[Report 1897] / Medical Officer of Health, Norwich City & County.

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ANNUAL REPORT

UPON THE

HEALTHINESS OF THE CITIZENS,

AND UPON THE

SANITARY CONDITION

OF THE

CITY OF NORWICH

FOR THE YEAR

1897

BY

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MEDICAL OFFICER OF HEALTH.

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CITY OF NORWICH.

SANITARY COMMITTEE.

Mayor:

C. C. RIX SPELMAN, Esq.

Chairman:

Mr. Councillor MURIEL, M.R.C.S.

Vice-Chairman:

Mr. Councillor A. M. STEVENS.

Members:

Mr. Councillor		J. L. N. BARNARD.	Mr. Councillor		R. MURRELL.
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,,	,,	R. J. MALLETT.	,,	,,	J. WALKER.
,,	,,	J. MASON.	,,	,,	J. WILLIMENT.

ISOLATION HOSPITAL.

Sub-Committee:

The CHAIRMAN, VICE-CHAIRMAN, Messrs. BARNARD, BREESE, CALEY, MASON, AND STACY.

Matron: Miss MARY GARDNER.

In the third quarter of the year we suffered heavily from fatal Diarrhœa among the children—particularly among infants under one year of age; Whooping Cough also swept off a number of victims, but of Measles of a fatal character we had very little. The facts relating to the deaths of children under one year of age are fully set out; it will be noted that 47 per cent. of these children were insured.

Nine hundred and seventy-three notifications of infectious diseases were sent in; 367 more than in 1896. The increase was chiefly due to the prevalence of Scarlet Fever—a prevalence by no means confined to Norwich—though gravely aggravated by the want of adequate Hospital accommodation to control—by isolation—the disease; and partly to Enteric (Typhoid) Fever of which disease we have year after year an undue amount. On the other hand there was a considerable diminution in the number of notifications of Diphtheria, and of Puerperal Fever. The facts relating to the incidence of these diseases are recorded with considerable detail.

It is to be earnestly hoped that the Council will adopt the renewed recommendation of the Sanitary Committee to improve and enlarge the Isolation Hospital, so that we may be furnished with a more befitting amount of accommodation in the future than experience has shewn us to command in the past.

The occurrence, in other places, of severe epidemics of Enteric Fever naturally caused us anxiety, depending as we so largely do upon a river for water supply. The Sanitary Committee had brought to its notice evidence of pollution of the Wensum or of its immediate tributary streams at Costessey, Drayton, and Taverham, and little doubt exists that if a sanitary survey of the whole river were made more or less pollution would be found to exist throughout its course. These matters were brought to the notice of the Sanitary Committee of the Norfolk County Council—which body, it is a pleasure to record, expressed itself to be anxious to aid in every way in preventing pollution of the river; and the District Councils specially concerned have taken the matter in hand. The want of a Medical Officer of Health for the County, who would necessarily be the co-ordinating official for dealing with the river as a whole, has been brought into prominence. The pollutions so far known are rather disgusting than immediately dangerous, albeit the accidental occurrence of Enteric Fever among the riparian population by contaminating the stream with the specific bacillus of that disease would enormously heighten the risk—even if the filtration effected at Heigham before the water of the Wensum is distributed to the citizens remain as effective in the future, as I deem it my plain duty to affirm it has been in the year under discussion; and it must be remembered that upon the efficacy of the filtration effected at Heigham our safety is dependent! It is perfectly true that Typhoid bacilli in water are attacked by other micro-organisms, and have to

PREFACE.

TO THE CHAIRMAN AND MEMBERS OF THE NORWICH URBAN SANITARY AUTHORITY.

GENTLEMEN,

By a General Order of the Local Government Board, dated 23rd March, 1891, *it is prescribed that every Medical Officer of Health shall:—*

"Make an Annual Report to the Sanitary Authority up to the end of December in each year, comprising a summary of the action taken, or which he has advised the Sanitary Authority to take, during the year for preventing the spread of disease, and an account of the sanitary state of his district generally at the end of the year.

"The Report shall also contain an account of the enquiries which he has made as to the conditions injurious to health existing in the district, and of the proceedings in which he has taken part, or advised under any statute, so far as such proceedings relate to those conditions.

"Also an account of the supervision exercised by him, or on his advice, for sanitary purposes, over places and houses that the Sanitary Authority have power to regulate, with the nature and results of any proceedings which may have been so required and taken in respect of the same during the year.

"The Report shall also record the action taken by him, or on his advice, during the year in regard to offensive trades, to dairies, cow sheds, and milk shops, and to factories and workshops.

"The Report shall also contain tabular statements of the sickness and mortality within the district, classified according to diseases, ages and localities."

This Report is made in fulfilment of the above regulations.

It compares unfavourably with the one I had the honour of presenting to the Sanitary Authority last year in that the gross Death-rate *from all causes, the* Death-rate *from* Zymotic Diseases, *the* Death-rate *from* Tuberculous Diseases, *and the* Infant Mortality rate *are all higher—the latter markedly so. With this last most serious exception our death-rates are, however, below, averages recorded for the other great towns. The birth-rate for* 1897 *is also slightly below the average for the other great towns. The population steadily increases—being estimated by the Registrar-General to be* 110,154 *in the middle of* 1897, *an increase of* 1,524 *over the estimated population of the preceding year.*

run the gauntlet of many dangers; but our river is so short that specific pollution at any stage above would be practically certain to reach Norwich in an active condition. The filter-beds constitute the most, indeed the only reliable protection: undue hastening of the process of filtration, or any break-down would lay us open to infection—given specific contamination of the river. Repeated chemical and bacteriological examinations of the water supplied to the citizens last year gave satisfactory results; the water was certified both by the analysts and by bacteriological experts to be of excellent quality and free from harmful constituents. The need of the utmost watchfulness being exercised is apparent, not only at the Waterworks, but also by the various District Sanitary Authorities along the river, and by the County Council as the body having jurisdiction over these.

Attention has been somewhat markedly called during the year to the condition of our Yards and Courts, and while some amount of verbal embellishment has been displayed in describing their condition, I am hopeful that good will result from thus directing public attention to the sanitary and social state in which a considerable section of our population exists—even if it only lead to the said yards being efficiently paved, and the substitution of a water-carriage system for the removal of excrement. I am satisfied that a great deal of our Diarrhœa and Typhoid is due to the chronic soil-poisoning about our dwellings which we permit, and from which in turn we necessarily suffer.

The system of scavenging adopted by the Sanitary Committee in 1894 *works with inreasing efficiency—thanks to the organising skill of Mr. Brooks, the Chief Sanitary Inspector, to whose direction and supervision this department of our sanitary administration is entrusted. I can safely affirm that the city has never been so well scavenged as it is at present, and I have the best reasons for knowing that improvement may be expected; but as I pointed out a year ago the said scavenging costs over £6,000 a year, and with an increasing population will cost more, and I again respectfully suggest that the Council consider if it would not prove a prudent economy to press the general provision of water-carriage for the removal of excreta. There is little doubt that a large portion of our annually recurring Typhoid is due to the soil and air pollution which the preservation of excrement in the neighbourhood of dwellings inevitably occasions.*

Direct control over and possession of the water supply by the Corporation would, without doubt, facilitate the general adoption of a water-carriage system for the disposal of excrement; certainly it would admit of the adoption of Trough Water Closets in yards of low-class dwellings. Trough Closets being cheaper than an

equivalent number of ordinary water closets: separate flushing apparatus not being required for each compartment of a Trough Closet. As the simple 'tipper,' 'tank,' or 'syphon' used for flushing the compound closet works automatically *one of the great practical advantages of this type of water closet,* for negligent people, *lies in the fact of the flushing apparatus being out of the control of the users of its compartments; the said flushing appartus can also be very efficaciously protected from damage by frost. My colleague, the City Engineer, is anxious to see 'Slop' or Waste Water Closets adopted for out-door use among our poorer people – saving thus the cost of a special rate. Now, while I fully admit the practical security from damage by frost attained in these closets, and their superiority to "bins" or "pail" closets for out-door use, I feel bound to say that I do not regard them with the approval my colleague does. I should much prefer to see the Corporation own the water supply, and include the supply to a W.C. in its charge for the domestic use of water, i.e., make no separate or additional claim for the water to, at any rate, one W.C.*

The report of the Public Analyst, which is appended, contains a record of the work of the Sanitary Department in the matter of water analyses, and the detection of adulteration in foods, &c. The Chief Inspector's report, which is also appended, states what has been effected to improve the sanitary condition of our dairies, cow-sheds, milk shops, slaughter-houses, factories, and workshops. A continuous but necessarily slow improvement is being effected.

I must beg readers of this report who wish to institute comparisons with those of preceding years to refer for detailed information to my reports for 1893-4-5 *and* 6 *respectively. I have not felt myself entitled to make other than the briefest quotations.*

I feel pleasure in again recording my indebtedness to my subordinates and colleagues, of all ranks, for valued and cheerful assistance. I have been happy in having most loyal and ready services rendered to me alike by the Chief and Assistant Inspectors, the Office Clerks, and the Matron and the Nurses at the Fever Hospital. In all these the city possesses very able and faithful servants.

I have to and do heartily acknowledge the help and encouragement the Chairman, Vice-Chairman, and the members of the Sanitary and its sub-ordinate Committees have extended to me.

H. COOPER PATTIN.

March, 25th, 1898.

METEOROLOGICAL NOTES, 1897.

(From observations taken at Bradestone House, Brundall, Norfolk.)

*By Arthur W. Preston, Esq., F. R. Met. Soc.**

THE SEASONS.

The following tables show the mean temperature and rainfall for the four seasons together with those of the five previous years, and of a twenty-year approximate average. Winter comprises the three months December to February, inclusive; Spring, March to May; Summer, June to August; and Autumn, September to November.

TEMPERATURE.

SEASONS.	1892	1893.	1894.	1895.	1896.	1897.	Twenty years average.	Departure of 1897 from average.
	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
Winter ...	37·0	36·5	39·2	34·7	39·6	38·3	37·8	+ 0·5
Spring ...	44·9	49·1	47·7	47·6	48·0	46·9	46·2	+ 0·7
Summer ...	58·3	61·2	59·3	60·4	61·1	61·9	60·2	+ 1·7
Autumn ...	48·8	50·0	50·1	51·4	48·5	50·3	49·5	+ 0·8
Year	46·9	49·6	49·2	48·4	43·9	49·5	48·4	+ 1·1

RAINFALL.

SEASONS.	1892.	1893.	1894.	1895.	1896.	1897.	Twenty years' average.	Departure of 1897 from average.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Winter ...	6·36	5·89	4·81	7·35	3·28	7·86	6·02	+ 1·84
Spring ...	5·10	1·61	5·62	4·15	5·18	5·05	5·21	— 0·16
Summer ...	10·20	5·37	8·74	7·51	4·88	4·17	7·17	— 3·00
Autumn ...	11·15	6·10	7·12	7·13	8·49	6·42	8·50	— 2·08
Year	31·05	19·66	27·32	24·91	23·28	22·07	26·90	— 4·83

The above tables show that all the seasons were slightly above their average temperature, especially the summer, which was the warmest of the series.

* To whom I am also indebted for the records of the mean weekly temperatures and of the rainfall quoted in Charts I and II.

1897.

Month.	Barometer: Highest.	Date.	Lowest.	Date.	Mean.	Thermometer: Highest.	Date.	Lowest.	Date.	Mean.	Hygrometer: Relative Humidity 9 a.m.	Cloud: Estimated Proportion.	Rainfall: Inches.	No. of Days.	Wind: Direction. N	N E	E	S E	S	S W	W	N W	Mean Estimated Force.
January ...	30·58	2	29·33	30	29·89	45·0	1	22·0	26	34·7	94	7·5	2·44	26	1	4	8	5	3	0	3	7	2·9
February ...	30·63	16	29·21	2	30·08	57·8	26	27·4	3	41·4	89	7·8	2·17	18	2	1	4	0	4	9	4	4	3·0
March ...	30·14	8	28·67	3	29·65	62·0	21	27·8	13	45·0	80	6·6	2·33	17	2	0	1	4	5	8	9	2	4·5
April ...	30·26	16	29·07	1	29·87	67·8	27	27·0	9	45·3	78	7·4	1·81	17	2	6	3	6	3	5	3	2	3·6
May	30·47	15	29·41	28	29·96	74·0	30	34·6	11	50·5	77	5·8	·91	14	4	7	0	2	2	5	3	8	3·8
June	30·33	12	29·46	18	30·02	83·0	24	43·4	19	60·3	80	6·5	2·23	14	3	1	5	3	3	5	3	7	3·0
July	30·42	11	29·63	20	30·02	85·0	24	42·1	8	62·0	78	5·1	·67	7	9	4	5	0	1	5	5	2	2·7
August ...	30·25	3	29·51	21	29·83	84·0	4	46·0	26	63·4	85	5·3	1·27	15	2	1	2	2	4	8	8	4	3·3
September ...	30·50	13	29·43	2	29·98	69·0	2	39·0	4	55·0	83	6·7	3·94	16	3	7	0	2	0	6	6	6	2·9
October ...	30·61	21	29·54	15	30·18	66·6	17	32·4	7	50·6	83	5·0	·94	15	0	2	4	4	7	6	2	6	2·1
November ...	30·72	21	29·02	28	30·17	60·2	14	29·6	26	45·2	90	8·1	1·54	16	0	4	6	3	1	8	5	3	2·5
December ...	30·69	22	28·96	10	29·94	54·2	17	21·2	23	39·9	87	6·8	1·82	17	1	1	4	2	11	6	5	1	3·2
Means ...					29·97					49·4	83·6	6·5											3·1
Extremes and Totals.	30·72	Nov. 21st.	28·67	Mar. 3rd.		85·0	July 24th	21.2	Dec. 23rd				22·07	192	29	38	42	33	44	71	56	52	

Rainfall was above the average in the winter months, the excess being greater than in any of the above years.

