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IX. 1897.

WEST RIDING COUNTY COUNCIL.

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NINTH  
ANNUAL REPORT

OF THE

**County Medical Officer,**


1897.

Including an Abstract of the Annual Reports of the Medical  
Officers of Health for the Sanitary Districts  
within the Administrative County.

*Printed by Order of the West Riding Sanitary Committee,  
12th December, 1898.*

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SUMMARY shewing the principal general items  
of the Vital Statistics, etc., for 1897, con-  
tained in this Report.

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Area of the Administrative County	...	...	1,700,783 acres.
Population, estimated to middle of 1897	...	...	1,447,689 persons.
Number of Sanitary Districts (1897)	...	137 Urban, 30 Rural =	167.

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					Year 1897.		Average of previous five years.
<b>Birth Rate</b>	...	...	...	...	<b>30·5</b>	...	30·6
<b>Death Rate</b>	...	...	...	...	<b>17·0</b>	...	17·8
Zymotic Death Rate			...	...	<b>1·9</b>	...	1·9
Phthisis Death Rate			...	...	<b>1·3</b>	...	1·4
Respiratory Death Rate			...	...	<b>3·1</b>	...	3·6
<b>Infantile Mortality,</b> <i>i.e.</i> , Number of deaths per 1000 births.					<b>151</b>	...	152

## WEST RIDING COUNTY COUNCIL.

### SUMMARY OF THE WORK OF THE COUNTY MEDICAL OFFICER'S DEPARTMENT.

The year 1897, from a sanitary point of view, was not only a very busy one, but satisfactory also because of the low mortality from all causes, and the comparative freedom from infectious disease generally. Such a period is surely the proper time for sanitary authorities to devote themselves whole-heartedly to the work of preparation and prevention by strengthening their defences and increasing their means of attacking disease; and such, in fact, has been the character of the work accomplished or assisted in during the year by the West Riding Sanitary Committee and this Department.

**Personal Consultations.**—I find that during 1897 I had about 113 conferences with Medical Officers of Health within the Riding, besides those with officials of the Local Government Board and with other County Medical Officers. Increasing experience convinces me that the more we come into personal contact with the Sanitary Authorities and their officers the better the results in every way. A livelier interest and more bona fide attitude is invoked which makes for true progress.

I am pleased to record that these consultations have generally taken place at the request of the local people, and it cannot be too generally known that the department is always at the service of any local authority or officer in the Riding aiming at sanitary progress.

**Consultations by Letter.**—Advice on sanitary questions is constantly sought by local officers and freely supplied by letter, where a personal inspection is unnecessary. Too often the local Medical Officer of Health is also a busy practitioner, and can hardly be expected to keep himself thoroughly abreast of the rapidly accumulating sanitary knowledge, and in any case the valuable information, statistics, etc., possessed by the West Riding Sanitary Committee on all such subjects cannot be too widely disseminated.

The following list gives a few out of the many subjects on which my opinion has been given by letter to local Medical Officers of Health during 1897, and will help to show the diversity of the work :—

Biological Treatment of Sewage	Tenure of Office	Small Pox
Nuisances from Fried Fish	Vital Statistics	Fish Poisoning
Disinfection of Enteric Stools	Pasteur Treatment	Smoke Nuisance
Liability as to Sewers	Bacteriology	Privies
Geology and Water Supply	Tuberculin	Diseased Meat
Hospital Administration	Byelaws	Swine Fever
School Sanitation	Anthrax	Milk Supply
Filtration of Water	Vaccination	Ambulance
Slaughter House arrangements	Cholera	



**Inspections.**—In addition to the systematic visits connected with the Sanitary Survey of the Riding, I have made some 84 more or less detailed inspections during the year. Not infrequently they are the results of complaints made by aggrieved persons to the County Council. In all these cases a communication is sent to the local Medical Officer of Health, who almost invariably accompanies us in our investigations. I desire to acknowledge the uniform courtesy with which the County Sanitary Inspector and I have been received in these inspections, which have embraced questions of water supply, drainage, insanitary dwellings, burial grounds, offensive trades, and many other matters.

**Water Supplies** form a principal item in the questions which are constantly referred to this department. During 1897 I find that more or less detailed investigations were made with regard to the water supply of the following, amongst other places:—

Bashall Eaves (Bowland R.)	Marshlands (Goole R.)
Bishophthorpe	Northowram
Burley	Otley
Denaby (Doncaster R.)	Queensbury
Farsley	Shaw Mills (Pateley Bridge R.)
Gildersome	Soyland
Great Gomersal	Thornton
Great Houghton (Hemsworth R.)	Todmorden
Harrogate	Upper Greetland (Halifax R.)
Horsforth	Wales (Kiveton Park R.)
Knaresborough	Yeadon

**Nuisances, Insanitary Conditions, and Outbreaks of Disease.**—Urgent items under these headings are constantly dealt with by this department, necessitating either advice by letter or personally after inspection. The following places furnished matters of this description during the year 1897, many of which were, of course, brought before the Committee for consideration:—

Birkenshaw	North Bierley
Brighouse	Nostel (Hemsworth Rural)
Clifford (Wetherby Rural)	Oatlands (Knaresboro' Rural)
Crofton (Wakefield Rural)	Rawmarsh
Deighton (Wetherby Rural)	Rishworth
Drighlington	Roundhay and Seacroft
Glasshouses (Pateley Bridge Rural)	Sawley (Ripon Rural)
Gomersal	Shepley
Grassington (Skipton Rural)	Shelf
Heckmondwike	Shelley
Kirkhamgate (Wakefield Rural)	Slaithwaite
Ingleton (Settle Rural)	Soyland
Marsden	Wales (Kiveton Park Rural)
Mexborough	Wombwell

In several instances where epidemics seemed to be threatening I have, at the request of medical officers of health, drafted handbills setting forth



the precautionary measures to be adopted by the public, and these have been very useful in some cases. I have thought it well to insert the full text of three of these notices in this report (see pages 72, 73, 74).

**Sanitary Survey of the Riding.**—This I regard as one of the most urgent items in our work. The basis of judicious action in sanitary as well as in other matters lies in a knowledge of the facts and conditions with which we have to deal, and in this way we can proceed with order and regularity. To attain that knowledge it is necessary to provide a complete and detailed sanitary survey of the Riding, and this laborious work is now being undertaken by my department. The observations of the sanitary circumstances of each Union constitute a report. During 1897 I presented the third of the series of such reports dealing with the 31 parishes in the Settle Union, which cover an area of 151,942 acres, inhabited by over 14,000 persons. In this work many hundreds of houses have been visited, revealing conditions set forth in the report. I hope to acquire by this means a personal knowledge of the conditions affecting the health of the County, and also to become acquainted with the details of the local sanitary administration. The Administrative Sub-Committee carefully considered this Report, and on the 22nd October, 1897, received a deputation from the Settle Rural District Council, to discuss the best means of meeting the sanitary requirements of the Union.

**Reports.**—I have presented four printed General Reports during 1897, dealing with no less than 69 different matters under discussion, and comprising statistics, analyses, and results of inspections made.

**Hospital Accommodation.**—The Committee have devoted much attention to this important question, and I find during 1897, I enquired into the needs of no less than 32 sanitary districts, and reported formally under Section 6 of the Isolation Hospitals Act, that necessity existed for hospital provision :—

Denholme	Kirkburton	Scammonden
Emley	Knaresborough	Selby
Farnley Tyas	Knaresborough, R.	Selby, R.
Flockton	Lepton	Shelly
Gildersome	Linthwaite	Shepley
Golcar	Marsden	Skelmanthorpe
Holme	Meltham	Slaithwaite
Holmfirth	Netherthong	South Crosland
Honley	New Mill	Thurstonland
Hunslet, R.	Pateley Bridge, R.	Whitley Upper
Kirkheaton	Rothwell	

In addition to these, the hospital accommodation of many other places has been receiving attention, e.g. Barnoldswick, Rawmarsh, Mexborough, Thornhill, Doncaster Rural. Although it is impossible to give details of the numerous directions in which the question of hospital accommodation has been pressed forward by the Committee, it may be well to place on



record here the more important groupings which have been brought about during the year :—

**PENISTONE UNION.**—On the 13th January, 1897, the County Council made its first Order under the Isolation Hospitals Act, 1893, constituting a Joint Hospital District comprising the seven Sanitary Districts within the Penistone Union (35,000 acres and 17,000 population). One of the authorities concerned (Denby-and-Cumberworth) made an appeal against this order, which was, however, dismissed by the Local Government Board ; and the first meeting of the first Joint Hospital Committee formed by the West Riding County Council took place on the 29th July, 1897. Subsequently I was instructed to render such aid to the Hospital Committee as might be desirable, and I may say that I am now assisting them in settling plans, etc.

**SOUTH ROTHERHAM, HANDSWORTH, AND KIVETON PARK DISTRICTS.**—This is another important hospital combination, formed by a County Council Order, dated 14th July, 1897 (after a local inquiry, held 5th May, 1897). In this case Handsworth made an appeal to the Local Government Board, who then held a Local Inquiry on the 8th December, 1897, and finally dismissed the Appeal. I may add that the first meeting of this Joint Hospital Committee took place on the 4th May, 1898.

**WHARFEDALE UNION.**—A Local Inquiry was held by the County Council on the 30th April, 1897, and on the 14th October, 1897 an Order was made under the Act of 1893, combining the nine sanitary districts for hospital purposes ; this Joint Board held their first meeting on the 6th May, 1898.

**HUDDERSFIELD UNION.**—This extensive and important set of 21 Sanitary Districts (along with the two adjoining districts of Emley and Flockton) formed the subject of much anxious consideration by the Committee, who have not yet presented their report on the matter. The whole of the authorities were invited to a Conference on the 27th April, 1897, and later, a formal inquiry was held on the 2nd November.

**Meetings of County Council and Committees.**—I duly attended the six meetings of the Council which were held during 1897, and the eleven meetings of the Sanitary Committee and its Sub-committees. Besides these, my services have been utilized by the Law and Parliamentary Committee, the Diseases of Animals Committee, the Technical Instruction Committee, and the Asylums Committee. In September, 1897, I attended the Sanitary Institute Congress at Leeds as delegated by the West Riding Sanitary Committee, and I had the privilege of reading a paper to the State Medicine Section on "Hygiene in Elementary Education."

**Public Inquiries.**—Inquiries held by the County Council in connection with Hospitals or other matters affecting sanitary interests have been attended by me without exception, and I have also attended as many of the Local Government Board Inquiries as possible, for I find that besides obtaining much valuable information in this way, it is often useful to put



forth our views at these Inquiries, which are not infrequently the outcome of the action of the Sanitary Committee.

The following is a list of the Inquiries held by the Local Government Board during 1897 upon sanitary matters in the West Riding, giving the results, so far as they have come to my knowledge :—

Date.	Sanitary District and <i>Locality</i> .	Subject.	Amount	Result.
20 1.97	Hebden Bridge ...	Water supply ...	£ 1079 Part of 2879.	Sanctioned
21.1.97	Luddenden Foot, Midgley and Warley	Formation of Joint Drainage Board	—	Sanctioned
21.1.97	Hemsworth R. ... <i>Hemsworth</i>	Water supply ...	15,500	Sanctioned
2.2.97	Greetland ...	Sewerage and disposal	4200	Sanctioned
2.2.97	Harrogate ...	Provisional order for land	—	Granted
3.2.97	Knaresboro' ...	Additional Loan for sewerage purposes	1800	Sanctioned
3.2.97	Kirkheaton ...	Provisional Order for land for sewage disposal	—	Referred back
4.2.97	Ripon R. ... <i>Kirkby Malzeard</i>	To determine reasonable cost of water supply	—	Scale approved
16.2.97	Stainland ..	Provisional order for land for sewage disposal	—	Application Withdrawn
17.2.97	Luddendenfoot, Midgley, and Warley	Ditto ...	—	Sanctioned
19.2.97	Soothill Nether ...	Sewerage and disposal	1500	Part Sanctioned
3.3.97	Settle R. ... <i>Burton in-Lonsdale</i>	Provisional order for land for sewage disposal	—	Sanctioned
3.3.97	Hemsworth R. ... <i>Little Houghton</i>	Sewerage and disposal	400	Part Sanctioned
5.3.97	Mytholmroyd ...	Sewerage disposal, &c.	13350	Referred back
16.3.97	Halifax County Borough	Sewerage and disposal (Works partly outside District)	54000	Referred back
23.3.97	North Bierley ...	Sewering of private streets	450	Sanctioned
31.3.97	Farsley ...	Sewerage and disposal	14700	Sanctioned



Date.	Sanitary District and <i>Locality</i> .	Subject.	Amount.	Result.
23.4.97	Rawmarsh ...	Sewage disposal ...	4500 (Additional loan)	Sanctioned
12.5.97	Wortley R. ... <i>Grenoside</i>	Urban Powers under the Public Health Act		
18.5.97	Keighley and Bingley Joint Hospital District	Removal of temporary small Pox Hospital	2000	Sanctioned
21.5.97	Springhead ...	Sewerage and disposal	7500	Referred back
1.6.97	Rawmarsh ...	Refuse Tip ...	2000	Refused
16.6.97	Holmfirth ...	Sewerage and disposal	19877	Referred back
18.6.97	Pontefract Joint Hospital District	Purchase of land and erection of Hospital	6087	Sanctioned
29.6.97	Knaresborough R. ... <i>Bilton</i>	Sewerage and disposal	3550	Sanctioned
20.7.97	Wetherby R. ... <i>Boston Spa</i>	Sewerage ...	4500	Sanctioned
30.7.97	Saddleworth ...	Sewerage and disposal	5200	Referred back
10.8.97	Liversedge ...	Sewerage and disposal	9706	Ditto
		Purchase of land and for refuse distructor	3000	Ditto
18.8.97	Altofts ..	Sewage disposal ...	5500	Referred back
19.8.97	Wakefield R. ... <i>Alverthorpe</i>	Sewerage and disposal	4000	Sanctioned
		Surface water drainage	1100	Sanctioned
20.8.97	Do <i>Crigglestone</i>	Water supply ...	1000	Sanctioned
16.9.97	Barnsley ...	Sewage disposal ...	2300	Refused
17.9.97	Harrogate ...	Ditto ...	3500	Sanctioned
29.9.97	Rotherham B. ...	Sewerage and disposal	55269	Sanctioned
30.9.97	Swinton ...	Ditto ...	2300	Sanctioned
3.11.97	Morley ...	Baths and new street	8550	Sanctioned
5.11.97	Halifax R. <i>Clifton</i>	Sewerage and disposal	460	Not Sanctioned
16.11.97	Ravensthorpe ...	Ditto ...	3383	Referred back
16.11.97	Wombwell ...	Ditto ...	6088	Sanctioned
7.12.97	Farsley ...	Ditto ...	15700	Sanctioned
8.12.97	Meltham ...	Ditto ...	16000	Referred back
8.12.97	Flockton ...	Ditto ...	1100	Sanctioned
10.12.97	Mexborough ...	Ditto ...	3000	Part Sanctioned
21.12.97	Golcar ...	Ditto ..	12148	
21.12.97	Linthwaite ...	Ditto ...	24000	
21.12.97	Knaresborough ...	Sewerage ...	700	Sanctioned
22.12.97	Otley ...	Sewage Disposal	4000	Referred back
23.12.97	Slaithwaite ...	Sewerage and disposal	3200	Referred back



During 1897 the Local Government Board followed the course which they conceded at the request of the County Council, by giving us notice of all inquiries relating to questions of sewerage and sewage disposal. This, of course, is not all we require, but, thanks to the persistence of the West Riding Sanitary Committee, we are now furnished with notices of inquiries relating to hospitals, water supplies, &c.

The Laboratory again proved to be an indispensable part of the equipment of the Sanitary Committee. During the year complete sanitary analyses were made of 58 samples of drinking water, with the result that in several instances steps were taken by the Committee in advising and pressing the Local Authorities to improve the supply. I also commenced detailed researches into the characters of several supplies proposed to be impounded for public water works, but that story belongs rather to the work of the present year.

In addition, I also had some hundreds of small samples of tap water for special examination for lead in solution, and in this way was able to advise medical officers of health as to their course of action in protecting the public health.

Unfortunately I have not been able to institute any proper system of bacteriological work, which, as I stated in my last Annual Report, is so desirable for assisting local medical officers of health in the diagnosis of first cases of enteric fever, etc.

**Sale of Foods and Drugs Acts.**—The following Table is similar to those in previous reports, and shows the extent to which these Acts have been administered in the West Riding during the year:—

**4.—Quarterly Report of Samples taken, 1897.**

DISTRICT.	INSPECTOR.	SAMPLES SENT TO ANALYST DURING 1897.				
		First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	TOTAL.
Barnsley ...	J. H. Bundy ...	50	36	34	69	189
Central ...	<i>Vacant for 6 months.</i>	86	53	—	—	139
Harrogate ...	H. Gamble ...	75	94	39	77	285
Mirfield ...	H. Newbould ...	33	33	31	47	144
Pontefract ...	W. H. Wilson ...	57	36	53	50	196
Rotherham ...	J. Wilson ...	129	90	58	56	333
Shipley ...	J. Duce ...	55	53	51	61	220
Skipton ...	A. Randerson ...	117	89	54	99	359
Sowerby ...	W. H. S. Crabtree...	93	86	93	90	362
Total Samples taken by County Inspectors ...		695	570	413	549	2227*
Police Superintendents ...	...	—	—	—	—	—
Local Authorities ...	...	13	52	49	94	208
Private Purchasers ...	...	—	1	—	—	1
Total Samples Analysed ..		708	623	462	643	2436

\* The corresponding number in 1896 was 2168.



The supervision of the nine County Council Inspectors who purchased the 2227 samples has proceeded on regular and satisfactory lines, as also has the work in connection with the 208 samples submitted by Local Authorities. Most of these latter were "New Milk" purchased by the local officers under the arrangement whereby the County Council defrays the cost of analysis etc. The work of supplying these Local Authorities with instructions and outfits, and of subsequently receiving and advising on the certificates of analysis, forms an important branch of my department. The following is a list of the Sanitary Authorities who availed themselves of these provisions during 1897:—

Brighouse	Hoyland Nether	Shelf
Cleckheaton	Knaresborough	Shelley
Emley	Knaresborough R	Skipton
Greetland	Meltham	Southowram
Hebden Bridge	Penistone	Soyland
Hemsworth	Pudsey	Thornton
Horbury	Rawmarsh	Todmorden.
Honley	Rothwell	

In comparing the results of analysis for a series of years, it is interesting to note the great reduction in the percentage of adulterated samples as shewn in the following table:—

YEARLY RECORD OF SAMPLES OF FOOD AND DRUGS, 1889-97.

	Genuine.	Doubtful or Inferior.	Adulterated.	TOTAL.	Percentage Adulterated.
1889	288	23	53	364	15%
1890	281	57	70	408	17 „
1891	238	24	45	307	15 „
1892	544	41	87	669	13 „
1893	1274	109	193	1576	12 „
1894	1319	104	172	1595	11 „
1895	1790	119	176	2085	8 „
1896	2200	156	161	2517	6 „
1897	2213	141	82	2436	3 „

This can, however, be explained to some extent by the fact that in accordance with the wishes of the Committee the number of samples of spirits purchased during 1897 has been considerably reduced, while inspectors have paid greater attention to milk, butter, &c. The effect of this will be understood when it is remembered that in past years spirits have formed a good proportion of the adulterated samples. On the whole, however, there can be no doubt that there is a general decrease in practices of adulteration in the West Riding.

**Miscellaneous.**—The correspondence and clerical work of the Department continues to increase, as does the necessity for compiling statistical records which form so important a basis for many lines of sanitary action. During 1897 no less than 2556 letters were written, besides 3550 circulars and stereotyped communications.



## Abstract of Annual Reports, 1897.

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During 1897 no new sanitary district came into existence in the Riding, so that at the end of the year (as at the beginning) there were 137 urban districts and 30 rural districts in the West Riding. A few of the larger districts have more than one medical officer of health, and, as an annual report is made by each one, there are 171 such reports to cover the area of the West Riding Administrative County.

The majority of these reports are forwarded to the County Council with commendable promptitude, but, unfortunately, many months elapse before the stragglers come in, and, as a consequence, I am unable to present my abstract of the 1897 reports until well nigh the close of 1898.

The following figures show how it took ten months of 1898 for me to obtain a complete set (171) of reports for the year ending 31st December, 1897 :—

### ANNUAL REPORTS RECEIVED.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total
5	37	70	35	4	7	7	2	3	1	171

I may mention that in relation to one of the late arrivals, the Local Government Board have ordered the County Council to withhold from the Local Authority in question the contribution of one-half of the salary of their medical officer, as a kind of penalty for not supplying them (the Local Government Board) with a copy of his annual report. It is not generally known that the County Council have power to adopt such a course in the case of failure to furnish an annual report.

As a whole the reports for 1897 are more complete than in previous years, and show an improvement in the subject matter. They are, indeed, records of a good deal attempted and something done. It would be misleading if I did not add that some of the reports cannot be considered as satisfactory, because they contain little else than a mere synopsis of vital statistics ; in other words, they do not attempt to reach the standard required by the order of the Local Government Board, which directs that the Annual Report shall comprise the following records :—

- (1) Tabular statement of the mortality within the district.
- (2) Action taken for preventing the spread of infectious diseases.
- (3) Sanitary work undertaken, contemplated, and required.
- (4) Action taken with regard to legal proceedings.

