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ANNUAL REPORT
ON THE
HEALTH
OF THE
URBAN DISTRICT
OF
SCUNTHORPE AND FRODINGHAM
FOR THE YEAR
1920

Medical Officer of Health :

KENNETH EDWIN TAPPER, O.B.E.,
M.B., Ch.B., D.P.H.

1920.

PUBLIC HEALTH COMMITTEE.

—

COUNCILLOR W. WOODLEY, J.P. (Chairman) ;
(Late) „ REV. T. BOUGHTON,
„ (Lady) K. HORNSBY, J.P. ;
„ A. SPENCER,
„ J. WASS,
„ A. WATSON, J.P. ;
and
„ W. S. LIDDALL, J.P. (Chairman of Council).

PUBLIC HEALTH DEPARTMENT.

—

STAFF :

Medical Officer of Health :

KENNETH EDWIN TAPPER, O.B.E., M.B., Ch.B., D.P.H.

Chief Sanitary Inspector, Building Inspector, etc. :

JOSEPH GALLAGHER, C.R.S.I., M.S.I.A.

District Sanitary Inspectors :

CHARLES WALKER (deceased) ;

R. F. WHEELER, C.R.S.I., M.S.I.A. ;

H. HORNBY, Cert. M.S.I.A.

Clerk :

MISS H. FRENCH.

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Erratum :

Page 7, line 25, for " see Appendix B " read " see Chart."

Page 10, line 6, for " Appendix A " read " The Chart inserted."

**To the Chairman and Members of the Health Committee of the
Scunthorpe and Frodingham Urban District Council.**

LADY AND GENTLEMEN,

I have the honour to submit my Annual Report for the year 1920. The Report concerns the period of my duties from May to December, for, unfortunately, prior to that date a detailed record is not available.

The greater part of my time has been taken up in the organisation of the Health Department. Centralisation of all matters affecting the health of the people in the district is a policy to be strongly advocated, and it is on this basis that I have endeavoured to organise the department. This, at a time of heavy taxation and when economy is a necessity, has been a difficult matter, many schemes having been shelved for future action, and only those matters undertaken which have been necessary to safeguard the health of the public.

I would like to record my appreciation of the help received from Mr. Gallagher, your Chief Sanitary Inspector, and of the keenness and ability shown by each member of the staff. Early in the current year the department suffered the loss, after a long illness, of Mr. Walker, your late Chief Sanitary Inspector.

During the year a deputation from the Health Committee visited the Ministry of Health to place before them and to receive their advice on matters affecting the health of the district. The main subjects discussed were the conversion of privies, Isolation Hospital, re-modelling of byelaws and promotion of a Private Bill, and the desire of this Authority to administer the Notification of Births Act, 1907.

When the health of the district is considered from a statistical point of view it is satisfactory to report a low death rate and high birth rate. Against this is the high infantile mortality rate which exceeds the rate of the smaller towns by 21. Diphtheria, whooping cough, influenza, and deaths from violence give death rates more than double the rates of the smaller towns. The high illegitimate birth rate is also to be noted.

The sanitary conditions must call for work of many months. The rapid urbanisation of the district has outstepped its sanitary improvements. The basis of preventive medicine lies in environmental hygiene. A town house with a pail closet and a shallow well must, of necessity, be an unhealthy one, especially when there is overcrowding to accentuate the nuisance. It must result in sickness, poverty, and a lowering of the standard of national life.

With the various housing schemes on the way to completion, an improvement in the living conditions will take place. Houses once built for one family are now occupied by several families, who live or exist as well as possible. They cook their meals at the open fire-grate: they wash at the sink in the scullery, or go without washing altogether: they sleep in crowded rooms, and there is unavoidable mixing of the sexes. Such habits soon become natural, the mind and the body degenerate, and the future race of Britain suffers. Ideals and ambitions exist in everyone. It is for the State and preventive medicine to see that they are realised and encouraged by extension of housing schemes. Overcome the overcrowding and you will overcome an obstacle to good health.

With more water, better sewage, and a town planning scheme in preparation, an improvement in the conditions of the people must eventuate; neglected, and no amount of money will remedy the evils that will arise.

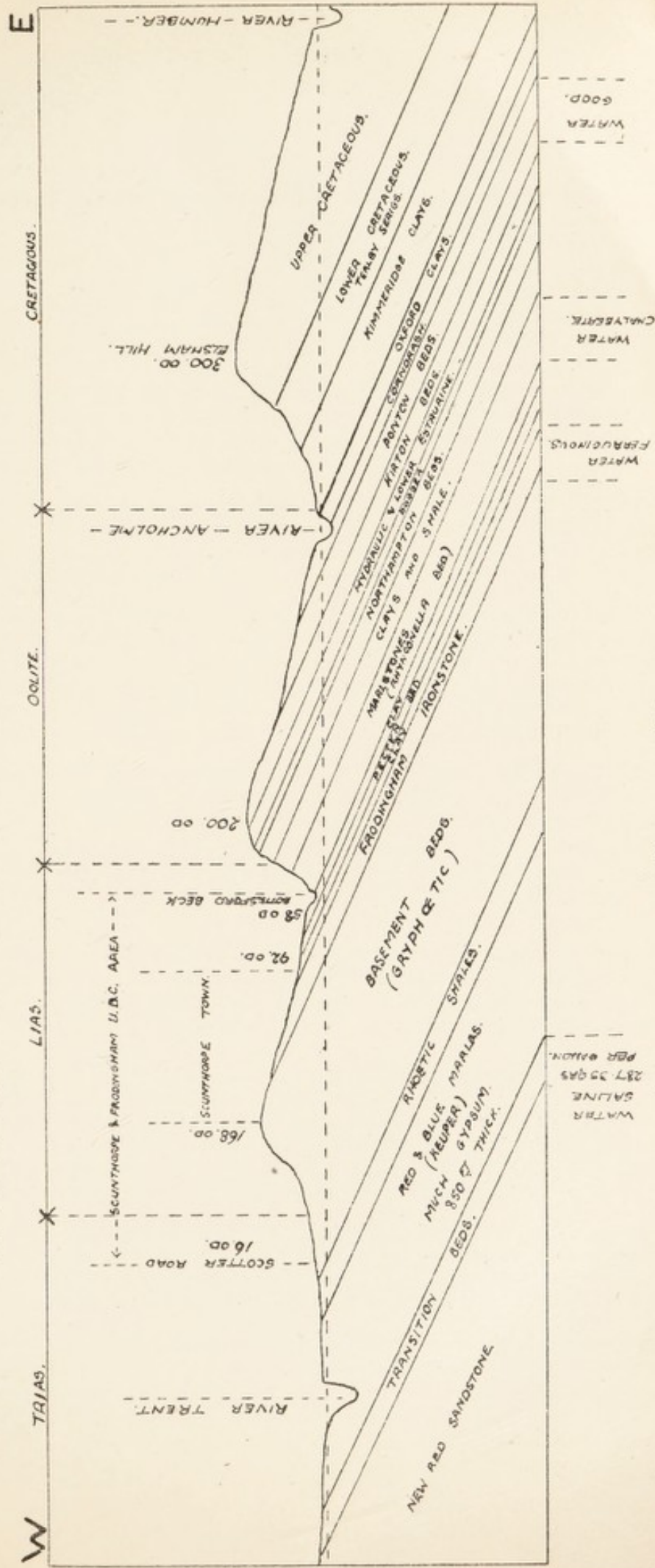
I am,

Your obedient Servant,


KENNETH E. TAPPER.

Public Health Office,
Frodingham,
February 28th, 1921.

DIAGRAM SHOWING GEOLOGICAL SECTION FROM CROWLE TO THE HUMBER AT GRIMSBY :



DIP IS SHEWN EXAGGERATED. IT IS APPROXIMATELY 115' PER MILE E. SE.



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Natural and Social Conditions of the District.

On October 1st, 1919, the Urban District of Scunthorpe, Brumby, and Frodingham, part of the Parishes of Appleby, Ashby, Crosby, and Flixborough, and part of the Rural District of Glanford Brigg amalgamated to form the Urban District of Scunthorpe and Frodingham.

This area comprises 7,961 acres lying in the north-west of Lincolnshire, east of the River Trent.

Geology (see Chart A).—The escarpment of the lias runs north and south throughout the area. West of the escarpment lies the alluvial land of the River Trent. To the east lies the outcrop of the ironstone ore and the Bottesford Beck, a tributary of the River Trent.

Elevation.—The highest elevation of the district is at the escarpment of the lias, where an altitude of 182 is reached. The land slopes gradually to the east and more gradually from north to south. To the west the land falls rapidly to the level of the River Trent.

Built-over Areas.—Large open spaces exist between the three main areas. Scunthorpe and Crosby join to form the largest group of houses, which is separated from the Frodingham group by a distance of 500 yards open space. Between the Frodingham group and the third group, Ashby, is a distance of three-quarters of a mile. The extension of the various building schemes is eating into these open spaces.

Means of Communication.—The town lies on the Great Central Railway line, between Doncaster and Grimsby. It is connected by by-roads to Doncaster, Brigg, Lincoln, and Grimsby. The completion of Keadby Road will considerably improve direct road communication between Doncaster and Scunthorpe. The means of communication, both external and internal, are bad, and must handicap the progress of the district.

Social Conditions.—The chief occupations of the inhabitants are those appertaining to ironstone mining and to the iron and steel industry, which in recent years has shown rapid and considerable extension. The building trade is well represented. There is little or no female employment.

Owing to the nature of employment, deaths from violence show a high return. Blast furnace gases play a part in this.

Some of the employment is heavy work and dirty work, and the fact that some of the houses are not equipped with baths does not encourage the habits of cleanliness, nor help in the resistance to disease. The habit of uncleanness is quickly adopted by the children.

Poor Law Relief.—315 persons were in receipt of relief during the year, the annual cost being over £1,700. 40 widows, 10 men, and 74 dependant children were in receipt of weekly constructional relief, the rest being made up by casual relief, temporary relief, etc.

Hospital Accommodation.—The only existing hospital is the Cottage Hospital of 24 beds, which deals with accidents and emergencies. The accommodation is inadequate for the needs of the district, patients being sent to Hull, Grimsby, Doncaster, Lincoln, etc. A War Memorial

Hospital of 110 beds is to be erected in the immediate future, and until this is in being the hospital accommodation must remain a matter of urgency.

There is no accommodation for infectious diseases. A building of galvanised iron exists in the Scotter Road, being erected for the purpose of smallpox isolation. Owing to the lack of water and sewage it cannot in any way be considered as suitable accommodation for infectious diseases.

Statistics.

The year 1920 being the last year of a censal period, an estimation of the population must in all cases be a difficult matter. The rapid growth of the district adds to this difficulty. The previous census and Registrar General's Report do not give a complete census of the newly united area inscribed as Scunthorpe and Frodingham, part of the population being estimated in the Glanford Brigg Rural District. In the latest Report of the Registrar General (1920) the population of Scunthorpe and Frodingham is given as 29,037. For the purposes of calculating the death rate and birth rate I have taken this figure of 29,037.