There was a trifling deficiency in the spring quarter, and a considerable deficiency in the summer and autumn, that of the summer amounting to as much as three inches.

YEAR.

To sum up, the year may be described as being, on the whole, an exceedingly fine one. Although the snowdrifts in January were greater than for many years past, and were attended with considerable flooding at the thaw in the following month, the frosts during the winter were very slight, and the warmth in the latter part of February was almost phenomenal. Much warm weather ensued until April, when an exceedingly early development of vegetable life received an abrupt check, and the rough north-easterly winds, which prevailed for some weeks had, in some localities, a disastrous effect. The earlier months were somewhat wetter than usual, but May was exceedingly dry, as were also July and August when, combined with excessive heat, field and garden suffered severely for the third season in succession. Notwithstanding that September was rather rainy, October and November were abnormally dry, although the reverse might have been expected after a summer with so small a rainfall. Much fine weather prevailed during this period, thereby prolonging the summer to an unusual extent, and, but for the density of some of the morning and evening fogs, it was difficult to realise that the approach of Christmas was so near at hand. There was hardly any frost till December 23rd, when four rather sharp nights were again succeeded by mildness. The gale and high tide of November 29th were one of the most notable features of the year, but not less so was the deficiency of the total rainfall which, with that of the two previous years, amounted to 10·44 ins., a deficiency which will, no doubt, in due course, be fully made up to us.

N.B.—It may be mentioned that this station has been made a Climatological Station of the Royal Meteorological Society as from the 1st January, 1897.

GEOLOGY OF NORWICH.

The geological construction of the soil underlying the City is simple in character. The higher levels are made up of glacial beds, through which the valleys have been excavated, exposing at their margins the crag formation and chalk, while gravel and alluvial deposits occupy the lower ground. The chalk, which at Norwich is more than 1,000 feet thick, and underlies the whole of the City, comes to the surface in the Market Place, and in other places at a similar level; but it may be reached at no great depth in all parts of the Municipal area. The order of the succession of the glacial and crag beds, is shewn in excavations on the sides of the high ground surmounted by Mousehold Heath, between which Heath and the City proper, winds the valley of the Wensum. Except for some layers of peat in the valley, and a bed of brick-earth over part of the higher ground (near the Victoria Station), the soil of the City is of a porus character, and much percolation of fluid takes place through the gravels, etc., into the chalk. The general trend of the drainage of the greater portion of the inhabited area of the City is toward the Wensum.

DEMOGRAPHICAL STATISTICS.

Enumerated Population at the Census of 1891		100,970
Estimated Population in the middle of 1897		110,154
Area in Statute Acres		7,558
Density of Population (*i.e.*, number of persons per acre)		14·57
Average number of persons per acre in the 33 great towns		35·5
Total number of Births registered in 1897		3,354
Representing a Birth-rate of	30·54	per 1,000
Average Birth-rate of the 33 great towns being	30·72	„
Total number of Deaths registered in 1897		2,062
Representing a gross recorded Death-rate of	18·75	per 1,000
Deducting Deaths in Norwich of 30 non-residents	18·5	„
* "Corrected Death-rate" for the year	17·9	„
† Average Death-rate in the 33 great towns	19·1	„
Average Norwich Death-rate for the last 5 years, 1893 to 1897 (inclusive)...	18·59	„
Deaths from the seven principal Zymotic Diseases numbered		260
Representing a Zymotic Death-rate of	2·22	per 1,000
Average Zymotic Death-rate in the 33 great towns being ...	2·86	„
Death-rate from *all* the Zymotic Diseases, including Influenza, was	3·0	„
Or, excluding Influenza	2·9	„

The Deaths of Norwich Citizens from Zymotic Diseases included :—

	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhœa.	Puerperal Fever.	Erysipelas.	Influenza.
Under 5 years of age ...	8	7	2	3	41	133	—	1	3
Over 5 years of age ...	4	2	31	—	3	7	3	1	12

A glance at the above table will show how very large a proportion of the deaths occurred in children under five years of age, and also how great a number of these succumbed to Whooping Cough and Diarrhœa.

The Death-rate from the notified Infectious Diseases was ...	0·5	per 1,000
„ „ un-notified Infectious Diseases, including the Tuberculous Diseases and Influenza, was	2·0	„

* The "Corrected Death-rate" signifies the Death-rate which would obtain in Norwich if the local age and sex distribution were the same as those of the country generally.

† Estimated from the Registrar-General's Quarterly Reports.

The Deaths under one year of Age numbered 651, representing a death-rate of 5·9 per 1,000 of the population at all ages.

The Infant Mortality Rate (*i.e.*, the proportion of deaths under one year of age to every 1.000 births) was ... ... 196·25

In the 33 great towns it averaged ... ... 176·25

This is, for us, a less satisfactory result than that of last year. A special report gives detailed information.

The Death-rate between the ages of 1 *and* 5 *years* was 2·4 per 1,000 of the population at all ages.

The Death-rate between the ages of 1 *to* 60 was* ... ... 7·75 per 1,000 living

The average rate in the 33 great towns being ... ... 10·4 „ „

The Death-rate at and above 60 *years of age* was* ... ... 66·4 „ „

The average rate in the 33 great towns being ... ... 70·4 „ „

These remained gratifying features; and again proved the accuracy of the estimate I made in 1893, viz., that we had in Norwich a higher proportion of elderly people than was to be found in the other great towns—a testimony in itself to the life-prolonging influence of the Norwich climate *for those who survive their first quinquennium*.

The Registrar-General not having, as yet, issued his Annual Report, I am unable to give special rates for the 33 great towns.

SPECIAL NORWICH DEATH RATES FOR 1897.

	Per 1,000 of the population at all ages.	In 1896.
From all Tuberculous Diseases	2·1	2·0
„ Tuberculosis of the Lungs (Phthisis) ...	1·4	1·0
„ Respiratory Diseases excluding Phthisis	2·7	2·5
„ Heart Diseases	1·7	1·4
„ Scarlet Fever	0·1	0·04
„ Diphtheria	0·09	0·2
„ Enteric (Typhoid) Fever	0·3	0·19
„ Puerperal Fever	0·02	0·08
„ Erysipelas	0·01	0·05
„ Measles	0·02	1·0
„ Whooping Cough	0·4	0·08
„ Diarrhœa	1·2	0·8
„ Rheumatic Fever	0·7	0·05
„ Influenza	0·13	0·2

* Estimated from the Registrar-General's Quarterly Reports.

The Deaths from Lung Diseases, excluding Phthisis (Tuberculosis of Lungs commonly called "Consumption") occurred:

In East Wymer	145	From Heart Diseases	76
„ West Wymer	154	„ „	104

The Registered Births numbered in East Wymer, 1,812; West Wymer, 1560.

In both East and West Wymer the births in the first quarter exceeded in number those recorded in any other, and in each district the males were slightly in advance throughout the year.

The following Deaths occurred in Public Institutions:

	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.
Norfolk and Norwich Hospital	93	3	8	11	13	44	14
The Union Infirmary ...	99	4	2	1	2	23	67
The Isolation Hospital...	6	1	4	0	1	0	0
Jenny Lind Infirmary ...	6	1	3	2	0	0	0
*The Prison	1	0	0	0	1	0	0
The Barracks	6	3	0	0	2	1	0

I have prepared differentiated death-rates (see overleaf) for the separate Parishes in the City; these "special area" death-rates should, apart from their statistical interest, lead the Sanitary Authority to devote increased attention to the most insanitary of the districts under its jurisdiction.

Comparing East Wymer with West Wymer we get the following results.

The birth-rate in East Wymer was	34·5	per 1,000 of the population at all ages.	
„ „ West „	29·5	„ „	„
The death-rate (from all causes) in East Wymer† was	18·5	„ „	„
„ „ „ „ West „ †was	18·3	„ „	„
The gross Zymotic death-rate in East Wymer was	2·4	„ „	„
„ „ „ West „	2·1	„ „	„
The death-rate from Tuberculous Diseases in East Wymer was	2·0	„ „	„
„ „ „ West „	2·2	„ „	„
The infant mortality-rate in East Wymer was	200	per 1000 births.	
„ „ „ West „	186	„	

Or, stating the same facts in words; East Wymer had a higher birth-rate, a higher general death rate, a higher death-rate from Zymotic, a higher infant mortality-rate, and a lower death-rate from Tuberculous Diseases than West Wymer.

* This institution retains its pre-eminence as the healthiest dwelling we provide for our people.
† Excluding deaths of non-residents.

Inquest cases amounted to 6·4 per cent. of deaths from all causes.

In the 33 great towns the average was 7·6 per cent.

Deaths in Public Institutions amounted to 13·4 per cent.

In the 33 great towns the average was 20·7 per cent.

Uncertified deaths (*i.e.*, death certificate not signed by a registered Medical Practitioner) amounted to 1·5 per cent.

Average in 33 great towns, 1·3 per cent.

The 2,062 deaths from all causes registered in 1897 were distributed as follows :

	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.
*East Wymer	949	363	132	21	30	194	209
†West Wymer... ...	1072	290	92	38	50	288	314
Deaths occurring within the district among persons not belonging thereto.	30	2	0	2	5	17	4

At the Census in 1891, *East Wymer contained 47,936 people ; †West Wymer, 53,034. Assuming the rate of increase to have progressed in the same proportion in these districts, the population of each in the middle of 1897 would be (approximately) : *East Wymer, 52,076. †West Wymer, 58,078.

DEATHS FROM ZYMOTIC DISEASES.

	Scarlet Fever.	Diphtheria.	Enteric (Typhoid) Fever.	Puerperal Fever.
In East Wymer	5	4	18	2
„ West Wymer ...	7	5	15	1

	Erysipelas.	Measles.	Whooping Cough	Influenza.	Diarrhœa.
In East Wymer	0	0	21	7	76
„ West Wymer	2	3	23	8	64

The Deaths from Tuberculous Diseases were distributed :

In East Wymer from Phthisis 61 Other Tuberculous Diseases 46.
„ West Wymer „ 94 „ „ 37.

* Conisford and Coslany are now included in the East Wymer Registration District.
† The Norfolk and Norwich, Jenny Lind, and Isolation Hospitals, and the Union Infirmary are all in the West Wymer Registration District.

DEATH RATES PER 1,000 OF THE POPULATION (AT ALL AGES.)

Estimated Population 1897.	PARISH.	At all Ages.	Under 1 Year.	1 and under 5.	65 and upwards.	Zymotic Diseases.	Tubercu-lous Diseases.	Respira-tory Diseases.	Heart Diseases.
770	All Saints	10·4	—	—	6·9	—	—	—	1·3
776	S. Andrew	6·5	—	1·3	2·6	—	—	1·3	1·3
2639	S. Augustine	23·5	10·2	3·4	4·9	4·5	2·6	2·6	1·8
2162	S. Benedict	16·2	6·9	1·0	3·2	2·3	1·0	3·2	—
7491	S. Clement (without) and S. Clement (within) ...	14·3	13·9	3·0	3·0	4·5	7·7	1·5	3·0
647	S. Edmund	20·9	12·2	1·2	1·2	4·8	3·6	2·4	—
813	S. Ethelred	20·9	12·2	1·2	1·2	4·8	3·6	2·4	—
1621	S. Geo. Colegate	14·8	6·1	1·8	4·9	2·4	1·2	1·8	1·2
718	S. Geo. Tombland ...	13·9	—	—	9·7	—	—	4·1	2·7
1469	S. Giles	16·3	5·4	1·4	3·4	1·4	—	1·4	4·1
616	S. Gregory	19·5	3·2	3·2	8·1	3·2	1·6	3·2	—
638	S. Helen (with the Great Hospital)	†43·9	—	1·5	37·5	4·5	—	6·0	7·5
400	S. J. Maddermarket ...	17·7	2·5	—	5·0	—	—	2·5	5·0
2983	S. J. Sepulchre	20·5	6·7	2·0	6·6	3·0	1·6	4·0	1·3
1150	S. J. Timberhill	14·8	2·6	2·6	3·4	0·9	1·7	3·4	1·7
1623	S. James	38·8	21·5	5·5	4·9	9·8	4·3	6·8	1·8
1900	S. Julian	15·8	7·4	1·6	2·1	4·7	1·0	3·2	—
529	S. Lawrence	17·0	1·9	—	7·6	—	5·7	—	—
622	S. Margaret (with Jenny Lind Infirmary) ...	*33·8	8·0	9·6	6·4	1·6	1·6	8·0	1·6
755	S. Martin-at-Palace ...	11·9	4·0	—	4·0	—	1·3	2·6	1·3
2647	S. Martin-at-Oak... ...	22·3	9·4	2·6	4·9	0·8	3·1	5·7	2·3
1234	S. Mary-at-Coslany ...	15·4	9·7	0·8	3·2	2·4	0·8	2·4	—
789	S. Michael-at-Coslany ...	12·7	5·0	2·5	1·3	1·3	1·3	—	—
		All.	One.	1 to 5.	65.	Zm.	Tub.	Resp.	Heart.
	*Deducting deaths in Jenny Lind Infirmary True rate for St. Margaret's	24·1	6·4	4·8	6·4	1·6	1·6	6·0	1·6

†Deducting Deaths in Great Hospital, 6·0 per 1,000 at all ages.

