—£857 9s. 10d.—was borne by "T. L. K. Edge, Esq., the owner of the Parish, and he "expressed his entire satisfaction with the way in which the "work had been carried out."

"A constant and wholesome supply is still needed at Old "Cossall, Woodborough, Lambley, and the Parishes south of "the Trent (except Wilford). The Lambley Parish Council "have asked for alternative plans for the supply of the village "to be prepared, and these are under consideration."

Dr. Wills (Southwell) writes:—"For Ollerton your Con- "sulting Engineer was instructed, with the concurrence of the "Parish Council and Lord Savile's agent, to draw up a scheme "and estimate of cost for getting a water supply from the "Nottingham Works, and it was decided to make an application "for a loan to carry out the work."

"The houses in Perlethorpe are now supplied with water "from the Nottingham Corporation Works."

"There has been a supply of water introduced to Boughton "from the Nottingham Waterworks, which are situated near "to the village."

"The chief needs of Sutton-on-Trent, I consider, are "scavenging and improvement of the water supply."

"Oxton has received a supply from the Nottingham mains "to some outlying houses. It would be a great advantage if "the supply were extended to the whole village."

Dr. Beale (East Retford Rural) writes:—"The water "supply is almost entirely from shallow wells. There are a "few deep wells. In some places rain water is depended upon "almost entirely for drinking purposes, and in others *the water "from the Chesterfield Canal is used.* The water from the "shallow wells is always hard, and usually of a very suspicious "character."

RIVER POLLUTION.

Slow but steady progress is being made in diminishing the pollution of the rivers, streams, and canals in the County with sewage matter, though much remains to be done.

The action taken in the County Court concerning the pollution of the river Idle at Retford, and of the river Meden at Warsop has already been mentioned. Many minor matters have been dealt with, and most of the sewage disposal works in the County have been visited, many of them several times.

In co-operation with Dr. Barwise, Medical Officer for Derbyshire, suggestions were made to the Corporation of Ilkeston, whereby the serious pollution of the Erewash by the Ilkeston Sewage might be diminished, pending the erection of new disposal works. Many of these suggestions have been carried into effect with some benefit.

The following inquiries under the Public Health Act, in connection with Sewage Disposal Works were held by Inspectors of the Local Government Board in 1906, and the inquiries were attended by the County Medical Officer.

At Mansfield, on January 26th, for leave to borrow £800 in respect of works of sewerage.

At Mansfield, on April 19th, for leave to borrow £3590 to defray expenditure in excess of loans previously sanctioned, for works of sewerage and sewage disposal.

At Farndon, on July 17th, for leave to borrow £1520 for purposes of sewerage and sewage disposal.

At Selston, on July 18th, for leave to borrow £4300 for purposes of sewerage and sewage disposal.

At Hucknall Torkard, on August 15th, for leave to borrow £2900 for purposes of sewerage and sewage disposal.

At West Bridgford, on October 4th, for leave to borrow £2500 for works of sewage disposal.

At Sutton-in-Ashfield, on November 22nd, for leave to borrow £7700 for works of sewerage.

At Warsop, on November 23rd, for leave to borrow £18,000 for purposes of sewerage and sewage disposal.

Special Reports have been presented to the Health Committee in connection with each of these inquiries. The decision of the Local Government Board is not communicated to the County Council; but it is believed that the applications were refused or modified, in the case of Farndon and Hucknall Torkard, and granted in the other cases. The result should be a considerable diminution of river pollution.

DRAINAGE, SANITARY WORK AND SCAVENGING.

It is still necessary to commence this subject by quoting the words spoken by the late Sir Richard Thorne Thorne, when Chief Medical Officer to the Local Government Board.

"*The fact that with our present knowledge, such a structure "as the common midden-privy should not only exist in our "midst, but be clung to with a perverted tenacity, is, in my "opinion, the greatest blot which attaches to English sanitary "administration at the close of the nineteenth century. Apart "from its sanitary aspect, it is a system as degrading and "ignoble as it is foul; and I trust the day is not far distant "when we shall look back to it as a barbarism of the past.*"

Improvements are gradually taking place, mainly as the result of the persevering recommendations of the Medical Officers of Health of the various districts. The substitution of pail-closets for privy middens is not a completely satisfactory change, unless accompanied by *an efficient system of Public Scavenging.*

From the Reports, it is abundantly evident that Public Scavenging is required in villages as well as in Urban Districts. Indeed the Reports show that Public Scavenging is in operation in some villages, greatly to the benefit of the health of the community.

Another recommendation which is annually made in this Report consists in, *the paving of yards and spaces around houses.*

Dr. Irvine (Huthwaite), writes:—"One of the chief "defects in this district at the present time, is the insanitary "condition of some of the yards in connection with dwelling-"houses. If the infantile death-rate is to be diminished, this "will need to be remedied. Some yards are badly drained, "inches deep in mud, and have decomposing refuse matter "scattered about in all directions. As a means of improvement

"I would strongly recommend your Authority to have the "spaces around dwelling-houses asphalted, and the yards "covered with bricks on a layer of concrete or other impervious "material and sloped to a drain inlet, and that all the work be "done to the satisfaction of your Sanitary Inspector. No "doubt, the inmates of the houses are themselves in part "responsible for the insanitary condition of the yards, by "neglecting the all-important duty of attention to cleanliness."

The Surveyor (Carlton), reports:—"The sewering of the "Porchester and Carnarvon Estates, in which 12,000 lineal "yards of twelve inch and nine inch sewers, and 120 manholes "and flushing chambers have been constructed, has been "completed, and most of the houses connected to the new "sewers, and the old cesspools filled up; those that have not "yet connected are being taken in hand, and it is hoped that "the whole of the houses on these estates will be properly "connected to the sewers within the next few months."

At Mansfield, the Surveyor states:—"The scheme for the "construction of permanent sewage works is still receiving the "attention of the Council. A site for same having been "acquired from the Duke of Portland."

"A Cremator has been erected on land belonging to the "Corporation in Littleworth, for the purpose of burning the "excreta from fever patients."

Dr. Jones (Hucknall Torkard), writes:—"I need not point "out to the Council, the supreme importance of a good and "efficient system of drainage, but I must express my regret "that the High Street sewer has not yet been put in a "satisfactory condition. I had hoped that the enquiry "conducted by an Inspector of the Local Government Board "who visited the town in August last, would have led to the "speedy carrying out of this very necessary improvement, but "owing to the outfall scheme not meeting the requirements of "the Local Government Board, the matter has been allowed "to remain in abeyance until now. I am glad to understand, "however, that the Council are determined to proceed with "this matter as soon as possible, and with this view intend to "call in an expert to advise them as to the Sewage Disposal "Scheme."

Dr. Hunter (West Bridgford), writes:—"On these "grounds, your Council decided to build another bed for a "second treatment of the effluent after it has passsd through "the original contact bed. This new bed, which has now been

"working for seven months, is of the 'percolating' type, over "which the first effluent is sprayed by means of fixed sprinklers "working under a head of several feet. The result so far, has "been highly satisfactory. The final effluent is clear as "drinking water, inodorous, and undergoes no secondary "decomposition."

Dr. Wray (Basford) writes:—"For many years the ques- "tion of the sewerage of the Parish of Selston has been one "which I have earnestly drawn your attention to as being very "unsatisfactory; but I am pleased to say that the scheme "which was laid before the Parish and District Councils by "Mr. Maylan, in 1902, and received their approval, has now "been successfully completed, with the exception of several "small extensions, and also that good progress is being made "with the connection of the drainage of the houses to the new "sewers, about two-thirds being completed, and the remainder "being well in hand."