Of the 171 reports received, 131 are printed, and have therefore a chance of circulation, but 3 are typewritten, 1 lithographed, and the remaining 36 are in manuscript. It is little encouragement to an officer to spend much time and labour in the preparation of a report, when he knows it is to be considered



only at one meeting, or perhaps simply taken as read. It is not surprising, therefore, that several of the reports occupy no more than one or two pages of note paper or foolscap, and do not refer to matters of sanitary importance. It is too frequently overlooked, sometimes wilfully, I fear, that the annual report of the medical officer of health is, or ought to be, a permanent chronicle of the sanitary progress of the district, which may be referred to in after years for information not otherwise easily obtainable. The sum expended on printing is nominal in comparison to benefits obtained. I would here recall the suggestion thrown out by my predecessor, that the County Council might justifiably undertake the responsibility of printing all annual reports. The incidence of cost would be practically the same, whether paid out of the county rate or the several district rates. Not only would it be economical, but it might be a means of obtaining uniformity in the shape and matter of these reports, which at present assume very varied forms. There is a kind of precedent in the repayment by the County Council of part of the salaries of local medical officers of health and inspectors of nuisances.

As a sign of the growing value which is now placed on the report of the local medical officers of health, it is pleasing to note the gradually increasing custom of printing and circulating such reports.

#### NUMBER OF AUTHORITIES WHO PRINTED THEIR MEDICAL OFFICERS' ANNUAL REPORTS.

1889	...	37	1894	...	110
1890	...	55	1895	...	119
1891	...	93	1896	...	121
1892	...	108	1897	...	131

It is hardly possible for a local medical officer to make his report very interesting or palatable to all, especially when one bears in mind that the material consists chiefly of vital statistics, outbreaks of zymotic disease, perhaps of no exceptional character, and of sanitary work. Still its interest and value may be enhanced by a reference to the geography, geology, and meteorology of the districts, as was done to a greater or less extent in several of the reports for the year 1897.

### VITAL STATISTICS.

Modern sanitation is founded on the recognition of the preventability of diseases, and it is to vital statistics we are indebted for first establishing that doctrine. In proceeding to study vital statistics it is necessary to obtain an estimate of the population, and the nearer the true estimate, the less the fallacy of the rates based thereon.

The calculation for this report is made on the basis of the 1881 and 1891 census, according to the method of the Registrar-General, who assumes that the same rate of increase or decrease is continuous from one intercensal period through the next. Until more frequent enumeration of the people is made, that method affords a basis of comparison between districts, especially if the death-rate is corrected for age and sex distribution.



For individual districts a fairly satisfactory check as to the correctness of the population estimate may be made by adding the number of new houses erected during the year to those built previously, then deduct the number of empty houses and multiply the result by average density per house at the last census.

**Population.**—The population of the Administrative County estimated by the former process to the middle of the year 1897 is as follows:—

In the 137 urban districts	...	...	1,104,590
„ 30 rural „	...	...	343,099
West Riding Administrative County	...		<u>1,447,689</u>

This is only 16,195 more than the figures for the previous year, while the natural increment (*i.e.*, excess of births over deaths) is 19,358. This difference may be accounted for to some extent by emigration, but I think the probable explanation is that the factors ruling the rate of increase during the decade 1881-91 have changed, and the indication is all in favour of a more frequent census being taken.

The estimated populations for each local area will be found in Table I., folded at the end of this book, but (as I have mentioned in previous reports) it is necessary to bear in mind that figures for short periods and small populations are often rendered unreliable by passing influences.

**The Area** of the West Riding Administrative County is put at 1,700,783, so that the number of persons per acre works out at 0·85, or 3·03 in the urban and 0·26 in the rural districts.

**Births.**—The total registered during 1897 was 44,090. It is impossible to say exactly how many were males and how many females, because unfortunately some of the reports do not differentiate in this respect. From those which do, however, it appears that the sexes were distributed as follows:—Males, 50·7 per cent.; Females, 49·3 per cent.

The total birth rate in the West Riding Administrative County was thus 30·5 per thousand of the inhabitants. As will be seen from Table 5 the rate was lower than this in the urban districts, but considerably higher in the rural localities.

Among the places conspicuous for high birth rates during 1897 may be mentioned:—Ardsley, 43·2, Batley, 44·6, Darfield, 45·3, Featherstone, 56·0, Hoyland N., 41·3, Mexboro', 50·4, Pontefract, 45·2, Royston, 51·4, Swinton, 43·5, Wombwell, 42·0, Doncaster R., 43·0, Hemsworth R., 44·7. It will be noticed that these may be described more or less correctly as colliery districts.

The birth rate of 1897 is lower by 0·1 than the average of the previous five years, thus giving another year's corroboration of the gradual decline of the birth rate throughout the county generally. This decline in the birth rate is apparently confined to the urban districts; indeed, the rural districts showed an increased rate during 1897.



*Still Births.*—Only in seven districts are any numbers given. If 29 occurred in Pudsey, 36 in Wombwell, and 29 in Wortley I., what a serious leakage for the whole Riding!

*Illegitimate Births.*—Record is made of 470, equal to a percentage of 3·9 in the urban and 2·7 in the rural districts.

*Deaths.*—During the year there were 24,652 deaths, being at the rate of 17·0 per thousand of the inhabitants. With the exception of 1894, it is the lowest death-rate yet recorded for the County, and is lower by 0·8 than the average rate of the five previous years. As far as can be ascertained from the reports, the deaths occurred among the two sexes in the following ratio :—Males, 51·9 per cent; Females, 48·1 per cent.

Table I. (see end) shows the rates for each district. None of them are very remarkable, the highest being 24·5 at Featherstone, and the lowest at Scammonden 7·9, and Shelley 8·4.

*Uncertified Deaths.*—During 1897 in the Riding there were as many as 326 deaths uncertified by any medical man.

### 5.—Urban and Rural Statistics, 1897.

The following Table attempts to differentiate between “urban” and “rural” districts, and shows the comparative rates for 1897, verifying the accepted idea that country life is more favourable to longevity than town life :—

	Annual Rates per 1,000 of the estimated population.					Infant Morality (Deaths under one year per 1,000 Births)
	Birth- rate.	Death- rate.	Zymotic Death-rate.	Phthisis Death-rate.	Respiratory Death-rate.	
(1) Urban Districts (137) in the West Riding ... ..	29·8	16·7*	2·06	1·35	3·12	157
(2) Rural Districts (30) in the West Riding ... ..	32·6	16·4*	1·52	1·03	2·71	135
(3) West Riding Ad- ministrative County	30·5	17·0	1·94	1·30	3·07	151

\* Excluding deaths in Lunatic Asylums.

The three Tables which follow (6, 7, 8) are obtained from the Registrar-General's publications, by the process of subtracting from the “Registration County” of the West Riding the figures relating to the five County Boroughs. The remainder only approximately represents the Administrative County; hence the figures are slightly different from those derived by summarising the Annual Reports :—



## 6.—Birth Rates and Death Rates, 1897.

1897.	Total Number in Administrative County (approx)	ANNUAL RATES PER 1000.		
		Administra- tive County. (approx.)	Five County Boroughs.†	England and Wales.
Births ... ..	44,760	30·9	29·6	29·7
Deaths ... ..	25,135	17·4	19·2	17·4
DEATHS UNDER ONE YEAR OF AGE	6740	151†	184†	156†
DEATHS FROM THE PRINCIPAL ZYMOTIC DISEASES—	2846	2·97	2·65	2·15
Small-Pox ... ..	2	0·00	<i>nil</i>	0·00
Measles ... ..	472	0·33	0·43	0·40
Scarlet Fever ... ..	335	0·23	0·21	0·14
Diphtheria ... ..	182	0·13	0·13	0·24
Whooping Cough ... ..	340	0·23	0·26	0·35
Fever* ... ..	277	0·19	0·21	0·16
Diarrhœa ... ..	1238	0·86	1·41	0·86
DEATHS FROM VIOLENCE ...	876	0·60	0·58	0·62

† Deaths of Infants, per 1000 Births.

† Bradford, Halifax, Huddersfield, Leeds, and Sheffield

\* Includes Enteric Fever, Typhus, and Simple or Ill-defined Continued Fever.

The following Table gives a retrospect, since the constitution of the County Council, of annual rates based upon the figures of the Registrar General :—

## 7.—Annual Rates, 1889-97.

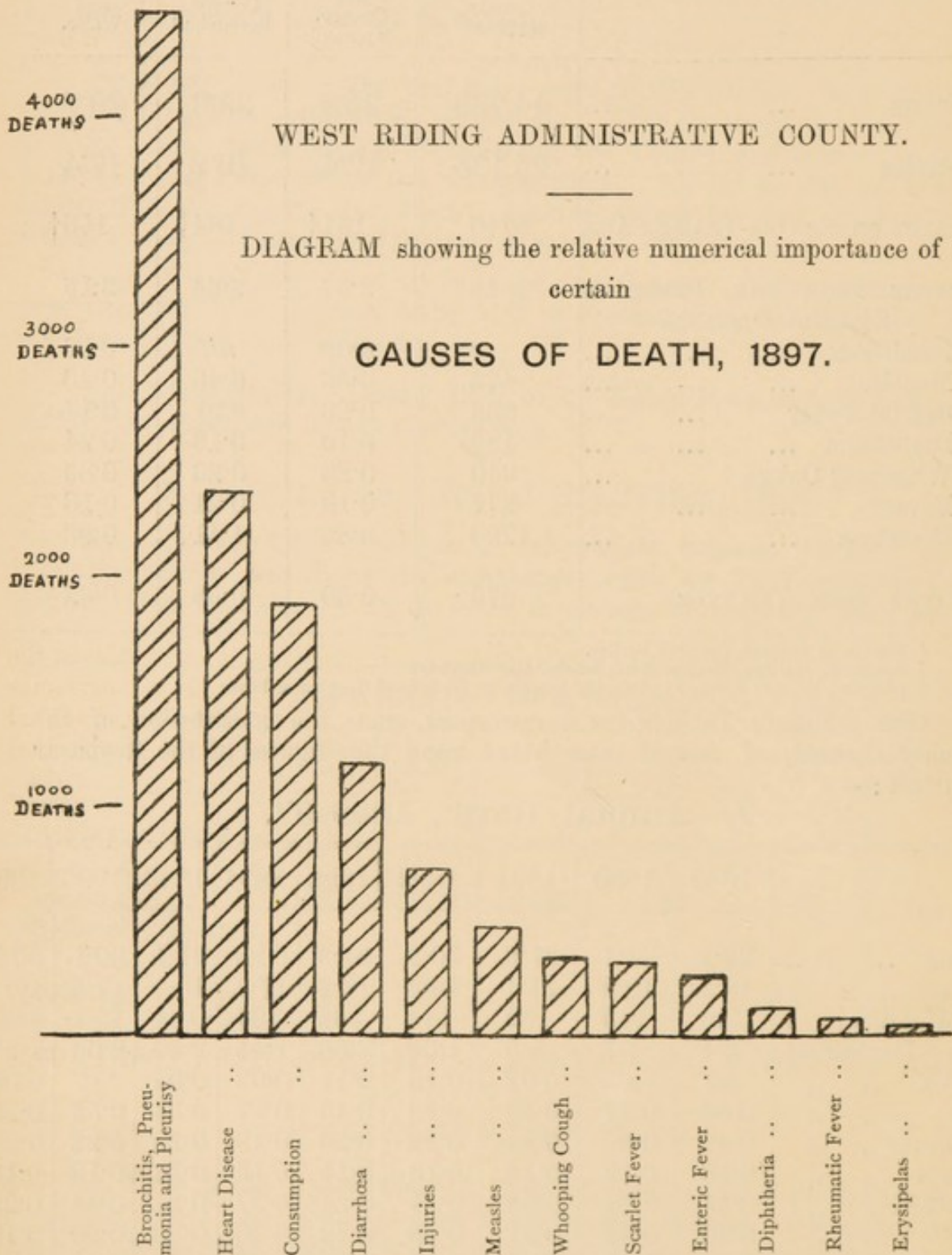
	1889	1890	1891	1892	1893	1894	1895	1896	1897
Birth-rate ... ..	29·2	31·1	31·3	30·8	31·3	30·3	31·1	30·1	30·9
Death-rate ... ..	18·2	19·9	21·1	18·3	19·6	17·7	18·8	17·2	17·4
Infant Mortality† ...	156	149	162	143	166	137	161	150	151
Zymotic Death-rate	2·4	1·7	2·0	1·68	2·63	1·45	2·22	2·03	1·97
Small Pox „ „	<i>nil</i>	<i>nil</i>	0·02	0·13	0·11	0·02	0·02	<i>Nil</i>	0·00
Measles „ „	0·56	0·27	0·59	0·26	0·43	0·27	0·34	0·55	0·33
Scarlet Fever „ „	0·46	0·30	0·21	0·22	0·20	0·19	0·18	0·22	0·23
Diphtheria „ „	0·16	0·12	0·12	0·13	0·15	0·15	0·17	0·19	0·13
Whooping C. „ „	0·45	0·28	0·39	0·41	0·24	0·37	0·22	0·44	0·23
Fever** „ „	0·20	0·22	0·21	0·18	0·28	0·20	0·20	0·20	0·19
Diarrhœa „ „	0·58	0·46	0·42	0·36	1·21	0·25	1·09	0·43	0·86
Respiratory „ „	?	4·6	5·1	3·9	3·8	3·2	3·6	3·3	3·08
Phthisis „ „	?	1·8	1·6	1·4	1·5	1·3	1·4	1·3	1·30
Violence „ „	0·51	0·50	0·64	0·60	0·61	0·60	0·64	0·62	0·60

† Deaths of Infants, per 1,000 births.

\* Includes Enteric Fever, Typhus, and simple or ill-defined continued Fever.



**Comparative Mortality.**—The following diagram will perhaps give a clearer idea of some of the figures given in the last column of the foregoing Table. It shows in a graphic manner the position occupied by phthisis (consumption) in relation to some other causes of death.



### 8.—Mortality according to Season.

Seasonal mortality is an important factor in considering public health, and the following Table shows the death rates in the Riding for the year



1897, and each of its Quarters compared with the rates for England and Wales :—

1897.	WEST RIDING.			ENGLAND AND WALES.		
	Annual Death-Rate from ALL CAUSES.	Annual Death-Rate from principal ZYMOTIC DISEASES.	INFANT* MORTALITY.	Annual Death-Rate from ALL CAUSES.	Annual Death-Rate from principal ZYMOTIC DISEASES.	INFANT* MORTALITY
First Quarter...	17·9	1·49	131	18·8	1·54	141
Second Quarter	17·0	1·05	130	16·3	1·36	124
Third Quarter..	17·3	3·64	191	17·8	3·89	213
Fourth Quarter	17·2	1·68	150	17·0	1·83	145
YEAR 1897 ...	17·4	1·97	151	17·4	2·15	156

\* Proportion of deaths under one year of age, per 1,000 births.

The parallelism of the figures in the Riding and throughout England and Wales is worthy of notice. In both, the third quarter shews the high incidence of zymotic mortality, and a similar effect upon the infant death-rate. The cause, common to both, was, in 1897, the excessive prevalence of diarrhoea, which claimed 988 victims against 48, 65, and 137 in the first, second, and fourth quarters respectively.

**Ages at Death.**—The following Table shows how the deaths in the West Riding were distributed according to age. It is of more importance than would appear at first sight, and especially so in view of the contemplated preparation of life-tables for the West Riding. It is, therefore, desirable that all the local reports should furnish this information.

### 9.—Deaths Recorded at certain Age-periods, 1897.

	Under 1 Year.	1 to 5 Years.	5 to 15 Years.	15 to 25 Years.	25 to 65 Years.	65 and upwards.	All Ages.
Urban Sanitary Districts (137)	5163	2351	760	917	5484	3972	18647
Rural Sanitary Districts (30)	1508	582	238	292	1718	1667	6005
Total Administrative County ...	6671	2933	998	1209	7202	5639	24652

**Infantile Mortality.**—The importance to the sanitarian is at once apparent when one reflects that out of every thousand children born in the Riding during 1897 no less than 151 failed to attain the age of one year; or 6,671 infants formed “an unripe harvest for the scythe of death.” Though



higher than the previous year, the figure for 1897 is slightly lower than the average for the last five years. As noted in Table 5, page 12, this slaughter of the innocents is higher in the urban than in the rural districts.

Table I. (see end) shows that the rate of infantile mortality was excessive in several districts, notably :—

Altofts ... ..	200	Hoyland Nether ...	207
Ardsley East and West ...	203	Silsden ... ..	212
Darfield ... ..	213	Southowram ...	214
Denholme ... ..	214	Warley ... ..	226
Dewsbury ... ..	202	Wortley No. 3 ...	244
Heckmondwike ... ..	206		

Children are remarkably susceptible to all injurious agents which tend to shorten life, and where such agents exist in full force, then the mortality in early life becomes excessive. A few extracts from the references to this subject in the Annual Reports for 1897 will show the prevailing opinions amongst medical officers of health.

Dr. McLean, of Yeadon, bears witness to two of the commonest destructors of infant life, and writes :—“ If mothers would only be advised to bring up their infants for the first year, or at any rate for the first 8 or 9 months on the breast alone, or if from any proper cause that cannot be done, then on a proper milk substitute, and absolutely banish or forbid all foods composed of bread, rusks, biscuits, or other starchy material, until the child reaches the age mentioned, then undoubtedly infantile mortality would be reduced by 30 or 40 per cent. The persistence with which many prejudiced or ignorant women advise mothers to the contrary is nothing short of criminal. With regard to the second cause mentioned, if parents would give more attention to protecting their infants from undue exposure to cold and wet, and this especially in the evenings, when one so often sees infants of a few months old, nay, often a few weeks, being paraded about the streets, the figures of this death rate would be still further reduced.”

Dr. Richardson, of Ravensthorpe, gives his opinion as follows :—“ There is no doubt that in manufacturing districts where mothers go out to work, there are many deaths of infants due to want of proper care. The children are taken out in the cold morning air from a warm bed, and left in a house which may be several streets away, in probably a cold room in which a fire has just been kindled. The consequence is, that the child gets chilled, and perhaps does not get comfortably warm for some considerable time. During the day it must be content with a feeding bottle, which, if in constant use, is sure to become foul with particles of sour milk ; and, again, much carelessness or want of thought is displayed in the fact of giving children milk which has been re-heated. A child should have a sufficient quantity for one meal freshly prepared, and given in a clean bottle, through a clean tube, both of which have been immersed in clean water for some time. If proper precautions were taken with regard to feeding and clothing, there would certainly be fewer deaths of children.”

Dr. Davidson, of Hipperholme, while recording a very low infantile death rate, is sceptical as to the causes :—“ It is difficult to assume,” he observes, “ what factor is at work in causing the numerical variations which one



“encounters from year to year when considering this subject. If, as is constantly alleged, imperfect feeding is the great cause of so many deaths in infancy, one asks in vain for an intelligent answer to the question: Why, under precisely the same conditions, so many die in one year and so few in another? The truth, to my mind, appears to be that a great many agencies are involved in the issue, and that each, although moving in a different channel, is yet powerful enough to prove destructive. Be the reason what it may, it remains a fact that in 1896 the rate of infant mortality per 1,000 of registered births at Hipperholme was 267·6, whereas for 1897 it has fallen to 60·2.”

Dr. Castle, of Darfield, has been searching into “the frightful infant mortality” there, and finds that it is most rife in those parts of his district where the people are most crowded and least cleanly. He adds:—“It would be wise to endeavour to cause a certain amount of elementary hygiene to be taught to the girls in the schools.”

Dr. Lumsden, of Pateley Bridge, attempts in an interesting manner to draw deductions from the particular ages at which death occurred:—“Upon examination, I find that the number of deaths on the first day of life is three times greater than that on any succeeding day, and considerably exceeds the combined total of the deaths during the remaining days of the first week. The total number of deaths during the first week constitutes more than half of the deaths of the first month of life. In fact, so high, that were it maintained uninterruptedly, every infant would die before completing its first year of life. After the first week a very remarkable lapse occurs. No further deaths take place until the seventh month is reached, and from this date until the eighteenth month of life there is a tremendous fatality. From this period, as they grow older, the mortality lessens, and in the 2, 3, 4, and 5 years, there is only one death recorded for each year.” He adds his condemnation of unwise exposure. “With many people there is a growing tendency to endeavour to what they call ‘harden’ their children. For instance, how frequently infants may be seen with bare arms and legs, with little garments cut low at the neck, sitting on the cold ground or flagstones, or sent out during wild and inclement weather, and parents wonder why lung mischief arises.”

Mr. Hislop (Knaresborough R.) thinks that, besides the usual causes, injudicious marriages are responsible for no small share of the infant deaths. He writes:—“Foolish people will insist on marrying and procreating their like, although carrying in their bodies the certain seeds of disease and premature decay. It is a notable fact that these conditions are most widely prevalent amongst the extremely poor, and it is amongst them, too, that poorly-fed, often over-worked, and over-anxious mothers produce the child so well known to medical men; a child generally destined to pay but a brief and troubled visit to this world. I think the part played by these unfortunate marriages, as a cause of our high infant mortalities, has been somewhat overlooked.”

Dr. Logan recognises in his report upon North Bierley that dentition plays an active part:—“Infant mortality has, according to our invariable experience, been large, and has no doubt been mainly due to the usual dangers surrounding infant life—amongst others to ailments, usually of a non-fatal character becoming complicated and intensified by the process of dentition and to errors in dietetics.”