DEATH RATES PER 1,000 OF THE POPULATION

(AT ALL AGES.)

Estimated Population 1897.	PARISH.	At all Ages.	Under 1 Year.	1 and under 5.	65 and upwards.	Zymotic Diseases.	Tuberculous Diseases	Respiratory Diseases.	Heart Diseases.
172	S. Michael-at-Plea ...	5·8	—	—	—	5·8	—	—	—
1740	S. Michael-at-Thorn ...	16·7	6·8	1·1	3·4	2·9	1·7	5·1	1·7
4966	S. Paul...	23·8	9·0	4·4	4·2	2·9	4·0	5·0	2·3
331	S. Peter-at-Hungate ...	12·1	3·0	—	3·0	—	—	3·0	—
2077	S. Peter Mancroft ...	14·4	4·3	1·9	4·3	2·9	1·0	1·4	1·4
3019	S. Peter-per-Mountergate ...	17·6	5·0	1·7	5·3	1·3	2·0	2·0	2·3
758	S. Peter Southgate ...	11·9	2·6	1·3	3·9	—	1·3	1·3	2·6
1488	S. Saviour	18·1	4·0	2·0	10·7	1·3	2·0	2·0	1·75
316	S. Simon & S. Jude ...	22·2	9·6	9·6	3·2	3·2	3·2	3·2	—
3909	*S. Stephen (with N. & N. Hospital)	38·9	5·4	2·8	6·9	2·5	4·2	4·6	2·5
755	S. Swithin	14·4	1·3	—	1·3	1·3	2·6	3·9	2·6
2016	Eaton	11·4	2·9	1·5	1·9	0·5	2·9	1·0	0·5
266	Earlham	3·8	—	—	—	—	—	—	--
32824	†Heigham (with Union) ...	17·6	5·3	1·3	5·8	2·7	2·0	2·9	2·1
788	Hellesdon (part of) ...	6·3	1·3	1·3	1·3	—	1·3	1·3	—
6672	‡Pockthorpe (with Cavalry Barracks)	16·0	9·4	1·6	0·5	4·3	1·6	2·4	3·0
5745	§Thorpe Hamlet (with Brit. Barracks and Prison) ...	15·7	5·0	0·9	2·9	1·7	1·5	2·4	1·7
316	Trowse, Carrow and Bracondale	15·8	—	—	6·2	—	—	3·1	3·1
535	Cathedral Precincts (S. Mary-in-Marsh)	9·3	1·9	—	3·7	—	—	—	—
19	On Boats and Barges (Wensum)	53·9	—	—	—	—	—	—	—
9441	Lakenham	16·3	4·5	1·6	4·9	2·8	1·8	2·4	1·5

	All.	One.	1 to 5.	65.	Zm.	Tub.	Resp.	Heart.
*Deducting deaths in Norfolk and Norwich Hospital True rate for S. Stephen's	15·0	4·6	0·75	3·3	1·25	1·1	3·0	0·5
†Includes S. Bartholomew, S. Philip, Trinity, & S. Thomas Heigham (deducting deaths in Workhouse and Isolation Hospital) true rate	14·5	5·2	1·2	3·8	2·5	1·6	2·5	1·7
‡Pockthorpe true rate (deducting Cavalry) ...	17·5	10·0	2·0	0·6	4·8	1·9	2·7	3·4
§Thorpe Hamlet true rate (deducting Infantry) ...	16·0	5·5	1·2	3·0	1·9	1·7	2·5	1·8

DEATHS IN SEPARATE PARISHES.

Enumerated Population at 1881 Census.	PARISH.	At all Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Zymotic Diseases.	Tuberculous Diseases.	Respiratory Diseases.	Heart Disease.	Inquests.
706	All Saints	8	—	—	—	—	3	5	—	—	—	1	—
720	S. Andrew	5	—	1	—	—	2	2	—	—	1	1	1
2419	S. Augustine	62	27	9	—	2	11	13	12	7	7	5	4
1982	S. Benedict	35	15	2	1	—	10	7	5	2	7	—	3
6876	S. Clement (without) / S. Clement (within) ...	107	48	18	2	3	19	17	26	18	16	8	6
593	S. Edmund	15	9	2	1	—	1	2	3	5	1	2	—
745	S. Ethelred	17	10	1	1	—	4	1	4	3	2	—	1
1486	S. Geo. Colegate ...	24	10	3	—	—	3	8	4	2	3	2	2
658	S. Geo. Tombland ...	10	—	—	—	—	3	7	—	—	3	2	—
1346	St. Giles'	24	8	2	1	1	7	5	2	—	2	6	1
565	S. Gregory	12	2	2	—	—	3	5	2	1	2	—	2
585	St. Helen (with the Great Hospital)	28	—	1	—	—	2	25	3	—	4	5	1
367	S. J. Maddermarket ...	7	1	—	—	—	4	2	—	—	1	2	2
2734	S. J. Sepulchre	61	20	6	—	2	14	19	9	5	12	4	4
1054	S. J. Timberhill... ...	17	3	3	—	—	7	4	1	2	4	2	3
1497	S. James	63	35	9	—	4	7	8	16	7	11	3	5
1742	S. Julian	30	14	3	—	2	7	4	9	2	6	—	2
485	S. Lawrence	9	1	—	—	1	3	4	—	3	—	—	—
570	S. Margaret (with Jenny Lind Infirmary) ...	21	5	6	2	1	3	4	1	1	5	1	5
692	S. Martin-at-Palace ...	9	3	—	—	—	3	3	—	1	2	1	—
2426	S. Martin-at-Oak ...	59	25	7	—	1	13	13	2	8	15	6	4
1131	S. Mary-at-Coslany ...	19	12	1	—	—	2	4	3	1	3	—	1
723	S. Michael-at-Coslany ...	10	4	2	—	1	2	1	1	1	—	—	—

DEATHS IN SEPARATE PARISHES—*Continued.*

Enumerated Population at 1891 Census.	PARISH.	At all Ages.	Under 1 year	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Zymotic Diseases	Tuberculous Diseases.	Respiratory Diseases.	Heart Disease.	Inquests.
158	S. Michael-at-Plea ..	1	—	—	1	—	—	—	1	—	—	—	—
1595	S. Michael-at-Thorn ...	29	12	2	—	—	9	6	5	3	9	3	5
4552	S. Paul	118	43	21	1	4	29	20	14	19	24	11	9
303	S Peter-at-Hungate ...	4	1	—	—	—	2	1	—	—	1	—	1
1904	S. Peter Mancroft ...	30	9	4	—	—	8	9	6	2	3	3	1
2767	S. Peter-per-Mountergate ...	53	15	5	—	2	15	16	4	6	6	7	5
695	S. Peter Southgate ...	9	2	1	—	1	2	3	—	1	1	2	3
1364	S. Saviour	27	6	3	1	—	1	16	2	3	3	1	1
290	S. Simon & S. Jude ...	7	3	3	—	—	—	1	1	1	1	—	—
3584	S. Stephen (with N. & N. Hospital)	152	21	11	10	16	67	27	10	16	18	10	24
692	S. Swithin	11	1	—	1	—	8	1	1	2	3	2	—
1848	Eaton...	23	6	3	1	4	5	4	1	6	2	1	—
244	Earlham	1	—	—	—	—	1	—	—	—	—	—	1
30084	Heigham* (with Union) ...	577	176	43	12	20	133	193	91	66	98	69	17
722	Hellesdon (part of) ...	5	1	1	—	—	2	1	—	1	1	—	1
3365	Pockthorpe (with Cavalry Barracks)	59	35	6	—	3	13	2	16	6	9	1	1
5265	Thorpe Hamlet (with Brit. Barracks and Prison) ...	90	29	5	6	4	29	17	10	9	14	10	8
290	Trowse,Carrow,and Bracondale	5	—	—	—	2	1	2	—	—	1	1	2
490	Cathedral Precints (S.Mary-in-Marsh)	5	1	—	—	—	2	2	—	—	—	—	1
17	On Boats and Barges (Wensum)	1	—	—	—	1	—	—	—	—	—	—	—
8553	Lakenham	154	45	16	6	10	28	49	28	18	24	15	5

* Includes St. Bartholomew, St. Philip, Trinity, St. Thomas.

The populations of the various parishes are calculated from the actual populations recorded at the 1891 census. It has been assumed that the rate of increase in the population of each parish has continued at the rate which prevailed in the preceding decade. It is more than probable, however, that when the census is taken again (and this counting of people ought to be held at least once in every five years), the populations of the central parishes will be found to have increased less in proportion (if they have not actually declined) than those of the parishes more remote from the centre of the City. The rates for 1897 therefore are but approximate ones, albeit, the best we can arrive at under existing circumstances and give, if my forecast be a right interpretation of the facts, *the central parishes more favourable rates* than they actually merit.

Comparing these "Parish" death-rates with one another and with the corresponding mortality rates for the City, as a whole, we see that St. James' *again easily heads the list* with a *gross death-rate from all causes* of 38·8 per thousand of its population at all ages. St. Margaret's comes second with a death-rate of 24·1 per 1000, St. Paul 23·8, St. Augustines 23·5, and St. Edmunds follows with one of 23·2 per 1000. At the other end of the scale are Earlham with a gross death-rate of 3·8, St. Michael at Plea with one of 5·8 per 1000, and St. Andrew with 6·5 per 1000! The corresponding death-rate *for the whole City* being 18·75 per 1000.

Comparing the "Special" death-rates in the like manner we find the death-rate in children *under one year of age* reached the portentous figure of 21·5 per 1000 of the population at all ages in St. James', 13·9 per 1000 in St. Edmunds', and 10·0 per 1000 in Pockthorpe, 9·7 per 1000 in St. Mary-at-Coslany, and 9·4 in St. Martin-at-Oak and 9·0 in Pockthorpe; while St. Andrew, All Saints, St. George Tombland, St. Helen, St. Michael-at-Plea, Earlham and Trowse, Carrow and Bracondale all come out with ciphers. The death-rate in children under one year of age for the *City as a whole* was 5·9 per 1000 of the population at all ages.

Between the *ages of one and five years* 9·6 per 1000 of the total population at all ages died in St. Simon and St. Jude's, 5·5 per 1000 in St. James', 4·8 per 1000 in St. Margarets, and 4·4 in St. Paul's; while in All Saints', St. George Tombland, St. John Maddermarket, St. Lawrence, St. Martin-at-Palace, St. Michael-at-Plea, St. Peter Hungate, St. Swithin, Earlham, Trowse, Carrow and Bracondale, and St. Mary-in-the-Marsh no deaths occurred. The average rate for the *City, as a whole*, being 2·4 per 1000 of its total population.

At and above 65 *years of age* 37·5 per 1000 of its total population died in St. Helen's (including inmates of the Great Hospital), 10·7 per 1000 in St. Saviour, 9·7 in St. George Tombland, 9·1 in St. Gregory, 7·6 in St. Lawrence, 6·5 in St. John de Sepulchre, 6·5 in All Saints; while no deaths occurred in Earlham and St. Michael-at-Plea. The death-rate at these ages for the *City, as a whole,* was 4·6 per 1000.

From *Zymotic Diseases* there died in St. James' no less than 9·8 per 1,000 of its population at all ages, in St. Michael-at-Plea 5·8 per 1000, in St. Ethelred 4·8 per 1000, in St. Augustine's and in St. Edmund's 4·5 per 1000; whereas in All Saints, St. Andrews, St. George Tombland, St. John de Maddermarket, St. Lawrence, St. Martin-at-Palace, St. Peter-at-Hungate, St. Peter Southgate, Earlham, Hellesdon, Trowse, Carrow and Bracondale. and St. Mary-in-the-Marsh no deaths occurred. The death-rate from Zymotic diseases for the *City, as a whole,* was 2·2 per 1000.

Tuberculous Diseases (forms of the disease commonly called "Consumption") swept off 7·7 per 1000 of its total population in St. Edmund's, 5·7 per 1000 in St. Lawrence, 4·3 per 1000 in St. James, and 4·0 per 1000 in St. Paul's, 3·6 per 1000 in St. Ethelred, and 3·2 per 1000 in St. Simon and St. Jude's and 3·1 in St. Martin-at-Oak and All Saints; whereas St. Andrew, St. George Tombland, St. Giles, St. Helen, St. John de Maddermarket, St. Peter Southgate, St. Michael-at-Plea, Earlham. Trowse, Carrow, and Bracondale, and St. Mary-in-the-Marsh lost no one from these diseases. The death-rate from Tuberculous diseases averaged for the *City, as a whole,* 2·1 per 1000 of the total population.

From *Respiratory diseases* (excluding Phthisis) 6·8 per 1000 of its total population died in St. James, 6·0 per 1000 died in St. Margaret, 6·0 per 1000 in St. Helen (with the great Hospital) 5·1 per 1000 in St. Michael-at-Thorn 5·0 per 1000 in St. Paul's; while in All Saints, St. Lawrence, Earlham, St. Michael-at-Plea, St. Michael-at-Coslany, St. Mary-in-the-Marsh, there were no deaths recorded. The death-rate for the *City, as a whole,* being 2·7 per 1000 of the total population.

Heart diseases carried off 7·5 per 1000 of the population in St. Helen (with Great Hospital) 5·0 per 1000 in St. John's Maddermarket, 4·1 per 1000 in St. Giles, 3·0 in St. Edmund's and 2·7 per 1000 in St. George Tombland. *Per Contra* heart diseases killed off no one in St. Benedict, St. Ethelred, St. Gregory, St. Julian, St. Lawrence, St. Mary-at-Coslany, St. Michael-at-Coslany, St. Michael-at-Plea, St. Peter-at-Hungate, St. Simon and St. Jude, Hellesdon, St. Mary-in-the-Marsh and Earlham. The death-rate for the *City, as a whole,* was 1·7 per 1000 of the population.