"The district being very hilly, and practically lying in "seven separate watersheds, the sewage scheme has been "arranged in a like number of sections, No. 1 comprising "Jacksdale, Pye Hill, Westwood, and New Westwood; No. 2, "Underwood, and including Cordy Lane; No. 3, Bagthorpe, "New Bagthorpe, Selston Common, and Friezeland; No. 4, "Handstubbing, Alma, Inkerman, Woodnook, Upper Mex- "borough, and New Portland; No. 5, Beaufit Lane, and "Pinxton, M.R. Station district; No. 6, Toadhole, Dove "Green, Selston, Selston Green, and 'Bull and Butcher;' "and No. 7, Plain Spot, near the boundary of Brinsley. With "the exception of Jacksdale, the sewers deliver into disposal "works by gravitation, and matters are so arranged that three "of the principal districts are dealt with at one outfall site, in "the Bagthorpe valley, a population of 4,900 being provided "for here, and making the number of disposal sites five."

"At Jacksdale, the pumping station is near the River "Erewash, with a storage tank below ground level to avoid "night pumping."

"The pumps are capable of lifting 16,000 gallons per "hour, and the machinery is in complete duplicate and inter- "changeable; provision also having been made at this station "for dealing with storm water, by spraying it direct from the "pumps over low level percolating beds, thus saving the "expense of pumping this water to the main disposal works, a "mile-and-a half away."

"The cost of this scheme is about £25,000."

"In 1902, a scheme was also laid before the Parish and "District Councils for dealing with the drainage of the Parish "of Brinsley; the carrying out of this was postponed for "various reasons, but during the past year instructions were "given for the plans to be submitted to the Local Government "Board for approval, and sanction to a loan of £4,700 to "execute the work. This has been granted, and a contract "entered into with Mr. J. H. Wood, of Leeds, and the work is "now being carried out by him under the supervision of Mr. S. "Maylan, as Engineer, with Mr. F. Parrott as Clerk of Works. "The work comprises about three-and-a-half miles of stone-"ware sewers, with about sixty inspection manholes; one "portion of the sewage is conveyed to the Eastwood, Greasley, "and Brinsley Disposal Works at Newthorpe, while the re-"maining portion, with a population of about 800, is conveyed "to disposal works situate below Brinsley Gin, where screen-"ing chambers, open septic tanks, and two series of aerating "percolating beds, fitted with revolving sprinklers and auto-"matic feeders, are being constructed."

"Steady progress has been made at the Newthorpe Out-"fall Works, and there are now five primary percolating filters, "intermittently fed by revolving sprinklers, each thirty feet in "diameter; there are two secondary filters, each sixty feet in "diameter, also intermittently fed by revolving sprinklers. "The portion of the septic tank effluent treated by double "filtration was considerably purified, and quite fit to be turned "into the river. I think there is no doubt that long before the "expiration of the time limit, fixed by 'the Order of Court,' "the Joint Committee will have works capable of treating in a "satisfactory manner all sewage coming to the Outfall."

Dr. Houfton (Mansfield Woodhouse) writes: — "The "sewerage at Forest Town, I said in my last report, required "dealing with without delay. At the present time there are "200 houses inhabited, and the sewage is discharged into a "small tank, from which it overflows on to neighbouring land, "in spite of men with horses and barrels being employed to "carry it away. The tanks are situate within twenty yards of "some of the houses. The stench from the sewage sodden "land is very offensive. You have instructed your Surveyor "to draw up a scheme for altering this state of affairs, and I "would again ask you to expedite matters as far as possible, "as I have no hesitation in stating that the present conditions "are a grave danger to health."

Dr. Harvey Francis (Arnold) writes:—"What, of course, "is badly wanted is a refuse destructor, which is an expensive "concern; but destruction by fire is by far the best way of "getting rid of waste material."

Dr. Beale (East Retford Rural) writes:—"Many of the "midden privies are constructed as if to give the maximum of "trouble in emptying them. In some new ones I saw, the "door through which they had to be emptied was small, and "situated quite high up in the wall. In another, two middens "were side by side, separated by a wall with a small door in "it, and then they adjoined a pigstye. In order to empty "them, the contents of the first had to be passed to the "second, thence to the pigstye, and thence to a cart. Under "these circumstances, it is natural that they are emptied as "seldom as possible, and, in consequence, besides being un-"pleasant, they become a menace to health."

SMOKE PREVENTION.

The prevention of the pollution of the air by smoke is one of the duties imposed upon Sanitary Authorities, by Sections 91 (sub-sections 7 and 8), 92, and 102, of the Public Health Act, 1875.

Rural District Councils have the same powers and the same duties as Urban Councils as regards Smoke Prevention.

Many collieries and some factories are situated in Rural Districts, and there is no valid reason *even of an economic kind* to excuse the present pollution of the air by black smoke. The economy consists in smoke prevention by more careful stoking and more complete combustion of the fuel. Smoke is waste as well as a nuisance.

Mechanical science, in its application to the proper combustion of fuel, whether the fuel be coal or the gas obtained from it, is now quite capable of relieving us from this nuisance. Further, *this much-needed relief may be obtained in a manner quite consistent with economy*, so far as steam production is concerned.

The value of pure air is gradually being more and more appreciated, now that the difficulty of obtaining it is daily increasing. The question of "aerial sewage," as it has been termed, is attracting much attention. The importance of the evil has been recognised by the Physical Deterioration Committee, in Clause 7 of their recommendations. In the coal

mining parts of the country, smoke pollution concerns the Rural Districts, as well as the Urban. Smoke prevention is already successfully accomplished in some cases, and there is no sufficient reason why smoke-consuming furnaces and careful stoking should not be required in all.

Sir William Ramsay, F.R.S., in his address in 1896, referred to one point in connection with smoke production, which cannot be known too widely. He said, "Smoke con- "denses atmospheric vapour, causing fog and rain, *renders our* "*climate colder*, and makes our lives more or less unhappy and "uncomfortable. It *shuts out sunlight*, and thus increases the "growth, and tends towards the multiplication of bacteria, "many of which are of a dangerous character."

In the vegetable world, there can be no doubt that smoke injures trees and damages crops both directly and through the diminution of sunshine induced.

FACTORIES, WORKSHOPS, AND BAKEHOUSES.

The amount and kind of work that is being done by the Health Authorities under the recent Act is shown on the accompanying Tables; and also by the following extracts from the Annual Reports of the Medical Officers of Health.

A large addition has been made to the regular work of the District Medical Officers of Health, without, as a rule, any additional remuneration.

Dr. Wills (Blyth and Cuckney) writes:—"The workshops "have also been looked over, and their condition as to lighting, "cleanliness, ventilation, and sanitary accommodation has been "reported upon."

Dr. Wills (Mansfield) writes:—"In the case of one bake- "house, His Majesty's Inspector of Factories called attention "to the fact that a trapped gulley grate existed in the bake- "house. The Surveyor inspected this, and an alteration was "effected."

"I had to call the attention of occupiers in several "instances to the want of cleanliness in bakehouses and work- "shops. These were remedied without official notices from "the Council."

"In two instances the sanitary conveniences were out of "order."

"Notices were sent to His Majesty's Inspector of Factories "in five instances where persons under 18 were employed, and "there was no abstract of the Factory and Workshop Act."

Dr. Mackenzie (Kirkby-in-Ashfield) writes:—"Thirty-four "inspections of Factories, Workshops, and Workplaces were "made during the year. The defects found were—(*a*) At one "Factory no proper separate accommodation for the sexes. "On representation made to the owners, an undertaking has "been given to remedy this without delay. (*b*) At another "Factory a large manure heap lies uncovered in the open, "quite near to the premises. The works are surrounded by "cottages, and the inhabitants frequently complain that the "effluvia from the manure heap is very offensive and annoying."

