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Haydock Urban District Council.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH,

1898.

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1899.

Highland District Council

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HAYDOCK,

23rd March, 1899.

To the Chairman of the Haydock Urban District Council,

SIR,—

I have the honour of submitting to your Council the following Report on the Health of the Urban Sanitary District of Haydock, for the year 1898, this being the Eleventh Annual Report which it has fallen to my lot to prepare since my appointment as Medical Officer of Health.

POPULATION.

Seeing that the Vital Statistics of any District for the year depend for their accuracy upon a correct estimate of the Population as it existed at the middle of the year being arrived at, an attempt must first be made to obtain such an estimate.

It would serve no useful purpose to repeat all that has at some length been said in several previous Annual Reports as to the various methods which are available for making a more or less reasonable guess at the truth, which can only be exactly known by *direct enumeration*, as at the Census.

As regards the year 1898 the following data are available:—

- (1). The total Population of Haydock, as enumerated at the last Census in 1891 was 6,535.
- (2). Since the date of this Census, at the end of the first quarter of 1891 to the middle of 1898, the Births have exceeded the Deaths by the number 1,065. Therefore, by this "natural increase of Population" acting alone, without regard to migration, the number 6,535 would have been increased to 7,600. In the interval between the middle of 1897 and the middle of 1898 the Births exceeded the Deaths by 147.

(3). By the "method of the Registrar-General," which is based on the assumption that since the Census of 1891 the population has continued to increase at the same "rate" as that which was found to have existed in the interval from 1881 to 1891, the population of Haydock for 1898 would be taken as 7,070.

(4). The number of Inhabited Houses in the Township at the middle of 1898 had increased to 1,355, as against the number 1,341 in 1897. On the assumption that the average number of inhabitants per house has remained the same as that found at the last Census, viz., 5.88, the total number of inhabitants in the 1,355 houses would be 7,967.

(5). Basing a calculation on the assumption that the Birth-rate has remained constant in Haydock during the previous ten years, from the facts—

- (a) That there were registered during the year 1898 in the Township 299 Births.
- (b) That the mean Birth-rate for the 10 years 1888-97 was 39.47 per thousand of the estimated population, we have

$$\frac{299}{39.47} \times 1,000 = 7,575.$$

There are thus four different numbers arrived at by different methods, the lowest being 7,070, and the highest 7,967.

The greatest weight, however, must be attached to the calculation based on the number of Inhabited Houses.

From the facts which are well known to us all—

- (a) That for some years past there has been a considerable *immigration* into Haydock;
- (b) That the existing house accommodation is taxed to its utmost limits;

I infer that the number 5.88 is probably too small as expressing the average number of inhabitants per house, and therefore, with the fear before my eyes of over-estimating the Population, I have come to the conclusion that the best guess which I can make is to limit the estimated Population of Haydock for the year 1898 to the number 8,050, the estimate for the previous year having been 8,000.

Population of the Separate Wards of the Township.

These Wards cannot in an official sense be "areas of known population" until the next Census is taken, but, as in the two preceding Annual Reports, an attempt may be made to approximately distribute the total estimated population on the basis of the numbers of inhabited houses which the Wards respectively contain.

This works out as follows:—

Wards.	Inhabited Houses.	Estimated Population.
East	416 ...	2,471
Central.....	421 ...	2,543
West.....	511 ...	3,036
	<hr/> 1,355	<hr/> 8,050

Area and Density of Population.

The area of the Township in statute acres is 2,409, giving an average population of 3·8 persons per acre. This, however, is by no means a true representation of the aggregation of population, as only a small proportion of the total area is actually built upon.

Basing a calculation on the estimates of population already given, the details under this heading relating to the separate Wards are as follows:—

Wards.	Acreage.	Average No. of Persons per Acre.
East	1,516 ...	1·6
Central.....	615 ...	4·1
West.....	278 ...	10·9

BIRTHS.

During the year there were registered in the Township of Haydock 299 Births, including 150 males and 149 females.

They were in the proportion of 37·1 per thousand of the estimated population, the rate for the previous year having been 36·5, and the mean rate for the preceding ten years 39·5.

Of the Births registered 12 were illegitimate, as against 4 in the preceding year, and 8, 15, and 2, respectively in the years 1896, 1895, and 1894.

The proportion of Illegitimate Births for the year was therefore 4 per cent.

For England and Wales, as a whole, the mean proportion of such Births is about 4·4 per cent.

The following is a Tabular Statement of the Birth-rates in the separate Wards:—

Wards.	No. of Births.	Birth-rates per 1,000 of the Population.	
		Year 1898.	Year 1897.
East	90 ...	36·4	32·6
Central.....	83 ...	32·6	34·2
West.....	126 ...	41·5	40·2

DEATHS.

The number of Deaths registered as having occurred within the Township of Haydock during the year was 159, including 95 males and 64 females. They were in the proportion of 19·75 per thousand of the estimated living population.