Mr. Martin advocates the distribution of literature on the subject, as was done by the Brighthouse Corporation :—"In the early part of 1897, the Committee sanctioned the distribution of pamphlets on the subject of Infant Feeding. This plan was suggested by my predecessor, and up to the present time the Registrar gives a copy to each person registering a birth. I have no doubt that this distribution is of service, for it is a well recognised fact by the medical faculty that the feeding of infants otherwise than by the breast is very little understood by the majority of mothers."

Dr. Mitchell Wilson, in his Goole Rural report, advises the education of mothers by a district nurse. He writes :—"I think there is one unmistakable lesson to be gathered from these figures, viz., that many more young children might recover from sickness if the mothers had some lectures on nursing, or, better still, if they had the benefit of a district nurse to show them how such important work should be done." This suggestion is justified by Mr. Hebblethwaite, of Burley-in-Wharfedale, who eulogises the services rendered by the district nurse :—"The rate of mortality among infants," he observes, "is extremely low. More intelligent ideas are prevailing respecting the feeding and care of infants of tender months, and we have to thank our village nurse for the unremitting and skilful attention which she has shown in her care of the little ones."

I am delighted to uphold this opinion with regard to other districts. Valuable as is the dissemination of information by pamphlet, etc., it cannot be compared to the practical demonstrations of a district nurse. It is to be hoped that the time is not far distant when such an individual will become part of the sanitary staff in connection with infectious disease, and whose spare time might be devoted to house visitation.

**Zymotic Diseases.**—Having considered the general death-rate in its relation to sex, to age, and locality, we may now proceed to discuss the mortality according to causation.

From the standpoint of public health the most important are the zymotic diseases. Recent experience in health administration has firmly established the fact that mortality resulting from zymotic disease is capable of being very greatly reduced. A high death-rate occurring frequently in any locality may be regarded as an indication of lack of efficient administration, or serious imperfections in the preventive measures adopted. The action of sanitary authorities in this matter ought to be based on the conception that the *zymotics and cleanliness are incompatibles, while dirt and disease are twins*.

For statistical purposes it is usual to group together the following diseases, and refer to them as the Seven Commoner or Principal Infectious Diseases on which the "Zymotic Death Rate" is calculated.

- (1) Small Pox.
- (2) Scarlet Fever.
- (3) Diphtheria and Membranous Croup.
- (4) Fever—including Typhus, Enteric, and Continued Fever.
- (5) Measles.
- (6) Whooping Cough.
- (7) Diarrhoea and Cholera.



During 1897, these seven preventible diseases attacked several thousands of people in the West Riding, and were credited with 2,810 deaths in the aggregate. This is at the rate of 1·9 per thousand of the inhabitants.

As usual, those which caused the greatest mortality were what are too often regarded by the public as minor infectious diseases, viz. :—

		West Riding. Deaths	Urban District. Deaths	Rural District. Deaths
DIARRHŒA	... ..	1206	988	218
MEASLES	... ..	460	378	82
WHOOPING	COUGH	322	251	71

The following arrangement shows the way in which infectious diseases claimed priority in the death lists of recent years in the West Riding :—

1897	1896	1895	1894
Diarrhœa	Measles	Diarrhœa	Whooping Cough
Measles	Whooping Cough	Measles	Measles
Whooping Cough	Diarrhœa	Enteric Fever	Enteric Fever

It would appear, therefore, that Measles, Whooping Cough, and Diarrhœa, are ruling factors in determining the zymotic death rate.

**Small Pox** (Tables II., III., and pages 38 and 39). During 1897, twelve cases of this loathsome disease occurred in the West Riding, and two of them ended fatally.

Dr. Watts gives an interesting account of his careful investigation into the origin of an outbreak in Dewsbury :—“Neither of the first two patients “attacked (in February) had been out of the town since Christmas, nor were “they aware of any persons visiting at their houses. All the patients, except the “man, were rag pickers, and all were employed at one establishment; but here “the complication begins. These four persons were not employed in the “same room, were not picking the same rags, were not living near one another, “and were not friends; also, that the rags they were engaged in sorting had “been previously gone over on more than one occasion, and had been in the “establishment since October, 1896, and would probably be collected in “Russia the previous year, but this last fact is not verified, and cannot be so. “The books of the firm are so kept that all bales can be traced. The other “rags that were used had all been dyed, and the heat employed would “destroy infective matter.

“This, it seems to me, raises a question as to the length of life these “bacteria attain, or whether other sources of infection were possible. In “every case this was strenuously denied. With the exception of the husband’s “death, which all must deplore, we have reason to be thankful that prompt “measures, taken together with the means of isolation, prevented the further “spread of this disease.”

Many of the reports contain forebodings of evil for the future. Mr. T. B. Fairclough again declares that :—“The systematic neglect of vac- “cination will some day, not far distant, be a cause of great anxiety and “expense to the Council (Mirfield.)”



At Hipperholme, Dr. Davidson finds that the primary vaccination of infants is steadily diminishing, and he adds :—" I am not far wrong when I say "that only 5 per cent of the children born during the last two or three years "have been vaccinated. It is almost needless to add that this scandalous "neglect of a harmless and protective operation may land us at some future "time in a condition similar to that which we experienced five years ago, as "it is obvious that if this neglect continues, the number of unprotected children "will increase year by year."

The experience of Mr. Ramsden, at Saddleworth, is that "vaccination is "still the exception, only 27 out of 285 children born having been vaccinated "during the year ; that is to say, 10 out of 11 children are unvaccinated."

Mr. Thorp, in his report for Todmorden, has gloomy indications for the future :—" It is fearful to contemplate what might be the consequences were a "mild case in our midst to escape observation, when we have so many unvac- "cinated persons. Should an outbreak occur, such as we read of in other "towns, a heavy responsibility would, in my opinion, rest on the shoulders of "those who should have seen to the carrying out of the Vaccination Act."

Mr. Thompson, with his long experience, writes :—" As the value of "vaccination is absolutely ignored, both by the guardians and the people living "in Mytholmroyd, it behoves the authorities to be on the alert, lest this dread- "ful scourge should, by any chance, be introduced amongst an unvaccinated "population by vagrants."

Most of us will agree with Mr. Oliver, who states, in his Clayton report, that "the parents are taking on themselves a great responsibility, by withhold- "ing from their young children the protection vaccination gives them, and "which they are too young and helpless to avail themselves of."

At Wath-upon-Deane, Mr. Burman very wisely advocates timely re-vac- cination :—" Your district," he writes, "may be said to be a very well "vaccinated one, though I would take this opportunity of impressing upon the "public the importance of being re-vaccinated (which is performed free of "charge by public vaccinators, at their vaccination stations) and of seeing "that their children are re-vaccinated about the age of 14—16 years, in "preparedness for an epidemic of small-pox, which may come upon us at any "time, instead of as in 1887, when we had a severe epidemic and people "flocked in such droves to be re-vaccinated that it was impossible to supply "them all with lymph, and many had to wait for some time."

In my report for 1896, I dealt with the report of the Royal Commission on Vaccination, and it seems fitting to allude here to a few points in the Vaccination Act of 1898, which was the outcome of that Commission.

1. (4) The Public Vaccinator shall not vaccinate a child if, in his opinion, the condition of the house in which it resides is such (or there is or has been a recent prevalence of infectious disease in the District), that it cannot be safely vaccinated, and in that case shall give a Certificate under Section Eighteen of the Vaccination Act of 1867 of postponement of vaccination, and shall forthwith give notice of any such Certificate to the Medical Officer of Health for the District.

Section 2 consists of the now well known "conscience clause."



It may be well to know that by Section 7—

The Local Government Board may by order, if in their opinion it is expedient by reason of serious risk of outbreak of small-pox or other exceptional circumstances, require the Guardians of any Poor-Law Union to provide Vaccination Stations for the vaccination of children with glycerinated calf lymph or such other calf lymph as may be issued by the Local Government Board, and modify, as respects the area to which the Order applies, and during the period for which it is in force, the provisions of the Act requiring the Public Vaccinator to visit the home of the child otherwise than on request of the parent.

The next section (8) should receive very careful consideration by the medical officer of every isolation hospital for the treatment of small-pox.

The clerk of any Sanitary Authority which shall maintain a hospital for the treatment of small-pox patients shall keep a list of the names, addresses, ages, and **condition as to vaccination of all small-pox patients treated in the hospital**, such entries to be made on admission, and shall at all reasonable times allow searches to be made therein, and upon demand give a copy under his hand or under that of his deputy of every entry in the same on payment of a fee of sixpence for each search, and threepence for each copy.

**Chicken Pox.**—This disease in the light of present conditions will demand increasing attention in the future. As rotheln is often a source of worry because of its similarity to scarlet fever, so is chicken pox because of its likeness to cases of small pox modified by inefficient vaccination.

**Scarlet Fever** (Tables II., III., and page 38).—The ravages of this disease has gained for it the appellations of the “Moloch of civilization, the plague of childhood.” During 1897, it was known to have attacked 5,893 individuals in the West Riding, and with a fatal issue in 320 instances, which corresponds to a death toll of 0·22 per 1,000 inhabitants. Though not so prevalent as in 1892, its incidence is higher than the average of the five years, 1892—96. During that period, the yearly average was 5369 cases, with 279 deaths. Few of the outbreaks were of any special etiological interest, as personal infection appears to have been the ordinary channel by which the disease was disseminated. Many of the reports specially record the incidence of scarlet fever amongst insanitary surroundings, while others testify to the experience of past years that much of its malignancy may be mitigated by sanitation.

For example, Mr. Greenwood, of Ossett, found that “more than half the cases occurred in the North Ward. It is a significant fact that this is the district at present inefficiently drained.”

Mr. Collier condemned, as unfit for habitation, a house in the Ripon Rural District, where two fatal cases had occurred, “being very damp, and the privy in a bad condition. There was also overcrowding.”

Further testimony is added by Dr. Crowther, of Warley. Commenting on the incidence of scarlet fever at Causeway Head and Cote Hill, he says that those two localities “are, from a sanitary point of view, the worst in the district, many of the houses being badly ventilated, and very small.”



Dr. Scott, of Handsworth, after lamenting the absence of any hospital provision, or means of disinfection, remarks that :—"Careless intermingling of neighbours, in spite of advice given, defective closet arrangements and drainage, together with the insanitary state of many of the back yards, are factors which tend to increase its spread."

Dr. Hargreaves, of Wetherby, refers to an important item, unfortunately too common in this Riding. "The Bilton school was closed for two months, and disinfected, and an examination showed the sanitary arrangements to be in an unsatisfactory state. In spite of a notice to provide proper drains and cesspool having been served upon the Managers, nothing has been done."

Mr. Le Tall, after many years' experience, is "inclined to think that scarlet fever is not so fatal as it was thirty years since, but I have not the figures to prove this. Better nursing and better sanitary surroundings may to some extent account for this."

Mr. Wills also thinks "it is probable that the defective closet system had some share in spreading the disease in the rural district of Kiveton Park, but the special difficulty was that many of the people were very ignorant and did not take proper care, and very few of them had proper accommodation for any case of infectious disease, since there were large families in small houses, and mostly without means of warming a bedroom by a fireplace, even when they could be made to understand that this was necessary."

Importation of cases from other districts is frequently recorded. In Wharfedale (North Division) Dr. Williamson records that "eight cases occurred at a farm house (Briscoe Rigg), where it was introduced by one of the sons returning home suffering from the disease."

Scarlet fever was notified at Aldborough (Great Ouseburn R.) in August. Mr. Lounds mentions that "this was the case of a maid sent from Harrogate to Aldborough by cab and railway, when suffering from sore throat and rash on neck and chest; legal proceedings were therefore taken against the mistress by the District Council, and she was fined."

In the Penistone Rural Report, Mr. Swallow records that in November a case occurred at Eastfield :—"This was also imported in consequence of a foolish visit to a relative, who was ill with scarlet fever in Leeds, and here is, I think, another argument in favour of removing infectious cases to an Isolation Hospital, for when there, promiscuous visits from relatives, friends, and acquaintances are put a stop to."

Dr. Sadler, in his Worsborough Report, shows the way in which one Sanitary Authority may help another. This case was one of a man who, "when his illness began, was in lodgings at Chesterfield, and on being informed that he had scarlet fever, at once took the train to Barnsley, and then came to Worsborough Dale. The Chesterfield Sanitary Authorities wrote immediately to tell us what had happened, but could not give his address; we were, however, able to trace him, and within two days of our receiving the letter we had him removed to the Kendray Hospital, his being the only case of scarlet fever so removed."

Mr. Coleman, of Hemsworth, rightly deplores the inadequacy of the law with regard to exposure of infected patients :—"It would appear" he writes,



"that unless a *medically notified* case were so exposed, no conviction could be obtained under the 126th Section of the Public Health Act, so that practically there is no legal remedy for preventing the spread of the disease by ignorant and careless exposure."

The growing custom of providing competent nurses for cases isolated at home, is worthy of consideration, where there is as yet no proper isolation hospital. Dr. Sedgwick mentions that "scarlet fever was notified at Staveley, (Great Ouseburn, N.). Isolation and disinfection were advised, and by the assistance of a trained nurse were well carried out; only one family was attacked."

Many of the reports illustrate the high infectivity of scarlet fever, not only in the desquamating period, but early in the attack; others enlarge upon the absurdity of expecting isolation in the home of the labouring classes. Several medical officers, in want of a proper hospital, advocate the daily use of oils, specially eucalyptus.

The value of careful investigation into the origin of every case of scarlet fever was well illustrated in Halifax. Dr. Ainley, on investigating an outbreak, ascertained that the milk supply was common to nearly all of the cases. Information to the Halifax Rural Authority, soon revealed the fact that cases of scarlet fever did actually exist in the farm house, and as usual, the farmer screened himself behind the plea of ignorance.

The disaster occasioned by careless dairymen is sometimes so great and widespread, that, in my opinion, every case of illness occurring in the house of the dairyman or farmer should be notified to the Medical Officer of Health.

Schools, as usual, are credited with a large share in the dissemination of this disease, and the difficulty of keeping it in check is every year increased by the greater number of children and their closer attendance at school, which provides greater facility for the diffusion of the infection by mild cases unattended by a medical man. In such cases much good might result by the appointment of the Sanitary Inspector as School Attendance Officer, where practicable. In the latter capacity he would have early knowledge of the absentee, and, as Inspector of Nuisances, he could enquire as to the cause, and thereby check the return of the child if there were any grounds for suspicion. In some districts this combination of duties occurs, and it is found to work in every way satisfactorily. No absentee should be admitted to school without some investigation by one of the teachers specially allocated for that duty.

Diphtheria (Tables II., III., and pages 38, 39) was recognised as the cause of 116 deaths in the Administrative County during 1897, thus adding 0.08 to the Annual Death Rate. This figure is lower than any of the previous four years. In this connection it should be noted that 108 deaths from croup have been recorded during the year. Diphtheria is undoubtedly induced by local insanitary conditions, and often spread through the schools—a circumstance which has been noted over and over again in the interesting accounts of outbreaks contained in the annual reports before me. It behoves all Medical Officers of Health to record in detail the circumstances of the outbreaks they encounter, and so help to extend our knowledge of the etiology of the disease which still requires more light; why, for instance, an epidemic showed at one time amongst those inhabiting dark, damp, and



stuffy dwellings, while at another time it spreads amongst those inhabiting houses built on differing sites, and at varying altitudes. Excessive prevalence of this disease is noticeable from the reports of Featherstone, where 43 cases were recorded, two of them proving fatal. At Doncaster 30 cases were reported with 8 deaths, at Rotherham 23 cases, and 9 deaths, at Todmorden 24 cases, and 10 fatal; while at Normanton there occurred 20 cases, at Sowerby Bridge 32, and at Wakefield 22, but in none of them was there a fatal issue. These varying figures strengthen the opinion that the diagnosis is often doubtful.

The cause of diphtheria is a source of much anxiety, inasmuch as it is often impossible in the light of present knowledge to trace it. Although oftentimes associated with sanitary deficiencies, still it is not unusual for it to appear in healthy houses. This tends to the belief of the theory enunciated by Sir R. Thorne Thorne, to the effect that sore throat may by progressive development eventually produce undoubted diphtheria.

Many of the reports for 1897, refer to outbreaks of sore throat, and others record that similar outbreaks have been followed by definite cases of scarlet fever and diphtheria, as was the experience at Rawdon, where Dr. Chamberlain writes, "cases of diphtheria and erysipelas followed an extensive "epidemic of sore throats."

At Selby, Dr. Mitchell Wilson noticed "a number of cases of sore throats "among teachers and scholars, which were found to have been caused by foul "air entering a classroom from an old unsuspected drain under the floor."

Similarly, Mr. Haigh, of Meltham, records that "in February a case of "diphtheria occurred at Holme. The house in which the case occurred was in "a satisfactory sanitary state; but in a field close to the school, a cesspool "was full and overflowing, and had not been emptied for years, causing a very "offensive smell, and I think this was the cause of the disease."

That these "sore throats," though mild, are often diphtheritic has been proved at Ripon, where Mr. Husband found that seven cases of diphtheria "occurred simultaneously with a number of cases of so-called 'sore throat' "and 'ulcerated throat,' and were of a mild type, but the nature of the com- "plaint could not be doubted, for the specific Klebs-Löffler bacillus was "demonstrated. This failure of the epidemic to spread, I believe, was largely "due to the fact, that bacteriological examination proved at the onset the "serious nature of the cases, and warranted the adoption of energetic measures, "in what otherwise might have been thought trivial ailments; an epidemic, "characterised as epidemics frequently are, by a mildness of type at the onset, "but followed by a more virulent form as it becomes established."

At Shipley, Dr. Foster was unable to trace the cases of membranous croup to any special insanitary source, but thinks it was sufficient that they occurred "in the more crowded and older houses of the district, possessing "less air-space, together with the general dampness in them induced by the "extremely wet weather."

Mr. Swallow associates polluted drinking water with diphtheria at Hoylandswaine as follows:—"On May 19th, I received notification of two cases "of diphtheria in the village near the Post Office. Both families get their "water from a dip well on the side of the road opposite. For some time before



“the outbreak, the water of this trough had been undrinkable in consequence of a preparation of tar having percolated into it from an adjacent telegraph pole. They therefore stopped going to this well, and procured their water from another trough on the road side about 50 yards higher up. . . . I might mention that both the wells are shallow surface ones, and consequently are both open to sewage pollution at any time. They are also both on the road side, and might easily be contaminated by tramps or animals.”

In the Yeadon Report it is suggested by Dr. McLean that the County Council should undertake bacteriological examinations for the diagnosis of diphtheria. The County Medical Officer hopes to do so, but at present the department is overcrowded with other work. Dr. McLean writes:—“Whilst not wishing to impose further duties on the already hard-worked County Council’s medical authorities, still I think that diphtheria is so important and fatal a disease that the time has arrived for them to undertake the bacteriological examination of specimens from all supposed cases of diphtheria for the various District Councils, so that immediate isolation of each case could then be adopted. The point might then be raised as to whether the District Councils might not supply ‘anti-toxin’ gratis, so that this now well-established specific treatment would be brought within the reach of everyone.”

Mr. Greenwood, of Ossett, extols the use of anti-toxin, and his results agree with my own. He says:—“Four cases of diphtheria were reported without any mortality. This happy result I attribute, in one case at least, to the early employment of the serum treatment. This case, in which grave symptoms were observed, exhibited very marked improvement within twenty-four hours of the first injection. I am convinced of the value of the anti-toxin treatment if undertaken at a sufficiently early stage of the disease.”

**Typhus Fever** (Tables II., III., and pages 38, 39) is happily of rare occurrence in these days. During 1897 no case was reported in the Administrative County.

**Enteric Fever** (Tables II., III., and pages 38, 39). This disease is of peculiar interest to the sanitarian, because its incidence so frequently denotes defective sanitary arrangements, while its continued absence from a district may be looked upon as the reward of efficient sanitary defences. During the year 1897 we had in the Riding 1,553 cases of enteric fever, resulting in 272 deaths. These figures are only slightly lower than the previous two years. They represent a death-rate of 0·20 per thousand in the urban districts, 0·15 in the rural districts, averaging 0·19 in the administrative county generally.

Many of the cases were of a purely sporadic nature, having nothing of an epidemic character. It is these cases which trouble the Medical Officer of Health in determining the *origo mali*. The avenues of infection are so many and varied that exceedingly careful and searching inquiry is necessary. In my opinion the privy midden, by reason of its liability to infection, its suitability for propagating the typhoid bacillus, and the dangerous method of removal of its contents would account for many of the cases.



The following quotations from the Annual Reports for 1897 indicate that the disease may infect directly its victim, or indirectly through the medium of contaminated milk, water, lemonade, shell-fish, etc. :—

Some of the reports afford corroboration of the common-place fact that enteric fever is very readily spread by specifically contaminated water. Outbreaks attributed solely to this cause were noted in Shelley, Wharfedale S., Lepton, Skelmanthorpe, and elsewhere. Dr. Lumsden finds that cases in Pateley Bridge Union usually occur where neglect of proper precautions has led to water contamination by excreta. "It is surprising," he writes, "how often one finds liquid manure passing away from a cowhouse, or stable, or wet midden, solely because it happens to be on a higher gradient, and frequently filtering through the ground, and naturally contaminating the environment, where probably there is a spring or drinking trough. It is in this manner that typhoid arises."