Last year then St. James' had the *highest general death-rate* (rather more than double that for the City as a whole!) the *heaviest infant mortality,* the *heaviest "Zymotic" death-rate,* and the *heaviest death-rate from the Respiratory diseases*—a tolerably black indictment! St. John's Maddermarket, lost most people (proportionately) from Heart diseases, St. Edmund's suffered worst from the tuberculous diseases, and St. Simon and St. Jude lost most people (proportionately) between the ages of 1 and 5. Earlham with an estimated population of 266 had the lowest general death-rate, and no "Special" death-rates of any kind.

I have, in the foregoing paragraphs, selected only a few "Parish" death-rates; the individual reader being left to institute much more elaborate comparisons. If the said reader wish to guage the relative healthiness of any special parish, the important death-rates to be considered, are (*a*) *the death-rate under one year of age,* (*b*) *the death-rate at and over* 65 *years of age,* (*c*) *the zymotic death-rate* and (*d*) *that from tuberculous diseases.* He will do well to bear in mind the facts that a very low death-rate at and over 65 years of age does not necessarily point to a high standard of healthiness; on the contrary it may mean that practically everybody is killed off in that particular parish before the age of 65 is reached! [It is of interest to note that St. Clement, St. Geo. Tombland, St. Mary at Coslany, and St. Peter Southgate lost precisely the same number of their respective populations as in 1896].

INFANT MORTALITY.

The certified causes of death in children dying under one year of age were:—

Abscess	3	Heart Diseases	4
Aphthæ	2	Imperfect development	1
Asthema	5	Improper dieting	4
Atalectasis	2	Intestinal obstruction	1
Atrophy	6	Inanition	3
Bronchitis	70	Influenza	4
Broncho-Pneumonia	32	Jaundice	1
Cancrum Oris	1	Malnutrition	2
Cellulitis	2	Marasmus	80
Cholera Infantum	1	Measles	1
Convulsions	54	Meningitis	4
Congenital Syphilis	11	Muco-Enteritis	7
Debility from Birth	38	Natural Causes	1
Deformity	1	Otitis Media	1
Diarrhœa	104	Premature Birth	90
Dentition	27	Rickets	3
Erythema Intertrigo	1	Shock	1
Erysipelas	1	Spinal Meningitis	1
Enteritis	3	Spina Bifida	1
Entero Colitis	1	Suffocation	1
Epilepsy	1	Syncope	3
Fissure of Skull	1	Tuberculous Diseases	3
Gastritis	3	Temporal Abscess	17
Gastro Enteritis	15	Thrush	3
Gastro Intestinal Catarrh	4	Trismus Neonatorum	1
Hœmorrhage from Umbilicus	1	Whooping Cough	23
Hydrocephalus	1	Want of Vitality	3
Hysterical Convulsions	1	Wasting „	1

Twenty-nine of the deaths were uncertified, *i.e.*, the certificate of death was not signed by a medical practitioner.

"Premature Birth" was given as the cause of death in the great majority (19) of these cases. I have again to point out how discreditable it is to the State to lose a single subject without being furnished with a properly attested medical certificate of the cause of death. The law now allows a Registrar, almost always a layman, to accept a certificate from an unqualified person, provided that he, the Registrar, is persuaded that no deception is being practised. The proper course is, without doubt, to hold an inquiry in every such case, and, where needful, a post-mortem examination. These steps, will probably only be taken when the Registration of the causes of Death is made a department of the Medical Officer of Health's Office. It is not gratifying to note that whereas in 1896 the uncertified cases amounted to 1·9 per cent. of the total number, in 1897 the proportion rose to 4·4 per cent.

It does not require any technical knowledge on the part of the reader to see that some of the certified causes of death, quoted on the preceding page, remain as vague as in previous years. " Marasmus," for instance, which is not, properly speaking, a disease (it is a symptom of disease and is a term used to signify wasting) is made accountable for no less than 80 of the deaths! It would be more satisfactory if to " Marasmus " the certifier added " cause unknown," when he is uncertain about it. " Want of Vitality," again is a singularly uninforming phrase. Until the information afforded becomes more precise, these returns will remain of but small value.

It still remains a truism that so long as the State demands from the doctors, for the public use and good, certificates of the causes of death, and awards no payment for them, it cannot expect the said doctors, men, after all, merely human, to give careful attention to the thankless task. Some few doctors, of their own accord, take great pains to furnish clear, reliable, and therefore to the demographical statistician, most valuable information respecting the true antecedents to death; it is the business of the State, by awarding a fee for the service rendered, to entitle the M. O. H. to claim in all cases the fullest possible information.

An important point to be noticed is that while the average infant mortality rate for the 33 great towns (as compared with 1896) increased 8·5 per 1000 births, that of Norwich increased 33·0 per 1000 births, *not a gratifying result;* and one we must hope that we shall not find yet further emphasised in the future. 4 deaths only are certified as being due to " improper dieting "; though there is little doubt that a large number of those classified under the ambiguous term " Marasmus " are due to this cause; a cause, which originates in and flourishes by reason of the ignorance of the hygiene of infant life so lamentably prevalent among otherwise affectionate mothers. Unrecognised tuberculous disease, in my private judgement, accounts for others of these deaths so desipiently ascribed to " Marasmus," as it probably does for some of the deaths attributed to " Convulsions," under which heading it will be seen no less than 54

deaths were registered ; Bronchitis swept off 70, Diarrhœa but 104, and Whooping Cough 23. The other features do not call for special comment, save that there is a rise of 35 % in the number of deaths attributed to Hereditary Syphilis, and that Atrophy (6) and Asthenia (5) probably signify at bottom improper feeding, and that the death attributed to "Natural Causes" was so attributed after an inquest.

At the suggestion of the Vice-Chairman of the Committee, I caused enquiries to be made concerning *the number of children dying under one year of age who were insured*, and found that 47 % of the total number were insured.

FEVER HOSPITAL.

During the year 360 patients with Scarlet Fever were removed to and treated in the Fever Hospital; and had our accommodation been better adapted to meet the requirements of the City, I have no hesitation in saying that a very much larger number would have been treated. Indeed, during the whole of the later months of the year we had people waiting for the beds to be emptied; there being, sometimes, as many as a *dozen applicants for the first vacancy.* However, gratifying from our point of view, this anxiety to share in the benefits conferred by the Hospital may be, from another aspect it becomes very disheartening to those responsible for the administration of the Institution and in particular to its Medical Superintendent; we have to campaign against infective ailments with such inadequate forces. We ought to have beds provided in the proportion of 1 per 1000 of the population—as a matter of fact we have not at present half that number—the mere statement of which fact enables the reflective to at once realise our situation. That we made the fullest use of our restricted resources is very certain; and that the Hospital is so highly appreciated by the people remains a source of great satisfaction, and makes all associated with it desirous of seeing its possible usefulness afforded every opportunity of development. *The lack of hospital accommodation* was responsible for more than one-third of the cases of Scarlet Fever which *occurred during the latter part of the year;* our being unable to remove the first case from a dwelling constantly led to the occurrence of secondary and tertiary cases in the family or immediate neighbourhood. Had we at the commencement of September been able to bring a score of additional beds into use, I feel confident that at least 100 of the 114 secondary cases which were notified in the last quarter of the year would not have contracted the disease.

Of the 360 cases removed to the Hospital 154 were males and 206 females.

77	of the patients	were	under 5	years	of age.
145	„	„	were between 5 and 10	years	of age.
88	„	„	„	10 and 15	„
41	„	„	„	15 and 25	„
9	„	„	„	over 25	„

It will be noticed that the greater number of the patients (145) were between 5 and 10 years old—the school-going period. On the other hand that so many as 41 between 15 and 25, and 9 were over 25 years of age, indicates of itself that the infecting material was widely disseminated.

There were five deaths in the Hospital from the Scarlet Fever; representing a death-rate of 1·4 per cent., considering the crowded state of the Wards a very satisfactory result; one death, that of a girl aged 8, hardly ought to be included as she was in a moribund condition when admitted, and never rallied; had I seen this patient previous to the removal, I should not have sanctioned that step. The death certificates of these five cases were :—(*a*) "Malignant Scarlet Fever—Septicœmia," (*b*) The same, (*c*) "Scarlet Fever—Syncope," (*d*) "Malignant Scarlet Fever—Septicœmia," and (*e*) "Scarlet Fever—Whooping Cough—Middle Ear Disease—

Septicœmia." The third case "c" a girl aged 18 died quite suddenly from syncope of the heart; a sister, aged 19, and her father having, we learned, died with the like suddenness.

Nine patients developed post-scarlatinal Diphtheria and were successfully treated with Schering's Anti-toxin. We had an inconsiderable amount of Scarlatinal Rheumatism, less glandular trouble than usual, and little of the relatively intractible inflammatory affection of the nostrils, which is frequently associated with Scarlet Fever. There were fewer cases of supperating ears and in only one single instance did mastoid trouble necessitate operative proceedings, unfortunately without benefit. On the whole, complications of all kinds were relatively rare, and there were only six really serious kidney cases. Two of the patients certified to have Scarlet Fever brought in Typhoid Fever as well. These are the sort of cases that, were suitable accommodation at our disposal, I should like to place in "Observation Wards." These patients made satisfactory recoveries.

There were eleven "return" cases during the year—a result which bears testimony to the vigilance exercised in discharging patients—particularly when the fact that we have *no properly constructed discharging rooms fitted up*, and have to make use of one of the ordinary wards in the central pavilion for the purpose, is remembered.

The Hospital Sub-Committee continues the policy adopted in 1893, and find its sufficient justification in the rapid and continuous growth in popular favour of the Institution. In 1893 barely 25 per cent. of the fever cases were sent to the Hospital, in 1894 this proportion increased to 60 per cent., in 1895 the numbers rose to 75 per cent., and in the first half of 1896 to 80 per cent. of the total number of cases. During the past year the percentage rate has been determined by the number—even when the wards were overcrowded—we could accommodate.

The Wards were kept bright and cheerful of aspect with flowers and plants throughout the year; presents from the friends and relatives of the patients, many of them quite poor people. The "Toy Fund" too, has been kept in tolerably sound condition, chiefly by the donations of patients and their friends. The grounds about the Hospital continue to improve in appearance, and the garden is sufficiently fertile to keep the whole establishment very fairly supplied with vegetables, during the major part of the year. 3906 articles were passed through the steam disinfector. With the proceeds of some lectures, together with a number of donations, a cycle has been procured during the year for use by the nurses, and we are hopeful of procuring another.

NOTIFIED INFECTIOUS DISEASES.

Scarlet Fever.—672 notifications of Scarlet Fever were sent to me during the year. In 1896 there were 404; in 1895 there were 285 notifications of the disease; in 1894 there were 547, and in 1893 no less than 685. Our position, therefore, in respect of the prevalence of this disease was worse than any year since 1893. During the latter half of the year the disease became practically

epidemic, we had to deal with a prolonged and persistent prevalence, rather than a sharp outbreak. The cases increased in the early autumn, declined somewhat during the holidays, and then continued with steady persistance throughout the year. Although the re-opening of the schools was followed by an increase in the amount of the disease, it was so widely distributed and so little concentrated in any one particular district that I did not deem it necessary to advise the closing of any school in consequence of it. Chart I. gives a graphic representation of the prevalence, week by week, of the disease, and *should be attentively studied.* I do not regard the occurrence of Scarlet Fever in or under the proportion of one case to every ten thousand of the population a week, or, roughly, 10 cases a week, as constituting an "epidemic" of the disease; and to deal effectively with that amount of the disease, our present Fever Hospital *accommodation is insufficient.*

Of the 672 cases notified to me 55·0 per cent. occurred in females and 45·0 per cent. in males; 19·25 per cent. of the patients were between 1 and 5 years of age; 41·25 per cent. between 5 and 10 years of age; 22·0 per cent. between 10 and 15 years of age; 12·0 per cent. between 15 and 25 years of age; and 5·0 per cent over 25 years of age. It will be noticed that 63·25 per cent. of the cases occurred in patients between 5 and 15 years of age—the school-going period.

From enquiries specially conducted I found that of the infected dwellings 5·0 per cent. possessed only *one sleeping room*, the average number of the occupants being 4 persons; 31·0 per cent. possessed *two sleeping rooms*, the average number of the occupants being 2·75 persons per room; 45·0 per cent. possessed *three bedrooms*, the average number of the occupants being 2 persons per room; and 19·0 per cent. possessed *four or more bedrooms*, the average number of occupants being 1·25 persons per room.

As regards the disposal of excrement 55·0 per cent. of the infected dwellings used "bins," 28 per cent. "pail" closets, and 27 per cent. water-closets.

I was not able to trace Scarlet Fever to any special milk supply, and am disposed to think that a great majority of the cases owed their infection to personal contact; as to the origin of this disease we are in greater doubt than is the case with other zymotic ailments, and so long as this uncertainty continues our operations for preventing those conditions from arising which favour its development will be *pari-passu* imperfect, and our practical work confined rather to dealing with effects than causes. Scarlet Fever, unfortunately, seems likely to prove as great a source of vexatious trouble to Sanitary Authorities in the future, as it has pertinaciously done in the past.