"One hundred and sixteen visits were made to outworkers' "premises. In two instances the work was carried on in "grossly overcrowded houses. The overcrowding was remedied "forthwith, and work resumed in a few days. In ten instances "outwork was done on infected premises, *i.e.*, in homes from "which Scarlet Fever was notified. The work was stopped, "and goods disinfected."

Dr. Irvine (Huthwaite) writes:—"The workshops are kept "clean, and lime-washed every year. A few suggestions were "given with respect to better ventilation in some of the work-"shops, and to adequate means of escape in case of fire. "These defects will no doubt be remedied very shortly."

"Two cases of infectious disease were notified in out-"workers' premises, and the work was prohibited for a specified "time."

"The bakehouses are regularly lime-washed, kept clean, "and sufficiently ventilated."

Dr. Jones (Hucknall Torkard) writes:—"The regulations "as to home-workers concern only two industries, viz., hosiery "manufacture and that of Shetland goods. The outworkers "are principally married women, who fill up their spare time "at home in one or other of these industries. The utmost care "was taken to prevent homework being sent or taken to "infected houses."

Dr. Wray (Basford) writes:—"In three of the bakehouses "I visited I found it necessary to order lime-washing, and this "was done."

"The employers have sent in lists of outworkers, and "where names occurred not in your district, they have been "sent on to the Council of the district in which they work."

Dr. Wills (Southwell) writes :—"The workshops have been "looked over, and improvements have been made in the "ventilation of these."

"Improved sanitary accommodation has been made at four "workshops in Southwell."

Dr. Garrett (Worksop) writes :—"In one workshop, where "I reported last year the sanitary arrangement was defective, "the necessary improvements have not yet been carried out."

Dr. Littlewood (Skegby) writes :—"One bakehouse was "found in an unsatisfactory state, and orders were made to "properly cleanse."

SLAUGHTER-HOUSES.

Dr. Mackenzie (Kirkby-in-Ashfield), writes :—"There are "about a dozen slaughter-houses in the district, all private "property. They are, of course, systematically inspected once "in every three or four months. In one, the accommodation "is deficient; in two, from lack of paving of yards and foot-"paths the surroundings are distinctly bad. They all have "drains and paved floors, with an abundant supply of water "for flushing purposes, and the walls are limewashed three or "four times a year. Although some of the slaughter-houses "are always found tidy and clean, one cannot resist the feeling "that it would be to the sanitary advantage of the Urban "District, that private slaughter-houses should be ultimately "replaced by public abottoirs."

Dr. Irvine (Huthwaite), writes :—"The general construc-"tion, means of drainage, etc., are in most cases satisfactory. "The walls in all slaughter-houses should be covered for a few "feet from the floor with gas-tar in order to facilitate cleansing "purposes. Cleanliness is what some of them are most "lacking in. Limewashing is not done regularly; walls and "floors, instead of being cleansed after any slaughtering, are "are allowed to remain for perhaps days, and blood and refuse "allowed to remain decomposed before removal."

Dr. Littlewood (Skegby), writes :—"It has been necessary "in one instance, to compel the owner to improve the drainage "and put in a new floor. Three required re-whitewashing, "which the Inspector had done."

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES, AND HOMEWORK. Year 1906.

URBAN DISTRICTS.	Number of Factories on the Register. (Including Factory Laundries.)	Number of Workshops on the Register. (Including Bakehouses.)	Number of Workplaces on the Register. (Other than Outworkers' Premises.)	Number of **Inspections**, including Inspections made by Sanitary Inspectors.			DEFECTS FOUND.								Underground Bakehouses.		Outworkers.			Homework.		Failure to affix Abstract of the Factory and Workshop Act.
							Nuisances under the Public Health Acts.				Offences under the Factory and Workshop Act.											
				Factories (including Factory Laundries).	Workshops (including Workshop Laundries).	Workplaces.	Found.	Remedied.	Referred to H.M. Inspector.	Prosecutions.	Found.	Remedied.	Referred to H.M. Inspector.	Prosecutions.	Certificates granted.	In use at the end of 1906.	Number of Lists received.	Number of Outworkers.	Number of Inspections of Outworkers' Premises.	Notices prohibiting Outwork in Unwholesome Premises.	Orders prohibiting Outwork in Infected Premises.	
MANSFIELD	..	67	..	..	63	..	12	12	..	..	1	..	..	..	..	1	3	45	..	..	..	4
NEWARK	..	109	..	..	109	..	34	31	..	..	2	2	..	..	..	3	3	140	120	..	..	..
EAST RETFORD	..	102	..	..	14	..	5	3	..	..	..	..	..	..	..	..	7	18	9	..	..	..
ARNOLD	..	78	..	20	156	..	2	2	..	..	..	..	..	..	..	1	4	162	53	..	10	3
BEESTON	..	38	..	25	38	26	10	10	1	..	..	..	..	..	..	..	12	114	2	..	..	..
CARLTON	..	34	..	4	34	82	1	1	..	..	..	..	..	..	..	..	14	40	..	..	1	..
EASTWOOD	..	..	..	6	15	..	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..
HUCKNALL TORKARD ..	..	34	..	24	97	9	19	19	..	..	..	..	..	..	..	1	16	438	3	..	3	1
HUTHWAITE	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	2	74	2	..	2	..
KIRKBY-IN-ASHFIELD ..	..	7	..	6	14	14	2	..	..	..	1	..	..	..	..	..	9	165	116	2	10	..
MANSFIELD WOODHOUSE	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
SUTTON-IN-ASHFIELD ..	25	44	1	52	127	12	6	6	..	..	..	..	..	..	..	..	36	389	300	1	6	..
WARSOP	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
WEST BRIDGFORD	..	..	..	2	4	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
WORKSOP	..	50	..	75	227	29	3	2	..	..	..	..	..	..	..	..	6	11	26	..	..	2

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES, AND HOMEWORK. Year 1906.

RURAL DISTRICTS.	Number of Factories on the Register. (Including Factory Laundries.)	Number of Workshops on the Register. (Including Bakehouses.)	Number of Workplaces on the Register. (Other than Outworkers' Premises.)	Number of **Inspections**, including Inspections made by Sanitary Inspectors.			DEFECTS FOUND.								Underground Bakehouses.		Outworkers.			Homework.		
							Nuisances under the Public Health Acts.				Offences under the Factory and Workshop Act.											
				Factories (including Factory Laundries).	Workshops (including Workshop Laundries).	Workplaces.	Found.	Remedied.	Referred to H.M. Inspector.	Prosecutions.	Found.	Remedied.	Referred to H.M. Inspector.	Prosecutions.	Certificates granted.	In use at the end of 1906.	Number of Lists received.	Number of Outworkers.	Number of Inspections of Outworkers' Premises.	Notices prohibiting Outwork in Unwholesome Premises.	Orders prohibiting Outwork in Infected Premises.	Failure to affix Abstract of the Factory and Workshop Act.
BASFORD	..	12	32	17	2	2	..	..	..	..	..	..	..	..	..	5	67	27	..	..	..
BINGHAM	6	50	..	Periodically inspected during the year.			3	3	..	..	..	..	..	..	..	..	26	26	24	..	..	..
BLYTH AND CUCKNEY	..	35	..	..	43	..	6	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..
EAST RETFORD	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
LEAKE	..	45	..	Periodically inspected during the year.			1	1	..	..	1	1	..	..	..	..	14	153	..	1	1	..
MISTERTON	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
NEWARK	..	17	..	1	17	..	3	2	..	..	..	..	..	..	..	..	..	4	4	..	..	..
SKEGBY	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
SOUTHWELL	..	237	..	..	400	..	20	20	..	..	..	..	..	..	..	..	1	3	3	..	..	..
STAPLEFORD	..	25	..	17	25	8	..	..	..	..	..	..	..	..	..	..	6	8	8	..	..	..
NOTTS. PARISHES administered by SHARDLOW	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

HOUSES UNFIT FOR HABITATION.