Census Returns.

	1891.	1901.	1911.	Estimated 1919.
Scunthorpe	3,481	6,750	10,170	14,000
Brumby and Frodingham	2,140	2,273	2,931	4,000
Crosby Parish	366	364	3,339	6,000
Ashby Parish	1,634	1,845	3,237	4,000
	<u>7,621</u>	<u>11,232</u>	<u>19,677</u>	<u>28,000</u>

The population may be calculated on the number of houses. Allowing for overcrowding conditions an average of 6 persons per house, and estimating the number of houses completed and occupied on December 31st, 1920, as 5,074, gives a population of 30,444.

DEATHS.—There were 329 deaths recorded during the year. Of these 3 belong to districts outside the area, whilst 34 were transferred to the district. Thus the total deaths belonging to the district are 326, which is equal to a death rate of 11·2, or one person has died in every 89 persons living. Comparing this with the 1920 crude death rate of England and Wales of 12·4 makes the death rate of Scunthorpe and Frodingham a low one, but equal to the death rate of the smaller towns. The death rate cannot at any time be taken as an indication of the state of sanitation of the area.

During the period from May to December 100 males and 66 females died, and this proportion continued throughout the year. This is to be expected in an industrial area, where chiefly males are employed.

Institutional Deaths.—19 deaths occurred at the Cottage Hospital, and of this total 9 were due to deaths from violence (other than suicides). Two belonged to districts outside the area. In addition 18 deaths occurred in other institutions—Kingston-on-Hull, Lincoln, Brigg, Doncaster, Grimsby, Sheffield, Leeds, and Branston. Five deaths occurred in the Mental Hospital at Bracebridge.

The large proportion of deaths transferable to the district must depend on the lack of sufficient hospital accommodation in the district.

TABLE A.

Analysis of Death Returns.

GROUP DISEASES	DISEASE	0-1	1-2	2-5	5-15	15-25	25-45	45-65	65 and over	Total	Total
Chief Zymotic Diseases	Measles	1	1	1	2	—	—	—	—	5	30
	Scarlet Fever	—	—	—	—	1	—	—	—	1	
	Diphtheria	2	—	3	3	—	—	—	—	8	
	Whooping Cough	5	3	1	—	—	—	—	—	9	
	Diarrhoea and Enteritis	6	—	—	—	—	—	—	1	7	
Influenza	1	3	—	—	1	6	6	3	20	20	
Tuberculosis	Lung	—	—	2	—	4	5	7	—	18	27
	Meningitis	2	—	—	1	1	1	—	1	6	
	Other forms	—	—	1	2	—	—	—	—	3	
Respiratory Diseases	Bronchitis	6	5	2	—	—	—	2	7	22	61
	Pneumonia	9	3	6	—	—	3	10	—	31	
	Other Resp. Diseases	—	—	5	1	1	—	1	—	8	
Diseases of Pregnancy and Parturition	Puerperal Fever	—	—	—	—	—	1	—	—	1	3
	Other Diseases	—	—	—	—	—	2	—	—	2	
Congenital	Premature Birth	23	—	—	—	—	—	—	—	23	35
	Congenital Malformation	4	1	—	—	—	—	—	—	5	
	Marasmus	6	1	—	—	—	—	—	—	7	
Violence	Accidental	—	—	1	3	4	6	7	2	23	25
	Suicides	—	—	—	—	—	1	1	—	2	
Non-Grouped Diseases	Other Defined Diseases	18	1	2	5	2	8	20	27	83	125
	Cancer	—	—	—	—	—	3	13	2	18	
	Meningitis	—	—	1	1	—	—	—	—	2	
	Organic Heart Disease	—	—	1	—	—	3	6	3	13	
	Appendicitis and Typhlitis	—	—	—	1	—	—	—	—	1	
	Alcoholism	—	—	—	—	—	1	1	—	2	
	Nephritis and Bright's Disease	—	—	—	1	—	—	2	2	5	
	Rheumatic Fever	—	—	—	—	1	—	—	—	1	
TOTALS		83	18	26	20	15	40	76	48	326	326

Inquests.—31 inquests were held during the year, deaths being certified as follows:—

Violence	- 21	Alcoholism	- 1	Aortic Aneurism	- 1
Pneumonia	2	Pyelitis	- 1	Cellulitis and Gangrene	- 1
Suicides	- 2	Overlying	- 1	Ruptured Pancreatic Cyst	1

Analysis of Deaths (Table A).—Of the total deaths 127 took place in children under 5 years of age, equal to a rate of 4·39 per 1,000 of the population, or two-fifths of the total death rate. If this is the death rate, what must be the sickness rate of the children of this age period, and what the disability that must handicap them for the future? More active steps are here needed if we are to prevent again a C3 generation.

Main Causes of Deaths.—The total death rate is divided up as follows:—

1	Respiratory Diseases	...	...	2·10
2	Premature Births and Congenital Causes	...	...	1·21
3	Chief Zymotic Diseases	...	...	1·03
4	Tuberculosis	...	...	·92
5	Violence	...	...	·86
6	Influenza	...	...	·68
7	Cancer	...	...	·62
8	Cardiac Diseases	...	...	·44

Respiratory Diseases.—This is the chief of the main causes of death, being equivalent to 2·10 per 1,000, or one-fifth of the total rate.

In plotting out the main causes of deaths for each month since May it is found that September gives the highest rate of 13 per 1,000 (see Appendix B), and that the chief cause of the rise in this month was due to respiratory diseases. Owing to the paucity of data I am not prepared to give a reason for this. In December, when the rate was 11·7, the main cause was again a rise in deaths from respiratory diseases. It is also interesting to record that, whilst it was the cause of a rise in the death rate for September, it was the main cause of deaths in infants during the month of October.

Premature Births.—See infantile mortality.

Chief Zymotic Diseases.—The zymotic death rate for the year was 1·03 per 1,000 population. The chief disease causing this rate was Whooping Cough, which was responsible for ·31 of this rate. Diarrhoea and Enteritis gave a death rate of ·24. Pail closets and dirty streets play an important part in this.

Accidents.—The large death rate due to accidents is, of course, attributable to the nature of employment in the district. The rate is more than double that of England and Wales.

Tuberculosis.—See under infectious diseases.

Influenza.—The death rate from this disease equals ·68, the chief month concerned being May, with a slight recrudescence in November and December, the age mainly affected being the middle age, which was the chief one affected during the pandemic of 1918-1919.

Cancer.—In England and Wales Cancer is giving the only exception

to the decline of deaths from all diseases at all ages. The death rate for Scunthorpe for the year was equivalent to 62 per 1,000. This is lower than that usually recorded for England and Wales.

Districts Affected.—A card record is being kept of all deaths occurring in the district, each death being allotted to the ward and street.

From May to December the returns show as follows:—

North Ward	...	21
South „	...	25
East „	...	48
West „	...	37
Central „	...	35

It is to be noted that that part of the town which contains the nearest to slum property is giving the highest number of deaths. This cannot be established as a continued fact until a longer record is kept.

Infantile Mortality.

83 children died under one year of age, equivalent to a death rate of 2.85 per 1,000 of your population, or an infantile mortality rate of 101.3 per 1,000 births registered in the year. Calculated on the babies *born* in the year the infantile mortality rate equals 110. This rate calls for careful consideration in that a death rate of 2.85 is one-fourth of the total death rate. (See Appendix C for monthly comparisons of death rates). When the causes of this death rate are further considered, several important facts are brought to light. 45% of infantile deaths are due to parental conditions. These can be prevented, and it brings forward the great need of and scope for prenatal clinics, and a Maternity Hospital for the district.

Main Causes of Infantile Deaths (see Table B):

Premature Births.—As will be seen from Table B, 38 deaths occurred in the first four weeks of life, and of this number 22 were due to premature births. That is to say, 12% of the *total* deaths were due to premature births and allied conditions.

It is an established fact that parental intemperance and venereal diseases are the main primary causes of deaths in children in the first few weeks of life. The insanitary homes with privies, shallow wells, and the overcrowding that exists must play an important part in both these primary causes. The mind is moulded mainly by its environment.

Co-ordination is urgently needed between the various clinics, practitioners, and the Sanitary Department if this cause of death is to be prevented. Unification of health control is an important matter.

Respiratory Diseases.—The death rate from this cause of deaths of infants is equal to 55 per 1,000 of population, or 20% of the total deaths of children under one year of age. Whereas Respiratory Diseases were the main cause of the rise in the death rate in September, they are the main cause of the rise in infantile mortality in October.

Measles is a primary cause of Bronchitis and Broncho Pneumonia in this age period. No doubt some deaths from Measles are certified in this disease group.

TABLE B.

Analysis of Infant Deaths.

Group Diseases.	Causes of Deaths.	Under 1 week.	1—2 weeks.	2—3 weeks.	3—4 weeks.	Total under 4 weeks.	1—3 months.	3—6 months.	6—9 months.	9—12 months.	Total under 1 year.
Zymotic Diseases ..	Measles ...	...	...	...	...	...	...	...	...	1	1
	Diphtheria and Croup ...	...	...	...	...	...	...	...	1	1	2
	Whooping Cough ...	...	...	...	...	...	1	...	4	...	5
	Enteritis ...	...	...	...	...	...	5	1	...	...	6
Tuberculosis ...	Meningitis ..	...	...	...	...	...	1	1	...	...	2
	Abdominal ..	...	...	...	...	...	...	...	...	...	...
	Other forms	...	...	...	...	...	...	...	...	...	2
Respiratory Diseases	Bronchitis ...	...	...	...	...	...	...	1	2	3	6
	Pneumonia ...	...	...	1	1	2	2	1	3	2	10
	Other ...	...	...	...	...	...	...	...	...	...	16
Congenital ...	Premature Births ...	18	1	...	3	22	1	...	...	...	23
	Malformations ...	1	...	...	1	2	...	...	1	1	4
	Syphilis ...	...	...	1	...	1	...	...	...	...	1
	Marasmus ...	1	1	...	...	2	2	1	1	...	6
Non-grouped ...	Atelectosis ...	3	...	...	...	3	...	...	...	...	3
	Overlying ...	...	...	...	...	...	...	...	1	...	1
	Convulsions ...	2	...	1	2	5	3	...	...	...	8
	Other causes	...	1	...	...	1	...	...	3	1	5
	Totals ...	25	3	3	7	38	15	5	16	9	83

One means of prevention in these deaths in children will be a stricter control of Measles and education of this community to the seriousness of Measles as a cause of death.

Zymotic Diseases.—In infants the death rate from Zymotic Diseases is .48 per 1,000 population, or 17% of total infant deaths.

Whooping Cough.—The majority of these deaths occurred in January. Preventive steps in this disease will necessitate the services of a Health Visitor, who will advise mothers in the care of children suffering from this disease, and who will also devote her time to Measles cases, and, in order that the coming generation may receive all the facilities offered by the State, by making both this disease and Measles notifiable.