Diphtheria.—There was a decline in the amount of Diphtheria notified as compared with 1896, the actual number being 61. The number of notifications was 94 in 1896, in 1895 it was 77, in 1894 it was 120, and in 1893 it was 134; so that we have had a better record than in any year since I have been in the city. There were 9 deaths recorded from this disease during the year, 2 of them in the Norfolk and Norwich Hospital. Seven of the fatal cases occurred in persons under 5 years of age, and 2 in persons older. The special death rate was considerably lower than in 1896, being 1 to 6·75 in place of 1 to 4·25 persons attacked.

The 61 cases of Diphtheria notified to me occurred in 47 dwellings —there being 14 instances of secondary infection, or 1 to every 3·35 primary cases. Of the persons attacked 51·0 per cent. were females and 49·0 per cent. males—a preponderence of former sex not so marked as to suggest that the home-keeping habits of the female victims had an important influence in determining the incidence of the disease.

33·25 per cent. of the patients were under 5 years of age, 24·5 per cent. between 5 and 10 years, 9·25 per cent. between 10 and 15 years, 18·5 per cent. between 15 and 25 years, and 14·5 per cent. over 25 years of age. It will be noticed that the fatal cases were both absolutely and relatively most numerous in children under 5.

Systematic enquires into the home surroundings of the patients entitles me to state that 6·5 per cent. of the infected dwellings possessed *only one sleeping room*, the number of the occupants averaging 4; 43·0 per cent. of the houses possessed *two sleeping rooms* the average number of the occupants (of each room) being 2·25; 36·0 per cent. of the houses had three bedrooms, the average number of occupants being 1·75; and 14·5 per cent. of the dwellings possessed 4 or more bedrooms with an average population of 1 person per bedroom. 53·25 per cent. of the affected households made use of "*bins*," 25·5 per cent. used *pail-closets*, and 21·25 per cent. *water closets*. In 30·0 per cent. of the houses there was evidence of persistant *dampness*, commonly of the walls or flooring, and due to the *absence of a "damp course"* in the former, and of a layer of *concrete* below the latter. On account of the importance of causes of persistent dampness in or about a dwelling I caused special enquiries to be made concerning the character of the paving, etc., of the yards adjacent to the infected dwellings, and found that only 7·25 per cent. had yards covered with some *material impervious to fluids*; that 23·5 per cent. had yards partly paved, 14·0 per cent. yards bricked or tiled over, 34·0 per cent. cobbled yards, and 21·25 per cent. yards *without any paving at all*. In other words 90 per cent. of the houses *adjoined yards offering greater or lesser facilities for the soakage of fluid into the soil about them*. 20·0 per cent. of the houses possessed no sinks, which means that *all household "slops,"* etc. and *other waste fluids would be pitched into and about the gutter in the yard*, 2·0 per cent. of the houses had sink pipes in *direct communication with the sewers*, and there was found to be some more or less grave defect in the drainage at 17·0 per cent. of the infected dwellings.

Chart 1. exhibits the variation in the prevalence of Diphtheria week by week throughout the year, and how far it was influenced by the continuance of fine or wet weather. I retain my belief that any condition of the atmosphere or of the surroundings, which tends to produce a congested condition of the tissues lining the throat—such as damp foggy weather, particularly when associated with low barometric pressure which leads to engorgement and relative congestion of the superficial vessels; or any irritating influence such as the noxious effluvia constantly given off by the contents of "bins," "pail-closets," collections of refuse, etc. —distinctly favours the development of Diphtheria. The disease was with, as I think, real justification attributed in 7 sporadic instances last year to the pollution of the surrounding atmosphere, caused by the emptying of "bins." What is certain is the fact that no other specially predisposing influence could be in any way traced, and in each and all of these seven cases the disease followed the removal of the contents of the "bins," and was by the inmates of the houses also attributed to the nauseating stench which pervaded the dwellings during the scavenging operations.

Enteric (Typhoid) Fever.—234 cases of Enteric Fever were notified to me during the year, the number of such cases in 1896 being 196, in 1895 226, in 1894 150, and in 1893 no less than 314, so that of these five years during which I have been associated with the City, last year come out (statistically) better than 1893, but not so satisfactory as the others. As the relative prevalence of this disease is a commonly accepted criterion of the sanitary condition of a district, its associations and surroundings become a special interest, and the importance of the subject justifies a more detailed account than is requisite in dealing with other filth diseases; the more particularly as Enteric Fever is rather *endemic* than epidemic in its character with us—that is to say it has been prevalent for so many years that it must be looked upon as having rooted itself among us.

The following table gives the notifications of Enteric Fever in each year from 1880 to 1897 inclusive, and the mortality from the disease.

180	notifications of Enteric F.			in	1880	with	37	deaths representing a mortality rate of		20·5	per cent.
50	,,	,,	,,		1881	,,	15	,,	,,	30·0	,,
47	,,	,,	,,		1882	,,	8	,,	,,	17·4	,,
34	,,	,,	,,		1883	,,	11	,,	,,	32·3	,,
121	,,	,,	,,		1884	,,	30	,,	,,	24·8	,,
584	,,	,,	,,		1885	,,	92	,,	,,	15·6	,,
262	,,	,,	,,		1886	,,	39	,,	,,	14·5	,,
136	,,	,,	,,		1887	,,	20	,,	,,	14·7	,,
171	,,	,,	,,		1888	,,	19	,,	,,	11·1	,,
166	,,	,,	,,		1889	,,	22	,,	,,	13·2	,,
176	,,	,,	,,		1890	,,	31	,,	,,	17·6	,,
163	,,	,,	,,		1891	,,	21	,,	,,	12·8	,,
106	,,	,,	,,		1892	,,	19	,,	,,	17·9	,,
314	,,	,,	,,		1893	,,	36	,,	,,	11·4	,,
150	,,	,,	,,		1894	,,	22	,,	,,	14·6	,,
226	,,	,,	,,		1895	,,	24	,,	,,	10·6	,,
196	,,	,,	,,		1896	,,	20	,,	,,	10·2	,,
234	,,	,,	,,		1897	,,	33	,,	,,	14·0	,,

It will be noticed that whereas the death-rate in 1880 from this disease averaged 20·5 per cent. of the cases notified, or roughly, 1 case in every 5, the death rate last year was 1 case in every 7. As I mentioned in my previous report, it does not necessarily follow that these figures represent the true state of the facts; that there has been on the whole a diminution in the case mortality cannot be doubted—but it must be remembered that most probably a number of the milder cases of the disease were not recognised and notified in 1880. Increasing skill in diagnosing the disease in its lighter forms has, in my judgment, led to a more accurate correspondence between the number of notifications sent in and the actual amount of the disease; although I still think that a number of cases of Enteric Fever, of what is known as the "ambulatory" type, escape notification, and never receive medical treatment. So that here, as elsewhere, the notifications furnish a reliable guide to the relative prevalence of the disease, but must not be regarded as accurately representing the full amount. By "Ambulatory" Typhoid is meant so mild an attack that the patient keeps walking about, pursuing his or her ordinary vocation in life, never ill enough to need a doctor, having some feeling of malaise and what is thought to be some transient diarrhœa. But after making these reservations, it remains undoubtedly true that a very real lessening of the case mortality from this disease, has taken place, due to improved methods of treatment; a yet further lessening of the mortality from this disease could be confidently looked for if we were able, as I hope ere long we may be, to set aside a pavilion at the Isolation Hospital for the treatment of the disease when it occur in cramped, crowded

dwellings. It is in such cases as these that the disease becomes most fatal, not necessarily on account of the severity of the seizure, but almost necessarily on account of the unfavourable nature of the surroundings. In two houses in this city, in 1896-7, adjoining each other, out of sixteen inmates, fifteen, one after another, fell victims to the disease; and three out of these fifteen persons died from it. It is my belief that if I could have removed the first case the other cases would not have occurred. In these dwellings it will be noticed that the case mortality attained to the 1880 standard, one death in every five attacked.

I have been looking through my predecessor's Reports, and find that 10 years ago, in 1887, there were 136 cases of Enteric Fever notified, the population being estimated at 92,841, or one notification to every 682 persons; in 1897, with a population of 110,154, the proportion was one to every 479—a proportion *far too high*.

Turning now to a consideration of some characteristics of the 234 cases notified in 1897, and comparing them with 1896 and 1895, we find:

(*a*) sex. That 49·5 per cent. of the cases occurred in males and 50·5 per cent. in females, whereas in 1896 51·5 per cent. occurred in males, and 48·5 per cent. in females; and in 1895 only 44·2 per cent. were males and 55·8 females. Why these changes have occurred I do not know; the females are commonly more home-keeping in their habits than the males; on the other hand the latter expose themselves to more extended means of infection.

(*b*) age.

					In 1896 the per centage was	In 1895 the per centage was
12·5	per cent.	of the	patients	were under 5 years of age;	9·2	7.5
18·75	,,	,,	between 5 and 10	,,	15·3	22.5
17·0	,,	,,	,, 10 and 15	,,	25·0	18·5
16·75	,,	,,	,, 15 and 20	,,	17·3	17·75
12 0	,,	,,	,, 20 and 25	,,	9·2	10·0
12·25	,,	,,	,, 25 and 35	,,	15·3	12·75
7·25	,,	,,	,, 35 and 45	,,	6·2	5·75
4 5	,,	,,	,, over 45	,,	2·5	5 25

The rise which occurred between the ages of 25 and 35 in 1896, was not maintained. It will be noticed that no less than 48·0 per cent. of the cases occurred in children under 15 years of age—what may be called juvenile typhoid, being a marked characteristic of the Enteric Fever which prevails in Norwich. In 1896 49·5 per cent. of the cases occurred in children under 15, in 1895, 48·5 per cent. More cases in persons over 45 years of age were notified, in fact, nearly double the number which reached us in 1896. There were more cases under five than in either of the preceding years.

(*c*) crowding.

					Average number of occupants
7·5	per cent	of the affected	dwellings had only	1 bedroom	3½ persons
37·0	,,	,,	,,	2 ,,	2½ ,,
42 5	,,	,,	,,	3 ,,	2 ,,
13·0	,,	,,	,,	4 or more ,,	1 ,,

In 1896 the corresponding per centages were 1 bedroom, 4·4 per cent.; 2 bedrooms, 36·7 per cent.; 3 bedrooms, 49·4 per cent.; 4 or more bedrooms, 9·5 per cent. The relative overcrowding was 3, 2½, 2¼, and 1 person per room. In 1895

these percentages were 1 bedroom, 5·0 per cent.; 2 bedrooms, 34·0 per cent.; 3 bedrooms, 48·0 per cent.; 4 or more bedrooms, 13·0 per cent. The relative crowding in 1895 was 3, 2¾, 2¾, and 1. So that the disease this year invaded more of the worst and of the best houses than in 1896, and more of the worst and fewer of the best than in 1895. In estimating the influence of "man-crowding" I have only concerned myself about the number of sleeping rooms, the rooms in which crowding becomes important. The census returns are only helpful here in respect of tenements consisting of one room, which room must, of necessity, be used for bed and living room. At the 1891 census there were 2·1 per cent. of the Norwich dwellings which consisted of one room only, and when it is remembered how large a proportion of these are occupied by one old man or woman living alone, the incidence of the disease in one bed-roomed houses is probably much heavier than the figures represent.

(*d*) water supply.

87·5 per cent. of the affected dwellings were supplied with the Co's. water.
12·5 „ „ „ „ from wells.
In 1896 the corresponding proportions were 85·5 and 14·5 per cent.
In 1895 „ „ 81·0 and 19·0 „

The proportions in which houses are supplied with "pipe," or with well water are quietly but *continuously* altering; each year sees an increase in the number of houses supplied by the Company, and a decrease in the number of those drawing water from wells. I believe that at the present time about 89·0 per cent. of the houses are supplied by the Company with water; bearing that fact in mind it will be at once seen that if we are to attribute the propagation of Typhoid to water supplies, we have to practically impeach the Company as well as the wells. By my advice 37 wells were closed during the year, the water drawn from them being shown by chemical analysis alone to be unfit for drinking purposes. We have, thanks to a resolution passed by the Sanitary Committee, been enabled to submit the Company's water to the much more rigid test of bacteriological investigation, in addition to chemical analysis with satisfactory results. The persistence of Typhoid among us makes it necessary for us to take every possible precaution with regard to water. I do not myself believe that any serious portion of our Typhoid was occasioned in 1897 by the consumption of contaminated water; else we ought to have had a heavier incidence of the disease among the drinkers of well waters, and also among the well-to-do drinkers of the Company's waters. That the said Company expends great care upon the filtration and storage of the water it supplies to the citizens, I feel it my plain duty to bear witness, and short of the demonstration by bacteriological experts of the specific bacillus of Enteric Fever being distributed with the fluid, I see no sufficient reason for dissenting from the opinion expressed by the Official Analysts that it is "a perfectly safe water for dietetic use."

(*e*) Milk Supply :—

In 1897.	In 1896.	In 1895.
2.0 per cent. of the patients drank no milk ...	8·0	10·0
39·0 „ „ „ it in the raw uncooked condition...	24·0	25·3
58·0 per cent. of the patients drank it only when first boiled or cooked in puddings or in hot tea, &c....	67·5	65·0
1·0 per cent. of the patients used condensed milk ...	1·0	0·0

As in 1896 I think that milk propagated little Enteric Fever among us: its influence anyway must have been limited, for practically it could only be a source of infection in 40 per cent. of the cases, among the drinkers of the uncooked article. At the same time I am bound to say that but for the fairly general cooking of the milk consumed among us we are practically at the mercy of the surrounding districts; so large a portion of our supply comes from outside the city; and unfortunately the want of a County Medical Officer of Health is felt in more than the arrangement of concerted action in the matter of milk supply between the City and the County Sanitary Authorities.