The following history of an outbreak of water-borne origin in the Tadcaster Rural District is convincing. Dr. Mitchell Wilson, in describing the outbreak, says :—"It was fairly shown that infected matter had gained an entrance into a well from which the supply for drinking was obtained, not only by the householders who resided near the well, but also by children who attended the school from a distance, and drank the water. No more cases of fever were reported from Mickelfield after the well was closed. The control of the infection was very greatly assisted by the removal of all the cases to the hospital, where everyone recovered."

Many people will not realise danger until enteric fever is actually present, as Dr. Cheetham illustrates in his Guiseley report. Commenting on a case which occurred in that district, he writes :—"The water supply was obtained from agricultural land, which was at times heavily manured, the result being that after heavy rains the water was impregnated with liquid manure. I interviewed the owners of the property who supplied the water, advising them to put on a fresh supply from the Menston Waterworks Co., whose mains are near. They, however, on the advice of their engineer, preferred getting a fresh supply from similar land about 200 yards up the slope of the hill. The occupier of this land holds the scavenging contract for Guiseley, and at the time there were the cases of typhoid fever in Union Street he was manuring the very fields over the present supply with nightsoil from Guiseley."

A number of the reports clearly demonstrate the association of insanitary conditions with outbreaks of the disease. Referring to typhoid fever in the Penistone Rural District, Mr. Swallow observes :—"This property is in a very bad insanitary condition. The privies are without ashpits, with a continual percolation of fluid sewage into the surface soil. The house drainage is very defective. The sink pipes go direct into the drains, and the drain where the typhoid case is passes under the dwelling rooms of the house. The tenant has for some time noticed an offensive smell arising through the floor. I am also obliged to condemn the water supply. The pump water is unfit for human use. It is evidently a surface well, and is polluted by the surrounding privies, middens, and pigstys. I am glad to inform you that a new drain has been laid which carries the domestic sewage at the back of the property, where it enters the main drain. *The house drains have been*



*“ disconnected and trapped, but, strange to say, the old drain under the kitchen has not been taken up. The ashpits are still unsatisfactory. The other case of typhoid was at Silkstone Common in December, and here again there were defective house drains and an untrapped sink. Satisfactory alterations have been effected.”*

Dr. Millar tells a sorrowful tale in his report for Wombwell, where 46 cases occurred during the year :—“ It has been said,” he writes, “ that enteric fever often proves an efficient detective for defective drainage, and this has been well verified at Milton Square, Turkey and Inkerman Row, Jump. In the course of the thorough renovation of the whole drainage system insisted upon, we found such defects as four-inch pipes repaired with a six-inch, broken collars, pipes laid as if to carry sewage uphill, three sumps concealed under flags (hitherto unknown and unsuspected), and filled with solid sewage, and at the lower end where these private drains connected with our main drain, they were so choked as to be quite useless. The sewage was therefore percolating into the soil, and polluting it. In several cases it had found its way into the cellars, and as many traps and sink pipes were inefficient, sewer gas would also find its way into the houses and spread the disease. It was with difficulty the owner of these houses was brought to see the necessity for alterations, but I am much pleased to say they are being carried out to the satisfaction of your officials. The drains have been relaid, asphaltting is now being done, and proper channels made for the conveyance of surface water.”

Dr. Raimes, of Bishopthorpe R., in discussing an outbreak of enteric fever at Dringhouses, writes :—“ The drains have been thoroughly overhauled, and revealed a shocking condition of workmanship ; the house drains were actually on a lower level than the main sewer. Considering there are 27 houses in the row, we were most fortunate in escaping a severe epidemic of typhoid.” He continues : “ It is of interest to note that of the 59 cases reported under the Infectious Disease Notification Act, every case has occurred in Dringhouses. The rest of your district has been entirely free. . . . I believe the unsatisfactory condition of the drainage accounts largely for the spread of disease. . . . The drainage of Dringhouses should have the special attention of this Council.”

Dr. Ewing describes conditions associated with an outbreak of enteric fever as follows :—“ In reference to the outbreak of typhoid in East Ardsley, you have already had a special report from me in November last year, and a special visit of inspection and report from the County Medical Officer. Therein the five salient points of mischief, as far as could be ascertained, were dealt with, viz.: (1) Proximity of ashpits to dwelling-houses ; (2) uncovered and insufficiently walled ashpits ; (3) presence of slop water and deleterious matter in ashpits ; (4) unpleasant aspect of roadways ; (5) keeping fowls, pigeons, rabbits, &c., within a few feet of dwelling-houses. Most of the cases occurred in one block of buildings, but how the disease really originated in the first instance has not been ascertained. Every possible source was investigated without effect, and no stone was left unturned to check the disease, and prevent future invasion.”

Mr. Broughton, of Heckmondwike, refers to the 34 cases of enteric fever, which caused 13 deaths there, and observes :—“ After much thought,



“ the only conclusion I can arrive at is that the drains require more ventilation. There are certainly grates with perforated openings in them, but as a rule these get choked up with dirt, grit, etc.”

The justly maligned privy system is credited as a common cause in the dissemination of enteric fever. Dr. Scott, of Handsworth, investigated an outbreak which occurred at Intake, and found “ within a few feet of the house in which the disease originated there was a large uncovered midden, and in the cellar of the same house an unventilated and untrapped drain. On examining the cellar I found the wall adjacent to the midden very damp, and concluded that this dampness was caused by leakage of the liquid contents of the midden through the soil. The midden was covered in, and the cellar drain trapped and ventilated.”

Further testimony is found in the report for Brighouse, where Mr. Martin visited a house infected with typhoid fever, and found that “ the fall pipe, or conductor of rain-water from the roof, ran inside the dwelling-house for some distance through one of the bedrooms, and thence into a shed or stable below this room. At the time of my visit this pipe had been leaking extensively, and the room in question was thoroughly saturated as to its outer wall. In addition to this, I found that pig’s food, in various degrees of sourness, etc., was stored quite close to the dwelling-house, and as numbers of poultry seemed to have the run of the house, I was more than astonished that the cases were not numerically larger. The tenants suspected the water supply, but on samples being analysed this was found to be very wholesome. The owners of this property, on their attention being called to these defects, promptly rectified them as far as lay in their power, and the patients recovered without any further spread of the mischief.”

Dr. Picken, of Rawmarsh, has no doubt that “ the faulty construction and unhealthy environments of many houses are most important factors, with which it is the duty of the Health Authorities and their officials to grapple now. Badly flushed, foul smelling and unventilated sewers, defective drains, unpaved backyards, which have absorbed decaying vegetable and animal matter for years, dirty fowl houses and pig houses, offensive privies and ashpits, emptied perhaps at too long intervals, supply the conditions which favour the production of diarrhoea and typhoid fever, and to a lesser extent, perhaps, other zymotic diseases. People living under such conditions are also undoubtedly more liable and less resistant to other diseases.”

Mr. Bennett, of Otley, gives his opinion thus :—“ I am more impressed than ever that great care should be used to see that enteric fever excreta should be prevented from being thrown into the common privy carelessly. Hence, I ask the Council to provide an earth closet marked red for the separate use of these cases. If possible, I shall encourage those in charge to see that the discharges are burnt. This I suggest so as to prevent fouling of any clean surroundings or clean soil, for if the soil is polluted with decomposing organic, and especially animal matter, the typhoid bacillus thrives and persists. With warmth and a moist soil it develops greatly, and being washed into streams or wells from which the drinking water is drawn gives rise to typhoid fever, the origin of which is hence difficult to trace as it is so long since the soil was infected.”



Mr. Pitney Aston, of Eccleshill, again draws attention to the fact that the cases of enteric fever occurred along the line of the sewer in the North Ward, and urges complete ventilation as follows :—"Typhoid history of 1897 is still further suggestive of a casual connection between the sewer in question and the enteric fever cases, all the more so, as there is no reason to suspect infection from oysters, milk, or water supplies. During the year I repeated my advice of previous years as to improved ventilation of the sewer, and its aerial disconnection from the sewage precipitation tanks, but, so far, none of the recommendations made by me have been carried out, though recently it has been agreed that special ventilating shafts shall be provided at suitable places. Almost every block of buildings on the road side of the sewer I have named have now had outbreaks."

Dr. Foster, of Shipley, supports the "privy midden" cause of the disease :—"I may mention that to the houses visited [with enteric fever] the old privy middens were attached in 20 out of the 27 cases notified. In the 7 houses to which water-closets were attached, two cases had already contracted the fever outside the district. In another case, the soil pipe communicated with the bath waste pipe, the latter being defective; and in still another case, the water-closet was situated in the cellar, which, in small cottage houses especially, is as bad a situation as could possibly be chosen."

Dr. Sadler gives an interesting account of the progress of infection in a house at Worsborough :—"Early in September," he writes, "a case of enteric fever was notified in this house, and removal to the Kendray Hospital being declined, the patient was nursed at home. The house itself was in fair sanitary condition, but the ashpit connected with the privy was wet, and the soil in front of the ashpit saturated with moisture, often with pools lying on the surface. Now recent experiments have shown that the typhoid bacillus can grow with great rapidity in soil if it is kept moist with organically polluted water. The organic pollution was here supplied by the wet ashpit into which the excreta from the patient nursed at home were doubtless thrown, and the necessary warmth by the warm weather of September. The result must have been a luxuriant growth of the typhoid bacillus, for in October and November six other persons in the house fell ill with typhoid fever, and five of them were removed to the Hospital."

Mr. Steele, of Morley, is still "of opinion that the privy-midden system is the chief factor in these outbreaks, as well as in the constantly recurring outbreaks of Follicular Tonsillitis, and it would be advisable for the Council to appoint a Committee of Enquiry as to the best system to adopt. I see that 87 of these privy-middens were built last year, and no doubt many are in course of erection; therefore the sooner action is taken in this matter the fewer there will be to reconstruct."

Mr. Mackenzie casts a heavy responsibility on the Normanton Sanitary Authority by asserting that Woodhouse and St. John's Terrace constitute a district "in which typhoid fever has become endemic, and under existing circumstances there is not the slightest prospect of its being otherwise, and until, and even for some time after, the conditions described in my report for 1895, are thoroughly remedied, this particular district will keep the fever, and continue to be a danger to the rest of the town."



Here is emphatic evidence by Dr. Scatterty in his report for Keighley Borough:—"For some years I have noted that about 90 per cent. of the fever houses have either excreta tubs or middens in their close proximity. In the year under consideration only three out of 60 fever houses were provided with water carriage."

In the Luddendenfoot Report, Dr. Crowther speaks out in favour of public scavenging. Referring to an outbreak of enteric fever, he says:—"If the water was innocent here the cause must be found in a large accumulation of animal refuse in close proximity to the living room. At another case of enteric fever I found a large open privy midden, giving off vile odours, and in close proximity to the patient. So long as these privy middens are allowed to remain in their insanitary state, just so long shall we have cases of these kind cropping up in our midst. If your Board would undertake the scavenging of these, now you have a tip, I think we should not have so many cases of typhoid fever, etc."

Writing of enteric fever at Soothill Upper, Dr. Beattie remarks:—"In this connection many houses still require disconnecting; many open middens, the fluid percolating through the walls into the yard, require rebuilding and covering. While the new buildings have one closet to each house, some of the old are still insufficiently provided—one to four. In September I recommended flushing of the drains, and it is certainly much required, as there is not a great deal of water going into the sewers."

In the Ravensthorpe Report, Dr. Richardson believes that fruit which passes through many hands may serve as a medium, while Mr. Ramsden, of Saddleworth, ascribes one fatal case to the eating of mussels.

Dr. Mitchell Wilson, in his Selby Report, shows that subsequent cases often throw light upon the diagnosis of previous ones, for he relates:—"On death from fever being reported an inquiry was made as to the history of all the cases of illness in the house. The family, which originally consisted of the father, mother, and six children, occupied a small house with only two bedrooms in a yard. On the 9th September a case of typhoid fever was reported in a house at the entrance of this yard. It was considered to be a mild attack of fever; the patient recovered. That family used the same water closet as those in the yard, and the ashpit was common to both houses. The drainage by sink pipes was properly disconnected from the sewer at both houses. Guided by the date of the notification of the case of fever in the first house, the use of a common closet, and the cause of death assigned, viz., influenza and pneumonia, it is fairly reasonable to believe that there was in that case the infection of enteric fever. In the next case death was certified to acute phthisis, on November 19th; that patient was said to have suffered from diarrhœa. The mother, who had nursed the others, was taken ill, and her death was certified as due to enteric fever."

In the Doncaster Rural District Dr. Wilson has found the value of adopting pails for typhoid stools, into which "the householders were urged to place all infected matters, and these pails were cleansed and replaced three times a week. An extra cleansing and disinfecting of the closets and ash-pits was also carried out, and since then only three cases of typhoid have been reported. Other conditions having remained the same, the sudden improvement did appear to be due to the more efficient means of dealing with infected matters."



In the Tickhill report he again calls attention to the infectivity of enteric fever, and urges the use of pails for the reception of all infected matter, which should be ultimately disposed of by the sanitary authority.

**Measles** (Tables II., III., and page 39). As shown on page 19, this disease took the second place among the infectious diseases in point of mortality. It caused no less than 460 deaths during 1897, and so added 0·32 to the County Death Rate.

Amongst so many reports, there must of course be a diversity of opinion as to the best methods of restricting the ravages of this disease. In my opinion the key-note lies in educating the parents, and this can be best brought about by notification, followed by the subsequent action of the Sanitary Authority.

Many of the reports saddle the schoolroom with the dissemination of the disease. Dr. Picken, of Rawmarsh, writes :—"Of 77 houses where there were susceptible children not attending school, and who were therefore more exposed to a house-to-house infection, in only five was the first case a non-attendant at school. Several of these five houses were close to others with infected school children. There was, therefore, practically little or no house-to-house infection in this epidemic. These facts left very little room for doubt that the disease was disseminated almost entirely from the Infant Department of these three schools, and most probably by the presence of children in the pre-eruptive period of their illness, which is recognised as a highly infectious stage of measles. There are the additional facts that it spread coincidentally with the re-opening of the schools after the Christmas holidays, and was distributed uniformly over and limited to the school areas, and that cases appeared at Stone Row and Mangham in children attending Parkgate schools."

Dr. Lumsden, of Pateley Bridge, relies on the school teachers for information, and he remarks :—"There seems to be a popular idea that all children must at some time, of necessity, have measles. This is quite a fallacy, and is no more true of measles than of any other infectious disease, and acting upon this fallacious notion I have even known parents voluntarily take their children to an infected house, in order that they might acquire the disease, and 'get it over;' and occasionally it has been got over in a very sad way. I must here record my thanks to the schoolmasters in the different townships, who have given me great assistance in reporting any appreciable falling-off in the numbers of children in attendance at school, and in this way have enabled me to trace a threatened epidemic in some outbreak, and stop it at the very commencement. The longer my experience in the treatment of epidemics, especially amongst children, the greater necessity I find there is for the early and immediate closing of schools, for all germs seem to acquire a greater activity and virulence in a heated room, caused by the aggregations of children, especially if not well ventilated."

Mr. Kemp, of Castleford, after many years' experience, writes :—"As this disease is not one of those requiring notification, much valuable time is lost during the early stages of the epidemic, when isolation, and disinfection, and individual instruction would be of most value. On becoming aware of the outbreak, I obtained a list of houses where children were absent from school, and then the Sanitary Inspector visited all such houses,



“giving the necessary instructions to the parents as regards isolation, disinfection, &c. Many parents are still of opinion that this is a simple ailment, and all children must have it, but they cannot be too forcibly impressed of its seriousness, both as regards its danger to life, and also its after effect upon the health of the child. There is also the interference with education as well as the loss to the School Board, which a serious epidemic of this disease entails, to be taken into consideration in deciding whether this disease should or should not require notification.”

Mr. Hillaby, of Pontefract, looks at notification from another point of view:—“Fortunately,” he says, “at Brotherton, we became aware at the beginning of the outbreak, and clearly traced the origin of the first case. A report of the case was made at the time. As the total number affected was only five, it seems to clearly prove that something can be done to check the spread even of measles, and if compulsory notification were adopted, it must prove very beneficial, as parents would then have no excuse for hiding any information under the pretence of ignorance of the nature of the disease—many cases of scarlet fever not being reported on the ground of being considered cases of measles only. I have had many instances of this in Knottingley recently.”

Dr. Denning accounts for the lessened fatality from measles at Elland in this way:—“This epidemic, as I pointed out at the time, has not proved as fatal as similar ones in former years, and this I attribute to our improved sanitary surroundings, and to the more serious view which parents take of this disease, the evil results of which are often far reaching.”

Mr. Burman, Wath-upon-Dearne, has arrived at the following conclusions:—“At the commencement of the epidemic the school authorities were warned to be on the look out for any cases of the disease among their scholars, and many children which appeared ailing were sent home. The lessons to be learned from the epidemic are that the only ways in which the progress of the disease can be arrested are by (1st) allowing no child suffering from cold during an epidemic of measles to attend school; (2nd) prompt notification of the disease to the Medical Officer of Health, both by the public and the medical men, especially of the early cases, combined with (3rd) early closure of public elementary schools in the district.”

It would appear therefore that the difficulties of dealing with the disease are (1) its early infectivity; (2) carelessness in nursing; and (3) ignorance.

**Whooping Cough** (Tables II., III., and page 39). This children's disease was the cause of 322 deaths, equal to a rate of 0·22 per 1,000 of the population, and yet whooping cough is looked upon as trivial and inevitable, and no doubt this mistaken notion has assisted to augment the death toll.

Mr. Kemp, of Castleford, advocates notification. “I would again recommend your Council to include this among the notifiable diseases, it being a highly infectious and transmissible disease, and one in which, in my opinion, notification would assist in checking an epidemic at its outset.”

Dr. Russell McLean, of Yeadon, justly observes “that great responsibility rests with parents regarding the spread of this disease, and also with



“ school authorities, who can do much by acquainting the sanitary authorities of infected households. I also think it a mistake that such excessive zeal be shown in compelling parents to send their children to school during the prevalence of such an epidemic as whooping cough. Surely the health, nay, even the life of a child, is of more importance (to its parents, at any rate, if not to the State) than its education, which, in my opinion, would in many cases in very young or delicate children, and even not associated with an epidemic, be beneficially deferred till a later age.”

Diarrhœa (Tables II. III., and page 39) occasioned as many as 1,206 deaths, or 0·83 per thousand of the inhabitants. In the urban districts the rate was 0·89, and in the rural districts it averaged 0·64.

As shown in many of the reports, the disease arose from various causes, but special reference is frequently made to summer diarrhœa, an ailment which, according to etiology, is markedly preventible. Summer diarrhœa does not occur until the temperature of the ground has reached a certain point. In this connection Dr. Sadler, in his Worsborough Report, writes :—“ The warm weather of July and August raised the temperature of the subsoil at a depth of 4ft. to 56° Fahr., on July 18th, and to 59° on August 8th to 10th, and kept it above 56° until September 5th. In 1896 the temperature at the same depth never rose above 57°. As a high subsoil temperature is favourable to diarrhœa epidemics, it is not surprising that whilst in 1896 there were only seven deaths from diarrhœa, in 1897 14 deaths from that disease were recorded.”

Of course, we must also bear in mind that summer diarrhœa in infants is directly or indirectly associated with careless feeding. But the fact has been established that neither of these influences would operate in a marked degree unless insanitary conditions were also present. The most probable theory is that this disease is microbial, and therefore can become air-borne, and so infect both food and drink. And if diarrhœa outbreaks are due to an organism, the latter depends for its existence on organic matter, then it is obvious that to prevent the disease we must remove those conditions which promote the retention of filth.

Dr. Richardson, of Ravensthorpe, thinks that “ during the summer months it would be advisable to have the privies emptied in the early morning, and that once a week, for if they are a few weeks without being cleaned fermentation begins, and various gases escape into the air; water also accumulates, and escapes beneath the door of the ashpit, polluting the surrounding subsoil. This is, no doubt, a frequent cause of summer diarrhœa.”

Dr. Russell McLean supports the above opinion in his Yeadon Report where he asserts that “ a potent cause of diarrhœa, apart from injudicious dieting, is the effluvia and emanations from privies and middens, and the necessary defective method of dealing with their offensive and decomposing accumulations. There is no doubt in my mind that the proximity of human or other excreta in these receptacles to dwelling-houses is a very great source of danger, and this, no matter how well they are looked after and cleansed. If this is so, what must be the result when these accommodations are so abused as they are by many of the public persisting in using them to get rid of all kinds of refuse for which they are not intended, such



“ as slops, potato parings, cabbage leaves, tea leaves, and all kinds of vegetable and animal matter, which tends, by decomposition and putrefaction, to increase the dangers?”

Dr. Williamson, of Sandal, looks for benefit from clean streets. “ The most noteworthy thing about the diarrhœa figures,” he says, “ is the absence of Denmark Street, which (although one of the largest and most crowded groups of buildings in the district) escaped without one death, which no other group of buildings did. Not only so, but I observed that the cases occurring there were all of a less severe type. I can only attribute this immunity to the cleanliness secured by the tar macadam streets which were completed early in the year, as the sanitation otherwise is certainly not better there than elsewhere. But, indeed, it is only what might have been looked for, as with clean streets children playing on them will introduce less filth into their mouths. It is to be hoped that other streets will speedily be taken in hand, and that the results will be equally satisfactory.”