Diarrhœa and Enteritis.—Death rate from this disease in infants equals 7% of the total deaths under one year, or 7.3 per 1,000 births. This rate as a cause of deaths in infants has been falling throughout England and Wales during the last few years, and this fall is credited to improved sanitary conditions. In this respect it is noteworthy that following a strike of scavengers in July, when refuse and flies collected, there was in the following month an increase in the number of deaths from Diarrhœa and Enteritis.

Measles.—Although the death rate from Measles has been small in children under one year—the usual danger period is under two years—it is probable that some of the deaths certified as Bronchitis are attributable primarily to Measles.

It appears rather remarkable that in England Measles is responsible for more deaths than Scarlet Fever, Diphtheria, and Typhoid put together, and yet the public here still consider it advisable for their children to contract Measles and be done with it.

BIRTHS.

Birth Rate.—This is calculated upon the number of births per 1,000 population, so that upon an accurate estimation of the population will depend as accurate estimation of the birth rate. Following the census next year it will be more accurate to record the birth rate on the number of births per 1,000 women between 15 and 45 years.

819 births (405 males and 414 females) were registered during the year, giving a birth rate per 1,000 of the population of 28.2. A high birth rate for 1920 is recorded all over England and Wales, and a corresponding rise has occurred in this area.

Of the registered births 753 were *born* in the year, thus giving an amended birth rate of 25.9.

Since May 521 births have been registered and allotted to wards, as follows:—

Wards.	Male.	Female.	Total.
North ...	50	48	58
South ...	35	36	71
East ...	82	72	154
West ...	57	60	117
Central ...	42	39	81
Total ...	<u>266</u>	<u>255</u>	<u>521</u>

In future Reports I shall be able to say whether the rates are greater amongst the very poor, and what parts of each ward are giving the higher return. If the very poor are giving rise to "overcrowding" the community, then the scope and work of the Health Department must of necessity be increased.

Natural Increase of Population.—Appendix A shows the rate of the natural increase, excess of births over deaths, to be a large one.

Illegitimate Births.—The returns show that 40 illegitimate children were born—30 females and 10 males. Expressed as a percentage of births, the illegitimate birth rate is 5%. The cause and the remedy lie in the overcrowded conditions that exist in many houses.

Maternity and Child Welfare.—This important branch of preventive medicine in Scunthorpe and Frodingham is, at present, administered by the Lindsey County Council. The need of a Maternity Hospital for the district is an urgent one, especially so under the present overcrowded conditions of the houses.

A deputation visited the Ministry of Health in November, 1920, to express the desire of this Local Authority to administer the Notification of Births Act, 1907. The Ministry intend to give further consideration to the matter in 1921.

Summary of Statistics.

Birth Rate (Registered Births)	...	...	...	28·2
Illegitimate Birth Rate	...	...	...	5%
Death Rate :				
Respiratory Diseases	...	...	2 10	
Premature Births and Congenital	...	...	1·21	
Chief Zymotic Diseases	...	...	1·03	
Tuberculosis	...	...	·92	
Accident	...	...	·86	
Influenza	...	...	·68	
Cancer	...	...	·62	
Cardiac Diseases	...	...	·44	
Other Causes	...	...	3·36	
Total	...	...	—	<u>11·22</u>
Infantile Mortality Rate (per 1,000 population) :				
Congenital Causes	}	Premature Birth	...	·80
		Marasmus	...	·21
		Malformation	...	·14
		Syphilis	...	·03
		Total	...	1·18
Respiratory Diseases	...	...	...	·55
Zymotic Diseases	}	Enteritis	...	·21
		Whooping Cough	...	·17
		Measles	...	·03
		Diphtheria	...	·07
		Total	...	·48
From other causes	...	...	...	·64
				<u>2·85</u>
Infantile Mortality Rate per 1,000 Registered Births			...	<u>101·3</u>

Sanitary Circumstances of the District.

Adoptive Acts in Force :

- Infectious Disease (Notification) Act, 1899.
- Public Health Act's (Amendment) Act, 1890, part 3 and 4.
- Public Health Act's (Amendment) Act, 1907, part 2.
 - part 3: sections 34 to 38,
43 to 51.
 - part 4 : sections 52 to 66
and 68.

Water Supply.

For purpose of water supply the district is divided into three areas:

1—**Scunthorpe and Crosby** (East, North, and West Wards) being supplied by a public supply from catchment and bore-hole in Risby Warren.

2—**Brumby, Frodingham, and Santon** (Central Ward) being supplied by a bore-well supply half-a-mile from Appleby.

Areas 1 and 2 are now, in the year 1921, being augmented by a supply purchased from the North Lincolnshire Iron Company.

There are, in addition to those areas supplied with a public supply, many houses with shallow wells only, a number estimated at 1,404. The public supply is a constant one in principle, but often intermittent in practice.

Taking each of these supplies in order :—

Risby Warren, an excellent catchment area of 1,200 acres, free from all source of animal contamination and capable of supplying 184,000,000 gallons per year, with an average annual rainfall of 26".—The geology of the area shows blown sand overlying Ponton and Kirton Beds of the oolites over clay. Bore-holes are sunk and the water collected by open channels to a pumping reservoir, from which by a 9" main the water is pumped to a high level storage reservoir of 750,000 gallons capacity. From here by an 8" gravitation main the water is distributed to supply the works and residential property of Scunthorpe and Crosby.

Analysis of the water taken from the storage reservoir in 1910 (a) and from tap supply in 1920 (b) :—

	(A)	(B)
	Parts per 100,000.	Parts per 100,000.
Free Ammonia ...	·0007	·0007
Albuminoid Ammonia ...	·005	·003
Oxygen Absorbed ...	·027	·008
Nitrates ...	·26	·33
Nitrites ...	Nil.	Nil.
Chlorine ...	1·86	2·21
Total Hardness ...	19·3	28·6
Permanent Hardness ...	6·3	12·9
B. Coli was present in 50 cc. but not in 20 cc.		do.

Further analysis shows :—

	Grains per gallon.
Carbonate of Lime ...	16·2
Sulphate of Lime ...	2·4
Nitrate of Magnesium ...	2
Chloride of Sodium ...	2·1

This analysis shows the purity of supply, but high hardness.

The quantity of water supplied from this area for 1920 averaged 8,121,000 per month, of which 18½%, or 1,500,000, was used for purposes other than domestic.

Estimating the population supplied at 18,000 gives for domestic purposes an inadequate allotment of 12 gallons per head per day.

Appleby Supply.—This comes from a deep bore into the Ponton and Kirton beds of limestone in the oolites, 6,000 gallons per hour being pumped to a small storage reservoir of 110,000 gallons. This water supplied the area comprising New Santon and Brumby and Frodingham, an average quantity per month being 3,065,000 gallons, of which 28% is used for purposes other than domestic, which leaves 2,200,000 for the domestic use of 6,000 people per month, or 12 gallons per head per day.

The analysis of this water shows its hardness. It was at one time treated with softol, but of recent years this has been abandoned. Its total hardness shows 51·5, of which 37·5 is temporary expressed as grains per gallon of carbonate of lime.

Supplementary Supply.—Owing to the inadequacy of the supply from both these areas it was found necessary to proceed during the year to augment the supply by 500,000 gallons per day from the North Lincolnshire Ironstone Company's supply. This supply comes from bore-holes at Appleby Clapgate, and was turned on at the beginning of 1921. It is intended to supply the area east of Trafford Street, and augment the supply of Brumby and Frodingham.

The analysis shows:—

	Parts per 100,000.	
	At Bore-hole.	Tap Supply.
Total Solids ...	44·000	59·2
Free Ammonia ...	·001	·0007
Albuminoid Ammonia ...	·004	·006
Oxygen Gas absorbed in 3 hours ...	·02	·017
Nitrates... ..	·06	·23
Nitrites	·00	·00
Chlorine	1·6	2·86
Total Hardness ...	32·6	38·3
Permanent Hardness ...	10·5	10·0

This analysis shows purity, but the hardness of the water, unless treated, makes it an uneconomical supply. It is established that for washing purposes 2½ ounces of soap are required to each 100 gallons for each degree of hardness. Thus in this case 48 ounces of soap are lost to each 100 gallons of water used, or in each household of five persons using eight gallons per head per day, for laundry and washing purposes, 18 ounces of soap would be wasted in totally ridding the water of its hardness. Boiling of the water would rid it of its temporary hardness, but the hot water cistern soon becomes coated, and so more coal is required to heat the water. Everything considered this hard water is not an economical one.

Shallow Well Supply.—Ashby (South Ward) is throughout supplied with water from this source only. Shallow wells also exist in the other wards, the number being 1,404, or 27% of houses have no other

supply but that from shallow wells. These wells show faulty construction, being unprotected from surface drainage, and liable to constant sources of pollution.

An analyses of water taken from shallow wells in Dunstall Street (a) and Ashby (b) showed the following:—

	(A)	(B)
Total Solids	165·4	176·0
Chlorine	11·7	13·4
Nitrates	6·2	1·67
Nitrites	0·0	·00
Total Hardness	91·4	91·4
Permanent Hardness	62·4	74·3
Oxygen Gas absorbed in hours	·024	·075
Free Ammonia	·001	·013
Albuminoid Ammonia	·01	·018

The excess of mineral matter and great excess of hardness, with a high nitrates figure, chlorine figure and albuminoid ammonia, show surface contamination and total unsuitability of the supplies for domestic purposes, neither being a safe source of supply.

Most of these shallow wells exist in close proximity to the pail closets, and the keeping of fowls, ducks, etc., soon makes the catchment area of these shallow wells a quagmire.

This probable and important source of sickness *must be abolished*.

Since May, 16 informal notices and eight statutory notices have resulted in correction of defective pumps where town's water is not available. Two informal and 13 statutory notices have been issued under section 62 of the Public Health Act, 1875, and resulted in 10 houses abolishing shallow well supply and adopting the public supply.

Numerous complaints were received during the year of the inadequacy of the water for the usual necessary domestic purposes. The complaints coming chiefly from the higher levels of the town were, no doubt, due to lack of pressure as well as to lack of quantity at the source.

The provision of pure water and sufficient water is of the greatest importance to the health of the people. When all houses are supplied with baths and water closets, and when the streets are daily washed down with water, instead of the capitum supply being 25 gallons per day, it would be nearer a health ideal if 60 gallons per head per day were available for all purposes within the district.

Rivers and Streams.

Bottesford Beck.—This is the only stream of importance within the area. It drains water from the ironstone mines, receives sewage effluents from the sewage works and trade effluent from the various steel works. Lower down, nearer the Trent, it supplies some villages and farms with drinking water for cattle, etc., and possibly water for cleansing milk cans. Tar pollution from the Redbourn coke ovens occurred during the year, and necessary steps were taken to abate.

Drainage and Sewage.

There are four areas of drainage and sewage :

- 1—Scunthorpe and Crosby ;
- 2—Brumby and Frodingham ;
- 3—Ashby ;
- 4—Santon.