(*f*) Shell-fish. So far as I could learn 76·0 per cent. of the cases ate no Shell-fish, either in the cooked or uncooked conditions, within three weeks of the outset of their ailment. In 1896 the corresponding per centage was 88·0, in 1895, 84, so that this possible source of infection could not affect more than one-fourth of the cases last year, even supposing that the whole of these ate their shell-fish in an uncooked condition.

(*g*) Disposal of excrement :—

59·0	per cent.	of	the	affected	dwellings used "bins"
33·0	,,	,,	,,	,,	pail closets
8·0	,,	,,	,,	,,	water closets

(Of the water closets the Inspectors reported 2·0 per cent. as "defective.") In 1897 the proportions were 58·0 per cent, 32·0 per cent., and 12·0 per cent., and in 1895 64·0 per cent., 24·0 per cent., and 12·0 per cent. respectively. The relative increase in 1897 took place in the dwellings supplied with "bins" and "pail" closets. But before apportioning the influence of the latter unsatisfactory structures, it must be remembered that year by year an increase in their total number steadily occurs. When property owners are required to substitute other accommodation for "bins," it has been usual for the Sanitary Committee to offer them the alternative of providing pail closets or water closets in place of the "bins"; generally in the proportions of two pail to one water closet. Unfortunately, unless the Sanitary Committee decide in each particular instance, that there is insufficient accommodation it cannot enforce a water closet (*which it always recommends*), except in the now rare circumstance of the excrement having to be removed *through* a dwelling, in the which case water closets are always insisted upon. Then many of the new houses *comply with the Building Bye-Laws*, under which the Executive Committee now sanctions the erection of new dwellings *by providing a pail closet*. So that year by year the total number of these closets increases. Last year nearly one-half of the new dwellings occupied were provided with pail closets.

The number of houses supplied with water closets* amounts to a little more than one-fourth of the whole or 25·0 per cent.; rather more than another fourth have pail closets, and the remainder "bins." Regarding the pail closets as small, movable "bins" (which indeed they are), it will be seen that 92·0 per cent. of the cases occurred in dwellings which retained the excrement of the occupants about them. I regard this demoralising practice, in so many of the Norwich

* On the 31st of December, 1897, the Waterworks Company were supplying water to 6150 water closets—in many instances more than one being attached to a single dwelling.

people, of preserving excrement in the neighbourhood of the dwelling as constituting a very efficient agency for predisposing themselves to Typhoid; and am pretty sure that the systematic adoption of efficient water closets throughout the City would very materially lower the amount of Typhoid among us; lower it in fact (together with really good drainage) as nothing else is likely to.

(*h*) Household drainage :—

At 44·0 per cent. only of the affected houses the inspectors reported the drainage as "good." In 1896 the corresponding percentage was 41·0 per cent., and in 1895, 39·0.

That means in the others that some defect in the drainage such as no sink (which means that all slop and other waste water would be pitched about the yard), sink waste pipe not disconnected, or loose and defective "traps," &c.

(*i*) Character of yard :—

		1896	1895
0·5	per cent. of the affected dwellings had no yard	1·3	2·0
30·0	per cent. of the dwellings had paved yards	19·0	33 0
31·5	" " " unpaved yards	31·0	35·0
7·75	" " " partly paved yards	7·75	9·0
30·5	" " " cobbled yards	30·5	21·0

In other words, 70·0 per cent. of the dwellings had yards more or less liable to have the subsoil soddened with mosture and impurities. I have repeatedly drawn attention to the importance of having the soil which adjoins a dwelling covered with some material impervious to fluids, else it cannot be kept dry. A large number of the poorer dwellings in this City have no properly constructed "damp course" in the walls, and in addition have not had a thick layer of concrete laid under the bottom floors; in such cases moistening of the subsoil must lead to dampness in the dwelling, to say nothing of the deleterious ground-air which will be forced upwards by the rising of the ground-water from time to time; and always be more or less sucked into the dwelling, owing to its atmosphere being warmer.

(*j*) Food Store. In 4·5 per cent. of the affected dwellings food was stored in a receptacle situated inside the living room, but having direct communication with the external air; in 5·4 per cent. food was stored in a similarly ventilated receptacle elsewhere; 7·2 per cent. of the dwellings had the household food stored in an unventilated receptacle (*i.e.*, having no communication with the external air) in some part of the house, other than the living room; and in no less than 82·9 per cent. of the dwellings, the food was stored in some unventilated receptacle *in the actual living-room*. In 1896 the food was similarly stored in 85·4 per cent., and 1895 in 86·0 per cent. of the affected dwellings.

It is worthy of notice that in 82·9 per cent. of the affected dwellings, the food was stored in the living room, and therefore in an atmosphere more or less stale and impure. Without assuming a direct connection between such food and a disease like Typhoid, it will be obvious that articles of food such as milk, butter, bread, etc., kept in such surroundings might easily become contaminated with impurities.

(*k*) Nearness to sewer gratings and gullies:—	1886	1895
17·0 per cent. of the affected dwellings were within 20 ft.	13·0	19·0
20·0 „ „ „ „ 40 ft.	28·0	20·0

The remainder were over 40 feet. These measurements were taken because a stench from a grating or gulley has been so constantly charged by people near with occasioning Typhoid; my own belief is, that pollution of the neighbouring air with sewer gas, lowers the resisting powers of the body, and thus causes those exposed to so deleterious an influence to fall more easily a victim of disease. I am of opinion that the emanations from collections of excrement in "bins" and pail-closets, and from heaps of decaying refuse, act in the like manner as powerful predisposers of disease.

(*l*) Occupations of the householders.

179 dwellings were affected: 39 of these were occupied by ordinary labourers, 30 by shoemakers, 8 by persons following no definite occupation, classifying themselves as gentlefolk, 7 (each) by carmen and carpenters, 6 by starch-workers, 5 by shopmen, 4 (each) by mustard-workers and painters, 3 (each) by brewery-men, wood-choppers, bricklayers, sewerage labourers, tinmen and printers, 2 (each) by milliners, gardeners, publicans, builders, fish-hawkers, stone-dressers, and horse-hair weavers, 1 (each) by a corporation labourer, a tobacconist, an iron-worker, a hair-dresser, a coffee-shop keeper, a shoe-factory manager, an accountant, a photographer, a cab-proprietor, a coal porter, a hawker, a sawyer, an engine-fitter, a ticket-collector, a fishmonger, a shopkeeper, a drover, a bailiff, a railway clerk, a plate-layer, a tailor's presser, a domestic servant, a tailor, a charwoman, a paper bag maker, a yeast merchant, a coal-heaver, a railway labourer, a railway guard, a waiter, a clerk, an engineer, a scavenger, a pavior, a plumber, a traveller, a basket maker, and a police constable.

(*m*) Secondary cases.

In 31 dwellings more than one member of the household contracted the disease; in fact in these dwellings, no less than 46 cases occurred, in addition to these nine cases were notified in public institutions—5 in the Workhouse, and four in the Barracks.

Taking all the facts brought to my notice in these detailed investigations during the past three years into consideration the following summary represents the conclusions I have at present arrived at.

(1) That Enteric Fever (as shewn by the number of notifications) has been prevalent in Norwich for the last 17 years.

(2) That while there has been on the whole, a seasonal increase of the disease in the autumn months, the disease has persisted throughout the year.

(3) That what may be described as the endemicity of the disease in the City, appears to be associated with the methods of disposing of excrement followed, and with defects in the sewerage and drainage.

(4) That while specifically polluted water and milk may be occasional causes, there is no sufficient evidence that they constitute the main persisting causes.

(5) That bedroom crowding exerts a predisposing influence, probably by lowering the standard of healthiness in those subjected to such undesirable household conditions.

(6) That emanations from sewer gratings, untrapped gullies, and more particularly collections of festering excrement exert a *predisposing influence in those exposed to them.*

(7) That the existence of some thousands of fixed and movable "bins" is unquestionably a source of continuous pollution alike to the *soil* and the *air* in the neighbourhood of the dwellings, and affords *favourable conditions for fostering a filth-disease like Enteric Fever;* and that, in scavenging, portions of excrement are liable to fall on to and get trodden into imperfectly paved yards, alleyways, and streets.

(8) That the high proportion of the chlorides and nitrates to be found in the soil of the City bears testimony to *organic pollution in the past*, and *furnishes a favouring nidus for promoting the existence of the specific micro-organism of Enteric Fever.*

Puerperal Fever.—Six notifications of this dangerous child-bed fever were sent in during the year; there were three deaths from it. Supposing the notifications to represent all the cases which occurred, the death-rate 50·0 per cent. was not an abnormally high one; in 1896 it was 75·0 per cent. In 1895 out of thirteen notifications there were but four fatal cases, representing a death rate of 30·0 per cent., in 1894 there were the same number of notifications, but double the number of fatal cases, the death-rate being 60·0 per cent. Puerperal Fever being a preventible disease, we were entitled to look for a diminution in the mortality from it. I forbid the nurse or midwife in attendance to go to another confinement for a period of at least one month, and then only after a thorough cleansing and disinfection of her clothing and person, and as far as possible, dwelling. The medical practitioners in the City I have found anxious to adopt all reasonable precautions, the chief being a temporary abstention from obstetric practice. Rigorous antiseptic precautions in obstetric practice furnish the best means of preventing the development of the disease, and as our midwives become both more intelligent and more scientifically trained, we may justifiably look for a steady lessening of puerperal fever; more particularly as parturient women themselves better understand the vital importance of scrupulous cleanliness being observed by themselves, their attendants, and in all the surroundings.

Erysipelas is not notified to me, and therefore I only know, as a rule, of its existence from the death returns. Two deaths were registered from it, being one third the number of deaths which occurred from the same cause in 1896, and the same number which was recorded in 1895. Erysipelas of a fatal type cannot be regarded as having been prevalent in the city. Some of the medical practitioners favour me with gratuitous notifications of the occurrence of Erysipelas among their patients, and in consequence of this information I have had the dwellings inspected, and in the majority of the cases been able to have some more or less serious defect in the sanitation of the dwellings remedied. I hope more of the doctors will *gratuitously notify the infectious type* of Erysipelas.

Measles, I regret to say, is not notified to me, and I only learn of its prevalence through the deaths from it, and the weekly returns of the causes of absence of children from the Schools. The latter valuable information I

only receive from the Elementary Schools under the immediate control of the School Board. I grieve to say that the Voluntary Schools do not furnish me with it. Measles being a dangerous disease, particularly on account of its possible complications, and on account of its infectivity a source of administrative trouble to all concerned with the management of Schools, I am still of opinion that the Urban Sanitary Authority would act wisely if it adopted my recommendations and agreed to pay for the notification of *first cases in separate dwellings*—for it is only in this way that we can secure early information of the development of fresh centres of infection, and warn the school authorities to exclude *all* the children coming from an infected dwelling. I believe too, that such notification to the Sanitary Authority, with the visitation of the affected dwelling which follows, would in time, lead to a much needed alteration in the attitude assumed by the mothers, in Norwich, towards this really dangerous infectious disease, and the criminality of carelessness regarding it. Last year I had not fortunately to advise the closing of any schools on account of the spreading of the disease among the children ; and only 3 deaths were recorded in the first and 2 in the last quarter of the year.

Whooping Cough proved fatal to 43 children last year. It swept off only one fifth of that number in 1896. This is a result for 1897 which is not very satisfactory even considering how highly infectious this disease is, and dangerous too. I gain information of its prevalence among children attending the Board Schools from the weekly returns, but as is the case with reference to Measles not from the other elementary schools. In 1896 there was unusually little of it.

Diarrhœal diseases carried off 159 persons, 149 of whom were *under 5 years of age*, the greater number succumbing (as is customary) in the third quarter of the year. In 1896 there were only 82 deaths from these diseases or about half the number. I attribute the heightened prevalence of and mortality from this disease to the favouring temperature and weather which prevailed in the early autumn ; and practically the other conditions which favour the development of these diseases—soil and air pollution, were aggravated by the sewerage operations.

Influenza.—15 deaths were certified to be either directly or indirectly due to this disease ; in 1896 the number of deaths similarly ascribed to it was 22 ; in 1895 the number of deaths was 29. The disease was never once epidemic throughout the year.

THE TUBERCULOUS DISEASES.

(Forms of the disease commonly called "Consumption"). 155 deaths were certified to be due to tuberculous disease of the Lungs (Phthisis) and 83 to other forms of tuberculous infection; making in all a total of 238 deaths from the tuberculous diseases. This is a higher sum-total than occurred in 1897, but lower than either of the preceding three years. I am hopeful that at length the people of Norwich are beginning to realise the fact that the tuberculous are *distinctly infectious* diseases, and to treat them accordingly. Nothing but benefit to the healthiness of our community can result from the general apprehension of the fact that the tuberculous diseases are dangerous—particularly the phthisical type. In 1896, 204 persons, and in 1895 no less than 255 persons died from the tuberculous diseases, in 1894 there were 263 deaths, and in 1893 the number reached 250. So that even if the small improvement signified by last year's total of 238 deaths can be increased, we shall feel that we have done well in insisting upon the dangers to the community of these *catchable* and *largely preventible diseases*. Chart II. shows the weekly fluctuations in the tuberculous death-rate throughout the year; and it will be worth the reader's while to compare the chart for 1897, with the charts for the four preceding years. The returns for these last five years will confirm our belief, admitting of practically no qualification, that the *tubercle bacillus* (the micro-organism of whose pernicious activity these diseases furnish us with reliable information) is no stranger among us. It flourishes practically wherever people are crowded together, and may be said to be permanently entrenched in all old cities. This lethal bacillus which has cost, and is still costing us, as a nation, directly or indirectly, millions of money and goes on reaping its untimely harvests of valuable lives year after year, is most at home in dark, ill-ventilated places, and is much favoured by overcrowding in any dwellings. *Sunlight and fresh air are fortunately destructive to it;* which fact helps to explain why sanitary experts claim that every dwelling shall have good air space, and freedom for the admission of sunlight into and about it.