Dr. Harvey Francis (Arnold), writes :—"The property in is in the same condition as when I reported on it in "1905, except that now there are only two tenants ; one lives "in the only respectable house in the row, but the other, how-"ever, still lives in a dirty condition with his dogs and pigeons."

Dr. Manners-Smith (East Retford Urban), writes :—"Four "houses were reported to the Council in such a slate that the "occupation thereof should be immediately discontinued, and "an order was obtained prohibiting the use of the houses, as "not being reasonably capable of being made fit for human "habitation."

OVERCROWDING.

Dr. Knight (Carlton) writes :—"One case of overcrowding "has been remedied, the people concerned having removed to "a larger house at my request."

Dr. Irvine (Huthwaite) writes :—"Two cases of over-"crowding were reported and remedied by your Sanitary "Inspector."

Dr. Houfton (Mansfield Woodhouse) writes : — "There "have been a number of cases of overcrowding, which I am "pleased to state have been remedied without having to take "police court proceedings."

Dr. Harvey Francis (Arnold) writes :—"One case only "came under my notice during the year, in which a man and "his wife and three children slept in one small bedroom. The "house itself was not intended for a dwelling place, but "appeared to be a sort of summer-house in an allotment "garden."

"An order was obtained for the tenant to abate the "nuisance within one month."

BUILDING BYE-LAWS IN RURAL DISTRICTS.

There has been so much controversy in the country upon this subject that the following extracts from the Annual Reports may be of interest :—

Dr. Wray (Basford) writes :—"Two hundred and fifteen "plans for new houses, factories (two), elementary schools "(two), chapels (two), and cowsheds (three), were passed by "the General Purposes Committee during the year."

"I may add that the Committee continue to act up to "their decision to pass no plan which does not conform to the "new bye-laws, and already the benefit of this action is "apparent in the better class of cottage property which is "springing up in the district."

The Surveyor (East Retford Rural) writes :—"No building "bye-laws are in force in this district, and hence there are no "restrictions upon the erection of new houses, beyond the "provision of a wholesome water supply, and sanitary accom- "modation, as described above. Notwithstanding this freedom, "only five new houses have been erected during the year."

HOUSING OF WORKING CLASSES.

Dr. Mackenzie (Kirkby-in-Ashfield) writes :—"It cannot "be too strongly insisted on that two small bedrooms are in- "sufficient even for a small family. Indeed, in illness of "every description, this is a serious hindrance to suitable "nursing and chances of recovery, for it often means that the "person who is ill has to share his bed at night with another "member of the family, though he may be suffering from "pneumonia or some infectious fever."

Table I. NOTTINGHAMSHIRE. Vital Statistics for the Year 1906.

BOROUGHS AND URBAN DISTRICTS.

BOROUGHS AND URBAN DISTRICTS.	Area in Acres Exclusive of area covered by water.	Persons per Acre.	Inhabited Houses at Census, 1901.	Persons per House at Census, 1901.	Population, Census 1901.	Population, Estimated to the middle of 1906.	Births. Number.	Births. * Rate.	Deaths under 1 year of age. Number.	Deaths under 1 year of age. Rate per 1000 Births Registered.	Total Deaths Registered at all Ages. Number.	Total Deaths Registered at all Ages. * Rate.	Nett Deaths at all Ages belonging to the Districts.	** Corrected Death Rate.	† Average Death Rate of the ten years 1896–1905.	Death Rate from Tuberculous Diseases, 1906.	Death Rate from principal Zymotic Diseases, 1906.
MANSFIELD (Borough)	7,208	3·6	4,369	4·94	21,445	29,000	948	32·7	114	120	418	14·4	388	13·4	17·4	1·06	2·1
NEWARK (Borough)	1,899	8·1	3,416	4·3	14,992	16,400	429	26·1	47	109	258	15·7	247	15 0	16·9	2·37	1·46
EAST RETFORD (Borough)	4,498	2·8	2,707	4·5	12,340	13,218	359	27·1	43	119	206	15·5	198	14·9	15·3	1·21	1·21
ARNOLD	4,612	2·1	1,799	4·8	8,757	10,233	313	30·5	39	124	124	12·1	140	13 6	14·8	1·56	1·46
BEESTON	1,586	6·7	1,978	4·5	8,960	11,533	278	24·1	41	147	118	10·2	131	11·3	12·7	0·86	1·82
CARLTON	1,400	9·4	2,159	4·6	10,041	14,209	386	27·1	49	124	143	10·0	159	11·1	12·3	1·19	1·61
EASTWOOD	940	5·5	948	5·0	4,815	5,200	140	26·9	19	135	51	9·8	53	10·1	15·5	1·15	0·38
HUCKNALL TORKARD ..	3,270	5·0	3,126	4·8	15,250	16,500	482	29·2	79	163	228	13·8	246	14·9	16 3	1·51	1·51
HUTHWAITE	1,199	3·7	789	5·0	4,076	4,700	169	36·8	27	159	63	13·7	65	14·1	18·4	1·06	1·70
KIRKBY-IN-ASHFIELD ..	5,814	2·3	2,055	5·0	10,318	15,673	513	32·7	71	138	178	11·3	188	11·9	14·8	1·34	1·14
MANSFIELD WOODHOUSE	4,834	1·1	961	5·0	4,877	8,500	346	40·7	41	118	100	11·7	104	12·2	16·5	1·05	2·94
SUTTON-IN-ASHFIELD ..	4,786	3·5	2,993	4·9	14,862	18,454	626	33·8	87	138	232	12·5	248	13·4	16·8	1·24	1·51
WARSOP	5,728	0·5	429	4·9	2,132	3,800	134	35·2	16	119	47	12·3	48	12·6	16·2	1·58	1·58
WEST BRIDGFORD	1,123	9·0	1,544	4·5	7,018	10,143	149	14·7	11	74	76	7·5	82	8·1	8·49	0·69	0·29
WORKSOP	17,930	0·9	3,258	4·9	16,112	18,230	608	33·3	89	146	284	15·5	285	15·6	17·1	1·86	1·42
Totals for Urban Districts	66,827	2·7	32,531	4·7	155,995	195,793	5880	30·0	773	131	2526	12·9	2582	13·1	15·6	1·35	1·53

* Rates calculated per 1000 of the estimated population.

** The Corrected Death Rate is arrived at by taking the whole of the Deaths registered during the year in the District, adding the Deaths of residents registered beyond the District, and subtracting the Deaths of non-residents registered within the District.

† The Eastwood Rate is calculated for 9 years, as previously it was not an Urban District.

Table II. NOTTINGHAMSHIRE. Vital Statistics for the Year 1906.

RURAL DISTRICTS.