Scunthorpe and Crosby.—The system of drainage is a combined one to deal with rain water and sewage. Sewage is collected from Crosby by a 36" sewer in Wells Street. Scunthorpe sewage is collected also by a 36" sewer until it meets the Crosby sewer at Wells Street, when it becomes a 42" brick barrel sewer as far as the storm water overflow. At this point anything over six times the dry weather flow passes into the beck. The sewer then becomes a 21" pipe for part of the way and 24" to the outfall. This sewer is of steel rivetted pipes upon trestles.

The disposal plant lies to the extreme east of the area, north of the Great Central Railway line to Grimsby. It was built for a capacity of 30,000 people and provision made for extension. It consists of screening, detritus tank in duplicate, tank provision for storm water of over three times dry weather flow, four open septic tanks, and sludge tanks. Owing to the low level of the tanks a small engine is required to empty them. From the septic tanks the sewage passes over eight percolating filters, thence to two humus tanks, and finally discharges into Bottesford Beck. This plant is modern in type and capable of satisfactorily dealing with the whole of the sewage of Scunthorpe and Crosby.

Effluents taken on two occasions of my visiting were found to be causing pollution to the beck.

Brumby and Frodingham Area.—The principle adopted is a combined drainage system. A 15" sewer collects sewage from Brumby, New Brumby, Frodingham, and New Frodingham. Part of the area at New Frodingham is below the sewage level, and an automatic ejector is brought into service. Owing to the large extension of housing schemes that have taken and are taking place in this area, it has been found necessary to enlarge existing sewers and lay new ones. Estimating the present average amount of dry weather sewage at 12 gallons per head per day, the total amount of daily sewage would be 70,000 gallons.

The disposal plant lies to the east of East Common Lane, Brumby. It consists of detritus tanks, open septic tanks, and percolating primary filters, and built to a capacity of 70,000 gallons per day. The effluent passes through open channels through a meadow to reach a small tributary of the Santon Beck. Three times dry weather flow passes direct to these channels untreated.

The plant is below standard, and owing to building extension requires enlargement.

Ashby Area.—Two obsolete sewers collect household sewage from the area. Both will require to be re-laid and a more modern system of drainage adopted. The sewage disposal plant was built to deal with 3,600 population, and built on the open septic tank principle with percolating filters. Part of the sewage only is treated: the rest flows in an open channel at the road-side to join with the effluent from the sewage plant.

It is difficult to say whether the crude sewage contaminates the effluent, or the effluent the crude sewage. The mixture then passes on to finally reach the beck near Emanuel Bridge. As in other areas new sewers have been laid and old sewers re-made during the year.

Santon.—This area, being a small working-class residential district, to the extreme east of the area appears to be neglected in the matter of sewage disposal. The small disposal plant should be established to treat sewage from the area as a whole. This plant could take in sewage from the new cottages at Appleby instead of allowing as at present the effluent from a septic tank to pollute the Bottesford Beck.

No cleansing of the sewers in the district appears to be carried out. To depend on the rainfall to flush the sewers is not always advisable, especially in the summer months, when the temperature is higher and putrefaction more liable.

The testing and analysis of sewage effluent and of the crude sewage itself is the only contention of the efficiency of a sewage plant. In none of the sewage plants did visual examination of the effluent appear satisfactory.

Closet Accommodation.

This has been a matter of special investigation during the year, it being considered the most vital of all public health undertakings in your district.

Statistical.

December 31st.	Pails.	W.C.	Slop-Closets.
North Ward ...	514	397	21
South „ ...	740	22	...
East „ ...	687	231	...
West „ ...	1,066	494	...
Central „ ...	503	461	...
Total ...	<u>3,510</u>	<u>1,605</u>	<u>21</u>

In other words, *69% of dwellings suffer the existence of pail-closets.*

There have been 14 conversions of pail-closets to water-closets since May.

Whilst Ashby (South Ward) remains without a town's supply of water, a water-closet must be the exception. The need of a scheme to convert the whole of the area to water carriage was first placed before the Health Committee in June, 1920, when a sub-committee was appointed to go into the matter. This committee recommended the Council to undertake conversions, and also that East Ward should be the first to come under the scheme, the Council to borrow money for this purpose. The total cost for the whole area was estimated at £50,000 if converted under sections 39 to 41 of the 1907 Public Health Act, and this expenditure apart from the re-laying of new sewers, etc. It was shown that if East Ward were converted at the rate of 300 pails per annum, the annual cost would be £4,500 if paid out of revenue. Against this expenditure would be placed the saving of the cost of night-soil collection, which was estimated at 16s. per pail per annum, but the improvement in the living conditions of the

people, the health of the people, which must result in water carriage system, cannot under any circumstances be considered on a financial basis. It is economy to save life and prevent sickness, and money spent for this purpose brings interest unequalled by commercial undertakings. There is only one civilised method of sewage disposal, and that is water carriage, and we do not wish to remain barbarians. The economic loss from a typhoid epidemic would be appalling in the present state of intolerable pail-closets.

The matter was further discussed by the Council, and it was considered that the cost should not fall entirely on the ratepayers, but that the property owners should pay their share. This resulted in the deputation to the Ministry of Health, who advised the promotion of a Private Bill, but in the meantime to proceed under the 1875 and 1907 Acts. The Council then decided to promote a Private Bill in 1921, and, in order to encourage the conversions, the Council would be willing to pay half the cost to any owner who converts at his own wish. This method does not treat the matter as a whole, so that pail-closets must remain, for at least another year, a source of sickness and filth, and an encouragement of insanitary habits among the inhabitants.

Scavenging.

Owing to the distribution of the houses, and to the lack of internal road communication, it is unfortunately necessary to undertake scavenging in four separate areas.

The larger area of Scunthorpe and Crosby (North, East, and West Wards) is done by direct labour, which in this instance is proving to be the cheapest and most efficient method of collection. The other areas—Brumby and Frodingham (Central Ward), Ashby (South Ward), and Santon—are less satisfactorily dealt with by contract.

The predominance of pails over water-closets and the need of a refuse destructor make scavenging by the conservancy system difficult, expensive, and unsatisfactory. When to this you add overcrowding in the houses, when one pail-closet and one ash-bin are allotted to a house with 15 people therein, it is not difficult to reason the cause of the trouble of scavenging in the district.

To have more than one collection per week would make the cost an excessive one.

The result of the conservancy system is to be seen at Winterton Road tip. Early in the year this was found to be a glorified cesspool. With labour and a change of method in the collection it has been undoubtedly improved but still remains, until a means of refuse destruction is adopted and all pails converted to water carriage, a nuisance to the people and a menace to health.

Pending conversion of pail-closets a scheme has been adopted to overcome deposition of night-soil on the tip. This will consist of a manhole where the night-soil will be deposited direct into the main sewer and followed by a flush of water.

A strike of scavengers in July caused considerable accumulation of refuse throughout the district, and many pail-closets had to be emptied in the gardens by the owners. Thus several nuisances arose, no doubt being a primary cause of deaths from Diarrhœa and Enteritis in children during the months of August and September.

Late in the year an electric vehicle was purchased and is proving its value, showing economy and efficiency in the collection of dry refuse. Further extension of this principle is desirable, and is recommended for the area. Since the vehicle has been in use the quantity of dry refuse removed to the tip has been increased by 25%. All past accumulations were collected, with the result that there are no ashpits in Scunthorpe and Crosby, most houses in this area being now supplied with a moveable ashbin.

In Ashby, Frodingham, and Santon many houses remain without ashbins. The general policy adopted during the year has been an endeavour to see that every house has a moveable ashbin of approved type, and that this ashbin is emptied once a week. Whilst these areas remain under contract, it has been a slow process of elimination of ashpits, but progress has been made. Since May 285 statutory and informal notices caused 200 houses, previously without ashbins, to be supplied with an approved type of bin.

Where contract scavenging is in being there is little or no control over the deposition of collected refuse. Whilst large areas of land remain unbuilt upon, the depositing of night-soil and refuse for the farmers' use may be tolerated, but in future this haphazard method of disposal will become a matter of urgent public health reform, and must be controlled and prevented.

Sanitary Inspection of the District.

		Statutory.	Informal.
Details of Nuisances abated :	Defective Ashpit Accommodation	85	209
	„ Eaves and Gutters	6	27
	„ R.W. Pipes	6	11
	„ Drains	8	56
	„ Privy Pails	11	58
	„ Floors	2	7
	„ Roofs...	4	11
	Limewashing of Slaughter-house	0	1
	Defective Pumps	8	16
	Provide Public Water Supply	13	2
	Defective Yard Paving	7	18
	Insufficient W.C. Accommodation	0	1
	Defective W.C. Flushing Apparatus	5	10
	Broken W.C. Basins	2	1
	Animals kept as nuisance	1	2
	Defective Sink Waste Pipes	2	2
	Defective Water Supply	1	0
	Offensive Accumulations	0	2
	Other Nuisances	1	30
	Total	162	464

All Inspections Made.	}	No. of premises inspected on complaint ...	113
		" " in connection with infectious diseases	590
		" " under periodical inspection all classes ...	484
		" " from house to house (Housing Acts) ...	7
		Total number of inspections and re-inspections...	2,678
All Notices Issued.	}	Cautionary or Intimation Notices given ...	464
		Matters remedied as result of intimation ...	290
		Statutory Notices or Orders issued...	149
		Matters remedied as result of Statutory Notice...	100
		Warning Letter sent	2

WORK OF SANITARY INSPECTOR IN DETAIL.

Dwelling-Houses.	}	1—No. of representations made to Local Authority	7
		2— " houses unfit but still occupied ...	8
		3—Cases of overcrowding ...	General.
		4—No. of new houses built during the year ...	191
		5—Working-class dwellings erected by the S.A.	22
Common Lodging-Houses.	}	No. registered under bye-laws	1
		" of inspections made	32
		" " contraventions of bye-laws	1
		" " " remedied	1
Bake-Houses	}	No. in district	9
		" of underground bake-houses	Nil.
		" " inspections	52
		Contraventions of Factory Acts	1
		Defects remedied	1
Slaughter-Houses.	}	No. on Register { (Register recently compiled) ...	9
		Register { No Register compiled up to 31st Dec., 1920.	
		No of inspections	352
		Frequency of inspections	Weekly.
		Contraventions of bye-laws	6
Cowsheds.	}	Defects remedied	6
		No. on Register 22 (Register recently compiled).	
		" of inspections	50
		Frequency of inspections { No systematic inspection up to Nov., 1920.	
		No. of milch cows in district	145
		" " " " found to be tubercular after } veterinary inspection }	3
		Action taken against supply of infected milk ...	3
Dairies and Milkshops.	}	Arrangements for veterinary inspection of cows { It was arranged in Dec., 1920, to have periodical inspection either quarterly or half-yearly.	
		No. on Register 12 (Register has only just been compiled and is not complete).	
		Frequency of inspections { It is expected to have quarterly inspection.	