Dr. Millar, of Wombwell, also relies on cleanliness to minimise the prevalence of diarrhœa. “ The paving and drainage of yards,” he thinks, “ will act as a great sanitary benefit and a prevention, to some extent, of diarrhœa, because the yards will thus be easily swept clean, and the refuse which I have complained about so frequently would be more effectively removed, and there will be a greater incentive to cleanliness on the part of the inhabitants.”

**Puerperal Fever** (Tables II., III., and pages 38, 39.)—Very few of the reports make any comment on this disease. The number of cases recorded was 113 (92 in the urban districts, and 21 in the rurals.) Fifty-seven of the cases proved fatal. In the previous year (1896) 127 cases occurred with 66 deaths.

Mr. R. H. Shaw comments on this preventible disease. In Liversedge he records nine cases and three deaths, and says :—“ This disease amongst lying-in women is greatly in excess of last year, and has resulted in the death of one-third of the cases notified. Such a factor is greatly to be deplored, and I cannot emphasize too strongly the great care which is required in the nursing and cleanliness of lying-in women and their surroundings, a matter which is very much neglected amongst the poorer classes.”

**Phthisis** (Tables I. and II.) is credited as the cause of 1,875 deaths (1·30 per thousand living), of which 1,492 (1·33) were registered in urban districts, and 383 (1·03) in rural districts.

Dr. Scatterty observes in his Keighley report that “ during recent years this disease has come to be looked upon as due to causes which are undoubtedly preventable, and consequently it has now a greater interest for us as sanitarians than when it was believed to be simply hereditary and non-infectious. Of preventable cases dampness and bad ventilation are especially favourable for the growth of the germs, which give rise to the disease. The compulsory notification of phthisis is steadily gaining advocates, and although isolation of phthisical patients is not practicable, or even necessary, the public would become acquainted with the means used to destroy the germ of tubercle. If the disinfection of phthisical sputum, as well as the disinfection and thorough cleansing of rooms occupied by consumptive people were



“rigorously carried out, the belief in the hereditary transmission of consumption would decline, and a belief in the efficacy of such preventive measures as plenty of fresh air, light, proper drainage, and general cleanliness take its place. There is extremely little risk of infection from inhaling the breath of consumptive persons, but when the phlegm or sputum which is coughed up becomes dry and powdery it may be carried about by the wind, and thus carry infection to others, and especially to those whose general health is reduced by living amid insanitary surroundings.”

Mr. Fairclough, of Mirfield, argues that—“this disease, which is considered more or less a preventable one, has caused 11 deaths, 7 below the average of the last 8 years. From the numbers given below it looks as if the disease is steadily, and we hope surely, decreasing. I may here mention that I consider that the dwellings of Mirfield, being spread over such a wide area, help to diminish the risk of this disease, and I hope the Council will always continue to urge upon persons building cottages, the necessity of having plenty of space around them, as the microbes of phthisis will not flourish in pure air.” He continues, “I have again drawn out a summary of the occupation, disease, and ages of deaths for the year. If this is regularly followed out, we may be able to gather some very useful information as regards the healthfulness or the reverse of different occupations.”

**Respiratory Diseases (Tables I, II).**—Although the loss of life occasioned during 1897, by these diseases (bronchitis, pneumonia, and pleurisy) is below that of any of the four preceding years, yet it is very large, amounting to no less than 4,443 deaths, or a rate of 3·07 per thousand. In the urban districts the rate was 3·12, and in the rurals 2·71.

Mr. Mackenzie, of Normanton, considers that “the onset of these diseases is much influenced by meteorological conditions, and it is equally certain that in many instances the condition of the lungs of such as constantly breathe the atmosphere of this district, thick as it is with suspended matter discharged from neglected furnaces, predisposes towards a fatal issue in critical cases, and lowers vitality in all. The day will come when authorities will seriously tackle this question which has not been done yet. And then, but not till then, will furnace owners cease this frightful pollution of the air we breathe.”

Dr. Townsley, in the report for Ardsley, says:—“One of the chief originating causes of an attack of bronchitis, pneumonia, or rheumatism has been attributed to getting damp feet through having to cross a badly-drained and unpaved back yard on an inclement night in a pair of light shoes or slippers, while in the case of children in poorer districts it is well known that they are almost in a chronic state of wet feet in damp weather. Where this condition of things exists, associated with a general littering of the common yards with vegetable and animal refuse of all descriptions, it is not wondered at that pulmonary diseases and diarrhoea constitute a large part of the mortality every year. . . . The chief remedy for this condition of things is the thorough drainage of all back yards and . . . laid with flags or covered with concrete, giving a change from a wet and dirty yard to a clean and dry surface, and a more healthy and wholesome surrounding to the houses.”



**Influenza**, though not so widespread as in the previous year, appeared, as usual, in the spring of 1897, and reached its maximum incidence in March, the minimum being in July and August. Influenza is too frequently relegated to those diseases impossible to be dealt with by isolation, but there are instances recorded where, as with measles, we may prevent its spread beyond the narrow limits of a dwelling.

The following Table and Chart show the course of influenza in the West Riding as illustrated by the returns received monthly from the local medical officers of health for the purpose of the County Notification Summary :—

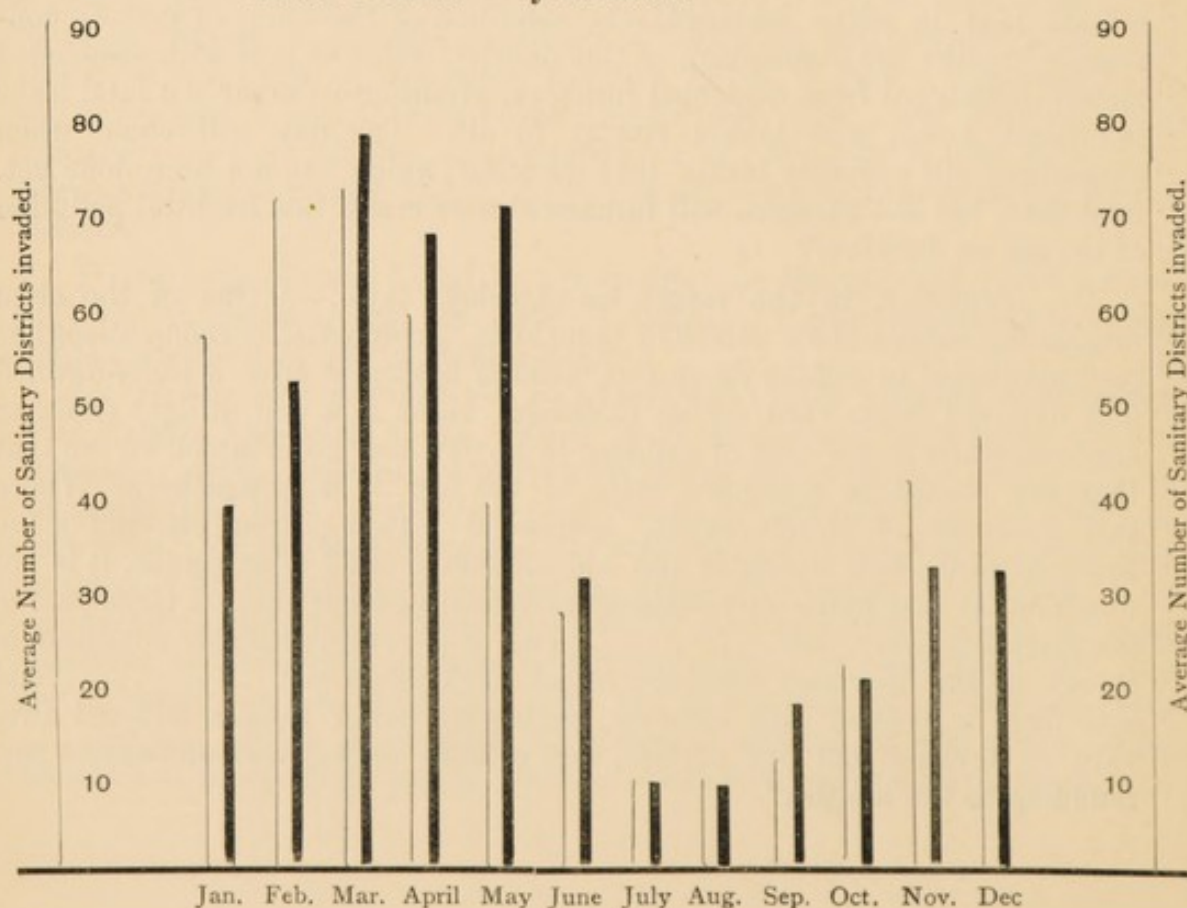
MONTHLY RECORD OF INFLUENZA IN THE WEST RIDING, 1891—97.

YEAR,	Monthly number of Districts reporting cases of Influenza,											
	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1891 ...	?	?	?	50	78	51	13	9	9	10	14	22
1892 ...	88	102	94	90	48	22	8	5	6	14	21	31
1893 ...	65	70	55	56	34	38	16	17	8	31	99	123
1894 ...	75	39	35	35	17	13	10	7	23	26	38	35
1895 ...	30	106	138	87	34	15	13	10	15	29	37	30
1896 ...	33	49	42	35	30	27	13	13	19	29	41	42
1897 ...	39	53	77	67	72	31	10	10	18	21	33	33
Monthly average	55	70	73	60	45	28	12	10	14	23	40	45

INFLUENZA IN THE WEST RIDING.

Thin columns = average of 6 years, 1891-6.

Thick columns = year 1897.





Dr. Lawson records that at Hebden Bridge "influenza has been very much in evidence throughout the whole year. It has caused six deaths directly, and probably several more indirectly. It is a most insidious and treacherous malady, and seems almost to have become an endemic disease of this country."

At Wath-upon-Deerne the year began, says Mr. Burman, "with a mild epidemic of influenza, which seemed to be dying out towards the end of March, but, as usual, increased considerably in April and May, but left us finally at the end of June. A few more cases in October and November, but throughout the year no death took place."

In the Todmorden Rural District influenza was "very much present during the whole year, and caused three deaths. It appears to have taken a permanent standing amongst the regular diseases to which we are subject. It is well known to be a fatal malady, and its danger consists largely, in my opinion (Dr. Lawson), in its insidious onset, and the varied and unrecognised forms which it may assume."

Mr. Swallow thinks that in the Penistone Rural District "influenza has evidently come to stay. This year it has not been severe, but there have been many sufferers in the district. It appears to have affected the nervous and digestive systems principally, but the type has been milder than in former years."

**Notification of Infectious Disease.**—In spite of the overwhelming testimony in favour of notification, there are still 19 sanitary authorities in the West Riding which remain without the advantages of compulsory notification of infectious disease. Some of these places are small districts with urban powers, but, as will be seen from the following list, there are a few large populations still unprotected:—

#### DISTRICTS WITHOUT COMPULSORY NOTIFICATION.

	Estimated Population.		Estimated Population.
Clayton West ...	1623	Lepton ...	2757
Denby and Cumberworth ...	3251	Morley Boro' ...	23858
Emley ...	1484	Rawmarsh ...	13568
Farnley Tyas ...	589	Shelley ...	1546
Gomersal ...	3878	Shepley ...	1813
Guiseley ...	4331	Skelmanthorpe ...	3571
Gunthwaite-w-Ingbirchworth..	379	Thornhill ...	10120
Holmfirth... ..	10194	Thurstonland ...	895
Kirkburton ...	3006	Whitley Upper ...	806
Knaresborough ...	4442		

In my opinion the time has now arrived when the Legislature should make the Act general throughout the country.

Many of the reports for 1897 contain evidence of the value of the early information afforded by notification, and some regret its absence, but nowhere is there a single dissentient remark as to the benefit of its enforcement.



Dr. McLean draws attention in the Yeadon Report to the responsibility of parents and guardians, which is often overlooked. He writes:—"One clause of the Act has since its adoption been observed absolutely in the breach, and that is the notifying of the case by the *householder* as well as by the medical man in attendance. The putting into force of this part of the Act would be of benefit in at least educating the public to a sense of their duty in outbreaks of infectious diseases."

Dr. Picken condemns the incomplete system of "voluntary" notification which is in vogue in Rawmarsh. "I fail to see, he says, "the logic of continuing to pay for the principle without adopting the Act, which secures the full advantages of the principle. It is, I think, false economy. The authorities which have not adopted the Act are comparatively very few, and every year they are a diminishing number. It would be undignified to wait till the Legislature leaves you no option in the matter."

Mr. Sellars regrets that the Notification Act has not been adopted at Thornhill, "for if it were," he says, "we should then know about every case and disinfect every house; as things are now, many have it in a mild form, and are allowed to go about among other people, and are the means of spreading it. It should be known that a mild case of fever is just as infectious as when it is a severe case."

The two Tables which follow are summarised from the County Notification Summary for 1897, and show the fluctuations of the diseases from month to month. The Notification Summary, which has been issued monthly by the County Council since 1891, gives the details with regard to each sanitary district.

### 10.—Monthly Totals of Reported Cases 1897.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Small Pox ...	1	4	—	1	1	—	—	—	—	—	4	—	11
Asiatic Cholera	—	—	—	—	—	—	—	—	—	—	—	—	—
English Cholera	—	—	—	—	—	—	1	3	1	—	—	—	5
Diphtheria ...	43	44	41	47	49	41	25	46	51	58	63	45	553
Croup ...	11	19	18	21	9	7	10	6	12	7	8	11	139
Erysipelas ..	95	89	104	73	115	79	62	78	100	85	111	119	1110
Scarlet Fever ..	419	398	353	274	326	377	361	544	620	822	671	557	5722
Typhus ...	—	—	—	—	—	—	—	—	—	—	—	1	1
Enteric Fever .	84	87	93	69	73	51	64	165	257	249	152	143	1487
Relapsing Fever	—	—	—	—	—	—	—	—	—	—	—	—	—
Continued Fever	4	—	2	4	1	8	5	3	3	4	3	6	43
Puerperal Fever	14	8	8	7	9	13	4	4	10	10	8	16	111
No. of districts* furnishing reports ...	166	164	166	165	164	166	164	164	165	166	165	166	—

\* Sanitary Districts, without regard to sub-division.



## 11.—Monthly Totals of Districts Reporting, 1897.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Small Pox ...	1	1	—	1	1	—	—	—	—	—	1	—
Asiatic Cholera...	—	—	—	—	—	—	—	—	—	—	—	—
English Cholera .	—	—	—	—	—	—	1	1	1	—	—	—
Diphtheria ..	24	24	24	28	26	26	18	29	25	29	32	29
Croup ...	11	16	17	17	7	5	9	6	10	7	8	10
Erysipelas ...	58	54	58	42	59	49	44	44	54	47	59	57
Scarlet Fever ...	82	76	68	73	80	80	71	88	93	89	90	89
Typhus ...	—	—	—	—	—	—	—	—	—	—	—	1
Enteric Fever ...	48	53	49	37	36	29	38	58	79	83	68	63
Relapsing Fever..	—	—	—	—	—	—	—	—	—	—	—	—
Continued Fever..	3	—	2	2	1	6	3	2	3	4	3	5
Puerperal Fever..	11	8	8	7	8	10	4	4	9	9	8	13
Measles ...	41	41	30	30	34	27	21	15	28	29	32	36
Whooping Cough	34	30	29	20	25	33	30	21	21	18	27	26
Diarrhoea ...	10	9	8	6	9	29	41	99	70	26	10	10
Pneumonia ..	45	40	52	45	53	31	17	24	29	33	30	40
Influenza ...	39	53	77	67	72	31	10	10	18	21	33	33
Chicken Pox ...	7	7	8	7	9	8	8	5	6	16	12	15
Mumps ...	8	11	10	8	9	5	2	5	5	8	14	10
German Measles	1	1	2	3	1	1	—	—	—	1	4	—
Lead Poisoning..	2	—	2	3	2	2	6	5	5	3	4	3
No. of districts * furnishing reports	166	164	166	165	164	166	164	164	165	166	165	166

\* Sanitary Districts, without regard to sub-division.

**Isolation Hospitals.**—To have a suitable hospital prepared, and always ready for the admission of patients, may mean the prevention of an epidemic. Its relation to disease may therefore be considered as somewhat analogous to that of a fire engine to fire. The importance of such provision cannot be overrated, as on it depends more than anything else the degree to which infectious diseases are to be controlled and prevented from assuming epidemic dimensions.

In the West Riding during 1897 there were 1198 scarlet fever and 283 enteric fever patients removed to one or other of the Isolation Hospitals. The removal of so many foci of diseases must have exercised a powerful restraining influence on the spread of these highly infectious maladies.

In Table III. the number of patients removed is given in columns 18—21, and the hospital in which they were treated is stated in column 2.

Many of the reports enlarge upon the blessing and success attending hospital isolation, while the reports for districts at present without, vehemently urge the acquisition of such accommodation, *e.g.*, Soyland, Flockton, Leeds Rural, Sandal, Shelf, Barkisland, and Hipperholme; others will be referred to hereafter.



Dr. Scatterty, by statistics, upholds the accepted opinion that "the mortality in hospitals is less than in private houses, and it may be well to consider how far that statement has been justified. Of the 49 cases of scarlet fever reported, 18 cases were treated at home, with the result that four cases ended fatally; that is a percentage of 22·2 deaths. The remaining 31 cases were treated in the hospital, with one fatal case, or a percentage of 3·2 deaths. There can be no ground for supposing either that only the worst cases were treated at home, or that only the worst cases were removed, and consequently no more striking proof can be required in favour of hospital treatment than the percentages just mentioned. With regard to Typhoid Fever a similar result in favour of hospital treatment may be noticed."

Dr. Robertshaw cites one great argument in favour of hospital treatment. He observes :—"I have noticed repeatedly that cases which up to the time of admission had been suffering from high temperatures, have almost immediately come down to something more approaching the normal. This, I believe, is to be largely attributed to the splendid hygienic environment which our hospital affords. I may say further that whereas some years ago there was great difficulty in persuading patients and their friends to let them go into the hospital, it is now no uncommon thing to be petitioned for admission."

Dr. Wilson's eulogy is as follows :—"There were 18 cases of enteric fever in Tadcaster Rural Hospital, and all of these recovered. The success of the hospital treatment, it is to be hoped, will go far to lessen the prejudice existing against friends being removed there. The sole object of the hospital is to serve the best interests of the ratepayers, and the results of the treatment of cases there show that the skilled nursing, suitable food, excellent situation, and good sanitary arrangements in and about the hospital, have been successful in carrying a far larger proportion of the cases safely through their illness than the best of home nursing has done."

Mr. Coleman shows that the popularity of the Hemsworth Hospital has led to the want of more wards. "In dealing with these outbreaks of infectious disease, the need of the Infectious Hospital has been fully maintained. An increased number of cases have been admitted, resulting in the accommodation being taxed to its utmost limits. No real difficulty is now experienced in the removal of cases. The explanation of this is not far to seek, for the experience of the last few years has convinced the working class, from whom the cases are mostly drawn, that the patients are treated with care and kindness, and with a proper system of nursing, &c., which cannot be provided at their own homes. Indeed, so great has been the demand on the hospital, that the accommodation is now insufficient. No provision exists for the isolation of cases of diphtheria, and the scarlet fever ward is far too small for the present requirements of the district. I have, therefore, to suggest that additional accommodation should be made for these two diseases."

Mr. T. Spowart was confident that "having the hospital has saved Wortley II. district from a severe epidemic of scarlet fever. The public are getting to know the value of it, and their objections to enter it are not now so decided. The cases treated at home are difficult to deal with, as isolation is practically impossible, and there is no systematic fumigation."



Mr. Fairclough, while praising the Mirfield Hospital, asks for increased accommodation. "This hospital is supplying what was a great want, viz., the early isolation of cases of scarlet fever. At the same time it is not large enough. A convalescent room is wanted; also a ward, or two wards, for typhoid fever; this, not so much for ourselves, as for our neighbours at Liversedge, for it appears that while we seem always to have scarlet fever amongst us, they seem to have typhoid. We have also felt the great want of a private ward, but all future additions should be of a more permanent character." Similarly, Dr. Snadden speaks of the Wortley Hospital, giving credit to "the usefulness of the Infectious or Isolation Hospital. Though hardly large enough to cope with the magnitude of the epidemic, it has rendered aid in stamping it out in some cases."

Dr. MacGregor is of opinion that "in the Isolation Hospital at Morton the best characteristics of what such an institution should be are carried out most satisfactorily. The telephonic communications enable patients to be received in warm beds on exceedingly short notice, and the liberal views of the Management Committee realise that rapidity of removal by the first physician who sees a case of infectious disease may be simultaneous with admission, and may be useful in preventing the spread of the disease."

Dr. Townsley's testimony to hospital isolation is as follows:—"Very little difficulty was experienced in getting permission to have the children removed to the hospital, and the benefit to be derived from treatment there, where the children are allowed out of doors during the greater part of their stay, is evidenced by their improved looks and appearance on arrival home, in contradistinction to the pallid appearance of home isolated cases. Many of the children wished to go back to the hospital. 79 cases occurred, 57 being removed to hospital; three cases proved fatal."

At Bishopthorpe the disadvantage of having a 'lodger' arrangement is evident. Dr. Raimes says:—"We were fortunate in having the York Fever Hospital to isolate so many of our cases. On several occasions, however, we could not remove patients on account of that hospital being full."