RURAL DISTRICTS.	Area in Acres, exclusive of area covered by water.	Persons per Acre.	Inhabited Houses at Census 1901.	Persons per House at Census 1901.	Population, Census 1901.	Population estimated to the middle of 1906.	Births. Number.	Births. Rate. *	Deaths under one year of age. Number.	Deaths under one year of age. Rate per 1000 Births registered.	Total Deaths registered at all ages. Number.	Total Deaths registered at all ages. Rate. *	Nett Deaths at all ages belonging to the Districts.	Corrected Death Rate. * *	Average Death Rate of the ten years 1896—1905.	Death Rate from Tuberculous Diseases, 1906.	Death Rate from principal Zymotic Diseases, 1906.
BASFORD	61,868	·64	8,115	4·7	38,365	40,480	1,151	28·4	127	110	486	12·0	528	13·0	14·5	1·23	1·28
BINGHAM	66,574	·21	3,250	4·1	13,612	14,132	292	20·6	25	85	222	15·7	175	12·9	16·5	0·85	0·56
BLYTH AND CUCKNEY	28,208	·16	1,005	4·5	4,562	4,730	132	27·9	12	90	63	13·3	62	13·1	14·0	1·26	1·05
EAST RETFORD	92,740	·15	3,321	4·6	14,239	14,236	333	23·3	34	102	201	14·1	214	15·0	13·9	1·40	0·42
LEAKE	17,073	·21	861	4·3	3,709	3,709	86	23·1	6	69	46	12·4	54	14·5	14·1	1·61	0·53
MISTERTON	14,268	·25	805	4·4	3,618	3,616	114	31·5	15	131	61	16·8	66	18·2	14·4	2·21	2·21
NEWARK	36,619	·21	1,795	4·3	7,738	8,023	209	25·8	28	135	114	14·2	114	14·2	13·6	1·24	0·99
SKEGBY	12,405	·47	1,071	5·1	5,478	6,163	213	34·5	21	98	66	10·7	70	11·3	15·2	1·29	0·64
SOUTHWELL	117,638	·16	4,573	4·1	19,114	19,015	405	21·3	31	76	265	13·9	274	14·4	16·3	1·57	0·36
STAPLEFORD	4,860	1·79	1,708	4·6	7,873	9,300	265	28·4	36	135	95	10·2	97	10·4	14·0	1·29	1·07
Notts. Parishes administered by SHARDLOW	2,360	·17	79	5·2	413	415	8	19·2	0	0	3	7·2	3	7·2	13·0	0·00	0·00
Total for Rural Districts ..	454,613	·26	26,583	4·4	118,721	123,819	3,208	25·9	335	104	1,622	13·0	1,657	13·3	14·8	1·47	0·89

* Rates calculated per 1000 of the Estimated Population.

* * The Corrected Death Rate is arrived at by taking the whole of the Deaths registered during the year within the District, adding the Deaths of residents registered beyond the District, and subtracting the Deaths of non-residents registered within the District.

Table III. NOTTINGHAMSHIRE. Cases of Infectious Disease notified during the Year 1906. BOROUGHS AND URBAN DISTRICTS.

BOROUGHS AND URBAN DISTRICTS.	Small Pox.	Diphtheria.	Membranous Croup.	Erysipelas.	Scarlet Fever.	Enteric Fever.	Continued Fever.	Puerperal Fever.	Chicken Pox.	TOTAL.	Whether there is any Isolation Hospital for Infectious Diseases?	Cases removed to Isolation Hospital for treatment.	Name of the Medical Officer of Health.	Whether the Annual Report is printed?
MANSFIELD (Borough)	1	27	..	45	171	102	..	1	25	372	Yes	93	Charles Wills, M.R.C.S.	Yes
NEWARK (Borough)	..	7	..	12	15	4	..	..	..	38	Yes	7	Charles Wills, M.R.C.S.	Yes
EAST RETFORD (Borough)	..	3	..	9	11	9	1	1	..	34	Yes	13	A. E. Manners-Smith, M.R.C.S.	Yes
ARNOLD	..	8	..	2	50	2	..	..	..	62	Yes for Small-pox	0	Harvey Francis, M.D.	Yes
BEESTON	..	57	..	6	53	3	..	..	..	119	Yes for Small-pox	4*	Frank Rothera, M.D.	Yes
CARLTON	..	54	1	36	76	4	..	..	..	171	Yes for Small pox	0	J. T. Knight, M.R.C.S.	Yes
EASTWOOD	..	7	..	1	7	2	..	..	..	17	No	0	D. M. Forbes, F.R.C.S.	Yes
HUCKNALL TORKARD	..	34	2	16	40	22	..	..	38	152	Yes for Small-pox	0	H. T. Jones, M.R.C.S.	Yes
HUTHWAITE	..	6	..	5	120	4	..	1	..	136	Yes	0	Robert Irvine, L.R.C.P.	Yes
KIRKBY-IN-ASHFIELD	..	13	..	23	120	27	..	2	..	185	Yes	0	John Mackenzie, L.R.C.P.	Yes
MANSFIELD WOODHOUSE	..	2	..	7	32	24	..	2	..	67	No †	0	Ernest H. Houfton, M.D.	Yes
SUTTON-IN-ASHFIELD	..	3	..	18	197	59	..	..	..	277	Yes for Small-pox	0	R. Nesbitt, L.R.C.S.I.	Yes
WARSOP	..	1	..	7	53	2	..	..	..	63	No	0	Joseph Ingram,§ L.R.C.P. and S.	Yes
WEST BRIDGFORD	..	49	..	..	27	..	..	..	..	76	No ‡	2	Walter Hunter, M.D.	Yes
WORKSOP	..	21	..	9	111	1	..	1	..	143	Yes	96	T. C. Garrett, M.B.	Yes
TOTAL	1	292	3	196	1083	265	1	8	63	1912		215		

† There is an arrangement with the Mansfield Corporation to admit cases of Small Pox and Scarlet Fever into their Isolation Hospitals.

* Three cases of Enteric Fever removed to General Hospital, Nottingham, and one case of Scarlet Fever to the Nottingham City Hospital.

‡ A room at the Sewage Farm is occasionally used for the isolation of infectious cases. § Since deceased.

Table IV. NOTTINGHAMSHIRE. Cases of Infectious Disease notified during the Year 1906.

RURAL DISTRICTS.

RURAL DISTRICTS.	Small Pox.	Diphtheria.	Membranous Croup.	Erysipelas.	Scarlet Fever.	Enteric Fever.	Continued Fever.	Puerperal Fever.	Chicken Pox.	TOTAL.	Whether there is any Isolation Hospital for Infectious Diseases?	Cases removed to Isolation Hospital for treatment.	Name of the Medical Officer of Health.	Whether the Annual Report is printed?
BASFORD	..	70	..	26	165	39	..	1	..	301	Yes	113	G. B. Wray, M.R.C.S., D.P.H.	Yes
BINGHAM	..	32	..	4	12	4	..	..	..	52	No	0	J. W. Eaton M.R.C.S.	No
BLYTH AND CUCKNEY	..	2	..	3	21	3	..	..	..	29	Yes	6	Charles Wills, M.R.C.S.	Yes
EAST RETFORD	..	..	1	7	18	1	..	..	..	27	No	0	Hanway R. Beale, M.D.	Yes
LEAKE	..	2	..	1	12	1	..	..	..	16	No	1*	Thos. Corcoran, L.R.C.S.I.	Yes
MISTERTON	..	13	1	3	36	6	..	..	..	59	Yes for Small-pox	4	J. Potterton Ferguson,† L.R.C.P.	No
NEWARK	..	2	..	16	16	..	..	..	..	34	No	0	Frank Broadbent, M.R.C.S.	Yes
SKEGBY	..	..	..	4	19	15	..	1	..	39	No	0	J. O. Littlewood, M.R.C.S., D.P.H.	Yes
SOUTHWELL	1	14	..	4	63	3	..	2	..	87	Yes	8	Charles Wills, M.R.C.S.	Yes
STAPLEFORD	..	9	1	6	23	7	..	..	..	46	Yes for Small-pox	0	E. Kingsbury, M.D.	Yes
NOTTS. PARISHES administered by SHARDLOW	..	5	..	..	..	..	..	..	..	5	No	0	J. A. Hogg, M.R.C.S.	Yes
TOTALS	1	149	3	74	385	79	..	4	..	695		132		

* Removed to Loughboro'.