Before, however, the rate of mortality for any district can be rightly estimated certain corrections have to be made as to the number of Deaths on which the calculation may be fairly based.

(1) Deaths occurring within the District of persons not properly belonging thereto are to be excluded.

Such Deaths were:—

(a) Those occurring among the inmates of Haydock Lodge Lunatic Asylum ...	7
(b) Those occurring at Haydock Cottage Hospital amongst patients whose homes were in other Districts... ..	3
(c) Fatalities to Coal Miners resident in outside Districts, while working in Haydock	3
(d) Other Deaths of Non-residents	2
Total	<hr/> 15

(2) Deaths occurring outside the District of persons properly belonging thereto, must be included.

The following is a Statement of all such Deaths known to me:—

(a) Deaths of Patients from Haydock at the St. Helens Borough Sanatorium ...	4
(b) Sudden Death of a Haydock Resident at Newton-le-Willows	1
(c) Death from Drowning	1
Total	<hr/> 6

No Deaths have occurred during the year at the Workhouse at Warrington of Inmates belonging to Haydock.

The corrected number of Deaths is therefore $159 - 15 + 6 = 150$, and based on this number the Death-rate for the year is calculated as 18·63 per thousand, as against 16·88 for the previous year, and 17·14 the mean rate for the 10 years 1888-97.

After distributing the total number of Deaths between the respective Wards, and making the corrections of addition and subtraction belonging to each, the separate Death-rates are found to be as follows:—

Wards.	Corrected numbers of Deaths.	Death- rates.	Corresponding rate for the years 1897 1896
East.....	51 ...	20·6 ...	13·3 ... 13·1
Central ...	51 ...	20·1 ...	16·7 ... 14·5
West	48 ...	15·8 ...	20·0 ... 20·6

As was fully explained in my last Annual Report, before the Death-rate of Haydock can be fairly brought into comparison with the corresponding rate for the whole of England and Wales a correction must be made to allow for the effects of different age and sex distribution of population.

Thus the Death-rate for England and Wales for the year 1898 was 17·58, and to make the Death-rate of Haydock for the same year comparable with this, it must be multiplied by the "factor of correction," 1·0663. Now, $18·63 \times 1·0663 = 19·87$, so that the comparison lies between 19·87 for Haydock and 17·58 for England and Wales, and the "Comparative Mortality Figure," taking England and Wales as=1,000, is for Haydock 1,130; that is, the number of persons out of whom 1,000 Deaths would have occurred in England and Wales as a whole, in Haydock would have given 1,130 Deaths.

The following Table exhibits this mode of comparison for the years 1891 and onwards, the "factor of correction," 1·0663, having been used in each year:—

Year.	Crude Death-rates of Haydock.	Corrected Death-rates for Haydock.	Death-rates for England and Wales.	Comparative Mortality Figures.
1891 ...	17·85 ...	19·03 ...	20·22 ...	941
1892 ...	17·36 ...	18·51 ...	18·98 ...	975
1893 ...	17·02 ...	18·15 ...	19·17 ...	946
1894 ...	17·73 ...	18·91 ...	16·59 ...	1,140
1895 ...	19·62 ...	20·92 ...	18·73 ...	1,117
1896 ...	16·84 ...	17·96 ...	17·19 ...	1,046
1897 ...	16·88 ...	17·99 ...	17·43 ...	1,032
1898 ...	18·63 ...	19·87 ...	17·58 ...	1,130

Classification of the Deaths from all causes according to Ages and Sexes.

(This Table applies to the Corrected Number of Deaths).

Ages.	Males.	Females.	Persons.
0—1 ...	32 ...	18 ...	50
1—2 ...	6 ...	4 ...	10
2—3 ...	2 ...	1 ...	3
3—4 ...	2 ...	1 ...	3
4—5 ...	3 ...	0 ...	3
Total under 5	45 ...	24 ...	69
5—10 ...	2 ...	4 ...	6
10—15 ...	1 ...	0 ...	1
15—20 ...	2 ...	2 ...	4
20—25 ...	4 ...	2 ...	6
25—35 ...	2 ...	5 ...	7
35—45 ...	10 ...	6 ...	16
45—55 ...	5 ...	0 ...	5
55—65 ...	4 ...	8 ...	12
65—75 ...	11 ...	6 ...	17
75—85 ...	4 ...	3 ...	7
Totals ...	90 ...	60 ...	150

The percentage of Deaths under 5 years to the total number of Deaths is 46.

The *Mean Age at Death* of those who have died in Haydock during the year (excluding Asylum Deaths) was:—

Males.	Females.	Persons.
26.0 years	28.0 years	26.8 years.

No very great importance is to be attached to these figures, for as was explained in the Supplement to the Annual Report of the previous year, a low "Mean Age at Death" is necessarily associated with a high Birth-rate.