Mr. Watts expresses his experience at Dewsbury in these words:—"It is a very serious detriment to be without means of isolation for such a disease as scarlatina. In this case the sanitary officers are heavily handicapped in their efforts to combat the spread of the disease."

Dr. Scott, of Handsworth, records his predicament at present. He writes:—"Scarlet fever has now, to a greater or less extent, been in our midst for three consecutive years, and unfortunately we seem almost powerless to stamp it out, as we have no hospital to isolate our cases, and no means of properly treating infected bedding or clothing, the disinfection of bedrooms being also entirely left to householders themselves."

Dr. Smailes, in writing upon South Crosland, remarks that "the need of an isolation hospital is evident from the continuous way in which fresh cases keep cropping up at varying intervals; it is only by separating the early cases of infectious disease that any hope may be entertained of suppressing what may, if undisturbed, entail considerable suffering and expense to householders, besides interfering with the attendance at school."



Mr. Percival, of Knottingley, considers that "as long as such imperfect means of isolation of cases and disinfection of clothing are at our disposal, there is no wonder that fresh cases keep cropping up. I have also in one instance been put in a great dilemma as to the removal of a case from one house to another. I asked one Authority in vain for the loan of a proper ambulance van."

Sometimes one hears that a charge should be made upon relatives for maintenance and treatment of the patient. It should be borne in mind that parents have always a somewhat natural objection to parting with their sick children; if to this we add the objection against payment the utility of the hospital will be much restricted. The object of an hospital is not so much for the treatment of the patient (though that is an important element), as to protect the public, and prevent the spread of the disease. To do this it is necessary to isolate the first few cases, for if those escape the difficulty of stopping an epidemic is immensely increased.

**Sewerage and Sewage Disposal.**—Some idea of the activity displayed during 1897 in this work may be gathered from the following tabular statement :—

SANITARY DISTRICT.	IMPROVEMENTS EFFECTED OR UNDERTAKEN.
Balby with-Hexthorpe ...	65 yards of sewers relaid.
Barnsley Borough ...	1760 yards of new sewers.
Clayton ... ..	40 yards new sewers and 40 houses connected.
Denby and Cumberworth ...	107 yards new sewers laid.
Elland ... ..	5598 yards concrete, brick, and iron sewers.
Golcar ... ..	960 yards new sewers.
Goole R. ... ..	170 yards sewers relaid at Snaith.
Great Ouseburn ...	218 yards new sewers at Whixley, 84 yards at Kirk Hammerton, and 137 yards at Acomb.
Greetland ... ..	100 yards new sewers.
Handsworth ... ..	Scheme completed.
Holmfirth ... ..	405 yards new sewers.
Hoylandswaine ...	606 yards new sewers.
Hunslet R. ... ..	96 yards new sewers.
Keighley Borough ...	2439 yards new sewers.
Keighley R. ... ..	227 yards new sewers.
Kirkheaton ... ..	134 yards new sewers.
New Mill ... ..	90 yards new sewers.
North Bierley ... ..	600 yards new sewers.
Queensbury ... ..	258 yards new sewers at Ford.
Rawdon ... ..	60 houses connected.
Rawmarsh ... ..	400 yards new sewers.
Rotherham Borough ...	Nine streets newly sewered.
Rotherham R. ... ..	New sewers at Haughton, Brampton Bierlow, and Canklow.
Selby R. ... ..	220 yards new sewers at Drax, 222 yards at Wistow; 270 yards at Cawood.
Settle R. ... ..	115 yards new sewers at Ingleton.
Shelley ... ..	220 yards new sewers.



## SANITARY DISTRICT.

## IMPROVEMENTS EFFECTED OR UNDERTAKEN.

Shepley ...	...	200 yards new sewers.
Soothill Upper ...	...	112 yards new sewers.
Tadcaster R. ...	...	235 yards at Garforth, 504 at Tadcaster and Station Road, 163 at Potterton Lane, 160 yards covered at Allerton Village.
Thorne R. ...	...	500 yards new sewers.
Thornhill ...	...	820 yards new sewers and 294 houses connected.
Thornton ...	...	220 yards new sewers.
Tickhill ...	...	380 yards new sewers.
Todmorden R. ...	...	120 yards new sewers.
Wortley R. ...	...	Grenoside sewerage completed.

Schemes are also proceeding, or plans are before the Local Government Board at other places, such as Brighouse, Clayton, Darton, Thurnscoe (Doncaster R.), Swinefleet (Goole R.), Mytholmroyd, Silsden, South Crosland, and Sowerby Bridge.

The experiences of some medical officers of health in connection with drainage are worthy of recording here. At Pudsey "there are yet some builders who, from ignorance, carelessness, greed, or contrariness, would, if allowed to have their own way, execute work discreditable to themselves, dangerous to the health of the occupants of the houses, and almost sure to be a future expense, sooner or later, to the owners. The interference of the Inspector to secure honest work is very much resented by this class of builders, and they sometimes pose as martyrs suffering from the despotism of the sanitary authority. They, metaphorically speaking, moan, groan, and tear their hair, saying that they will be ruined, and that the progress of the district will come to a standstill. They as much as say, that it is not possible for a builder to make a living if he is not permitted to do 'shoddy' or dishonest work. Incredible as it may seem, there are people—otherwise apparently level-headed—who are simple enough to believe in these vapourings, and who assert that it is a shame to interfere with scamped work."

At Mexborough there has been revealed "extreme carelessness, not to say crass ignorance, by the opening out of many of the drains condemned. Tin cans seem to have been thought a very suitable material for making joints, and in one case several sockets were found missing, and the two butt joints wrapped round with tin, and tied with string. In another, a nine inch pipe, taking a quantity of sewage, was, at its lower or discharge end, suddenly reduced to six inches, the joint again being of tin."

At Rawmarsh "all drains ten years old or more are invariably found to be defective, the pipes being broken or without sockets, or the junctions consisting in a hole broken in the one pipe and the end of the other pipe let into it. This remains true of drains opened since that time. Recent experiments seem to justify the conclusion that sewers of a similar age in the parish are also defective, and that there is much work in connection with them awaiting the Council sooner or later. The inspection chambers in the main sewers between Providence Place, Rawmarsh, and the Little Bridge in Greasboro' Road, Albert Road, and Victoria Road, require immediate alteration. At present they are practically square catchpits, filled with excrement,



“&c., through which the liquid sewage has to find its way to the outlet.  
 “The smell, on uncovering one of these chambers, is almost overpowering,  
 “and it is no wonder complaints of sewer gas are frequent. With sewers in  
 “this state, and many old drains with bad joints leading into them, the  
 “danger to health is too obvious. The flat bottoms of these chambers ought  
 “to be at once channelled, with the invert of the same diameter as the sewer,  
 “so as not to interfere with the velocity of the current and prevent deposits.  
 “Ventilating shafts and means for flushing are required at the heads of many  
 “of the streets, and regular flushing and inspection of all sewers are much  
 “needed.”

At Rawdon “as yet the private streets have not been commenced, but  
 “a temporary arrangement has been made whereby the sewage is conveyed  
 “by the old drains to the main sewer.”

At Elland attention is drawn to the “injury to health which it is  
 “believed arises from the common practice of turning boiling water into the  
 “public sewers, in direct contravention of the Public Health Acts Amendment  
 “Act, 1890.”

Mr. Percival, of Knottingley, complains as follows :—“In the last year’s  
 “Report I mentioned that the drainage scheme was in the hands of the  
 “Local Government Board, and all I can say now is that it is still there.  
 “Until this scheme is carried out, greater attention ought to be paid to the  
 “existing drains, which are constantly blocked up, and nothing but a syste-  
 “matic examination from one end to the other can keep them in working  
 “order.” . . .

At Slaithwaite the “accustomed cleansing of sewers and grates by  
 “flushings and disinfection periodically, and also upon the outbreak of infec-  
 “tious disease in the vicinity, is very commendable, and a course much  
 “appreciated by the general public.” Similar experience is recorded in Otley,  
 Selby, and other reports.

At Yeadon the dual or separate system of sewerage is in vogue, and is  
 found to be excellent “in so far as it reduces by a large amount the quantity  
 “of sewage to be treated at the outfall works, but it has the drawback that  
 “in some cases there is too little sewage in the pipes to get a thorough flush,  
 “hence the value of proper means for periodically flushing the sewers.”

*Sewage disposal* is referred to in 34 of the Reports for 1897. In several  
 of the districts sanitary progress is obstructed for want of some suitable  
 system of disposal. For instance, in the Barnsley Rural District “no effec-  
 “tual scheme has as yet been carried out for any of the townships, and it is  
 “by no means easy to find a really suitable method for such a district as  
 “ours. . . . Until the sewage question is settled, it will be impossible  
 “to get rid of the privy system, which is the chief sanitary defect of this and  
 “of all other districts in this neighbourhood; nor of the cess-pools in Cud-  
 “worth and elsewhere.”

Reference to page 5 will show that in 33 districts local inquiries were  
 held by the Local Government Board during 1897 into applications for loans  
 for the provision of sewage disposal works.

Complaints were received during the year as to the creation of nuisances  
 by reason of the condition of the sewage disposal land at Otley, Burley,



Swinton, and Doncaster. In most cases the trouble has arisen from injudicious management, permitting the land to become sewage-logged. Experience has shown that with careful management a properly constructed sewage farm can be worked without nuisance or injury to the health of the surrounding population.

**Public Scavenging.**—This most important duty of sanitary authorities was considered so fully in my previous abstract that it will be necessary only to record that at present 103 districts are wholly scavenged, 25 in part only, while this operation is left to the owners and tenants in 43 districts, with one or two exceptions, sparsely populated.

**Private Streets and Backyards.**—Increasing attention is evidently being directed to the insanitary conditions arising from unpaved private streets and yards. Progress has been made in the asphaltting and draining of a large number of back streets in Doncaster, but several common yards are in need of improvement. At Denholme a considerable number of the streets remain unpaved. In Yeadon many of the private streets resemble quagmires. Complaints also appear in the Worsborough Report. In Tong some of the private streets are described as positively dangerous to pedestrians and vehicular traffic, notably Railway Street, Prospect Street, and Proctor street. In Horsforth, Quarry Street and Paradise Place are unsatisfactory.

At Gildersome the construction and care of roads is considered by Mr. Brereton "to have a greater bearing on the health of the people than is generally supposed. A smooth, impervious condition of the road surface allows water to flow off, and prevents its soaking into the foundations of houses. A wet and muddy road, besides causing wet feet, makes the air cold, and the mud, when dry, becomes dust, which not only causes discomfort, but becomes a source of danger from its liability to carry disease germs."

At Goole "there has not been any great improvement brought about in the back streets and common yards, which are often very wet, muddy, and generally in an unwholesome condition. The Inspector's notices to abate these conditions as nuisances can only have a very temporary and unsatisfactory effect."

The paving of backyards is advocated in the Barnsley Rural Report, where Dr. Sadler writes:—"During this and many previous years I have had to draw your attention to the sanitary evils caused by the porous condition of the surface of the back yards of most of our cottage houses, which could not be properly cleaned, especially after the emptying of foul ashpits."

At Pontefract, Mr. Hillaby "would like to see more attention given to the general cleanliness of our streets and yards than has been bestowed upon them of late. No sooner is a block of new houses completed than the tenants commence the erection of hen runs, piggeries, and the like, in the immediate neighbourhood, to be in the near future a nuisance to the more cleanly people of the locality, and in no way at all conducive to health, but rather tending towards a general untidy and insanitary state of things."

Mr. Coleman, of Hemsworth, is satisfied that "for the last four years periodical outbreaks of enteric fever have occurred in one locality, the origin



“ of which could only be traced to the insanitary condition of the back yards.  
 “ These having become sodden with filth and the excreta of children, probably  
 “ suffering in some cases from unrecognised typhoid fever, the soil has become  
 “ affected with the germs of this disease, needing only favourable climatic  
 “ conditions to bring them into life, and so spread infection.”

Dr. Scott complains of “ the insanitary condition of many of the back  
 “ yards in Handsworth. Most of them are unpaved, undrained, often wet,  
 “ and littered with all kinds of refuse. This condition is injurious to health,  
 “ and especially to that of children, who pass a large part of their play time  
 “ in the yards. He attributes the high death-rate of children from lung  
 “ diseases and diarrhœa, and the spread of zymotic diseases, partly to the  
 “ insanitary state of back yards. No doubt tenants are to a certain extent  
 “ to blame through careless and untidy habits, but great improvements  
 “ could be effected through the medium of the sanitary authority.”

**Water Supply.**—Recent experiences of disaster arising from contamination of drinking water has attracted considerable attention to this subject in the West Riding. The following items indicate some of the activity displayed during 1897 :—

<i>Sanitary District.</i>	<i>Improvements or Extensions.</i>
Ardsley ... ..	10 houses supplied.
Barnoldswick ... ..	78 yards new water mains.
Birstal ... ..	160 yards extension,
Bowland R. ... ..	Gisburn supply finished.
Burley-in-Wharfedale ... ..	Choked mains cleared.
Clayton ... ..	40 yards extension ; also to cottages.
Clayton West ... ..	Extension to Wheatley Hill.
Darton ... ..	Extension to Kexborough.
Denby and Cumberworth... ..	750 yards extension.
Denholme... ..	30 more houses supplied.
Doncaster... ..	Connected with Sheffield supply.
Doncaster R. ... ..	Three wells sunk at Bawtry.
Great Ouseburn R. ... ..	Two wells sunk.
Greetland... ..	324 yards added.
Guiseley ... ..	32 additional houses.
Halifax R. ... ..	Six houses connected.
Handsworth ... ..	Several extensions.
Harrogate ... ..	New Water Act obtained.
Haworth ... ..	Extensions to Coldshaw and Hebden Road.
Heckmondwike ... ..	600 yards mains.
Holme ... ..	Three more houses supplied.
Holmfirth... ..	48 more houses supplied.
Horsforth... ..	1,100 yards new mains.
Hoylandswaine ... ..	One well sunk, with pump.
Keighley R. ... ..	227 yards extension.
Kirkheaton .. ..	Six more houses supplied.
Mytholmroyd ... ..	798 yards extension.
New Mill ... ..	Eight houses connected.
North Bierley ... ..	150 yards extension.



<i>Sanitary District.</i>	<i>Improvements or Extensions.</i>
Oakworth... ..	183 yards extensions.
Ossett ... ..	336 yards extensions.
Otley ... ..	Borehole made.
Penistone R. ... ..	Extension to Norcroft.
Rotherham Borough	Sheffield supply connected.
Selby R. ... ..	Eight wells sunk (35 to 110 feet).
Shelf ... ..	Two extensions.
Soothill Upper ... ..	74 houses connected.
Southowram ... ..	10 houses connected.
Tadcaster R. ... ..	125 yards extension at Stanks.
Thornhill ... ..	820 yards extension.
Thurstone ... ..	Extension to Crow Edge.
Wetherby R. ... ..	Bilton well cleaned and deepened.

In some reports attention is properly directed to places still inadequately supplied. The following is a list of such places, including several which have been under the consideration of the West Riding Sanitary Committee, and are doubtless by this time much improved. The others will be kept under notice :—

<i>Sanitary District.</i>	<i>Inadequacy.</i>
Barkisland ... ..	At Slack.
Barnoldswick ... ..	Insufficient storage.
Barnsley R. ... ..	Inadequate at Woolley Colliery and Billingley.
Birkenshaw ... ..	Miller Lane
Darfield ... ..	Scarce in parts.
Emley ... ..	In dry weather.
Gildersome ... ..	At the Adwalton end of Gildersome Street.
Halifax R. ... ..	Parts of Clifton, Upper Greetland, and Norland.
Holmfirth... ..	Many houses supplied from distant wells.
Honley ... ..	Inadequate at Hall Ing.
Horsforth... ..	At West End.
Kirkheaton ... ..	At Cotley Hill.
Knottingley ... ..	500 houses without public supply.
New Mill ... ..	Many parts.
Otley ... ..	Occasionally in summer.
Penistone ... ..	At Cubler.
Penistone R. ... ..	Thurgoland, Crane Moor, and Oxspring.
Pontefract R. ... ..	At Brotherton, Fairburn, Ferrybridge, and Ferryfrystone.
Queensbury ... ..	At Mountain.
Rotherham R. ... ..	Brinsworth and Canklow.
Royston ... ..	Supply intermittent.
Sedbergh R. ... ..	At Millthrop.
Shelf ... ..	At Lower Shelf and Riding Hill.
Shelley ... ..	At Town End, Shelley, Royd House.
Shepley ... ..	At Higher Levels.
Soyland ... ..	At Holly Royd and Lane Head.



<i>Sanitary District.</i>		<i>Inadequacy.</i>
Springhead	...	... At Austerlands.
Tadcaster R.	...	... At Old Micklefield.
Thornton ..	...	... At Mountain.
Wath	...	... Want of pressure in higher parts.
Wetherby R.	...	... At several townships.
Wharfedale R.	..	... At Brearey and Arthington.
Wortley R.	...	... At Worrall.
Worsborough	...	... Occasional want of pressure in higher parts.

Even at the risk of a charge of undue elaboration, I produce the following extracts, which are valuable in drawing more serious attention to the water supplied from wells, and the constant vigilance necessary to retain the purity of such supplies :—

Dr. J. Mitchell Wilson says :—“The water supply for Snaith is not satisfactory, two public wells being analysed, and found to be very impure. Snaith wells are sunk in the red sandstone, but the upper layers have been fouled by leakages from cesspools, ashpits, and cesspits, until the ordinary well waters do not yield a pure supply. This year, again, the death rate was very high, viz., 20 per 1,000. There are still some privy vaults sunk in the same subsoil of red sand from which the water supply is obtained.”

At Oxenhope, we read :—“The water supplies are various, and the inhabitants for the most part have to fetch their water from shallow wells, springs, and pumps. In the more populous parts groups of houses have water laid into them by the owners of property, but some of these supplies are liable to failure in a dry season, and to pollution from the surface in wet weather.”

SELBY RURAL.—“The water supply throughout the whole district is obtained from wells. Many of these do not exceed 20 feet in depth, and hence the water is very liable to be polluted from the surrounding soil. Of those analysed last year four were found to be very much polluted, and yet these wells had been considered as yielding good water for years. It is very risky to continue the use of such well waters.”

SHELF.—“Parts of the district rely for their supply on surface wells, deep wells, and springs. These are for the most part good, and during the rainy months adequate, but after several weeks of dry weather the surface springs fail, so that besides the scarcity of water, there is always more or less risk of contamination.”

HONLEY.—“In a district like this, where there is no general system of public water supply, we are likely to have local trouble from insufficiency or pollution of water from time to time.”

KNOTTINGLEY.—“Thirty-one samples of water have been examined, and with one exception condemned without hesitation. Notices have in each case been served on the owners of the property. About 730 houses have got the public supply of water, leaving about 500 unsupplied by it.”

BISHOPTHORPE.—After the County Council had condemned six well waters in Bishopthorpe, Dr. Raimes “tested the water from all the other



“ wells in the village, and of the 38 so tested, 29 were quite unfit for drinking purposes. In fact, I was not able to discover a really good drinking water in the whole 38.”

Unsatisfactory condition of the water supply to some parts of the district is also referred to in the Reports for Balby-with-Hexthorpe, Tickhill, Marsden, Halifax R., and Sowerby.

It is satisfactory to hear Dr. Robinson record that the Rotherham water supply “ has been greatly improved during the year, both as regards quality and quantity. I consider now that we are supplied with a good, wholesome, potable water, which, though not perhaps perfect, is a vast improvement upon anything that has been supplied to Rotherham in previous years.”

The Medical Officer of Health for Slaithwaite “ warns the Sanitary Authority to prevent the possibility of a scarcity, and obviate by timely anticipation that undesirable and insanitary calamity.”

In the Great Ouseburn district the adoption of deep tube wells is advocated, especially when they can be driven into the new red sandstone, and so effectually cut off all pollution by surface water.

The Report for the Horsforth Urban District deals at length with the conditions affecting the water supply, and enumerates the valuable steps recently taken to improve and protect the same.

**Lead Poisoning.**—Drinking water possessing plumbo-solvent ability is noted in the Report for 1897 for the following places :—

<i>Sanitary District.</i>	<i>Action on Lead.</i>
Clayton West ... ..	Yes.
Denby and Cumberworth...	Yes.
Emley ... ..	Varying action.
Gildersome ... ..	During August and September.
Golcar ... ..	Yes.
Halifax R. ... ..	Varying action.
Heckmondwike ... ..	After standing in pipes.
Northowram ... ..	Some action.
Ossett Boro' ... ..	Marked action.
Shelley ... ..	Yes.
Skelmanthorpe ... ..	Yes.
Todmorden Boro'...	Some supplies act.
Yeadon ... ..	Some action.

The treatment of plumbo-solvent waters, when effectually carried out, has produced very satisfactory results in many places. To be thoroughly efficient the treatment must be continuous.

The Soyland Report states that “ Mr. William Ackroyd, the Halifax Borough Analyst, has inspected the gathering grounds, and analysed the water on several occasions. His opinion is that the water is very pure, but slightly acid, and that only eight to ten tons of lime would be required yearly to prevent the water acting upon lead.”



The water supplied to Mirfield has been "abundant in quantity, and the quality has been better. There have also been fewer complaints of lead poisoning."

At Morley "the water supply during the year has been regularly treated to counteract the plumbo-solvent action. This has been accomplished by the addition of carbonate of sodium to the water."