† Not re-appointed in 1907

Table V. NOTTINGHAMSHIRE. Vital Statistics for the Year 1906.

WHOLE ADMINISTRATIVE COUNTY.

	Area in Acres.	Persons per Acre.	Inhabited Houses at Census, 1901.	Persons per House at Census, 1901.	Population, Census, 1901.	Population Estimated to the middle of 1906.	Births.		Deaths under 1 year.		Total Deaths registered at all Ages.		Nett Deaths belonging to the Districts.	Corrected Death Rate.	Average Death Rate for the ten years 1896-1905.	Death Rate from Tuberculous Diseases, 1906.	Death Rate from principal * Epidemic Diseases, 1906.
							Number.	Rate. *	Number.	Rate per 1,000 Births.	Number.	Rate. *					
URBAN DISTRICTS	66,827	2·7	32,531	4·7	155,995	195,793	5,880	30·0	773	131	2,526	12·9	2,582	13·1	15·6	1·35	1·53
RURAL DISTRICTS	454,613	·26	26,583	4·4	118,721	123,819	3,208	25·9	335	104	1,622	13·0	1,657	13·3	14·8	1·47	0 89
WHOLE ADMINISTRATIVE COUNTY.	521,440	·58	59,114	4·6	274,716	319,612	9,088	28·4	1,108	121	4,148	12 9	4,239	13·2	15·3	1·33	1·28

* Rate calculated per 1,000 of the estimated Population.

Table VI. Causes of Death during the Year 1906. URBAN DISTRICTS.

DISTRICTS.	Small Pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fever (Typhus, Enteric, and Continued).	Epidemic Influenza.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tuberculous Diseases.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism. Cirrhosis of Liver.	Venereal Diseases.	Premature Birth.	Diseases and Accidents of Parturition.	Heart Diseases.	Accidents.	Suicides.	Old Age.	Convulsions.	Apoplexy.	Debility from Birth.	All other Causes.	All Causes.
MANSFIELD	..	..	2	7	4	..	14	..	34	1	1	1	..	23	8	20	17	26	..	1	2	..	11	3	35	12	3	36	19	..	21	87	388
NEWARK	..	1	..	10	2	..	..	1	11	1	..	1	1	25	14	16	14	19	1	4	4	1	4	..	31	4	..	12	3	..	9	58	247
EAST RETFORD	1	..	2	1	1	1	..	11	1	1	..	1	9	7	10	12	15	..	2	2	..	4	2	26	5	1	..	7	..	1	75	198
ARNOLD	..	..	4	1	2	..	..	1	8	1	..	..	..	9	7	8	13	19	..	2	1	..	5	1	13	1	2	..	7	..	4	31	140
BEESTON	..	..	..	..	3	..	..	..	18	2	..	2	2	8	2	8	8	9	..	..	2	..	8	3	10	..	3	..	3	11	1	28	131
CARLTON	..	..	..	7	8	..	..	2	8	2	..	..	1	9	8	11	8	4	1	6	1	..	3	..	26	7	1	7	9	..	6	24	159
EASTWOOD	..	..	..	..	1	..	..	..	1	3	..	..	3	5	1	1	7	3	..	..	..	..	1	..	4	2	3	..	2	7	6	3	53
HUCKNALL TORKARD	..	..	1	8	5	..	2	1	9	7	..	2	1	11	14	7	16	22	..	1	5	..	10	2	18	7	3	..	2	..	25	67	246
HUTHWAITE	..	..	2	2	1	..	..	..	3	3	..	..	..	4	1	3	8	5	..	..	..	..	10	..	6	4	..	..	..	..	..	13	65
KIRKBY-IN-ASHFIELD ..	..	..	..	6	1	..	1	2	10	1	..	..	..	9	12	10	9	23	..	..	..	..	11	..	17	5	..	..	7	..	15	49	188
MANSFIELD WOODHOUSE ..	..	..	2	..	..	..	5	1	18	..	1	..	..	6	3	3	11	7	..	..	..	..	3	..	7	3	1	..	1	..	5	27	104
SUTTON-IN-ASHFIELD ..	..	..	5	..	..	..	4	1	19	5	..	..	..	16	7	13	26	12	1	2	4	..	6	5	15	4	3	..	12	..	35	53	248
WARSOP	..	..	1	..	..	..	..	..	5	..	..	1	..	5	1	..	2	5	..	..	1	..	1	1	1	2	1	..	5	..	..	16	48
WEST BRIDGFORD ..	..	..	..	..	3	..	..	2	..	5	..	..	..	5	2	13	1	4	1	1	1	..	3	..	9	4	..	..	2	..	..	26	82
WORKSOP	..	2	4	4	5	..	..	..	11	4	1	1	8	21	13	12	24	33	..	2	3	..	14	..	24	15	1	16	9	15	12	31	285
TOTAL	..	4	21	47	36	1	27	11	166	36	4	8	17	165	100	135	176	206	4	21	26	1	94	17	242	75	22	71	88	33	140	588	2582

Table VII. Causes of Death during the Year 1906. RURAL DISTRICTS.

DISTRICTS.	Small Pox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fever (Typhus, Enteric, and Continued).	Epidemic Influenza.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tuberculous Diseases.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism. Cirrhosis of Liver.	Venereal Diseases.	Premature Birth.	Diseases and Accidents of Parturition.	Heart Diseases.	Accidents.	Suicides.	Old Age.	Convulsions.	Apoplexy.	Debility from Birth.	All other Causes.	All Causes.
BASFORD	..	..	1	6	8	1	5	2	31	6	..	3	2	29	21	36	50	44	1	2	5	..	16	3	68	27	2	..	17	..	14	128	528
BINGHAM	..	..	..	..	4	..	..	9	4	..	..	..	..	11	1	9	14	4	..	..	4	..	3	..	22	6	..	..	5	..	5	74	175
BLYTH AND CUCKNEY	..	..	1	..	..	1	..	1	3	..	..	..	..	2	4	3	4	5	..	..	..	..	3	..	7	..	..	8	..	..	1	19	62
EAST RETFORD	1	1	..	1	..	..	1	3	2	1	..	7	11	9	10	10	16	..	1	8	..	4	2	25	8	1	38	7	16	9	22	214
LEAKE	..	..	..	..	..	..	1	..	1	..	..	..	..	6	..	4	1	3	1	..	..	..	2	1	9	3	1	..	..	..	..	21	54
MISTERTON	..	1	4	..	3	..	..	1	..	2	..	..	..	5	3	2	4	2	..	..	1	..	1	..	6	1	4	..	1	1	8	16	66
NEWARK	..	..	..	4	..	..	..	..	4	3	..	1	..	8	2	6	9	11	..	..	..	..	2	..	13	2	1	..	4	..	5	39	114
SKEGBY	..	..	..	2	..	..	1	..	1	4	1	..	..	4	4	2	2	4	..	..	..	..	3	3	3	2	3	2	4	..	2	23	70
SOUTHWELL	1	..	2	..	..	1	6	3	..	1	..	..	21	9	15	18	18	1	1	3	..	3	1	29	7	4	34	3	..	8	85	274
STAPLEFORD	..	..	..	..	1	1	1	..	7	1	..	..	1	5	7	4	9	5	..	..	2	..	7	..	5	5	2	10	11	5	4	4	97
Notts. Parishes administered by SHARDLOW	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	3
TOTAL	..	3	7	14	17	3	9	20	57	18	3	4	10	102	60	92	121	112	3	4	23	..	44	10	188	61	18	93	52	22	56	431	1657

Table VIII. NOTTINGHAMSHIRE. Causes of, and Ages at, Death during the Year 1906. URBAN DISTRICTS.