Unsound Food.	{	(a) Animals seized Nil.	
		(b) Articles seized "	
		Condemned by Magistrate (a) "	
		(b) "	
Offensive Trades.	{	Articles surrendered ... 7 cwt. 99 lb. meat, 1 ton 3 cwt. 1 qr. fruit.	
		... .. None.
Water Supply.	{	Wells { New sunk 7	
		{ Cleansed, repaired 16	
		{ Closed as polluted 10	
		Public Supply { Area supplied (Scunthorpe, Brumby, and Frodingham):	
		{ Percentage of houses supplied ... 72%	
		Number of samples obtained for analysis:	
		(a) from wells 6	
(b) from public supply 3			
Any insufficiency and where	{	Ashby: mainly shallow wells.	
		These run dry in summer.	
DRAINAGE & SEWERAGE.	Closets.	No. of houses with privy vaults in district ... Nil.	
		" " " " pail-closets in district ... 3,510	
		" " pail-closets substituted for privy vaults... Nil.	
		" " " repaired ... 58	
		" " houses with water-closets in district ... 1,605	
		" " water-closets substituted for pail-closets .. 14	
	Drains.	{	" " " repaired ... 11
			Drains examined, tested, exposed, etc. ... 188
			" unstopped, repaired, trapped, etc. ... 56
			Waste pipes, rain water pipes disconnected, repaired, etc. ... 13
	Cess-pools.	{	Drains reconstructed ... 2
			Cesspools rendered impervious ... 4
Disinfection.	{	" abolished ... 10	
		Rooms disinfected:	
		(a) ordinary infectious disease ... 295	
		(b) Tuberculosis ... 2	
Rooms stripped and cleansed ... 12			

Infectious Diseases.

The following diseases are compulsorily notifiable by various Acts of Parliament:—Diphtheria, Scarlet Fever, Membranous Croup, Enteric, Typhoid Fever, Paratyphoid Fever, Dysentery, Typhus, Cholera, Relapsing Fever, Continued Fever, Puerperal Fever, Erysipelas, Smallpox, Plague, Acute Poliomyelitis, Acute Polioencephalitis, Cerebro-spinal Meningitis, Encephalitis Lethargica, Ophthalmia Neonatorum, Tuberculosis, Malaria, Trench Fever, Acute Primary Pneumonia, Acute Influenzal Pneumonia, Anthrax, Glanders, and Rabies

The Report deals with the period from May to December, no record having been kept prior to that date.

The diseases dealt with were Scarlet Fever, Diphtheria, Tuberculosis, Pneumonia, Erysipelas, Enteric, Puerperal Fever, Malaria, Cerebro-spinal Fever, and Ophthalmia Neonatorum.

The total of diseases notified during this period was 295, equivalent at the same rate of incidence to an annual rate of 16 people per 1,000 of the population. That is, from infectious diseases alone, in every 1,000 people 16 people were invalided for an average period of six weeks, or an aggregate of 51 years of time lost per year, or 17 years of working time per year on an eight hours day.

The prevalence during 1920 of Scarlet Fever and Diphtheria throughout England and Wales has been the highest on record. Scarlet Fever reached its maximum in the second week of November, and Diphtheria its maximum a week later. In Scunthorpe and Frodingham Scarlet Fever reached its maximum two months earlier, whilst Diphtheria shows its highest returns in May and November.

Chart E gives the total number of each disease notified and the age periods affected. 44% occurred during the school attendance age, 5—15 years, which shows that, after taking into consideration the usual age period affected of each disease, the schools are the main source of contacts and spread of the infection.

The death rate from notifiable infectious diseases, including Influenzal and Primary Pneumonia, equals 2.75, and excluding the Pneumonias equals 1.32.

Infectious Diseases tabulated to each Ward (Chart F):—

Wards.	Scarlet Fever.	Diphtheria.	Tuberculosis.	Pneumonia.	Erysipelas.	Enteric Fever.	Puerperal Fever.	Cerebro Spinal Fever.	Malaria.	Ophthalmia Neonatorum.	Total.
North ...	16	13	15	3	...	...	...	...	...	...	47
South ...	84	7	4	4	2	...	..	...	1	...	101
East ...	27	7	15	5	3	...	...	...	...	...	58
West ...	29	10	15	4	2	...	1	1	...	...	62
Central ..	10	2	8	3	1	1	...	...	1	1	27
Total	166	39	57	19	8	1	1	1	2	1	295

Infectious Diseases.

CHART E.

Age Groups.

Disease.	0—1	1—2	2—5	5—15	15—25	25—45	45—65	65 and over	Total
Scarlet Fever	2	4	12	93	42	11	2	...	166
Diphtheria	1	1	9	26	...	1	1	...	39
Tuberculosis ... ..	...	1	4	8	19	20	4	1	57
Pneumonia ... ..	..	...	...	1	2	4	11	1	19
Erysipelas	1	...	...	1	...	3	2	1	8
Enteric Fever ... ..	...	...	...	...	...	...	1	...	1
Puerperal Fever ... ..	...	...	...	...	1	...	...	...	1
Malaria ... ..	...	...	...	...	1	...	...	...	1
Cerebro Spinal Fever ... ..	...	...	2	...	..	...	...	..	2
Ophthalmia Neonatorum	1	...	..	...	...	...	...	...	1
Totals	5	6	27	129	65	39	21	3	295

From this chart it will be seen that the greatest incidence occurred in South Ward, and especially so in Scarlet Fever, where the number of cases was three times greater than any other ward. This is, no doubt, mainly due to the fact that the neglect of the parents to carry out effective isolation was greater in this ward than in any other.

CHART G.

Progress of Infectious Diseases in each Ward month by month.

Ward.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
North ...	5	3	9	6	5	1	12	6	47
South ...	2	3	9	12	32	10	17	16	101
East ...	4	3	7	8	2	14	10	10	58
West ...	6	5	0	5	7	12	14	13	62
Central ...	3	2	4	6	5	3	3	1	27
Total	20	16	29	37	51	40	56	46	295

The maximum incidence was reached in November, and the last four months were responsible for two-thirds of the total disease.

Infectious Disease Hospital.—Owing to the lack of provision of an Isolation Hospital it has been found necessary to isolate in the houses, which, in most cases, being already overcrowded, makes the overcrowding greater and the isolation unsatisfactory.

In December a Public Enquiry was held by the Ministry of Health, the Lindsey County Council being made the Hospital Authority for the area comprising the Rural Districts of Glanford Brigg and the Isle of Axholme, and the Urban Districts of Scunthorpe and Frodingham, Barton-on-Humber, Brigg, Broughton, Roxby-cum-Risby, Winterton, and Crowle. Objection was raised by this Local Authority to the site chosen in East Common Lane, Brumby, an alternative site on the hill-crest at Ashby being offered.

With the provision of an Isolation Hospital there must result more efficient treatment, more efficient isolation, lessening of number of contacts, and lessened number of people infected. Contact children will return to school at end of incubation period instead of being isolated for six weeks. All this will result in a direct saving to the community, *and is a matter of urgent Public Health reform.*

Method of dealing with Infectious Diseases.

My main object has been to educate the people in the methods to be adopted by them in endeavouring to prevent the spread of infection. Although many people neglect to carry out these instructions, there has been improvement generally. In spite of all instructions children from infected houses have been seen attending picture palaces, which must be a constant source of spread of infectious diseases.

Immediately upon receiving notification from the General Practitioner attending the case, a pamphlet on "Isolation" is forwarded to the occupier of the house in which the infectious disease exists. A card corresponding to the disease is given to the Inspector, who makes enquiry and reports results. A notification (Form A) is sent to the Head Teacher.

FORM A.

Notice to Head Teacher.

I beg to inform you that it has come to my knowledge that a case of infectious disease exists at the house mentioned below. Will you please see that neither patient nor any person with the exception of

.....
.....

residing in the house, attends school until further notice has been received from this office.

Yours faithfully,

KENNETH TAPPER,
Medical Officer of Health.

Name.....
Disease.....
House.....
Occupier.....

Note.—The Medical Officer of Health would deem it a favour if teachers would communicate with him in the event of their observing any suspicious symptoms of infectious disease in any of the children attending school. Early information would be of valuable help in preventing an outbreak.

A corresponding Form B is sent to the Librarian of the Public Library :

FORM B.

Notice to Librarian of a House in which Infectious Diseases exist.

I beg to inform you that infectious disease exists in the house(s) mentioned below. I shall be obliged if you will kindly forward to me immediately any book which may be returned by a borrower inhabiting the(se) house(s), and suspend the issue of books to readers residing there until they bring you a certificate from me that the premises have been disinfected.

Yours faithfully,

KENNETH TAPPER,
Medical Officer of Health.

Name. Address.

.....
.....

Where necessary, and when isolation is not being carried out satisfactorily, or further investigation is required, I make a special enquiry.

On receipt of notification of readiness for disinfection (Form C) from the Practitioner attending the case

FORM C.

Medical Certificate of Readiness for Disinfection.

Name.....
Disease.....
House.....
Date of Notification.....

To the MEDICAL OFFICER OF HEALTH.

The above premises are now ready for disinfection, the patient in my opinion being no longer in an infectious state.

.....
Medical Attendant.

Date.....

Note.—The Medical Officer of Health would deem it a favour if you would forward this certificate immediately on termination of a notifiable infectious case: until premises are disinfected, the Health Authorities regard them as still infected, and expect precautions to be continued.

An Inspector carries out disinfection by means of formalin vapour. There being no disinfection station, disinfection of mattresses, etc., by steam is impracticable.

On completion, Forms A1 and A2 are forwarded to the Occupier and Head Teacher concerned.

FORM A1.

PUBLIC HEALTH DEPARTMENT,
SCUNTHORPE AND FRODINGHAM,

Notice of Date when School Attendance may be resumed.

I hereby inform you that your house has been disinfected to my satisfaction, and

.....
.....
may attend school on..... but on no consideration must they be sent to school prior to this date.

Yours faithfully,

KENNETH TAPPER,

Medical Officer of Health.

To the OCCUPIER,

.....
Note.—This form is to be given to the Head Teacher on first day of return to school.

FORM A2.

PUBLIC HEALTH DEPARTMENT,
SCUNTHORPE AND FRODINGHAM,

Notice of Completion of Disinfection of a House.

I hereby inform you that the house.....
where the infectious disease,.....
existed has now been disinfected to my satisfaction, and
.....
.....

from that house may attend school on.....

A similar notice has been sent to the parent with instructions that it must be handed to you on first day of return to school. I shall be grateful if you will examine the date thereon before allowing any child to resume school work.

Yours faithfully,

KENNETH TAPPER,

Medical Officer of Health.

To HEAD TEACHER,

..... School.

and Form B1 to the Librarian.

FORM B1.

PUBLIC HEALTH DEPARTMENT,
SCUNTHORPE AND FRODINGHAM,

To LIBRARIAN,
Public Library,

I hereby certify that the house.....
occupied by.....
has been disinfected to my satisfaction, and you may resume
the issue of books to any borrowers residing there.

Yours faithfully,

KENNETH TAPPER,

Medical Officer of Health.