The Rate of Infant Mortality

measured by the proportion of Deaths of Infants under 1 year of age to 1,000 Births, was 167, as against 164 in the previous year, and 151, the Mean Rate for the 10 years, 1888-97.

Rate of Infant Mortality in the Separate Wards.

Wards.	No. of Births.	No. of Infant Deaths.	Rate of Infant Mortality.	Corresponding Rate in 1897.
East	90	19	211	123
Central.....	83	13	157	163
West.....	126	18	143	192

Classification of Deaths according to their causes.

Zymotic Diseases	Scarlet Fever	1	34
	Membranous Croup	...	...	...	3
	Typhoid Fever	...	...	...	9*
	Measles	...	...	...	8
	Whooping Cough	...	...	...	2
	Diarrhoea	11	18
	Erysipelas	...	...	...	2
	Influenza	...	...	...	5
	Phthisis	...	...	...	8
	Other Tubercular Diseases	...	...	...	5
Diseases of Respiratory Organs.	Cancer	...	...	...	3
	Bronchitis	...	...	...	7
	Pneumonia	...	...	...	11
	Heart Disease	...	...	...	4
	Diseases of Nervous System	...	...	...	14
	Diseases of Digestive Organs	...	...	...	5
	Diseases of Urinary Organs	...	...	...	3
	Puerperal Fever	...	...	...	1
	Injuries	...	...	...	14
	Senile Decay	...	...	...	10
	Debility from Birth	7	14
	Premature Birth	...	...	...	5
	Want of Breast Milk	...	...	...	4
	Atrophy	...	...	...	7
All Other Diseases					14	
Total					163	

* Including 4 Deaths of Haydock Patients at the St. Helens Borough Sanatorium.

The Deaths caused by the "Seven principal Zymotic Diseases" numbered 34 (including the 4 Deaths from Typhoid Fever which occurred among patients removed from Haydock to the St. Helens Borough Sanatorium).

The "Zymotic Death-rate" for the year was therefore 4.22 per thousand of the estimated population, as against 3.25 for the previous year, and 3.07 the mean rate of the 10 years 1888-97.

Zymotic Death-rates for the separate Wards.

Wards.	Deaths from Zymotic Diseases.	Zymotic Death-rates.	Corresponding Rates for 1897.
East	16	6.48	2.42
Central.....	7	2.75	2.38
West.....	11	3.62	4.66

The number of Deaths returned as "not certified" was 7, being in the proportion of 4.4 per cent. of the total number.

Inquests have been held in the Township during the year to the number of 16, as against only 6 in the previous year, the cases which formed the subject of enquiry being classified as follows:—

Fatal accidents in Coal Mines	...	...	...	...	8
Blood Poisoning set up by Injury	...	...	...	...	1
Accidental Death from Suffocation	...	...	...	...	1
Criminal Neglect of Infant	...	...	...	...	1
Tram Accident	...	...	...	...	1
Death from Drowning	...	...	...	...	3
Death from Burns	...	...	...	...	1
Total	...	...	...	...	16

Notification of Infectious Diseases.

During the year 1898 there were notified in accordance with the provisions of the "Compulsory Notification of Diseases Act," 83 cases of Infectious Diseases, as against 104 in the previous year.

A Tabulated Statement is given below showing the numbers of the separate Diseases to which the Act applies, and the months in which they occurred.

	Jan	Feb.	Mar.	Apr.	May	June	July	Aug	Sept	Oct.	Nov.	Dec.	Totals. 1898	Totals for			
														1897	1896	1895	1894
Small-Pox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Diphtheria	—	—	—	—	—	—	—	—	2	—	—	—	2	4	11	3	4
Membranous Croup	—	—	—	1	1	—	—	—	—	—	1	1	4	7	10	11	23
Erysipelas	3	2	2	1	—	1	—	1	1	1	—	1	13	8	14	11	8
Scarlet Fever	2	—	2	—	—	—	—	1	1	2	3	—	11	64	18	19	23
Enteric or Typhoid Fever	—	—	—	—	—	—	—	9	16	15	6	2	48	12	12	19	3
Continued Fever	—	—	—	—	—	—	—	—	3	—	1	—	4	1	1	—	—
Puerperal Fever	—	—	—	1	—	—	—	—	—	—	—	—	1	8	2	1	4
Totals	5	2	4	3	1	1	0	11	23	18	11	4	83	104	68	74	66

The following Table shows the distribution of the cases of Infectious Diseases notified during the year 1898, as regards the separate Wards of the Township.

	WARDS			Totals.		
	East.	Central.	West.			
Diphtheria	2	...	2
Membranous Croup	1	...	4
Erysipelas	5	...	13
Scarlet Fever	2	...	11
Enteric or Typhoid Fever	1	...	48
Continued Fever	—	...	4
Puerperal Fever	—	...	1
Totals	9	...	83

The after progress of the cases notified as Continued Fever showed that they were all cases of undoubted Typhoid Fever.

Cases of Infectious Diseases removed to the Isolation Hospital.