CAUSES OF DEATH.	All ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards
Small-pox	..	..	..	..	..	..	..
Measles	4	2	2	..	..	..	..
Scarlet Fever	21	3	13	4	1	..	..
Whooping-cough	47	25	21	1	..	..	..
Diphtheria and Membranous Croup	36	..	19	12	1	4	..
Croup..	1	1	..	..	..	..	..
Enteric Fever	27	..	3	2	8	14	..
Epidemic Influenza ..	11	2	1	..	1	4	3
Diarrhœa	166	147	14	..	..	3	2
Enteritis	36	19	10	2	1	3	1
Puerperal Fever	4	..	..	..	1	3	..
Erysipelas	8	2	1	..	..	2	3
Other septic diseases ..	17	5	2	2	3	2	3
Phthisis	165	2	6	5	33	108	11
Other tuberculous diseases	100	32	38	13	9	4	4
Cancer, malignant disease	135	..	..	..	..	87	48
Bronchitis	176	52	26	1	..	32	65
Pneumonia	206	56	64	7	1	53	25
Pleurisy	4	..	..	..	..	3	1
Other diseases of respiratory organs	21	1	8	1	2	7	2
Alcoholism Cirrhosis of Liver	26	..	..	..	..	24	2
Venereal diseases	1	1	..	..	..	..	..
Premature birth	94	94	..	..	..	..	..
Diseases and accidents of Parturition	17	..	..	..	3	14	..
Heart diseases	242	6	..	7	7	108	114
Accidents	75	2	13	9	12	30	9
Suicides	22	..	..	..	3	13	6
Old Age	71	..	..	..	..	2	69
Convulsions	88	86	1	1	..	..	..
Apoplexy	33	..	..	..	..	14	19
Debility from Birth ..	140	139	1	..	..	..	..
All other causes .. .	588	101	47	20	17	173	230
All causes	2582	778	290	87	103	707	617

Table IX. NOTTINGHAMSHIRE. Causes of, and Ages at, Death during the Year 1906. RURAL DISTRICTS and WHOLE COUNTY.

CAUSES OF DEATH.	All ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards	Deaths in whole Administrative County at all Ages.
Measles	3	3	..	..	..	..	..	7
Scarlet Fever	7	..	..	5	1	1	..	28
Whooping-cough	14	9	5	..	..	..	..	61
Diphtheria and Membranous Croup	17	..	5	9	1	2	..	53
Croup	3	..	2	1	..	..	..	4
Enteric Fever	9	..	1	..	5	3	..	36
Epidemic influenza	20	..	..	..	..	9	11	31
Diarrhœa	57	49	5	..	..	1	2	223
Enteritis	18	11	4	..	..	1	2	54
Puerperal fever	3	..	..	..	2	1	..	7
Erysipelas	4	1	..	1	..	1	1	12
Other septic diseases ..	10	..	1	..	2	2	5	27
Phthisis	102	..	1	5	31	63	2	267
Other tuberculous diseases ..	60	11	11	10	8	20	..	160
Cancer, malignant disease	92	..	..	..	1	48	43	227
Bronchitis	121	35	10	1	..	15	60	297
Pneumonia	112	16	16	6	5	43	26	318
Pleurisy	3	..	..	..	1	1	1	7
Other diseases of respiratory organs	4	..	1	..	..	2	1	25
Alcoholism / Cirrhosis of Liver .. .	23	..	..	..	..	10	13	49
Venereal diseases	..	..	..	..	..	..	..	1
Premature birth	44	44	..	..	..	..	..	138
Diseases and accidents of parturition	10	..	..	..	..	10	..	27
Heart diseases .. .	188	1	1	..	4	70	112	430
Accidents	61	2	11	4	7	26	11	136
Suicides	18	..	..	..	4	11	3	40
Old Age	93	..	..	..	..	..	93	164
Convulsions	52	51	1	..	..	..	..	140
Apoplexy	22	..	..	..	..	6	16	55
Debility from Birth ..	56	55	1	..	..	..	..	196
All other causes	431	46	20	18	14	125	208	1019
All causes	1657	334	96	60	86	471	610	4239

Table X. NOTTINGHAMSHIRE. URBAN DISTRICTS.

Infantile Mortality during the Year 1906. Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.		Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3 4 Weeks.	Total under 1 Month.	1-2 Months	2-3 Months	3-4 Months	4-5 Months	5-6 Months	6-7 Months	7-8 Months	8-9 Months	9-10 Months	10-11 Months	11-12 Months	Total Deaths under 1 Year.
Common Infectious Diseases	Small-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Measles	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	2
	Scarlet Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3
	Diphtheria: Croup	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
	Whooping Cough	..	..	1	..	1	2	8	1	1	..	3	..	1	4	2	2	25
Diarrhœal Diseases.	Diarrhœa, all forms	..	..	1	..	1	17	18	20	9	15	12	5	7	12	1	3	120
	Enteritis, Muco-enteritis, Gastro-enteritis	..	..	2	5	7	4	5	5	4	4	1	3	1	3	3	1	41
	Gastritis, Gastro-intestinal Catarrh	1	..	..	2	3	1	1	..	1	..	..	..	1	1	1	..	9
Wasting Diseases.	Premature Birth	71	8	6	2	87	5	..	2	..	..	..	..	..	..	..	..	94
	Congenital Defects	22	6	2	6	36	6	5	2	1	2	..	1	..	..	..	..	53
	Injury at Birth	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Want of Breast milk Starvation	..	..	..	2	2	..	..	..	1	..	..	..	..	..	..	..	3
	Atrophy, Debility, Marasmus	22	15	10	11	58	23	14	10	5	4	8	2	3	5	3	4	139
Tuberculous Diseases.	Tuberculous Meningitis	..	..	..	..	..	..	2	2	..	..	1	2	..	1	2	1	11
	Tuberculous Peritonitis: Tabes Mesenterica	..	..	..	..	..	1	1	1	..	1	..	1	..	1	2	..	8
	Other Tuberculous Diseases	..	..	..	..	..	1	1	3	1	2	1	..	4	..	2	..	15
Other Causes	Erysipelas	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..	2
	Syphilis	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	1
	Rickets	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2
	Meningitis *(not Tuberculous)*	..	1	..	..	1	..	..	..	..	1	..	..	2	2	..	..	6
	Convulsions	13	5	5	3	26	14	6	12	6	8	7	1	3	..	1	2	86
	Bronchitis	2	1	..	3	6	7	3	1	3	6	4	4	9	2	2	5	52
	Laryngitis	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	1
	Pneumonia	1	1	1	4	7	4	4	4	5	3	6	4	5	4	6	4	56
	Suffocation, overlying	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	3
	Other Causes	4	1	3	3	11	4	4	4	5	2	2	3	3	1	4	2	45
	All Causes	136	39	33	42	250	90	72	69	43	49	45	27	41	37	31	24	778

Table XI. NOTTINGHAMSHIRE. RURAL DISTRICTS.