The experience of Shipley is recorded as follows:—"During the year the water supplied by the low-level reservoir had a solvent action upon lead to such an extent as to render it unwholesome for drinking purposes, some samples containing over one-third of a grain per gallon. In order to prevent this plumbo-solvent action, the water was subjected to the soda and chalk treatment, as had previously been done in the high-level supply. The result has been satisfactory, the action upon lead being now so much diminished that, upon analysis, only slight traces of it are detected, and the water, so long as it undergoes the above treatment, is rendered fit for drinking purposes again. The most rational way of dealing with the continually recurring appearance of lead in water is the disuse of lead pipes altogether, and the adoption of iron ones, or of pipes lined with tin or other material, preventing the contact of the lead with water. If all new houses were supplied with such pipes, the danger of lead poisoning, and consequently our responsibility for it, would be confined to the older houses in the district, which, it is to be hoped, would, in course of time, gradually discard the old pipes for the new."

At Northowram "the water is chiefly obtained from the reservoirs of the Halifax Corporation, and is of good quality, but has some solvent action on lead. There have been a few cases of lead poisoning, but they have not been of an acute character." It is understood that some treatment is about to be adopted by the Halifax Corporation to render this source free from danger.

**Dwellings.**—It is noted in 111 Reports, concerning 89 urban and 22 rural districts, that 3525 new houses were erected in the former, and 1010 in the latter. Though some of these houses have not been constructed with due regard to the health and well-being of the occupants, it is in connection with older property that the work of local sanitary officials deals, according to the references in the reports.

I am sometimes asked to define the conditions which render a house unfit for habitation. This is difficult to answer, because each case must be dealt with on its merits, and questions of degree must be considered, so that no definition of unfitness can be regarded as inclusive of all cases. The following general principles have been laid down as a practical guide:—

"A. That a house may be considered so 'dangerous or injurious to health' as to be permanently unfit for human habitation, which—(1) By reason of age or decay, has become so dilapidated or worn out as to be practically incapable of repair; (2) being constructed of bad or improper materials, is offensive and unwholesome; (3) is in a situation not admitting of effectual drainage; (4) has been erected upon such an improper foundation that it is impregnated with foul air; (5) is incurably damp, or (6) is incapable of being provided with light and ventilation."



“ B. That a house may be considered to be temporarily unfit for human habitation, which is in ‘ such a state as to be a nuisance or injurious to health,’ from—(1) Dilapidations which are capable of repair ; (2) want of light and ventilation which could be provided ; (3) dampness of a temporary character ; (4) defective or unventilated drainage ; (5) water closets, defective or ill placed, badly lighted, or insufficiently ventilated into the open air ; (6) water supply of an unwholesome character : cisterns ill placed, foul, or uncovered ; (7) want of a separate or disconnected water supply for the water closets ; (8) Dust bin so situated or constructed as to cause a nuisance ; or (9) from filth.”

The following extracts give the opinions of the various Medical Officers of Health with regard to this matter in their districts :—

Dr. Baskett, of Leeds Rural, thinks that “ there is not enough care taken for the provision of wholesome dwellings for the working classes in the country. The houses are damp, ill-ventilated; or droughty, wanting in drainage ; the arrangements for the disposal of refuse (household and other) are bad. The soil round about the houses is damp, badly paved, or not at all paved, saturated with filth from the slops, the runnings of privies, pig-styes, and the like. The large families which are the most invariable accompaniment, and, in fact, the effect of these conditions (inasmuch as they tend to crush the self-respect and prudence of the persons condemned to live under them), exaggerate the evil. There are a number of houses in Seacroft which would come under this description. The effect of conditions such as these is not necessarily the incidence of any special disease, but an increased vulnerability to all diseases. Part of these defects the Council is powerless to relieve, for the cause is economical : where houses are to let the competition is between tenants who shall get the house, not between landlords as to who shall attract the tenant. Defects of detail you have improved, and are improving, as a walk round Seacroft will show you.”

At Keighley Dr. Scatterty says :—“ This is a subject annually receiving increased attention from the Health Committee and their staff, but there is still much to be done before many of the old dwellings along the course of North Beck are in a satisfactory condition. In many houses in this district the walls are damp, the floors are decayed, the drainage at present consists of old stone drains, and the privy accommodation an undefined area, in the direction of which excreta and ashes are thrown, in the hope that some may reach the receptacles provided for them. In the month of October I made a report to you condemning, as unfit for human habitation, 15 such houses in the Ginnell and Ling Alley, but up to the time of writing the inhabitants of these insanitary dwellings have been in no way disturbed in their occupancy, nor have their insanitary surroundings been in any way ameliorated.”

Mr. C. Wills, of Kiveton Park, regards the character and construction of workmen's dwellings as “ one of the most important matters to be dealt with in all country villages. Better houses are wanted everywhere, with more air space in the rooms, better sleeping accommodation, and better means of storing food. One desirable addition to all houses is an out-building as wash house, which greatly adds to the healthy comfort and dryness of a house. It seems desirable that workmen should buy pieces of land, and



“ build their own houses, then more care and attention would probably be devoted to their sanitary improvement. Where capitalists build houses they often build cheaply, with the view to temporary profit, and with no view to the future health and well-being of the tenants.”

Mr. J. Pitney Aston, of Eccleshill, writes :—“ I referred in my previous Annual Report to the relation of rheumatism and dampness of dwellings to heart diseases. I wish you could be got to realise your responsibility to your fellow citizens in this direction, for practically nothing has been done to remedy dampness caused by defective spouting, which largely obtains in the district, and is well exemplified in Chapel Street, and to which I have repeatedly drawn attention. The faithful carrying out by you of the building bye-law requiring impervious concrete or asphalte basements is also important in this aspect.”

At Soothill Upper 27 houses have been erected during 1897, “ to provide for the wants of our growing population. But only a few of these are what may be called family houses. From a moral and sanitary point of view more sleeping accommodation should be provided. There is a growing demand for such a house, and such a demand could be supplied at little more cost by attending to the formation of attics. It seems a pity that so much cubic space should be sealed up to no purpose.”

At Ossett “ new dwelling houses to the number of 69 have been erected, and the general character of these is good. There seems, however, to be a tendency to limit the area upon which a good number of them are built. Whatever other defects were to be found in many of the old houses the majority of them certainly possessed the advantage of being more roomy than many of the modern ones. It is no uncommon thing to hear people say that they cannot find room for their furniture in some of the new houses.”

At South Crosland “ some of the houses continue to remain as reported in previous years—old and dilapidated ; but I notice that some are being dismantled or altered as opportunity occurs. Many more could be condemned, but the weeding out process has to be carried out slowly and prudently.”

In Wakefield City “ there are close narrow alleys in Westgate and Kirk-gate : ill-ventilated houses, into which the sun never shines, and no house is fit to live in into which no ray of sunshine can penetrate.”

At Tong, Mr. Moorhead again urges “ the complete abolition of ‘ back-to-back ’ and ‘ cellar ’ dwellings, the latter being invariably unhealthy and insanitary, and the former pernicious through absence of thorough draft and sufficient cubic space.”

At Thurlstone this wants attending to :—“ There are a few cases of over-crowding from a family of six or seven living in a two-roomed house. There are also two cottages on The Green which have again become inhabited, although they are quite unfit for human habitation.”

At Gildersome “ some of the houses are old and damp, both in their walls and foundations, but these are gradually being replaced by new ones of a good construction. During the past year the erection of six well-built houses has been completed, two of which are connected with shops. Four



“ of these houses, though built with open spaces both in front and rear, are not  
 “ sufficiently ventilated in their lower rooms, because a current of air cannot  
 “ pass through them as it can in the bedrooms, which are supplied with venti-  
 “ lators at the back. Previous to the occupation of any newly-built or re-  
 “ built house, as a matter of precaution, it would be as well that the owner of  
 “ such should produce a certificate signed by the Medical Officer of Health  
 “ stating that the house was in a fit condition to be occupied as a dwelling.  
 “ I have frequently noticed people living in houses, the plaster of which had  
 “ not been allowed time to dry. Early last year you passed a resolution in  
 “ accordance with the above suggestion, but I have not been called upon to  
 “ examine any of the houses which have become occupied during the past  
 “ twelve months.”

At Darfield “ several of the worst cases of overcrowding have been  
 “ abated, but the district, as a whole, is still in want of more house accom-  
 “ modation.”

At Horsforth “ a few blocks of houses of much later date can be truly  
 “ spoken of as jerry built, and are, in addition to their faults, usually back-to-  
 “ back houses. The proportion of back-to-back to through houses is esti-  
 “ mated roughly as about 50 per cent.”

**Schools.**—The closure of schools because of the prevalence of infec-  
 tious disease amongst the scholars was considered necessary in 53 districts,  
 involving 119 schools (75 urban, 44 rural). In those instances where the  
 period of closure is stated, the average duration exceeds one month.

With regard to scarlet fever, the disease usually finds an entrance to  
 school through cases of sore throat, or rash, too slight for medical treatment,  
 or, if seen by the physician, perhaps diagnosed as simple sore throat. Until  
 some systematic daily inspection of school children is inaugurated there will  
 be from time to time outbreaks of infectious disease among the pupils.

Efficient teachers and school attendance officers in carrying out their  
 duties exercise their legitimate authority to procure the attendance of pupils,  
 but there is sometimes lack of discretion. Not unfrequently this, and the fear  
 of prosecution, results in infected children being sent to school. I contend  
 that an experienced teacher, upon whom should devolve the responsibility of  
 excluding all suspicious cases, might often succeed in averting an outbreak by  
 superficial examination of every absentee on returning to school.

The closing of the day school should in all cases be supported by stopping  
 Sunday schools in the same neighbourhood, because, as reported in several  
 instances, forgetfulness to do this has led to fresh outbreaks.

The sanitary condition of schools is receiving detailed attention in the  
 survey reports. Considering the part schools play in education, it is sur-  
 prising to find so many not fulfilling the most elementary principles of hygiene.  
 No school, in my opinion, should now be served by the privy-midden system.  
 Where there is not a supply of water, then the earth closet is available.

Mr. Wills, of Kiveton Park, in writing of schools, observes: “ It is  
 “ somewhat difficult to deal with the infectious diseases if the schools are not  
 “ ventilated, for this is a most essential thing for preventing many diseases  
 “ and ailments. It is not at all understood that an abundant supply of clean



“ air, free from organic pollution and microbes, is more necessary than any other form of cleanliness, since the exhalation from the lungs and skin render the condition of schools very unhealthy, unless a system of good ventilation is maintained.”

At Eccleshill, the School Board has wisely provided excellent sanitary conditions. Mr. Aston notes :—“ The Pottery Lane Board Schools, which were the last of our elementary schools to be taken in hand, were provided during the year with well-lighted automatic flushing pedestal water closets, automatic flushing white slate urinals, and entirely new water-tight drains, with proper ventilating shafts and proper inspection and disconnecting chambers, as set out in my Annual Report for 1896, and the new arrangements have been reported to the Education Department by the Chief Inspector of the District as most satisfactory and creditable.”

The Medical Officer for Horsforth touches the subject of private schools, which are overlooked in many districts. He says :—“ The condition of a private school in Town Street was made the subject of a Special Report in February. Here, eight children and the mistress occupied one small room of 750 cubic feet capacity. On another occasion, there were nine children present. I advised that notice should be given for a larger room to be provided. I am not aware that any notice was given by the Council, or any other action taken.”

**By-Laws.**—In the Reports for Gunthwaite and Ingbirchworth, Selby Rural, and Knottingley, the Medical Officers of Health are firm in stating that until bye-laws are adopted it is impossible to deal with many nuisances.

The Halifax Rural District Council will in future have full control over the erection of new buildings, the necessity for which was well illustrated recently. “ It was discovered accidentally that it was the intention of the builder of a row of cottages to place water closets in the cellars of every house, and what would have been the state of affairs will be more fully appreciated when it was found that these cellars would in all probability be used for the storage of food.”

With regard to Dewsbury, the proposal to relax the building by-laws appears to Mr. W. F. Watts to be of doubtful value. He says :—“ There is no doubt that the single house with a through draught is the best ; and the suggested alteration to houses back-to-back in blocks of four, with windows at the side about two or three feet square at the most, is an alternative which ought to receive most serious thought and attention before adoption. In the first place, the windows are placed in a narrow passage, and possibly, or perhaps probably, will not be often opened. The question of sanitary conveniences also crops up, which in these circumstances will have to be placed in front of some of the houses.”

Dr. Picken animadvert on the want of by-laws in Rawmarsh as follows :—“ I consider the delay in adopting these by-laws, especially during the building activity of the last few years, and with the prospect of still greater activity, as a great mistake, and likely to be regarded by future Councils a few years hence as a serious blot on our sanitary administration. No one can pretend that your present by-laws ensure the building of such



“ healthy dwelling houses as the people have a right to expect, and the  
 “ Legislature has empowered you to insist on in the present light of sanitary  
 “ science. I believe, in fact, I am told, that the difficulty is a financial one.  
 “ The first consideration of a sanitary authority should be health, as that of  
 “ the speculator is money. The financial argument has long been used  
 “ to block the way against much-needed reforms, but in this matter it  
 “ is a peculiarly short-sighted one. No wise man knowingly risks his health  
 “ and life to save a comparatively small and legitimate demand on his purse.  
 “ That is a game which pays neither individuals nor communities, and it is no  
 “ more likely to pay in Rawmarsh than in Maidstone.”

**Dairies, Cowsheds, and Milkshops.**—The importance of satisfactory hygienic surroundings to the health of the cow, and to the quality of the milk produced, is not fully appreciated. In many districts the supervision is not what it might be, and seldom is anything more done than the white-washing of the byres. Although supervision over this branch of food supplies is vested in the Sanitary Authority, a number still regard its enforcement as optional or unnecessary.

The unsatisfactory condition of the cowsheds is illustrated by the following extracts :—

**RIPON CITY.**—“ There seems to be no particular method adopted for  
 “ ventilating the cowsheds, the systems varying considerably. I find the cow-  
 “ sheds with the least cubic space most deficient in this respect, and where an  
 “ attempt has been made with these, the cow-keepers complain of cold  
 “ draughts, and consequently block up the ventilators. With cowsheds that  
 “ are overcrowded it is almost impossible to ventilate efficiently without  
 “ causing draught. What is therefore wanted, in my opinion, is more air  
 “ space, and a better system of ventilation. With regard to the amount of  
 “ air space allowed each cow, I find that this is as varied as ventilation. Each  
 “ cowshed is registered for a given number of cows, but in the absence of any  
 “ fixed rule, the air space varies from 227 to 1000 cubic feet. There are  
 “ 4 buildings with less than 300 cubic feet per cow, 12 with less than 400,  
 “ 4 with less than 500, 8 with more than 500 and less than 600, 2 with  
 “ more than 600 and less than 700, 2 with more than 700 and less than 800,  
 “ and 4 with 800 and upwards. It will be seen from these figures that there  
 “ is need for reform on this point, especially so, when the difficulty of ventila-  
 “ tion is taken in conjunction with that of lack of air space.”

**HALIFAX RURAL.**—“ A large number of cowsheds and milk stores have  
 “ been visited. The prevailing complaint against cowsheds is the lack of  
 “ ventilation and overcrowding. These places are often overcrowded by  
 “ ignorant people for the purpose of keeping the cattle warm, a most repre-  
 “ hensible practice, to my mind, affecting, as it does, the health of the  
 “ animals, and as a consequence the quality of the milk. The amount of air  
 “ space allowed by the by-laws—500 cubic feet—seems to me to be inadequate.  
 “ The advantages gained in a rural district by the cattle being able to exist  
 “ outside are outweighed by the disadvantages of not having a sufficient  
 “ amount of cubic space inside.”

**LEEDS RURAL.**—“ The cowsheds, with some notable exceptions, are not  
 “ all that could be desired. Here and there they are ill-built ; very generally



“ the farm yard is beyond words—filthy, wet, and ill-paved. The owners are  
 “ some of them careless, and ignorant of the mischievous effects of dirt.  
 “ With the permission of the Council I should like to have a printed paper  
 “ circulated among all the cow owners of the district, containing a few plain  
 “ rules, and pointing out how far they are behind the times. The milk in  
 “ most cases goes to Leeds, but our duty is not less to Leeds than to our own  
 “ district.”

PATELEY BRIDGE RURAL.—“ I have inspected the cowsheds and dairies,  
 “ and as a rule found them fairly clean, although in many cases there is not  
 “ in the cowsheds sufficient cubic air space for the health of the cattle.”

**Slaughter Houses.**—Reference is made to these in many of the Reports as being kept in fair order, under more or less supervision on the part of the Sanitary Authority. Dr. Mitchell Wilson (Doncaster) points out the advantages of public abattoirs over the present almost universal system of scattered slaughter-houses. At Sowerby Bridge the value of the abattoir is noted, while at Castleford and Ripon the provision of such places is advised, in view of the unsatisfactory conditions associated with some of the present premises. At Normanton there is no improvement of the 16 slaughter-houses at present in use.

Dr. Scatterty observes in the Keighley Report that “ this subject is  
 “ receiving increased attention, and in many instances butchers are  
 “ recognising the fact that the Health Committee and its officials have  
 “ no desire to interfere with a legitimate industry so long as no meat is  
 “ exposed which is likely to prove injurious to health. Although it is usual  
 “ to give a special heading to meat inspection, it must not be supposed that  
 “ any special inquisition is held over that class of food in which butchers are  
 “ interested ; similar supervision is exercised over other branches of trade con-  
 “ nected with our food supplies, as evidenced by such Acts as the Food and  
 “ Drugs Act, the Margarine Act, and the Dairies, Cowsheds, and Milk  
 “ Shops’ Order, and no greater hardships is imposed on the butcher, whose  
 “ slaughter-house is inspected, than on the grocer or milk purveyor, samples  
 “ of whose goods are sent to the public analyst. There can be little doubt  
 “ that in a public slaughter-house, built upon modern lines, thorough cleanli-  
 “ ness and efficient inspection could be more satisfactorily carried out than in  
 “ old buildings, situated in crowded districts in different parts of the town.”

In the Whitwood Report a description is given by Mr. Hillman which is applicable to many other places in the Riding. He says:—“ Near to  
 “ California Row we have a butcher’s shop and slaughter-house. This pre-  
 “ sents an excellent example of how things ought not to be done. The  
 “ floor of the slaughter-house is drained by simply having a hole knocked  
 “ through the outer wall of the chamber. The blood and refuse flow through  
 “ this hole into the corner of a yard, in which a large quantity of offensive-  
 “ smelling manure is usually kept. Some of the waste fluids pass into a drain  
 “ a few feet away, whilst much remains to sink into the ground as best it  
 “ may, through the heap of manure. The odour, both inside and around the  
 “ slaughter-house, as may be imagined, is most offensive, and in the midst of  
 “ it the meat for human consumption is hung up, awaiting the unfortunate  
 “ purchasers !”



**Seizures of Unsound Food** were reported at Barnsley Borough (199 rabbits, 5 carcasses), Brighouse B., Castleford (3), Elland (4), Rawmarsh (1), Shipley (1), South Crosland (1), Barnsley R. (2).

**Sale of Food and Drugs Acts.**—Samples were purchased by the Local Sanitary Inspectors in 35 districts during 1897. This shows a falling-off compared with the previous year which was an exceptionally active one in this respect, viz. :—

Barnsley Borough - 14	Idle - - - 3	Shelley - - - 5
Brighouse Borough - 8	Knaresborough - 13	Southowram - - 1
Cleckheaton - - 7	Meltham - - 18	Skipton - - - 2
Dewsbury Borough - 15	Morley - - - 12	Soyland - - - 3
Doncaster Borough - 18	North Bierley - 12	Thornton - - - 2
Emley - - - 2	Otley - - - 15	Todmorden Borough 12
Greetland - - 4	Penistone - - 6	Wakefield City - 41
Harrogate Borough - 36	Pudsey - - - 2	Barnsley R. - - 4
Hebden Bridge - 5	Rawmarsh - - 3	Hemsworth R. - 1
Honley - - - 20	Rotherham Borough 32	Sedbergh R. - - 6
Horbury - - - 2	Rothwell - - 3	Wakefield R. - - 48
Hoyland Nether - 5	Shelf - - - 4	

**Meteorology.**—It is gratifying to notice an increase in the number of the reports devoting some remarks to the climatology of the locality, but unfortunately the data given are not always comparable in different returns. The following are the records of rainfall given in 15 reports :—

Barnsley B....	... 25·19	Kiveton Park	... 22·5
Batley	... 23·7	Mytholmroyd	... 39·3
Horsforth	... 39·3	Ossett	... 21·47
Holmfirth—		Pudsey	... 28·6
Wooldale	... 52·2	Rishworth	... 43·6
Bilberry	... 61·7	Rotherham (Uttley)	... 18·9
Homestyes	... 51·7	Saddleworth	... 41·9
Ilkley	... 35·2	Sedbergh	... 57·2
Keighley—		Wath-upon-Deane...	... 22·9
Knowle	... 38·8		
Watersheddles	... 49·8		

\* See also Appendix, page 68.

The following number of wet days was registered at the places mentioned :—Horsforth 196, Mytholmroyd 192, Kiveton Park 185, Pudsey 167, Saddleworth 187, Wath 176, Sedbergh 204.

In the 33 large English towns the mean temperature for 1897 was 48·3, and the rainfall 27·6. At Greenwich the figures were 50·3 for temperature, and 22·13 for rainfall.