Generally, the scheme is working satisfactorily, the children returning to school in an average of seven weeks in Scarlet Fever and six weeks in Diphtheria—a much better average than was previously the case

Delay occurs in the receipt of Form C. Especially is this so where the case has been a mild one, and where the Practitioner pays only one visit. Every four weeks a letter is sent to each Practitioner reminding him of outstanding cases, which have approached the end of the period of isolation.

Prevention of spread of infection is not possible without the provision of an Isolation Hospital for cases which cannot be satisfactorily isolated at home.

Scarlet Fever.

There were 166 cases of Scarlet Fever notified during May to December. This gives a very high incidence rate of six people per 1,000 population—a rate more than double that of England and Wales. In 1919 the rate of incidence throughout Lincolnshire and the East Midland Counties equalled 1·8 per 1,000. Fortunately the type of infection has been a mild one, only one death occurring during the period. This gives a death rate for Scarlet Fever of ·03 per 1,000 population, which rate corresponds to the average rate throughout England and Wales.

The average period of isolation of the house was 37 days, and when considered in wards showed North Ward, 33 days; South Ward, 41 days; East Ward, 35 days; West Ward, 36 days; and Central Ward, 37 days.

Re-infection in the same house occurred in 23 cases, the chief offender in this case being again South Ward.

The age group chiefly affected was 5—15 period, 56% cases occurring in this group. 26% of cases occurred in 15—25 group.

When considered from an economic standpoint it will be seen that Scarlet Fever is responsible for a remarkable loss of educative time of the children. Every case of Scarlet Fever entails an average exclusion from school of three children, and as 93 cases occurred during the school attendance age, it will be seen that 279 children were excluded from school. The average exclusion being six weeks per case, 1,674 weeks of time were lost for the eight months recorded. Allowing one-sixth of this time as actual school hours, Scarlet Fever was the cause of 280 weeks of educative time being lost during this period.

Monthly Return of Scarlet Fever in each Ward.

Wards.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
North ...	...	2	6	2	1	...	4	1	16
South ...	...	...	6	8	31	10	17	12	84
East ...	1	1	1	2	2	10	6	4	27
West ...	...	...	...	4	4	4	10	7	29
Central ...	...	1	1	3	3	1	1	...	10
Total	1	4	14	19	41	25	38	24	166

Owing to the short period under consideration it is difficult to place the origin of the outbreak, and the mildness of type must indeed add to this difficulty. The maximum was reached in September, the incidence increasing from the month of July. South Ward, which was responsible for a large proportion of the cases, gave its maximum incidence in September. By taking the maximum incidence in each ward it may be possible to trace the spread of infection. It was found that whilst a few cases were occurring in East and Central Wards, a maximum was reached in the North Ward in July. In August Central Ward reached its maximum, whilst cases increased in South Ward to reach its maximum in September. Following September a fall of incidence occurs in North, South, and Central Wards, but East Ward reaches its maximum in October. November shows a recrudescence of cases in the North Ward and South Ward, and a maximum return for West Ward. December shows a fall in each ward.

Diphtheria.

39 cases of Diphtheria were notified during my period of duty, equal to an incidence rate of 1.4 per 1,000 population, which equals the average incidence rate for England and Wales.

Eight deaths were recorded for the year, equal to a high death rate of .28, two times the average death rate in England and Wales. This becomes a serious condition in the district, especially when Diphtheria may be considered to be a preventible disease.

Again in the district the age group mainly affected is the school attendance age 5—15, 25 cases out of a total 39 being within this age period. By the performance of a Schick test upon each school child, and by immunising each susceptible child with toxin-antitoxin, it is my opinion that instead of Diphtheria being endemic in the district it will become one of minor importance.

The average period of isolation of the house in Diphtheria during May to December was 32 days, the wards showing as follows: North Ward, 25 days; South Ward, 60 days; East Ward, 26 days; West Ward, 29 days; and Central Ward, 22 days.

Re-infection in the same house occurred in two cases.

Monthly Return of Diphtheria in each Ward.

Wards.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
North ...	3	...	...	...	2	...	6	2	13
South ...	1	1	1	3	...	...	...	1	7
East ...	...	1	...	2	...	1	1	2	7
West ...	3	...	..	...	2	4	...	1	10
Central ...	2	...	...	...	...	...	...	...	2
Total	9	2	1	5	4	5	7	6	39

Diphtheria is endemic throughout each ward. The disregard of many parents to carry out isolation in Diphtheria has been the main cause of spread. It has happened in more than one case that on visiting, in order to take the second throat swab for clearance, the child has been out playing in the street with other children. This is a breach of the law.

An incubator was purchased in October, and since then all testing of throat swabs has been done locally, instead of being forwarded elsewhere for testing. 32 swabs have been taken and tested for the presence of Diphtheria bacillus. Of these 15 proved positive and 17 negative. Besides this being a financial saving, the Practitioners are thus able to have a report within 24 hours of swabbing.

Antitoxin Serum.—Since October the supply of serum has been direct from the Department, 130,000 units being issued, or equivalent to 7,000 units per case notified.

Arrangements have been made with the Cottage Hospital to have an emergency supply available for Practitioners outside office hours.

Measles.

From the death returns it appears that the incidence of Measles was greater during May, June, and July, which is the usual wave of incidence with another and a greater wave during November, December, and January. There were no deaths notified during these latter months.

Whooping Cough.

Again turning to the death returns the greatest incidence appears to have been during January, February, and March, the maximum being January. The usual crest of the wave is March.

The only notifications of these two diseases received were those from the Head Teachers of the schools. It will be advisable in the future to obtain a Health Nurse for such cases, and when her services are available to make both these diseases notifiable in the district.

Tuberculosis.

57 cases of Tuberculosis were notified during the period from May to December, equal at the same rate of incidence to an annual rate of 3.04. Of these cases 42 were of the pulmonary type and 15 of the other types.

It is evident from the death returns that many cases are not notified, it being necessary to request notification after the death has been registered.

Considering Tuberculosis as an indication of the health and sanitation of the community, and comparing with other areas, it may be said to be unsatisfactory. The rate of incidence in England and Wales for the year 1919 shows a rate of 1.79 per 1,000. Scunthorpe and Frodingham show a rate practically double this. In comparing the death rates a more favourable view may be taken. In the Midland and Eastern Counties, in which Lincolnshire is included, the death rate for 1919 from Tuberculosis is given at 1.08. For the year 1920 Scunthorpe and Frodingham show a death rate of .94 per 1,000.

Distribution :

Wards	{	North	...	...	16
		South	...	...	4
		East	...	...	15
		West	...	...	14
		Central	...	...	8
Chief Streets Affected.	{	Digby Street	...	...	4
		Dunstall „	...	...	4
		Mary „	...	...	3
		West „	...	...	3
		Manley „	...	...	3

A general levelling up of environmental hygiene must improve the incidence. Better kept and wider streets, open spaces, and better houses with larger rooms will give more light and air—the enemies of the tubercle bacillus. Overcrowding of houses and of people must play a large part in the cause of the spread and increased incidence of tubercular disease. Open-air schools for susceptible children are needed.

The necessity of improvement of the **milk supply** is a matter of urgent and considerable importance if Tuberculosis is to be lessened. On inspection no cow-shed was found in a hygienic condition, and many cows were found to be suffering from Tuberculosis, three having Tuberculosis of the udder and giving tubercular milk. As the spread of Tuberculosis from cow to cow is, no doubt, by means of faecal matter in the byre, the importance of keeping such byres constantly clean and hygienic in all respects cannot be too strongly emphasised. It is known that cattle in the wild state are seldom, if ever, affected with Tuberculosis. The question of a clean and wholesome milk supply will, I feel sure, diminish the prevalence of Tuberculosis in your area. Prevention, especially in Tuberculosis, is better than cure, and to spend money in prevention will be of greater use than spending money in treating this prevalent disease.

Typhoid.

One case of Typhoid was reported during the year, the diagnosis being verified by a positive Widal test in the second week of the disease. Fortunately, isolation had been carried out before notification. On investigation it was found that the probable cause of this case was the eating of water-cress from land near the mines off Brigg Road. The Mines Manager was immediately advised to warn the employees against eating this cress. No further case eventuated.

Smallpox.

There have been no cases recorded during the year. The lack of vaccination of children must result in a susceptible community arising, giving a fresh unprotected field for a case of smallpox to spread. No vaccination has been carried out by me under the 1917 (Smallpox Prevention) regulations. Under these regulations a Medical Officer of Health may perform vaccination free.

Typhus.

There is considerable danger of Typhus spreading to England from Central and Eastern Europe. Although no cases have been recorded in the neighbourhood, the accumulation of gypsies, etc., is a matter to be regarded with caution. The adoption of the Cleansing of Persons Act would be a useful preventive measure.

Venereal Disease.

A clinic was established by the Lindsey County Council during the year, and for the period ending December 31st 53 males and 15 females came under treatment, giving a total attendance of 468. The treatment of this disease should have a beneficial result on the return of premature births and infantile mortality within your area, but this result would be more marked if more females could be persuaded to attend the clinic. An educative campaign in the district is desirable as an active measure to break down the Victorian attitude that still exists and which allows the disease to spread in darkness.

Bacteriological Aids, etc.—The provision of a laboratory for the testing of pathological material and for chemical analysis of water, etc., would be of material help to the Department, but owing to the necessity of economy it has not been considered advisable to undertake this expenditure at present.

Milk.

Under the various Dairies, Cowsheds, and Milkshops Orders the duty of supervising the milk supply falls on the Local Authority. The local administration of the Sale of Food and Drugs Act would further strengthen the position of the Health Department in dealing with contaminated milk, etc. During the year 12 samples and four prosecutions were taken by the County Police.

Result of analysis in the prosecuted cases showed :

2 samples had 3% extraneous water ;
1 sample „ 9% „ „
1 „ „ 6% deficient milk fat.

The supply of milk comes mainly from within the area. Messingham, Bottesford, Yaddlethorpe, Broughton, and Goole are other main sources of supply.

There are 22 registered cow-sheds and 145 cows in the area supplying milk to the inhabitants. These cows have all been inspected during the year by a Veterinary Officer. Three were found to be suffering from Tuberculosis of the udder and supplying tubercular milk to the purveyors. The necessary steps under existing orders of the Ministry of Health were taken to prevent the supply from these cows reaching the public. There are some further ten cows suspected to be suffering from Tuberculosis and are being kept under observation.

The standard of construction of cow-sheds is low. The sanitary conditions of cow-sheds have been neglected in the past, and allowed in some cases to drift into a shocking non-hygienic state. One cow-shed visited, although modern in type, showed a filthy and dilapidated condition. Of 14 cows stalled therein, two showed signs of Tuberculosis of the udder, and four others suspected to be suffering from Phthisis. The drainage channels were blocked with manure, the lighting bad, the shed had not been lime-washed for years, large manure heaps at each end of the shed, and the surrounding land and approach to the shed a quagmire of filth. In the adjoining shed was a dead horse, which had been bought to provide food for pigs. This had been a usual occurrence, carcasses being cut up and boiled for the food of pigs which in turn had access to all the outbuildings. Under such conditions it was humanly impossible to supply pure milk to the inhabitants. If our beer were to be produced under like conditions, the prohibitionists would soon be among the unemployed, and yet milk, a most important article of diet, has been produced, owing to public apathy, under any filthy circumstances.