Infantile Mortality during the Year 1906. Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.		Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months	2-3 Months	3-4 Months	4-5 Months	5-6 Months	6-7 Months	7-8 Months	8-9 Months	9-10 Months	10-11 Months	11-12 Months	Total Deaths under 1 Year.
Common Infectious Diseases	Small-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Measles	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	3
	Scarlet Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Diphtheria: Croup	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Whooping Cough	..	..	..	1	1	1	1	1	..	1	1	1	..	..	..	2	9
Diarrhœal Diseases.	Diarrhœa, all forms	2	..	..	..	2	6	8	5	4	3	6	2	2	3	1	6	48
	Enteritis, Muco-enteritis, Gastro-enteritis	2	..	..	..	2	2	..	1	1	1	..	2	1	..	1	..	11
	Gastritis, Gastro-intestinal Catarrh	..	..	..	..	..	1	..	2	1	..	..	..	..	..	..	..	4
Wasting Diseases.	Premature Birth	29	4	10	..	43	1	..	..	..	..	..	..	..	..	..	..	44
	Congenital Defects	5	3	1	..	9	1	..	..	..	..	..	1	..	..	..	..	11
	Injury at Birth	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2
	Want of Breast-milk, Starvation	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
	Atrophy, Debility, Marasmus	11	3	6	1	21	14	10	5	1	2	2	..	..	..	..	..	55
Tuberculous Diseases.	Tuberculous Meningitis	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	1	4
	Tuberculous Peritonitis: Tabes Mesenterica	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2
	Other Tuberculous Diseases	..	..	..	..	..	1	..	1	1	..	..	..	..	2	..	..	5
Other Causes	Erysipelas	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
	Syphilis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Rickets	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2
	Meningitis *(not Tuberculous)*	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
	Convulsions	4	4	3	1	12	8	5	7	3	3	3	3	2	1	3	1	51
	Bronchitis	..	3	1	1	5	5	2	6	4	2	3	1	3	1	2	1	35
	Laryngitis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
	Pneumonia	..	..	..	1	1	1	2	1	1	2	..	1	2	2	..	3	16
	Suffocation, overlying	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Other Causes	8	2	..	..	10	4	3	4	1	..	2	2	..	..	1	1	28
	All Causes	63	21	21	5	110	46	32	34	17	16	18	13	14	9	8	17	334

TABLE XII. NOTTINGHAMSHIRE. Abstract of Vital Statistics.

Year.	Estimated Population at the middle of the year.	Persons per Acre.	Inhabited Houses at Census 1901.	Persons per House at Census 1901.	Registered Births.	Births per 1000 of the Population.	Deaths under 1 year per 1000 Births.	Registered Deaths.	Deaths per 1000 of the Population.	Deaths from the Principal Epidemic Diseases per 1000 of the Population.
1881	205,328	·39	44,014	4·6	..	..	..	..	..	..
1891	232,776	·44	49,186	4·7	8202	35·2	138	4135	17 7	..
1892	236,770	·46	..	..	8007	33·9	147	4051	16·7	..
1893	240,026	·46	..	..	7949	33·1	..	4087	17·0	..
1894	243,965	·47	..	..	7747	31·7	130	3585	14·7	..
1895	248,060	·48	..	..	8066	32·5	154	4128	16 6	..
1896	252,282	·49	..	..	8154	32·3	138	3987	15·8	..
1897	256,667	·5	..	..	8186	31·8	152	4115	16·0	1·7
1898	261,224	·505	..	..	8117	31·0	151	4187	16·0	1·74
1899	265,952	·51	..	..	8266	31·0	161	4375	16·4	2·01
1900	270,862	·52	..	..	8292	30·6	160	4617	17 0	1·75
1901	275,971	·53	59,114	4·6	8636	31·3	145	4139	15·0	1·79
1902	285,673	·54	..	..	8920	31·2	138	4116	14·4	1·29
1903	294,566	·56	..	..	9072	30·7	134	4146	14·0	1·38
1904	303,283	·58	..	..	9379	30·9	139	4375	14·4	1·70
1905	310,085	.59	..	..	8880	28·6	126	4451	14·3	1·63
1906	**319,612**	**·61**	..	..	**9088**	**28·4**	**121**	**4148**	**12·9**	**1·28**
For comparison—										
1906	England and Wales			..	..	27 0	133	..	15·4	1·73
	76 Great Towns			..	..	27 9	145	..	15·9	2·24
	142 Smaller Towns			..	..	26·5	138	..	14·5	1·71
	England and Wales less the 218 Towns			..	..	**26·3**	**116**	..	**15·1**	**1·18**

The Population for the years 1892—1901 inclusive, has been corrected according to the information derived from the censuses for 1891 and 1901. The Population for the years 1902—1906 is the total of the Populations of the 26 Districts as estimated by the Medical Officers of Health for each District.

The Statistics for England and Wales are those published in the Quarterly Return of the Registrar-General for January, 1907. They are subject to revision when the causes of death and other details shall have been finally classified for publication in the Registrar-General's 69th Annual Report. The alterations, however, are usually inappreciable.

Table XIII. NOTTINGHAMSHIRE. RAINFALL.

DISTRICT.	Total depth in inches, 1906.	No. of Rainy days, 1906.	Total depth in inches, 1905.	No. of Rainy days, 1905.	Total depth in inches, 1904.	No. of Rainy days, 1904.	Total depth in inches, 1903.	No. of Rainy days, 1903.	Total depth in inches, 1902.	No. of Rainy days, 1902.	Gauge above ground.	Above Sea level.	STATION AND OBSERVER.
EAST RETFORD.. .. (Urban)	**20·44**	**168**	17·35	158	19·86	166	29·51	187	19·69	169	..	..	The Great Central Railway Company, Retford.
BEESTON	**26·47**	**185**	20·44	184	21·65	174	35·00	203	21·84	190	9 inches	206 ft.	G. FELLOWS, Esq., Beeston Fields, Nottingham.
EASTWOOD	**28·87**	**182**	21·72	162	21·19	157	34.40	186	24·84	178	1 ft.	245 ft.	BARBER, WALKER & Co., Eastwood, Nottingham.
BASFORD	**24·55**	**168**	20·57	161	20·57	141	34·32	173	23·43	175	1 ft.	475 ft.	Mr. G. I. FLETCHER, Selston Waterworks, near Annesley, Nottingham.
BASFORD	**25·52**	**168**	19·33	167	19·40	162	31·64	197	23·09	189	1 ft.	396 ft.	T. L. K. EDGE, Esq., Strelley, Nottingham.
BASFORD	**22·471**	**162**	18·378	118	19·439	155	28·57	180	19·68	161	1 ft.	65 ft.	Mr. A. A. AVIS, Corporation Farm, Stoke Bardolph, Nottingham.
BASFORD	**24·030**	**178**	19·510	168	21·11	174	..	..	..	..	9 inches	65 ft.	F. W. DAVIES, Esq., Burton Joyce Waterworks, Nottingham.
BLYTH & CUCKNEY ..	**23·43**	**179**	16·91	152	19·81	165	27·95	190	22·10	170	..	56 ft.	H. MELLISH, Esq., Hodsock Priory, Worksop.
NEWARK .. .. .. (Rural)	**19·32**	**138**	17·51	129	17·21	119	27·48	152	17·36	141	1 ft. 4 in.	52 ft.	Rev. E. C. SHAWFIELD, South Scarle, Newark.
KINGSTON & RATCLIFFE	**21·26**	**165**	..	..	..	..	..	..	..	..	..	..	F. WAKERLEY, Esq., Midland Agricultural & Dairy College, Kingston, Derby.