In 1893 I first offered to gratuitously disinfect the rooms, which had been occupied by a tuberculous patient, after the removal by death, or otherwise, of the victim of the *tubercle bacillus*. During the following year, 1894, five rooms were so disinfected; in 1895 the number rose to 39, in 1896 to 56, and last year 81, all of which disinfections were carried out after the death of a person from the phthisical form of the disease. I regard these figures as indicating a really remarkable growth of opinion, on the part of the public, that it is a wise step to have rooms, etc., disinfected after a death has occurred from tuberculous disease; and can only hope that the practice will become general. It is at any rate encouraging to find that within 3 years, the relatives of more than one half of the fatal lung cases wished to have this precautionary measure adopted for the protection of the other inmates of the dwelling.

I make no apology for again directing attention to the fact that the *tubercle bacillus* is constantly *coughed up* in large numbers *with the expectoration* of consumptive people, and that the same bacillus is commonly present in the discharges from tuberculous glands, abscesses, etc. Should hœmorrhage occur, the specific bacilli will be pretty certainly carried out with the blood. Hence the

importance of either rigidly disinfecting (boiling is a good method), or burning any rags, clothes, etc., soiled with the blood or expectoration. For if the extruded matter be left to dry, it will, in time, become fine dry dust; which dust may be kicked or brushed up into the air, and as it contains the potentially active bacilli, it may be the means of introducing these into the lungs of others; or the expectorator of the infective material, may, in this way, re-infect himself. The risk of infection is specially great when the epithelium (an exquisitely delicate protective membrane) lining the respiratory passages becomes from any cause abraded (as for example, after an attack of Bronchitis, Whooping Cough, Measles, Influenza, etc.) It is not only a piece of enlightened self-interest on the part of a consumptive, to take care that all expectorated matter is rigidly disinfected, or what is better, promptly burnt; but it is also his imperative duty to minimise the risk to his fellows by so doing. It is *what a consumptive coughs up* that is to be feared; not his mere breath—one may sit for example, in the same room with him, if it be well-ventilated, and his habits are cleanly, without practical risk. Spitting about in public places and vehicles, becomes, when the spitter is a consumptive, in addition to being a disgusting habit, a dangerous one as well; a habit that should be rigorously discouraged, alike in the interest of decent manners, and of the general health. A consumptive can always carry a damp rag with him, which rag he can afterwards easily burn.

Unfortunately a very large number of people inherit a pre-disposition, that is a heightened liability to fall victims to tuberculous disease; and many others favour the development of the disease in themselves, through lowering the general tone by living amid surroundings of a depressing character such as *ill-lighted, dusty, and badly-ventilated* shops, work-rooms, houses, and offices. A person enjoying fairly good health, may, and probably does, take in tubercle bacilli, from time to time with his food and air; but the resisting power of his tissues is commonly able to cope successfully with the invaders; the person, however, whose health is below par, in particular, if the protective pulmonary epithelium be abraded by coughing, etc.; and whose tissue-resistance is enfeebled, such an one all too frequently succumbs—and the onset is so insiduous that the bacilli may get a firm hold before the mischief is noted. The great general preventatives of consumption are *good food, bodily exercise, sunlight*, and above all *fresh air* in generous abundance.

When a member of a household have fallen a victim to one or other of the tuberculous diseases, it is not necessary to treat him as a social leper. If precautions be taken to prevent *anything he coughs up* from ever drying, and if the rooms occupied be effectively ventilated he may share in the ordinary family life. He should, however, sleep in a bed by *himself*, and where practicable, *in a separate room;* this room should be as large as possible, and the consumptive should early acquire the habit of *keeping the window* OPEN supposing as is commonly the case there is no other means of admitting fresh air. Of course the proper way of securing adequate ventilation is to make arrangements *altogether unconnected with the window;* perhaps the simplest, and certainly one of the best means of doing this, is to insert a grating *at the floor level* in the external wall, delivering if possible *fresh air under the bed;* (by means of simple valve, the incoming air can be directed upwards to the bottom of the bed), the atmosphere of the room will then always keep refreshing and healthsome whether the window be closed or not, If such fresh air grating be *not* provided (the expense of inserting one is trifling) then if the window frame reach low down, say to within eighteen inches of the floor, let it be kept open *at the bottom;* if the lower ledge of the window be as it most stupidly usually is, about

3 or 4 feet from the floor, place an accurately fitting piece of board under the lower sash, so to leave a vertical aperture between the sashes of not less than three inches in depth. Failing all else, open the window a little way *at the top*. Under no circumstances is it prudent to turn the room into a practically *closed box*. Let the bed clothing be warm and light, *e.g.*, *ventilated* eider down quilts. With good air, cold need never be feared. I do not believe that moisture is detrimental to a consumptive, but I do believe that the lowered barometric pressure which commonly accompanies dampness or wet weather is; and on purely physical grounds too; the lowered barometric pressure leading to the engorgement and relative congestion of the superficial vessels. The important point is to keep a consumptive constantly irrigated with *unbreathed air*. It is when the bacillus-riddled victim of tuberculous disease becomes too weak to attend to himself carefully, that the great risk of infecting his bedding, etc., and room occurs, and hence the sensibleness of having these carefully disinfected, after pale Death have entered with equal foot, whether it be in the hovels of the lowly, or the halls of the great.

As is well-known by this time, tuberculous disease may be conveyed to the human by other animals, notably by cattle. Dairy cows in particular, if kept in over-crowded and badly ventilated sheds, fall ready victims to the tuberculous disease, and may, through their milk, convey it to milk-feeding people, particularly children. This danger may be guarded against by, *in all cases boiling or otherwise thoroughly cooking milk* before consuming it. There is a lessened but still sensible risk in eating the flesh of tuberculous cattle, for the risk cannot be entirely banished by cooking, the interior portions of joints, etc., rarely reaching a temperature sufficiently high to kill the bacilli.

The prevention of infection by dairy and fed cattle is to be found in the employment of a very effective test of the presence of tuberculous disease in an animal. I refer to the injection of "Tuberculin." If the animal be tuberculous, a marked alteration in the temperature and other symptoms follow the injection; and the obvious corollary of such indications of disease should be the prohibition of the sale of the milk or flesh of such animals for human food. It should be the duty of specially appointed veterinary surgeons *to make periodical inspections of all cattle*—to order their destruction when desirable (fair compensation to be given in all cases where the owner has taken reasonable care to give no encouragement to the disease) and to supervise the disinfecting of all stalls, sheds, etc., which have been occupied by the affected animals. But one fears that these simple precautions will only be adopted when the electors of this Realm of England have realised "that public health is public wealth," and make the promotion of national healthiness "the supreme law."

REPORT OF THE PUBLIC ANALYST.

In presenting my second annual report to the Urban Sanitary Authority I have the honour to state that during 1897, 68 samples were submitted to me under the Food and Drugs Act, of which eleven were certified to be adulterated, making the per centage of adulteration 16·1.

The 68 samples consisted of the following:—

33 of milk, 9 adulterated, 4 very poor quality.
17 of butter, none adulterated.
4 of cheese, „
3 of malt vinegar „
3 of Demerara sugar „
3 of paregoric „
1 of brandy, adulterated.
1 of coffee „
1 of olive oil, pure
1 of lard, „
1 of spirits of nitre, pure.

These figures indicate a marked improvement when compared with those recorded in my first annual report. I tabulate the figures for Norwich and the country as a whole for the sake of comparison:—

Norwich.	1896	1897	The whole country.
Total per centage of adulteration ...	26·6	16·1	9·2
Per centages of adulteration of milk ...	44·4	27·2	11·1

The figures for all England show that it is not unreasonable to hope for still further improvement. In the last annual report of the Local Government Board, Norwich is pilloried together with London and six other great towns for high per centage of milk adulteration. Therefore it is pleasant to be able to record, in addition to the above figures, the fact that in the third quarter of the year, out of twenty samples taken—including five milks—not one was adulterated.

There is a point which is constantly being raised in prosecutions for milk adulteration, and that is the fact that in many well-authenticated instances cows have given milk undoubtedly genuine, but actually lower in quality than milk which is condemned as adulterated. As this

was urged as a difficulty in a letter I recently received from one of the city magistrates, who had had before him certain milk cases based on my certificates, it seems expedient that I should state here the position I conceive it the duty of every public analyst to take in this matter.

In the first place, it cannot be disputed for one moment that *individual* cows do give milk occasionally much above or below the average in quality. Such milk is abnormal and the result of abnormal conditions, but none denies its occurrence. For instance, in 1892 the authorities at the Somerset House Laboratory investigated the milk of 273 single cows, selected from both town and country dairies, and representing all breeds. Six of the samples contained less than 2·75 per cent. of fat, and five of them less than 8 per cent. of solids not fat. These 273 cows are justly famous, they are brought into Court by every lawyer who defends a milkseller, and are familiar to every magistrate. We contend, however, that the time has come for them to be turned out to grass for the remainder of their lives. Not only have they earned a peaceful and honoured old age at the hands of the milk trade, but they are utterly beside the mark.

Why? Because in practice the milk of single cows is extremely rare. Should such a milk come into court, its origin is almost certain to transpire, and its history is easy to trace. The unmixed milk of a solitary cow does not travel far from home. On the contrary, the milk of commerce is the mixed milk of two or more cows, and it is the composition of such milk which should be the standard of comparison in determining whether a given sample as sold to the public is adulterated or not. Happily the limits between which its composition varies have been settled beyond question, as I shall presently show.

In 1881 the Somerset House chemists investigated the milk of 24 herds of cows, and in the 24 samples the lowest per centage of fat was 3·2 the lowest per centage of solids not fat 8·5, and the averages respectively 4·1 per cent. and 9 per cent. In 1892 the same chemists investigated the milk of 55 dairies as well as the 273 cows already mentioned. Of the 55 samples not one contained less than 2·89 per cent. of fat, and not one less than 8·4 per cent. of solids not fat.

But the most conclusive and overwhelming evidence is found in the series of 226,000 analyses of commercial milks made in the laboratory of the Aylesbury Dairy Company during the 13½ years from 1881 to 1895. In these the monthly averages varied from 3·5 per cent. to 4·6 per cent. of fat, and from 8·6 per cent. to 9·1 of solids not fat. These samples were taken at all times of the year from cows of all breeds under every condition of feeding. The figures are quoted as of binding authority as a standard for genuine milk in the report of the recent Select Committee on Adulteration, and they certainly appear so conclusive as to throw the onus of proof upon the defendant when a sample contains materially less than 3 per cent. of fat or 8·5 per cent. of solids not fat. At any rate, I trust I have been successful in showing that a public analyst fails in his duty to the public if he does not certify such a sample to be adulterated. Moreover, in most cases of tampering there is apparent to an experienced analyst a dislocation in the proportions of the milk-constituents to each other which changes probability to certainty.

During the year I have examined 82 samples of water drawn from wells in the city, of these I reported 48 as injurious to health. During my two years of office I have condemned 70 of these (for the most part) shallow wells, either as being grossly polluted with sewage and surface filth, or as loaded to a dangerous degree with the oxidised products of soil-filtered sewage, in which case the filtering power of the soil may collapse at any moment. Moreover, it does not follow because a given depth of a given soil oxidises sewage that it will arrest the passage, say, of the typhoid bacillus, and filtered sewage even if innocuous is still repulsive. These polluted waters not only lower the vitality of those who drink them and render their systems a favouring nidus for the incubation of diseases from other channels, but each well is a possible centre for the communication and dissemination of specific water-born disease, such as typhoid. It is the importance of this consideration to a city like Norwich that leads me to maintain a rigid standard in examining these wells.

I have also analysed two samples drawn from the Water Company's mains. They were both well filtered and free from objectionable organic pollution.

In the beginning of September I was requested by the Sanitary Committee to inquire into the cause and origin of a foul smell occurring in Pockthorpe and giving rise to great complaints. On September 13th I reported the result of my investigation. I stated that I found large volumes of the noxious gas sulphuretted hydrogen together with sulphurous acid gas issuing at intervals of a few minutes from the shaft of the British Gas Light Company's water-gas plant. In my report I gave a description of the manufacture of water-gas in order to make it clear exactly how, when, and where the gas escaped during the process. On October 11th I reported definitely that the nuisance complained of in Barrack Street and the neighbourhood did arise from the escape of sulphuretted hydrogen and sulphurous acid gas from the Gas Works as previously described by me, and I gave evidence which in my opinion connected cause and effect. On November 23rd I was able to report that in consequence of modifications introduced into the working of the water-gas process at my suggestion by the Company sulphuretted hydrogen had ceased to be evolved, but that sulphurous acid gas was still present and causing complaints, although the Company had increased the height of their chimney stack. I added that I could not see how the escape of sulphurous acid gas could be entirely avoided in the manufacture, and I repeat here that the only possible means of preventing the smell reaching Pockthorpe is either to remove the gas works, or to carry the chimney shaft to a still greater height.

I am, your obedient servant,

W. LINCOLNE SUTTON, F.I.C.

REPORT OF THE CHIEF INSPECTOR.