Insanitary cow-sheds and unhygienic milking must lead to a dirty milk—a cause of considerable disease and illness among the people. A dirty milk from a dirty cow-shed mixed with clean milk from a clean cow-shed makes the total supply unwholesome. The conscientious milkman suffers because of the careless. It becomes an urgent Public Health matter to produce a wholesome milk. Clean milkmen, clean cows,

and clean vessels will produce a clean milk. There is money and health in this achievement. Much can be done without the aid of the law, but the law needs extending, and it made an offence to sell dirty milk.

The **distribution** of the milk is in bulk, and in no case is bottle distribution carried out.

The milk supply is at present unsatisfactory, and, when most of the milk can be produced in the district, this should not be. The general public should demand clean milk. If through apathy of the producers of the milk supply (there are exceptions) no improvement takes place, why should not the Local Authority, who supply a wholesome water to the district, undertake themselves to supply a wholesome milk, or at least a model farm to show how a clean milk can be produced?

Meat.

There is one public abattoir and nine private slaughter-houses in the district. Three other slaughter-houses applied for licences, but were refused on the grounds of unsuitability of premises.

Public Abattoir.—The return of beasts killed in these premises during the year shows

Beasts	...	...	736
Sheep	...	...	1,095
Pigs	...	...	871
Calves	...	...	62

Frequent inspections have been made throughout the months, May to December. During this period the carcasses of 163 beasts, 136 sheep, 126 pigs, and one calf have been examined. Of these the head of one pig was found to be tubercular, and the lungs of one beast infected with Tuberculosis. Both these parts were voluntarily surrendered.

There has been a general improvement of late in the management of the abattoir. Unfortunately, the accommodation is too small for the requirements of the district, and the extension of the public slaughter-house and the provision for cold storage is to be strongly advocated. Private slaughter-houses should be abolished, and all slaughtering done between certain hours at the public abattoirs. This would facilitate the examination of all carcasses, and be a guarantee to the public of the wholesomeness of their meat supply, which the public has a right to demand.

Private Slaughter-Houses.—Frequent visits are made with a view to improvement of the premises and for the detection of unsound meat. It is impossible for an Inspector to be present at the slaughtering of animals, and it is more by good luck than otherwise that carcasses can be inspected for the diseases which render flesh unwholesome. During May to December the following carcasses were inspected in private slaughter-houses: 56 beasts, 13 pigs, and 40 sheep. One beast was surrendered on being found by the Inspector to have been killed whilst in fever.

Many people have been in the habit of slaughtering animals in the open fields. Steps have been taken to prevent this, so that the wholesomeness of the food supply may be maintained.

Other Foods.

Markets.—The Public Market is inspected weekly for the detection of unsound food. 1 ton 4 cwt. of fruit was surrendered in a decayed state. Otherwise the state and condition of food exposed for sale have been satisfactory.

Bake-Houses.—Owing to shortage of staff during the year and to the stress of work all bake-houses have not been visited. Those visited showed satisfactory conditions.

Ice Cream Shops.—The extension of bye-laws to deal with vendors of ice cream is to be adopted in the current year. Most of these shops have been inspected and found to be unsuitable premises.

Food Poisoning.—There have been no cases of food poisoning brought to my knowledge during the year.

Fried Fish Shops.—With some exceptions the shops are well managed, but the nuisance that arises from greasy paper, chips, etc., being thrown on the streets makes numerous shops undesirable in the district. Bad smells of burning fat have been complained of. A stricter supervision of these premises and an extension of bye-laws to control this trade have become necessary.

Factories and Workshops.

Owing to stress of work and short staff it has been possible to undertake only those problems seriously affecting public health. The following is a record of work done during the period, May to December :

Inspections.

Premises.	Number of		Prosecutions.
	Inspections.	Written Notice	
Factories (including Laundries)	2	1	...
Workshops	52	6	...
	—	—	—
Total	54	7	...

Defects Found.

Particulars.	Number of Defects.			No. of Prosecutions.
	Found.	Remedied.	Referred to H.M Inspector.	
NUISANCES UNDER P.H. ACTS :				
Want of Cleanliness	2	2	...	...
Other Nuisances ...	4	4	...	...
SANITARY ACCOMMODATION :				
Insufficient ...	1	1	...	...
Defective ...	1	1	...	...
	—	—	—	—
Total	8	8	...	...

No outworkers' lists have been received from employers. It falls, under various orders made by the Home Secretary, to the duty of employers employing labour outside the factory or workshops, on certain kinds of home work, to forward twice a year to the Local Authority outworkers' lists. In contravention of these orders a penalty is incurred.

Registered Workshops.

Workshops on the Register at end of 1920 :				No.
Bake-houses	...	...	...	9
Tailors	...	...	...	13
Dress and Millinery	...	...	...	11
Boot Repairers	...	...	...	7
Blacksmiths	...	...	...	4
Sugar Boilers	...	...	...	2
Joiners and Wheelwrights	...	...	...	5
Miscellaneous	...	...	...	6
				—
Total	...	...	...	57

Other Matters.

Matters notified to H M. Inspector of Factories :

Failure to affix abstract (s. 133, 1901)	...	...	...	Nil.
Action taken in matters referred by H.M. Inspector as remediable under Public Health Acts	}	Notified to Inspector	4	
			Reports sent to „	3
Other	...	...	...	0
Underground Bake-houses	...	...	...	0

Housing.

General Conditions.—The number of dwelling-houses in the district on December 31st, 1920, was 5,074.

Building has always been a progressive trade in Scunthorpe and Frodingham, and for the five years previous to the war the annual average of new houses is given at 248. This high average was, no doubt, due to the extension of houses in Crosby. The rapid urbanisation of the area and the progress in the iron and steel industry have brought with them the overcrowding that now exists. To grapple with this state of affairs the Local Authority has proceeded with four schemes to erect over 2,000 houses, and public utility societies and the local steel firms with schemes for a further 2,000.

Of the Council schemes, Nos. 1, 2, and 3 have been begun, whilst scheme No. 4 is, owing to the present slump, held up for the time being. During 1920 22 houses were completed and occupied, and 296 were nearing completion.

Public utility societies and private builders completed and occupied 179 houses, whilst 296 are nearing completion. 49 houses were granted the subsidy.

This gives a total completed of 191 houses and 506 almost completed—a total which compares more than favourably with other towns in England.

Overcrowding.—Upon the extension and progress of housing schemes depends the decline of overcrowding and its evils. It is estimated that over the whole area there is an average of six persons per house, but areas do exist where this average is nearly doubled.

Whilst overcrowding in the houses exists, there is not, except in the area to the north of Market Hill in the region of Princess Street, any overcrowding of houses.

The high wages that could be obtained in the iron and steel trades brought workers to the already overcrowded houses, irrespective of conditions under which they had to live. It cannot benefit the wage earner if, in spite of high wages, he lives in conditions such as to undermine the health of himself and his family, but at the same time it is the duty of the authorities to see that such conditions are not allowed to exist. It is for you, as guardians of the health of this district, to break the vicious circle of overcrowding, loss of health, unemployment, poverty, and back to low-rented and overcrowded houses.

Fitness of Houses.—The standard of houses in the area is a good one, being mainly of modern type and construction. The existence of brick walls round the houses and the prominence of the ten-foot has not led to beauty or economy of lay-out. Recent lay-outs are everything that one could desire to produce air and light and health-providing principles.

Many houses are showing signs of degeneration, no doubt due to the presence in the atmosphere of foreign gases from the steel works. Dampness has become a common defect, the cause lying in defective down spouts and eaves gutters and poor type of damp-proof course.

There are no back-to-back houses. Far too many houses have been erected without a bath-room. The houses at Old Frodingham are poor in type and quality, and it is hoped this area will be treated under a Town Planning scheme of the future. There are eight houses within the area which are classed as unfit, but the time and circumstances have not been ripe to deal with these under the Public Health Acts.

The type of tenant who takes no pride or care in his property is prominent in the district. There has been apathy on the part of owners to correct small errors. A small defect remedied early would save money in the end.

Unhealthy Areas.—Owing to the lack of past district statistics it has not been possible to give figures confirming unhealthy areas. The areas comprising Princess Street, Elm Cottages, Driffill Terrace, parts of Trafford Terrace, the Screeds, Frodingham Footpath, and part of Old Frodingham are the worst areas in the district, and are in fact unhealthy areas.

Temporary Dwellings.—Owing to overcrowded conditions in the past, temporary dwellings have sprung up all over the district. These have been strongly discouraged during the year, but those already erected have been allowed to remain. Moveable dwellings have increased, but bye-laws once adopted will discourage this method of making a home.

Schools.

The Education Authority is the Lindsey County Council. There are eight school establishments in the district—seven primary and one High Grade. There is no secondary education in the area and none within reasonable distance. Of the primary schools two are mixed, four boys, four girls, and five infant departments.