During the year there have been removed from Haydock 17 cases for isolation and treatment at the St. Helens Borough Sanatorium, including 2 cases of scarlet fever and 15 of Typhoid Fever. Of these, 4 cases of Typhoid Fever proved fatal.

No cases of small-pox have been admitted during the year to the Old Weint Hospital.

General Remarks on the Diseases which have been prevalent during the year, and of the Statistics relating to the sanitary history of the year.

Diphtheria—A reference to the tables previously given will show that this disease has been less prevalent than in any previous year since the Notification Act came into force.

Membranous Croup—There is also a very marked diminution in the number of cases of this disease, which is in most cases identical with diphtheria, as compared with the four previous years.

Erysipelas—This disease has been more prevalent than in the previous year, 13 cases having been notified, 2 of which have been fatal.

Scarlet Fever—Only 11 cases have been notified as against 64 in the previous year.

Typhoid Fever—Including the 4 cases notified as "Continued Fever" there have been no less than 52 cases notified during the year 1898—more than four times the number in each of the two preceding years. Of these cases 9 have proved fatal, giving a case mortality of 17 per cent. By this disease alone the total death-rate for the year was raised by 1·12 per thousand. This is a higher typhoid death-rate than has existed in Haydock since the year 1877, when it was 1·59 per thousand. There had been entire freedom from this disease during the year until the month of August, during which there were notified 9 cases, then followed 16 in September, 15 in October, 6 in November and 2 in December.

A noteworthy fact concerning the distribution of these cases is that no less than 39 of the total of 52 occurred within a limited area of the West Ward between the "Toll Bar" and "Old Weint Lane."

It may also be noted that the first case at No. 5, Clipsley Lane, broke out within a few yards distance of "Stone Row," which two years before was the focus of a well-marked local outbreak of this disease.

This bears out all that was pointedly drawn attention to in my last Annual Report as to "infected areas." As the general trend of the ground is sloping downwards from "Stone Row" to "Old Weint Lane," it would appear as if the flow of the "ground-water" has had something to do with the distribution of infection.

As to the **causation of this Epidemic**, seeing that careful inquiry failed to show that milk supply had anything to do with it, and that there was no evidence at all to trace it to general pollution of the water supply, I feel convinced that it was due to:—

- (a) Soil polluted with excremental filth.
- (b) The existence of the special germs of Typhoid in this soil.
- (c) The multiplication and diffusion of these germs being favoured by the special climatic conditions of the year, especially with regard to the hot and dry Autumnal season.

It must be remarked **that bad smells do not cause Typhoid**. These may or may not be associated with the presence of the specific germs, but without the germs, even with malodorous perfumes, there would be no Typhoid.

If there is one fact more conclusively proved than another in sanitary science, it is that *the existence of Privy-Middens is always associated with an undue prevalence of Typhoid Fever*.

I have insisted upon this over and over again in previous Annual Reports, and every year has increased the large mass of statistical evidence proving this point.

The lot of a Medical Officer of Health, in the presence of an epidemic such as the one being referred to, is not a peculiarly happy one. He is the Medical Officer of **Health**, why then is the District not Healthy? On the part of an unreasoning section of the Public, he is at once blamed, because what he has prophesied *would* occur, *has* occurred! Or else he is expected to play the part of a Sanitary Magician, and by sprinkling powders and spraying liquids to at once cause the plague to be stayed.

What was said in my last Annual Report as to local soil pollution favouring the survival from one year to another of the specific Typhoid germs, will show that the evil is so deeply rooted that even if absolutely perfect sanitary conditions could, at a moment's notice, be brought about, many years would elapse before the evil already done could be undone.

It must also be borne in mind that when an epidemic of Typhoid Fever exists there are always a considerable number of persons suffering from the disease so slightly that they never take to their beds or call in Medical Advice, but go about during the whole time of their illness distributing infection as they go.

These considerations will show how great, and indeed insuperable, are the difficulties met with in efficiently dealing with such an epidemic.

Precautions taken—What actually was attempted may be thus summarized:—

- (a) The removal of as many cases as possible to the St. Helens Borough Sanatorium.
- (b) The provision of disinfectants, "Izal" for use indoors, and Chloride of Lime for the privy-middens.
- (c) By the kind co-operation of the Sanitary Authority of St. Helens, providing special pails for the reception of the infected excreta, and the periodical collection of these for burning in the destructor at St. Helens.
- (d) The distribution of printed instructions and cautions.

It would be difficult to say very much more on this subject without repeating what has been said over and over again in previous Annual Reports, but perhaps an attempt may be made to draw a vivid picture by way of representing to your Council, and through your Council to the general public of the district, what is meant by the following clearly demonstrated propositions.