SANITARY DEPARTMENT,
MUNICIPAL BUILDINGS,
1898.

TO THE MEDICAL OFFICER OF HEALTH.

DEAR SIR,

The following is a brief summary of the work done during the year ending December 31st, 1897 :—

5,115 Nuisances detected.
1,012 Notices served by order of the Sanitary Committee.
1,896 Preliminary notices served.
4,871 Premises re-inspected.
1,851 Premises at which Nuisances have been abated.
2,971 Special complaints received and premises inspected.
421 Letters sent to abate Nuisances.
121 References to the City Engineer.

The following are the principal matters that have been dealt with:—

1,114 Orders served to put foul bins into a sanitary condition.
962 Orders served to provide privy pans and dust receptacles.
695 Orders served to unstop and cleanse yard drains.
520 Orders served to efficiently trap yard drains with gullies.
296 Orders served to disconnect rain-water pipes.
271 Orders served to repair defective privy pans.
249 Orders served to repair defectively-paved yards.
229 Orders served to disconnect sink waste pipes.
196 Orders served to repair surface drains.
140 Orders served to repair defective rain-water pipes.
88 Orders served to remove and cease to keep animals.

79 Orders served to repair dilapidated houses.
59 Orders served to repair defective eaves gutters.
54 Orders served to remove foul accumulations.
51 Orders served to abate overcrowding.
37 Orders served to cleanse dirty houses.
31 Orders served to repair defective water closets.
30 Orders served to empty and cleanse cesspools.
17 Orders served to repair privies.
11 Orders served to repair pumps.
5 Orders served to provide efficient water closets.
3 Orders served to abolish cesspools.
2 Orders served to efficiently drain stables.

INFECTIOUS DISEASES.

940 Dwellings have been specially inspected.
603 Rooms have been fumigated.

Sanitas Fluid and Carbolic Powder have been given to householders free of charge in all cases of Infectious Diseases for disinfecting purposes.

HOUSE TO HOUSE INSPECTION.

135 Houses and premises have been inspected.
82 Nuisances were detected.

YARD AND COURT INSPECTION.

7,694 Visits have been paid to yards and courts.
123 Privies were found dirty.
123 Privies were cleaned.

SLAUGHTER-HOUSES.

The number of Slaughter-houses in the city at the present time is 40. These have been regularly inspected, and also the meat which was being prepared for the food of man

In some cases the premises were found being kept in contravention of the Bye-laws regulating these premises, and in these cases the occupiers or owners were cautioned.

Nothwithstanding these slight irregularities, there is a marked improvement in the way the Slaughter-houses have been kept during the year.

1,249 Visits in all were paid to this class of premises.

MARKETS.

The Fishmarket has been visited and inspected daily, and the Vegetable, Fruit, and Meat Markets have been visited on Market days.

UNSOUND FOOD.

The following have been destroyed, being unfit for human food : —

24 Stone of Beef.
14 Peds of Shrimps.
11 Carcases of Mutton.
10 Boxes of Smelts.
5 Carcases of Pork.
2 Carcases of Beef.
2 Boxes of Oranges.
1 Bag of Winkles.
1 Box of Tomatoes.
1 Ton of Plaice.

PROCEEDINGS UNDER THE SALE OF FOOD AND DRUGS ACT.

No. of Samples.	Description of Samples.	Result of Analyses.	
		Genuine.	Adulterated.
1	Brandy	0	1
17	Butter	17	—
4	Cheese	4	—
1	Coffee	1	—
3	Demerara Sugar	3	—
1	Lard	1	—
3	Malt Vinegar	3	—
33	New Milk	24	9
2	Olive Oil	2	—
65		55	10

SUMMARY PROCEEDINGS.

In eight cases proceedings were taken against vendors of adulterated articles, viz :—

7 in cases of Adulterated Milk.

1 in case of Adulterated Brandy.

In all of the above cases the Magistrates convicted, and imposed fines varying from 5s. without costs to £1 and 8s. costs.

In the two cases of Milk in which proceedings were not taken the adulteration was not to any great extent, and the vendors were written to and cautioned.

WATER ANALYSES.

81 Samples of Water have been taken from pumps and draw wells.

48 Samples were certified to be "unfit for drinking purposes and injurious to health."

33 Samples were certified to be "Passable,

In 37 cases the owners have supplied their premises with the Norwich Water Works Company's Water.

In the other cases the owners have made arrangements whereby a proper supply is provided to the premises.

Proceedings were taken before the Magistrates in three of the above cases, and orders were obtained to close Polluted wells.

COWSHEDS.

354 Visits have been paid to Cowsheds, Milk-shops, and Dairies.

103 Cowsheds have been limewashed as directed by the Assistant Inspectors.

COMMON LODGING HOUSES.

There are eight Registered Common Lodging Houses

These have been regularly inspected, and on the whole were found to be conducted in a satisfactory manner.

FACTORIES AND WORKSHOPS.

The undermentioned are the principal matters that have been dealt with :—

7 Water Closets have been provided.

2 Privy Pan Closets have been provided.

4 Cases of Overcrowding have been remedied.

3 Premises have been limewashed.

2 Yard Drains have been cleansed and unstopped.

4 Dust receptacles have been provided.

SCAVENGING.

During the year 18,360 loads of Privy Bin refuse have been removed by the night waggons, and 6,196 loads by the dust waggons in the daytime.

I am, dear sir,

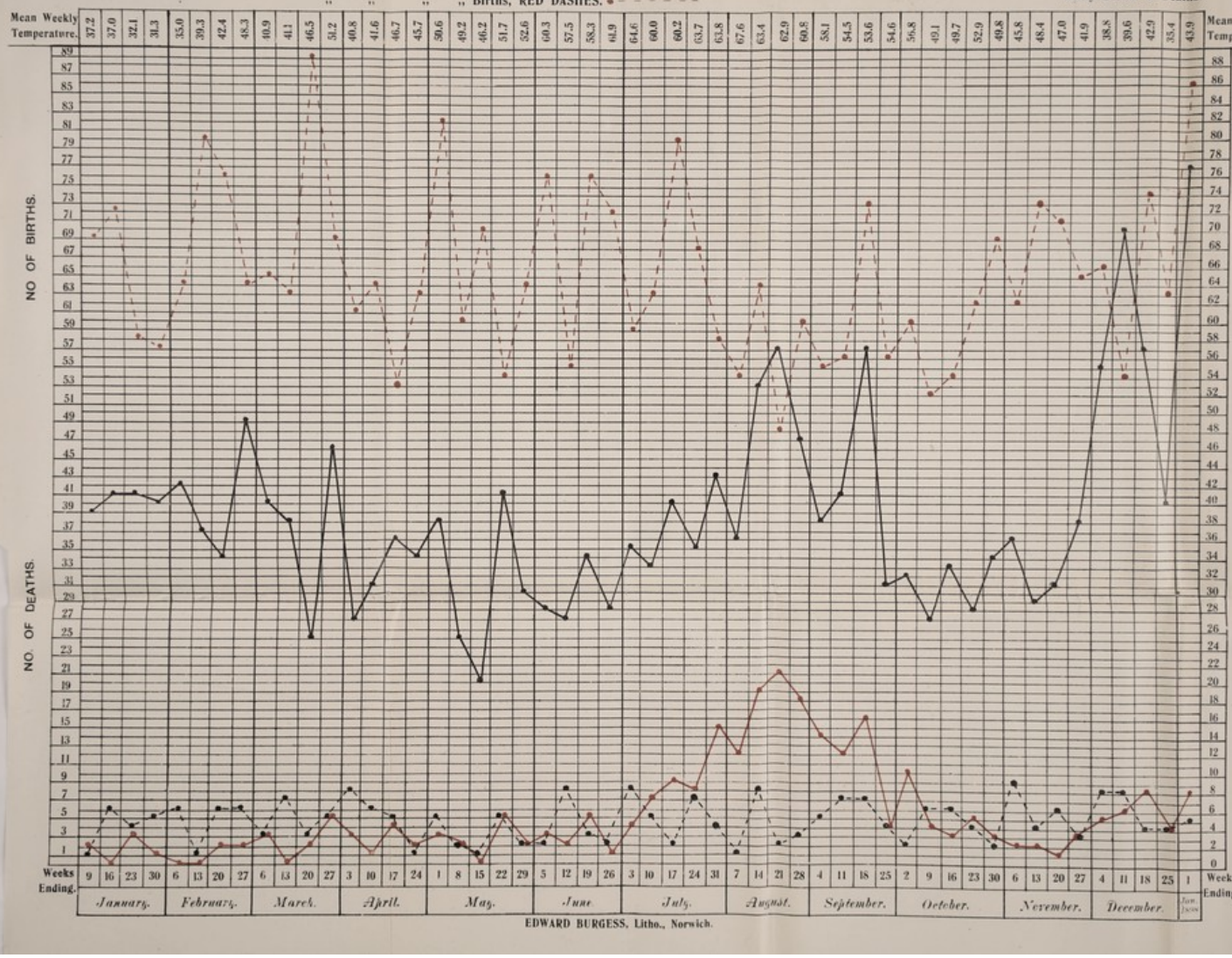
Obediently yours,

JOSEPH BROOKS, Assoc. San. Inst.,

Chief Sanitary Inspector.

Gross recorded number of Deaths from all causes, BLACK.
" " " " " " " Zymotic Diseases, RED.
" " " " " " " Tuberculous Diseases, BLACK DASHES
" " " " Births, RED DASHES.

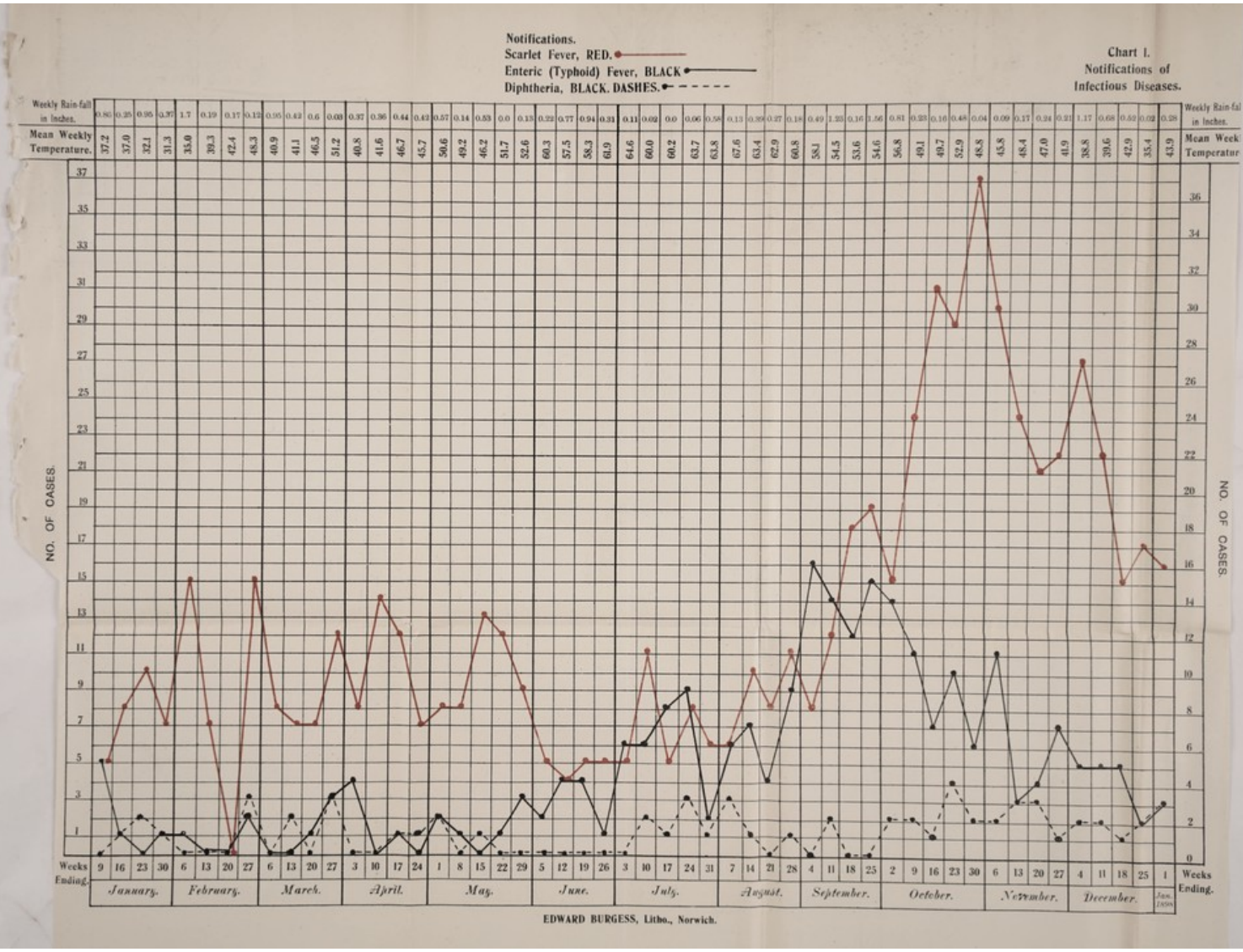
Chart 2.
Weekly Births & Deaths.



EDWARD BURGESS, Litho., Norwich.

Notifications.
Scarlet Fever, RED.
Enteric (Typhoid) Fever, BLACK
Diphtheria, BLACK. DASHES.

Chart 1.
Notifications of
Infectious Diseases.



EDWARD BURGESS, Litho., Norwich.