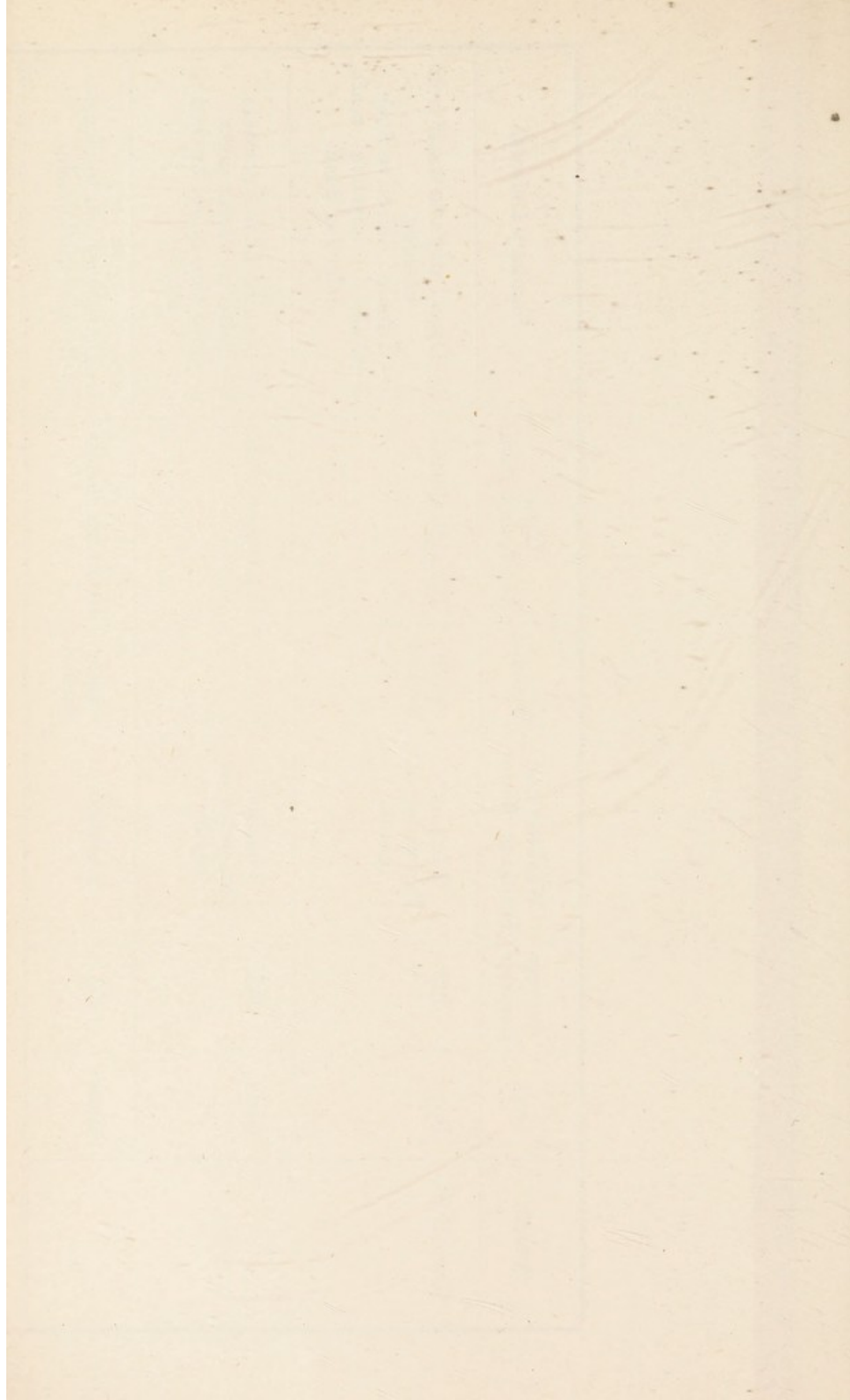
Only two schools are modern in type and construction. Four are showing structural defects, which, if not remedied, will lead to degeneration of the building. The new school at Santon is a temporary structure.

The lavatory accommodation is satisfactory in two schools only, the remaining schools showing insufficiency, defective closets, defective flushing, and in one school, where trough closets exist, part is not flushed at all. At Ashby and Santon Schools the closet accommodation is pail, and a hygienic method of treating these pails is not carried out.

School Accommodation.—The average on the school registers, exclusive of the High Grade School, is 4,831, showing, in addition to lack of school accommodation, overcrowding in class-rooms. It needs no words of mine to show the detrimental effect, both mental and physical, the lack of education facilities must have on the children of your area.

Whilst admitting that the sanitation of the homes generally is not good, we hope for better conditions in turning to the schools of the area. Here again disappointment meets us, and the children are again the sufferers. The State must look after those who cannot help themselves. More air, better heating, better ventilation, better lighting, and better hygienic conditions must be the aim in improving the schools of the area. I have inserted a short epitome of defects in those schools showing defects.

School.	Dept.	Average Register	Washing and Drinking Water.	Urinals.	Closet Accommodation.	Sanitary Defects.
Gurnell St.	Boys.	322	2 basins. Tap water at basins.	Slate backed.	7 trough closets.	1—Open trough to waste from washing. 2—Urinals: defective flush. 3—Closet: defective seats, defective flush.
	Girls.	353	3 basins Tap water at basins.		16 trough closets.	1—Leaking flush to closets. 2—Defective closet seats. 3—Two closets not flushed at all.
	Infants.	353	2 basins.	Slate backed.	10 trough closets.	1—Defective flush to closet. 2—Broken wash basin.
Ashby Infants		352	Pedestal wash basin. Filter (not used). Well water.	Cement backed.	8 pails.	1—No flush to urinals. 2—Well in play-ground not protected from surface contamination. 3—Defective pavement. 4—Defective drainage to urinal. 5—Defective pails (three). 6—Closets require lime-washing. 7—No refuse bin.
Ashby Mixed.		536	6 basins. Well water. Hand pump in yard.	Cement backed.	14 pails in lots of 8, 4, and 2 Emptied through play-ground.	1—No flush to urinals. 2—Defective approach to urinals. 3—Blocked trap to urinal. 4—Defective doors to closets. 5—Defective vent pipe. 6—Insufficient asphalt. 7—Two defective down spouts. 8—Two defective eaves gutters. 9—Damp walls. 10—Two defective pails. 11—No cleansing of pails.
Frodingham.	Boys.	254	No washing provision. Draw-off tap in urinal.	Slate backed.	7 trough closets.	1—Defective drainage to urinal. 2—Insufficient flush to closet. 3—Stopped drain in play-ground. 4—Defective yard drainage. 5—Defective eaves gutters.
	Girls.	264	No washing provision. Draw-off tap in play-ground.		7 seated trough closets.	1—Defective yard surface. 2—Defective eaves gutters.
	Infants.	240	Nil.	Open urinals.	do.	1—Urinal: no flush. 2—Urinal drain subject to blockage. 3—Defective asphalted pavement adjacent to Infants' School.



Population—Births and Deaths for 1919 and 1920.

1919.

Authority	Estimated Population		Births (exclusive of Still Births)						Deaths (exclusive of Still Births)		Deaths under one year	
	for Birth Rates	for Death Rates	Legitimate		Illegitimate		Total	Rate per 1,000 Pop.	Total	Rate per 1,000 Pop.	Number	Rate per 1,000 Births
			Male	Female	Male	Female						
January to September { Brumby and Frodingham	3565	3422	36	32	1	2	71	19.9	50	14.6	9	127
Scunthorpe	11465	11007	112	96	5	6	219	19.1	118	10.7	21	96
October to December { Scunthorpe and Frodingham	7332	7039	81	89	7	3	180	24.5	85	12.1	18	100
1920.												
Scunthorpe and Frodingham	29037	29037	395	384	10	30	819	28.2	326	11.2	83	101.3

APPENDIX B.

Analysis of Statistics of Previous Years compared with 1920 Statistics of the Amalgamated Area.

Authority	Year	Estimated Population	Births			Registered Deaths		Transferable Deaths		Nett Deaths of District			
			Uncorrected	Nett		No.	Rate	Away	To	Under 1 year		At all ages	
				No.	Rate					No.	Rate	No.	Rate
Brumby and Frodingham U.D.C.	1909	2881	87	87	30.1	47	16.3	3	—	11	127.6	44	15.6
	1910	2851	97	97	33.9	33	11.5	4	—	11	119.0	29	10.1
	1911	2951	96	96	32.5	41	13.8	6	2	13	135.4	37	12.5
	1912	3028	89	90	29.7	48	15.8	5	6	12	133.3	49	16.1
	1913	3088	92	93	30.1	44	14.2	9	4	12	129.0	39	12.6
	1914	3159	126	128	40.5	45	14.2	6	3	6	46.8	42	13.2
	1915	3500	100	102	32.2	49	14.0	5	6	8	78.4	50	14.2
	1916	3724	77	77	20.4	54	15.7	13	—	8	105.2	41	11.9
Scunthorpe U.D.C.	1909	9465	318	318	33.5	84	8.8	—	3	32	100.6	87	9.1
	1910	9861	346	346	35.0	104	10.5	—	3	35	101.1	107	10.8
	1911	10260	340	340	33.0	165	16.0	—	10	60	176.4	175	17.0
	1912	10623	343	343	32.0	99	9.2	—	12	34	99.0	111	10.3
	1913	10989	329	329	29.9	143	13.0	—	12	48	145.8	154	14.0
	1914	11359	361	363	31.9	127	11.1	1	7	40	110.2	133	11.7
	1915	10540	325	327	31.0	145	13.7	1	16	49	149.8	160	15.1
Scunthorpe and Frodingham U.D.C.	1920	29037	753	819	28.2	295	10.2	3	34	83	101.3	326	11.2

APPENDIX C.

Birth Rate, Death Rate, and Analysis of Mortality for 1920 compared with those of the 148 Smaller Towns of England and Wales.

	Birth rate per of 1,000 population.	Annual death rate per 1,000 population.										Rate per 1,000 births.		Percentage of total deaths.			
		All causes	Enteric Fever.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria.	Influenza.	Violence.	Diarrhoea and Enteritis (under 2 years).	Total deaths under 1 year.	Deaths in Public Institutions.	Certified causes of deaths.	Inquest cases.	Uncertified causes of deaths.	
148 Smaller Towns of England and Wales (population 20,000-50,000)	24.9	11.3	.02	.00	.19	.03	.10	.14	.27	.38	7.8	80	16.5	93.2	5.3	1.5	
Scunthorpe and Frodingham	28.2	11.2	.00	.00	.17	.03	.31	.28	.69	.80	8.5	101.3	11.3	90.2	9.5	.3	

APPENDIX D.

Group Diseases		1919 January — September				1919 October — December		1920		
		Brumby and Frodingham U.D.C.		Scunthorpe U.D.C.		Scunthorpe & Frodingham U.D.C.		Scunthorpe & Frodingham U.D.C.		
		Male	Female	Male	Female	Male	Female	Male	Female	
Chief Zymotic Diseases	Measles	—	—	—	—	—	—	2	3	
	Scarlet Fever	—	—	—	—	—	1	1	—	
	Diphtheria	2	5	3	1	—	2	4	4	
	Whooping Cough	—	3	—	—	1	1	4	5	
	Diarrhoea and Enteritis	—	—	1	—	—	1	4	3	
Influenza										
		4	5	3	5	2	1	14	6	
Tuberculosis	Lung	—	2	6	1	—	3	12	6	
	Meningitis	—	—	2	2	1	1	3	3	
	Other forms	1	1	4	4	1	—	1	2	
Respiratory Diseases	Bronchitis	—	2	5	1	4	3	15	7	
	Pneumonia	5	1	7	5	2	1	20	11	
	Other Respiratory Diseases	—	—	—	1	2	—	4	4	
Diseases of Pregnancy	Puerperal Fever	—	2	—	—	—	—	—	1	
	Other Diseases	—	—	—	1	—	—	—	2	
Congenital Causes	Premature Birth	}	1	—	5	3	5	3	22	13
	Congenital Malformation									
	Marasmus									
Violence	Accidental	—	—	5	1	1	—	22	1	
	Suicides	1	—	—	1	—	—	2	—	
Not Grouped	Other Defined Diseases	6	3	22	7	13	11	51	32	
	Cancer	—	1	4	4	3	5	8	10	
	Meningitis	—	—	1	—	1	—	1	1	
	Organic Heart Disease	4	1	7	5	5	4	9	4	
	Appendicitis	—	—	—	—	—	1	1	—	
	Alcoholism	—	—	—	—	2	—	2	—	
	Nephritis and Bright's Disease	—	—	1	—	—	4	3	2	
	Rheumatic Fever	—	—	—	—	—	—	—	1	
Total		24	26	76	42	48	42	205	121	