- (a) That Typhoid Fever is caused in human beings by the reception into the body by **swallowing** of specific living germs.
- (b) That these germs live and grow and multiply in the soil near the earth's surface when the soil is contaminated by excremental filth, and in such soil are able to live on from one year to another.
- (c) That the contents of privy-middens are an especially favourable breeding-ground for them.
- (d) That these germs are capable of retaining their vitality when partially dried, and may thus be distributed attached to particles of dust arising from the surface of contaminated soil or from privy-middens.

Let us imagine ourselves to be one hundred thousand times smaller than what we are, and that all other things remain of their existing sizes, and that we are going on an underground expedition for what to us then would seem to be a great distance, but which in reality would only mean a burrowing from a few inches to a few feet below the surface.

As we all know, the ordinary earth or soil near the surface is not like a solid mass of rock, but is of a porous texture, the interspaces between the solid particles near the surface containing only air, but lower down filled with water.

Under the conditions imagined for our exploring expedition we should find innumerable openings or pit-shafts by which to descend. On stumbling down one of these we should at once find ourselves in a series of caverns of about the capacity of ordinary living-rooms, of course very irregular in shape, their walls apparently built up of irregular craggy boulders, moist and slime-covered.

On descending far enough we should get to the level where the bottom of the cavern which we have reached is full of water, noisome to the senses of sight and smell. Let us pause and look around. The water at the bottom of the cavern and the slime on the walls are full of living and moving creatures, chiefly rounded or elongated in shape. But we must not pause to describe them; there are none yet of the kind we are seeking. Let us move on, struggling as best we can over the rugged ground from one cavern to another, until we arrive at an area infected with Typhoid germs. On looking round us now we see that the water in the caverns is swarming with living creatures, which we should have no more difficulty in distinguishing from the many other kinds than we should have in distinguishing horses from cows, or sheep from goats.

These creatures would appear to us to be cylindrical in shape with rounded ends, made up of a semi-transparent, stiff, jelly-like substance, enclosed in a thin skin or membrane. They would appear to be from eight to sixteen inches long, and from two-and-a-half to five inches thick, covered all along and at their ends with thinly scattered wavy hairs several feet long. They would be seen to be swimming rapidly through the water with eel-like undulating movements, and their hairs, or "flagella," agitated with quick lashing to-and-fro movements. Many of them would be seen to be wriggling their way up the slimy walls of the cavern.

Having seen quite enough to be sufficiently horrified, we may make the best of our way up to the outer-air, but finding the whole route populated with these same creatures. Having emerged into daylight we see that many of the dusty particles (or as they would appear to us, the craggy boulders) on the earth's surface are covered with these clinging now half quiescent organisms. We may happen to have emerged in immediate proximity to a spot where the contents of a privy-midden have been deposited in the public highway before being carted off. The surface-boulders here would be seen to be covered with these horrifying Typhoid Bacilli as thick as they can cling together.

A strong wind, or current of air, comes along, and myriads of these dusty masses, with their freight of Typhoid germ passengers, are borne aloft in eddying shoals. Some of them pass through an open window or door and fall into some milk or upon some article of diet, and are swallowed ultimately by the inhabitants of the house. No harm, it may be, will happen to some of them, but

in the case of others the seed may fall into good ground. The germs then find a congenial sphere. They take up their abode. They multiply exceedingly, and by passing out of the infected patients body in the motions and urine many of them may get back to the earth again.

In the meantime, while the germs from their point of view have been "having a good time;" it may be, from a human point of view, that a man has been taken away in the prime of life, leaving a widow with a young family to struggle on with the world. Or it may be that a daughter, the joy of her parents' hearts, is cut down in the flower of her youth. Or it may be only a little child, prematurely laid to rest, and soon forgotten by all save the sorrowing parents.

But this is all mere sentiment, the hard-headed man of business may say. Quite true. However, the man of business might set himself, with more ability than I can claim to possess, to calculate what the loss, present and prospective, in hard cash, entailed by the recent epidemic of Typhoid, has meant to the community of Haydock.

Without regard to other considerations, it will at least be only too obvious to the members of your Council that a very considerable sum has had to be paid to the St. Helens Corporation in respect of the Hospital treatment of patients for the year.

Finally the matter may be presented thus:—

In England and Wales as a whole, in the year 1898, for every million of people living, 180 died of Typhoid Fever. If the same proportion of people had died from this disease all through the country as had been the case in Haydock, 1,120 would have died for every million living, or in other words there would have been six times the number of deaths that actually occurred.

The arrangements made last year by your Council with Professor Delépine, of the Owen's College, Manchester, for having Bacteriological examinations made to aid in the diagnosis of Typhoid Fever and Diphtheria, have continued in operation, and especially with regard to Typhoid Fever have given most valuable aid in making clear the nature of cases otherwise doubtful.

Measles. After an almost entire absence of this disease for the two previous years, an extensive epidemic of it has prevailed during the year.

The first cases occurred in the extreme end of the East Ward at the end of April; by the middle of May the epidemic had attained to considerable proportions. The disease extended throughout the whole Township from East to West, and lasted until the end of September. In the absence of any notification of this disease it is impossible to give the number of cases.

The only certain figure available is that 8 children died from this disease during the year.

It became necessary to recommend in succession the closure of the following schools:—

St. James' National Schools in May.
Haydock Colliery British Schools in June.
Blackbrook British and New Infant Schools in September.

In each case the closing order extended for a period of three weeks.

This outbreak having occurred during the warm season of the year, the mortality was undoubtedly less than it would have been had it prevailed in the Winter.

Diarrhoea. The hot autumnal season, as is usually the case, has caused an extensive prevalence of this disease. There were registered 11 fatal cases.

Phthisis. From this Disease 8 persons died in Haydock during the year, corresponding to a Death-rate of 0.99 per thousand people living. For the previous year the rate was 1.13, and the mean rate for the 10 years 1888-97 was 1.05.

During the same period of 10 years the mean annual Death-rate from Phthisis, for England and Wales, was 1.48 per thousand.

The statistics presented in my two previous Annual Reports have shown that for 50 years past the Phthisis mortality has been considerably less in Haydock than the average for the whole country.

Public attention has recently been directed to Consumption and other forms of Tubercular disease in a very marked degree, and the Tubercle "Bacillus," in more senses than one, has been very much in the air.

The people of Haydock, as people everywhere, should know these facts:—

(1) That Phthisis or "Consumption" does not arise of itself, but that it is due to the invasion of the body by living parasitic organisms called "Tubercle Bacilli."

(2) That Consumption is *infectious*, that is, one person can take it from another.

(3) That the chief mode by which infection is spread is by *dried* particles of the sputum or expectoration of a consumptive patient. This sputum teems with the germs. As long as it is *moist* they are not spread about, but as soon as it is dry they are diffused through the air as dust, and invade the bodies of other people by being breathed in.

(4) That when dried these germs (or rather their spores or seeds) can retain their vitality for a very long time.

(5) That patients suffering from Consumption ought never to spit about when they are outside their houses, but ought to spit into something which can be afterwards burned. If they are confined to bed or to the house, they should spit into a vessel containing water or some liquid disinfectant, the contents of which should be mixed with ashes or sawdust and burned. If handkerchiefs have been used which it is not thought right to burn, they should be *boiled at once* when being washed, and not first soaked in cold water.

(6) That consumption is, therefore, a *preventible* disease.

There are many other points which might be alluded to, as for example the great extent to which milk is liable to be contaminated with Tubercle Bacilli from cows suffering from Tubercular Disease of the udder, and the desirability of boiling all milk before it is consumed. However, the object of the above notes has been chiefly to draw attention to what can be done by Consumptive patients themselves to limit the spread of the infective germs to other people.

Respiratory Diseases. To this group of Diseases, the chief members of which are Bronchitis and Pneumonia, 18 Deaths were attributed, corresponding to a Death-rate of 2.24 per thousand living, as against 2.38 for the previous year, and 2.97 the mean annual rate for the 10 years 1888-97.

For the same period of 10 years the mean annual Death-rate for England and Wales was 3.52.

The statistics for the last 50 years show that Haydock has had a lower Death-rate from this group of Diseases than the average for the whole country.

Puerperal Fever. Only one Death from this disease has occurred during the year, a favourable contrast to 3 in the preceding year.

The following Table shows comparison between the leading Vital Statistics for Haydock, and the corresponding figures for England and Wales, (a) for the separate quarters of the year 1898, (b) for the whole year 1898, and (c) for the 10 years 1888-97.

		Birth-rate.	Death-rate from all causes.	Death-rate from the seven Principal Zymotic Diseases.	Infant Deaths per 1,000 Births.
1st Quarter.....	HAYDOCK	... 33.3	... 17.4	... 0.99	... 149
	England and Wales	... 30.0	... 19.5	... 1.72	... 141
2nd Quarter ...	HAYDOCK	... 37.3	... 18.4	... 5.46	... 253
	England and Wales	... 29.7	... 16.2	... 1.47	... 123
3rd Quarter ...	HAYDOCK	... 39.7	... 18.4	... 5.96	... 163
	England and Wales	... 29.7	... 17.9	... 3.82	... 225
4th Quarter.....	HAYDOCK	... 28.3	... 20.4	... 4.47	... 118
	England and Wales	... 28.3	... 16.7	... 1.85	... 153
Year 1898	HAYDOCK	... 37.1	... 18.6	... 4.22	... 167
	England and Wales	... 29.4	... 17.6	... 2.22	... 161
Mean Annual Rates for the 10 years 1888-97...	HAYDOCK	... 39.5	... 17.1	... 3.06	... 151
	England and Wales	... 30.5	... 18.4	... 2.10	... 149

The next Table presents comparative statistics as to the mortality of the seven principal Zymotic Diseases taken separately.

Death-rates from the Seven Principal Zymotic Diseases per 1 000 living.

		Small-pox.	Measles.	Scarlet Fever.	Diphtheria and Membranous Croup.	Whooping Cough.	"Fever."	Diarrhoea.
1898	HAYDOCK	0·00	0·99	0·12	0·37	0·25	1·12	1·37
	England and Wales	0·01	0·41	0·11	0·24	0·31	0·18	0·96
Mean Annual Rates for the 10 years 1888-97.	HAYDOCK	0·00	0·58	0·30	0·53	0·65	0·30	0·71
	England and Wales	0·02	0·43	0·19	0·23	0·41	0·19	0·63

It may be useful to present in one view the statistics for the separate Wards of the Township for the year 1898. These are therefore brought together in the Table below.

Wards.	Estimated Population.	Average No. of persons per acre.	Birth-rate.	Death-rate from all causes.	Zymotic Death-rate.	Infant Mortality per 1,000 Births.	Percentage of cases of Infectious Diseases notified to population.
East	2,471	1·6	36·4	20·6	6·48	211	0·4
Central	2,543	4·1	32·6	20·1	2·75	157	1·1
West	3,036	10·9	41·5	15·8	3·62	143	1·5
Whole Township	8,050	3·3	37·1	18·6	4·22	167	1·0

It thus appears that in spite of the great prevalence of Typhoid Fever in the West Ward, its Death-rate for the year is the lowest, in favourable contrast to the two previous years, in which it was the highest. This Ward also had the lowest Infant mortality.

Tables "A" and "B," as required by the Local Government Board, are appended at the end of this Report.

Sanitary Progress made and Improvements carried out during the year.

WATER SUPPLY.

On September 22nd I had to present to your Council a Special Report embodying the results of a further analysis of the Water in the "North Florida Reservoir," which by the standing instructions of your Council I had caused to be made by Dr. F. Drew Harris, the Medical Officer of Health and Public Analyst for St. Helens.

In his Report of the examination made by him of the sample submitted, both by Chemical analysis and Bacteriological culture investigations, Dr. Harris most emphatically condemned the water as utterly unfit for human consumption, thus corroborating the representations previously made to your Council in several of my past Annual Reports.

Your Council, therefore, at once resolved to finally discontinue altogether the use of the Water from this source, and to seek to make immediate arrangements for securing a temporary supply to be drawn upon when the ordinary constant source of supply from the Rivington main pipes is stopped by breakages necessitating repairs.

Negotiations were shortly afterwards opened with Messrs. Richard Evans and Co., Limited, with the view of securing such temporary supply from their pumping station at the unfinished pit shafts known as the "Lyme Pits." These negotiations were speedily completed and an agreement was entered into.

The pipe connections necessary for making this supply available were finally completed on November 19th. Up to the end of the year only 3,000 gallons of this water had been used on November 29th.

Your Council have thus, in my opinion, effected a decided Sanitary improvement.

Two years ago, when the possible use of the Lyme Pit Water by the Urban Sanitary Authority of Newton-in-Makerfield was being discussed, repeated analyses were made of the water by distinguished and well-known Analysts, including Professor Percy Frankland and Professor Campbell Brown.

There was a concurrence of testimony that this water, both by Chemical and Bacteriological tests, was remarkably free from organic impurities. The sole objection to its use as a source of public water supply was its excessive hardness, and the presence of a small trace of Iron.

The Rivington Water, which forms the ordinary supply of Haydock, is, as is usually the case with moorland water, very soft.

It must therefore be anticipated that when the Lyme Pit water, very hard, as deep well waters usually are, is turned on, the contrast will be so marked as to cause great complaints on the part of the public.

While I could not recommend the Lyme Pit Water for constant use, without some preliminary softening process being adopted, it certainly does appear to me that the occasional use of this water, when absolutely necessary to use it, is a far lesser evil than having to use the foul water of the North Florida Reservoir.

The public do not *see* the organic impurity and the swarms of microbes in the one, but they do *feel* the hardness of the other.

It may be reasonably hoped that, when the circumstances are fully considered, the Ratepayers of the District may see that your Council have acted in their best interests.

Even if it were resolved upon to undertake the construction of an adequate storage-reservoir for keeping a reserve supply of the Rivington water, and all the difficulties financial, and otherwise, were overcome, it will be evident that some considerable time must elapse before the work could be completed.

New Drains. About 80 yards of sewers have been laid.

Paving, &c. A length of 170 yards of Paving, 3 yards wide, has been done in Blackbrook-road. A length of 330 yards, by 2½ yards wide, of tiling the footpath has also been done in Blackbrook-road. In Church-road the footpath has been flagged to the extent of 235 yards, with flags 3 feet wide.

Special Reports presented during the year. These may be summarized as follows :—

Dates of Reports.	Subjects.
May 12	Recommending closure of Schools because of Measles.
June 10	ditto.
Sept. 22	ditto.
Sept. 18	Report to Local Government Board on the outbreak of Typhoid Fever.
Sept. 22	Special Report to your Council on the Typhoid Epidemic.
Sept. 22	Special Report as to Water Supply.

Sanitary Inspection during the Year.

The Inspector of Nuisances, Mr. John Baines, has supplied me with the following details :—

Abstract of Notices served to abate Nuisances during the year 1898.

Defective Drainage	45
Insufficient Closet Accommodation	7
Defective Ashpits	30
Defective Closets	9
Defective Spoutings	29
Insanitary Pig-styes	2
Insanitary Hen-pen	1
Defective Urinal	1
Total	124

Houses Fumigated after Infectious Diseases (Notices served on Owners afterwards to have Premises Cleaned and Lime-washed) 31

The Cow-sheds, Milk-shops, Slaughter-houses, and Bake-houses, have been inspected and found clean and in good order generally.

The Drainage at Cawley's, Long's, and Alker's Farms has been much improved.

No legal proceedings have been necessary to secure abatement of Nuisances.

Consumption of Water during 1898.

Amount registered by Meter	19,484,000 gallons.
Deduct quantity for Watering Roads, &c.	654,900 gallons.
Deduct quantity Wasted through Leakage from covered Reservoirs through Mining Subsidiencies }	150,000 gallons.
	<hr/> 804,900 gallons.
Remainder	18,679,100 gallons.

$$\text{Daily amount consumed for Domestic Purposes} = \frac{18,679,100}{365} = 51,176 \text{ gallons.}$$

$$\text{Daily Domestic Consumption per head of Population} = \frac{51,176}{8,050} = 6.4 \text{ gallons.}$$

Recommendations as to the lines on which further Sanitary Improvement may be made.

Drainage—The next matter most urgently claiming the consideration of your Council is the provision of a regularly planned system of sewers, with adequate arrangements at the outfall for purifying the effluent.

Disposal of Excreta—When the improvement just indicated is effected it may be possible to replace the privy-middens by some form of water closet. In the meantime it is desirable in all cases in which it can possibly be managed to avoid placing midden refuse in the public highway before being carted off. I am aware that your Council are taking steps to effect this improvement, but I would wish to strongly emphasise the necessity of it.

Some improvement effected every year, even though it be but little, does in time produce very tangible and evident results. There is no need to go back many years before finding many points of comparison favourable to the present as regards the condition of Haydock. However, the Sanitary Millenium has not yet come, very much yet remains to be done, and some of this I would hope to be able to chronicle should it be my duty to write the next Annual Report.

In conclusion I have to express to your Council my appreciation of the courteous consideration which my recommendations have always received.

I have the honour to be, Sir,

Your Obedient Servant,

T. E. HAYWARD, M.B. (Lond.), F.S.S.

Medical Officer of Health.

A

Table of DEATHS during the Year 1898, in the Haydock Urban Sanitary District, classified according to Diseases, Ages, and Localities.

NAMES OF LOCALITIES adopted for the purpose of these Statistics; public institutions being shown as separate localities. <i>(Columns for Population and Births are in Table B.)</i>	MORTALITY FROM ALL CAUSES, AT SEVERED AGES.						MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																			
	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.		Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.		Puerperal.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Influenza.	Injuries.	All other Diseases.	TOTAL.	
												Enteric or Typhoid.														
Township of Haydock	146	51	19	7	10	35	24	Under 5 5 upwards		1	2	1	4	1	1	7	2	3	5	1	11	4	5	1	36	70
Haydock Lodge Lunatic Asylum.	7					7		Under 5 5 upwards																	7	7
Haydock Cottage Hospital	6			1		4	1	Under 5 5 Upwards																4	2	6
Totals.....	{ 139	51	19	8	10	46	25	Under 5 5 upwards		1	2	1	4	1	1	7	2	3	5	1	11	4	5	13	41	70
<i>The subjoined numbers have also to be taken into account in judging of the above records of Mortality.</i>																										
Deaths occurring outside the district among persons belong- ing thereto.	6					6		Under 5 5 upwards				4											1	1	6	
Deaths occurring within the district among persons not be- longing thereto.	15	1		1	1	11	1	Under 5 5 upwards																5	9	14

B.

Table of POPULATION, BIRTHS, and of NEW CASES of INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health during the year 1898, in the Haydock Urban Sanitary district; classified according to Diseases, Ages, and Localities.

NAMES OF LOCALITIES adopted for the purpose of these statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5	NEW CASES OF SICKNESS IN EACH LOCALITY COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.										No. of SUCH CASES REMOVED TO HOSPITAL	
	Last Census.	Estimated to middle of 1898.			Scarlatina.	Diphtheria.	Membranous Group.	Enteric or Typhoid.	Contin'd.	Puer- peral.	Erysipelas.	Scarlatina.	Enteric or Typhoid Fever.			
Township of Haydock	6335	8050	299	Under 5 5 upwards	6 5	0 2	3 1	5 44	0 3	0 1	1 12	2 15				