In the Pudsey Report a table is given by Dr. W. L. Hunter of the earth temperatures, specially interesting to those who have followed the investigations of Dr. Ballard on the etiology of diarrhoea.

Dr. Sadler writes in his Report for the Barnsley Rural District :—“ The year ending on December 31st, 1897, was rather warmer than usual in the summer months, and especially mild in the last quarter. There were about



“two inches less rain than the average for the preceding 25 years, a smaller quantity than usual having fallen in July and October, and the subsoil during the months of July, August, and part of September reached the temperature at which diarrhoea is apt to be prevalent, especially in places where the population is more or less crowded.”

In an increasing number of reports, the preface refers to the contour, geology, and rainfall of the district. At Batley, Mr. Erskine Stuart writes:—“The surface of the borough varies considerably, at different points, in elevation, and entering, as it does, into the watersheds of the Batley and Spen Becks, there is an excellent fall to be got in nearly every district, which is doubtless of great value in preventing dampness, by permitting efficient drainage. Geologically, we are on the coal measures. The average total rainfall for the year amounted to 23·7. I have, of late, also given a monthly record of the rainfall. At some future time it may be worth the consideration of the Sanitary Authority whether it would not be an advantage to purchase a complete set of meteorological instruments, to be placed in the custody of the Borough Engineer or Waterworks Manager.”

The Geology of the Riding is as varied as its configuration, and it is interesting because of its bearing on the climate, the water supply, the topography of disease, and the nature of the soil derived from the disintegration of the rocks below. Geology is really of more importance to the sanitarian than climatic conditions, which in the present state of our knowledge are permanent, while we can influence the action of the geological conditions in relation to health, as has been practically demonstrated in several parts of this country in relation to consumption. It would be impossible, with due regard to space, to enter into any detail at present. The intention is only to give so much as may so interest health officers as to cause them to consider the matter further with regard to their own district or districts in relation to the distribution of disease.

Speaking very broadly, and taking the prominent geological features from the east to the west of the Riding, we have, first, the alluvials, mixed with the Keuper and Bunter systems of new red sandstone, and occupying the area along the eastern boundary to the east of an irregular line drawn through Doncaster, Church Fenton, and Boroughbridge. Then to the west comes a distinct band of the Permian system, made up of marls and limestones, running the whole length from north to south, and taking a medium line through Ripon, Knaresborough, Tadcaster, Fryston, and Maltby to the southern boundary. Still further to the west, and confined to more than the upper third of the boundary of the last system, we find the grits extending as far as Great Whernside and to Skipton, thence southward between the Lancashire boundary and an irregular line through Shipley to Denholme, Halifax, Huddersfield, and Bradfield. In the area thus encircled by the southward projection of the grits just referred to and the lower two-thirds of the band of permians on the east, we find included the coal measures—the lower coal measures occupying the westerly portion of the field in which we have Leeds, Bradford, Huddersfield, Penistone, and Ecclesfield, while the higher coal measures extend over the eastern portion, on which places like Garforth, Wakefield, Barnsley, Rotherham, and a large portion of Sheffield



appear. In the north-west of the Riding we find the wonderful Craven Fault, already referred to in the Sanitary Survey of the Settle Union, which makes any description without a map illustration difficult to comprehend. In this part the Yoredales (shales with beds of limestone and sandstone) are more prominent in the southern portion, the grits in the western, and the mountain limestone in the north. In this corner of the Riding are also to be seen the Silurians, composed of slate, flag, and limestone.

**Climate.**—Although this includes a variety of subjects, we can only refer to the following. *Temperature* is the chief feature of the climate, and in the West Riding there is no great variation if we consider altitude. The average annual temperature may be taken as  $48.5^{\circ}$  in the lower parts and  $45.0^{\circ}$  for stations exceeding 900 feet in altitude. The average daily range of temperature, that is to say, the variation between maxima and minima is about  $12^{\circ}$  to  $15^{\circ}$  in the shade and  $32^{\circ}$  to  $34^{\circ}$  directly in the sun's rays. For the whole of the Riding the variation between the mean summer and winter temperature may be approximately stated as  $22^{\circ}$ . *Winds.*—With respect to prevalence the south-west and west winds hold the highest positions, the direct east wind being the least prevalent of all. The coldest winds come from the north, and the east, being from the track of the longest line overland. *Humidity* has relation to altitude and to position with regard to evaporating surfaces. The annual mean varies from 80 to 90 degrees (taking 100 to indicate complete saturation). For example, at Goole it is  $88^{\circ}$ , Pontefract  $85^{\circ}$ , Halifax  $76^{\circ}$ , Sedburgh  $90^{\circ}$ . *Rainfall* to some extent determines the moisture of the soil. For the Riding, as a whole, the annual average rainfall is somewhere about 35 inches, but its distribution is unequal and irregular, varying from 22 inches at York to 41 at Settle; from 23 and 25 at Goole and Wakefield respectively to 32 at Huddersfield. Speaking broadly, the rainfall is much heavier in the western half of the Riding. (For further information as to rainfall see pages 57 and 68.)

**Smoke** is referred to in 25 Reports, showing that 517 observations were taken during the year, but that only 49 notices were served for its abatement. Good work is apparently being done in Brighouse, Elland, Greetland, Hebden Bridge, Shipley, Todmorden B., Hunslet R., and Keighley Rural.

A noteworthy activity has been shown in Elland, for there observations have been regularly taken and *published in the newspapers*. Dr. Beattie expresses the opinion of many medical officers of health in his report upon Soothill Upper. He observes:—"The smoke nuisance has very little care bestowed on it. While it is so injurious to animal and vegetable life, it seems useless for one district to take the matter up and leave our neighbours to pour theirs upon us. United and uniform action can only be taken by the County Council."

At Golcar and Linthwaite attention to the smoke question is considered to have resulted in an undoubted improvement.

**Burial Grounds.**—Reference is made in 114 Reports to 272 burial grounds. Extensions are considered desirable in the districts of Castleford, Elland, Greasbrough, Handsworth, Hebden Bridge, Liversedge,



Meltham, Mytholmroyd, New Mill, Sudehill, North Bierley, Rawmarsh, Thornton, Wilsden, Kiveton Park R., Settle R. (Horton and Chapel-le-Dale), Skipton (Kildwick), Wetherby, and Wharfedale North.

The closure of the Wesleyan Burial Ground at Wilsden is recommended because of its danger to health. The old churchyard at Marsden was closed during the year.

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The following hygienic fundamentals were laid down at the Madrid International Congress, and are worthy of note here, as applying equally well to the West Riding of Yorkshire:—

1. That the general health of the population is improved and the spread of diseases prevented in towns and dwellings by the immediate removal of all foul matters, and by a copious supply of pure water.

2. That the paving of streets should be smooth, and as far as practicable impervious, to facilitate cleansing and also to prevent contamination of the subsoil.

3. That special measures should be taken in the construction of houses to prevent the access of ground air and moisture to the floors and walls.

4. That house drains should be arranged so as to avoid stagnation of their contents and to secure a rapid flow to the street sewer. They should be impervious to liquids and gases, freely and continuously ventilated, and provided with syphon traps to prevent the access of foul air to the houses.

5. That the public sewers should be so constructed as to ensure the rapid and uninterrupted flow of the sewage to their outlets. They should always be freely ventilated.

6. That the streets should be as wide as possible in proportion to the height of the houses; this proportion should be fixed in each locality, regard being had to local circumstances and to climate. Every inhabited building should be well-lighted throughout its whole depth, and arranged so as to have an access of air from at least two sides.

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In the appendix will be found many tables of statistical matter, and special attention is directed to those folded in at the end, comprising:—

Table I.—Area, Population, Births, Deaths, etc., for each Sanitary District.

Table II.—Information with regard to deaths at certain ages, and from specified causes.

Table III.—Cases notified and isolated, and information with regard to those districts utilising the Adoptive Acts, and those undertaking their own scavenging.

JAMES ROBT. KAYE,  
*County Medical Officer.*

Wakefield,  
November, 1898.



## APPENDIX.

Money borrowed by Local Sanitary Authorities.—  
The total amount of the loans for various purposes sanctioned in recent years by the Local Government Board, on the application of local authorities within the Administrative County is shown in the next table.

## Loans sanctioned 1881-96.

YEAR.	PURPOSE.			
	Sewerage and Sewage Disposal.	Water.	Hospital.	Other.
1881	76,923	43,045	—	48,499
1882	41,148	42,767	1,200	13,993
1883	22,245	7,518	—	14,461
1884	31,460	5,528	—	46,074
1885	28,460	16,510	—	20,112
1886	11,520	17,335	—	50,380
1887	31,652	15,452	—	39,872
1888	14,110	9,130	5,500	90,434
1889	25,933	53,479	—	71,968
1890	9,969	57,030	8,500	24,505
1891	64,035	63,205	8,300	88,518
1892	77,323	16,180	2,005	118,856
1893	101,143	27,250	9,150	140,639
1894	202,839	56,328	30,386	117,306
1895	289,370	81,176	11,635	255,110
1896	168,706	12,501	250	107,965

The following Table shows the authorities that have received sanction for such loans :—

## Loans sanctioned during 1896.

I.—Urban Districts.		Purpose.	Years	Amount.
				£
Barnoldswick	...	Sewerage and disposal	29	1800
"	...	Water supply	30	777
Barnsley Borough	...	"	15	155
"	...	"	30	385
"	...	"	30	4486
Batley Borough	...	Street improvement	20	18577
Brighouse Borough	...	Public pleasure grounds	40	4300



I.—Urban Districts.		Purpose.	Years	Amount.
				£
Darton	...	Water supply	30	200
Dewsbury Borough	...	Markets and fairs	50	450
Doncaster Borough	...	Street improvement	50	1506
"	...	"	30	237
Eccleshill	...	"	7	1700
"	...	"	1	300
Elland	...	"	30	1950
"	...	Sewerage and disposal	30	13500
Featherstone	...	Land for sewage disposal	50	1042
"	...	Sewage disposal	15	180
"	...	Sewerage and disposal	30	8778
Flockton	...	Land for sewage disposal	20	265
Greasborough	...	Water supply	20	1200
Gunthwaite and Ingbirchworth	...	"	30	560
Harrogate Borough	...	Bath and mineral waters	30	4000
"	...	Conveniences	30	1650
"	...	Public baths	30	29100
"	...	"	10	2900
"	...	Asphalte shed	30	150
"	...	Surface water drainage	30	600
"	...	"	30	300
Holmfirth	...	Land for sewage disposal	50	1500
Hoyland Nether	...	"	50	1000
"	...	Sewerage and disposal	30	21300
"	...	Steam road roller	2	196
Ilkley	...	Fire brigade	10	750
"	...	Land for town hall and offices	30	6270
"	...	Public pleasure grounds	18	300
"	...	Slaughter houses	30	700
Keighley Borough	...	Land for refuse tip	50	4500
"	...	Land for sewage disposal	50	4500
Linthwaite	...	Repayment of loans	49	5674
"	...	"	21	2586
Marsden	...	Sewerage and disposal	30	11000
Mytholmroyd	...	Public lighting	10	152
"	...	Water supply	30	458
North Bierley	...	Land for refuse disposal	30	375
Ossett Borough	...	Sewage disposal	28	3300
Penistone	...	Repayment of loans	30	5125
Rothwell	...	Offices	30	223
"	...	"	10	231
"	...	Street improvement	6	2390



I.—Urban Districts.	Purpose.	Years	Amount.
			£
Rothwell ..	Sewage disposal	30	4250
" ...	Sewerage	30	7100
" ...	Sewerage and disposal	15	2000
Sandal ...	Street improvement	2	1500
Shipley ...	Refuse destructor	20	3940
" ...	Sewerage and disposal	32	50700
Soothill Upper ...	Street improvement	20	2043
" ...	"	10	530
Sowerby Bridge ...	Gas supply	30	1465
" ...	"	30	630
Thurlstone ...	Land for sewage disposal	50	1213
" ...	Sewerage and disposal	30	4387
Tickhill ...	"	33	2500
II.—Rural Districts and Contributory Places.	Purpose.	Years	Amount.
			£
Barnsley ( <i>Cudworth</i> ) ...	Water supply	15	900
Bowland ...	Steam road roller and water cart	4	240
" ( <i>Gisburn</i> ) ...	Sewerage and disposal	30	373
Doncaster ( <i>Thurnscoe</i> ) ...	"	30	6000
" " ...	Water supply	30	2430
Hemsworth ( <i>Ackworth</i> ) ...	Sewage disposal	50	1200
" " ...	Sewerage and disposal	30	5300
" ( <i>Hemsworth</i> ) ...	"	30	2200
" " ...	"	30	78
" " ...	"	30	500
" " ...	Land for sewage disposal	50	1000
Kiveton Park ...	Depôt	30	500
Leeds ( <i>Roundhay and Seacroft</i> ) ...	Steam road roller	4	325
Pateley Bridge ( <i>Bewerley</i> ) ...	Sewerage and disposal	35	2191
" ( <i>High and Low Bishopside</i> ) ...	"	35	3809
Settle ( <i>Hellifield</i> ) ...	Sewerage	30	390
" ( <i>Stainforth</i> ) ...	Sewerage and disposal	30	1300
Skipton ( <i>Cowling</i> ) ...	Public Lighting	10	200
Wakefield ( <i>Alverthorpe</i> ) ...	Sewerage	30	3600
" ( <i>Bretton West</i> ) ...	Water supply	27	950
" ( <i>Outwood</i> ) ...	Sewerage	30	450
III.—Joint Hospital Districts.	Purpose.	Years	Amount.
			£
North Bierley Joint Hospital District	Hospital	20	250



Provisional Orders granted and confirmed  
during 1896.

District.	General Act.	Object.
Batley Borough ...	Public Health Act, 1875	Altering a Local Act
Brighouse Joint Hospital District	Ditto	Altering a Confirming Act
Calverley Joint Hospital District	Ditto	Ditto
Dewsbury Joint Hospital District	Ditto	Ditto
Fulstone and Hepworth Joint Hospital District	Ditto	Ditto
Goole Urban ...	Ditto	Altering a local Act
Keighley and Bingley Joint Hospital District	Ditto	Altering a Confirming Act
Liversedge and Mirfield Joint Hospital District	Ditto	Ditto
Luddenden Joint Hospital District	Ditto	Ditto
North Bierley Joint Hospital District	Ditto	Ditto
Oakwell Joint Hospital District	Ditto	Forming a United District under Section 279
Pontefract Joint Hospital District	Ditto	Altering a Confirming Act
Stocksbridge Urban ...	Ditto	Compulsory purchase
Thornton Joint Hospital District	Ditto	Altering a Confirming Act

**Local Acts of Parliament.**—The following West Riding Acts were obtained during the year 1896 :—Barnsley Corporation Water Act, 1896 ; Dewsbury and Heckmondwike Water Act, 1896 ; Huddersfield Waterworks Act, 1896 ; Leeds Corporation Tramways Act, 1896 ; Sheffield Corporation Tramways Act, 1896 ; Sheffield Corporation Water Act, 1896.



## Bye-laws confirmed during 1896.

Subject.	Sanitary Districts.
Scavenging and Cleansing ...	Thurlstone Urban, Wakefield City, Doncaster Rural
Nuisances ...	Mexborough, Soyland, Thurlstone, Wakefield City, Doncaster Rural
Common Lodging Houses ...	Soyland, Thurlstone, Wakefield City
Streets and Buildings ...	Soyland, Thurlstone, Wakefield City
Slaughter Houses ...	Mexborough, Soyland, Thurlstone, Wakefield City
Offensive Trades ...	Wakefield City
Hackney Carriages ...	Wakefield City
Pleasure Grounds ...	Dewsbury Borough, Wakefield City
Pleasure Boats ...	Wakefield City
Houses let in Lodgings ...	Wakefield City
Cemeteries ...	Ardsley, Hemsworth Rural
Sanitary Conveniences ...	Wakefield City
Whirligigs, etc. ...	Wakefield City

BATHS AND WASHHOUSES ACT.—Bye-laws confirmed for Wakefield City.

TOWNS POLICE CLAUSES ACT, OMNIBUSES.—Bye-laws confirmed for Wakefield City.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER.—Regulations were made during 1896 for the Hoyland Nether Urban District.



Urban Powers conferred on Rural District Councils  
during 1896.

Rural Sanitary Authority.	Section of Public Health Act.	Contributory Places affected.
Doncaster R.	Private Street Works Act, 1892 (except as to sewerage)	Hexthorpe special drainage district
Halifax R. ...	1875 Act—Sections 44, 112, 113, 114, 157, 115 1890 Act—Sections 23, 25, 33	The whole district
Knaresborough R.	Private Street Works Act, 1892 (except as to sewerage)	Bilton, Pannal, Starbeck
Leeds R. ...	1875 Act—Sections 157, 158, and 160 1890 Act—Sections 23 (Parts 1, 2, and 4) and 25, 33	Roundhay and Seacroft
Skipton R. ...	1875 Act—Sections 160 (1) and (2), also Section 3 of the Public Health (Building in Streets) Act, 1888	Addingham, Bradleys Both, Carlton, Cononley, Cowling, Embsay-with-Eastby, Farnhill, Gargrave, Grassington, Kildwick, Lothersdale, Salterforth, Thornton, and Glusburn



**Vaccination during the Ten Years 1885-94.**—  
Percentage of children (born in years stated) not accounted for up to January 31st in the second following year, as “successfully vaccinated,” “insusceptible of vaccination,” “had small pox,” or “died unvaccinated.”

	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894
England and Wales ...	5·8	6·4	7·1	6·0	9·9	11·3	13·4	14·9	11·7	19·2
London ...	7·0	7·8	9·0	7·4	11·6	13·9	16·4	18·4	14·1	20·6
West Riding ...	9·2	8·8	9·6	8·6	15·0	16·6	17·5	17·3	18·2	20·8
<i>Union:—</i>										
Barnsley ...	7·0	6·2	5·1	6·0	12·0	11·2	8·5	5·7	5·2	6·1
Bradford ...	7·1	8·0	10·5	7·3	20·6	24·3	31·0	22·7	20·8	27·8
Bramley ...	5·0	3·7	4·6	4·4	7·5	8·5	10·0	8·1	13·3	21·2
Dewsbury ...	47·2	37·5	29·6	34·2	37·3	39·1	32·5	37·7	41·3	47·6
Doncaster ...	4·1	4·5	4·1	3·6	6·6	7·2	8·6	10·6	11·5	13·9
Ecclesall Bierlow ...	4·9	4·0	1·9	4·0	4·0	5·1	5·6	5·5	4·8	4·7
Goole ...	4·3	3·1	2·1	3·1	5·2	4·4	4·8	7·3	6·9	12·0
Great Ouseburn ...	2·7	2·5	3·8	2·7	2·7	4·0	5·3	3·7	2·0	3·1
Halifax ...	9·8	13·0	28·2	14·0	60·0	69·6	74·9	74·3	78·5	86·2
Hemsworth ...	5·4	4·1	4·1	4·1	6·7	5·8	5·5	6·4	7·8	6·9
Holbeck ...	2·4	3·3	3·1	2·4	4·4	4·8	4·5	6·0	4·3	4·4
Huddersfield ...	1·3	1·3	1·2	1·3	2·2	1·6	2·5	2·3	2·9	2·2
Hunslet ...	4·6	3·1	3·2	4·3	3·9	4·0	3·3	3·8	3·7	5·0
Keighley ...	71·9	71·8	75·4	71·9	81·1	80·1	83·1	83·2	82·6	85·8
Knarborough ...	5·6	6·0	6·2	5·8	11·3	12·7	16·9	19·1	15·2	21·5
Leeds ...	1·8	2·1	4·2	2·2	5·7	5·1	5·5	5·5	5·8	7·2
North Bierley ...	5·9	4·9	5·8	5·6	11·7	15·8	22·0	25·9	26·5	27·8
Pateley Bridge ...	0·4	0·8	0·5	0·6	1·7	2·1	1·4	2·0	0·5	2·9
Penistone ...	4·4	2·1	3·5	3·1	3·1	2·3	3·9	3·2	2·2	12·6
Pontefract ...	4·9	5·0	4·3	4·8	5·2	5·0	3·8	4·8	5·8	8·8
Ripon ...	4·4	11·4	14·1	8·5	10·3	14·5	10·4	9·7	15·8	14·0
Rotherham ...	5·1	3·9	2·8	4·6	5·4	4·1	5·4	5·4	6·6	6·2
Saddleworth ...	2·9	4·0	3·2	3·4	14·2	38·8	69·0	72·0	74·4	72·2
Sedburgh ...	1·8	2·7	0·0	1·9	3·6	0·0	0·0	1·9	1·0	2·8
Selby ...	2·8	2·1	3·0	2·1	2·4	1·4	5·5	3·7	4·7	5·7
Settle ...	2·9	3·4	1·9	2·6	3·2	5·9	4·2	6·8	10·9	11·0
Sheffield ...	4·3	3·4	2·8	4·1	5·1	5·8	6·9	6·6	7·6	9·5
Skipton ...	6·3	8·8	10·6	7·3	13·8	22·7	25·8	38·4	46·2	60·0
Tadcaster ...	2·8	4·1	4·2	3·8	4·4	4·6	4·3	4·2	6·0	4·0
Thorne ...	10·6	6·7	7·4	7·0	8·8	9·3	12·5	15·8	10·9	19·2
Wakefield ...	3·7	3·9	3·0	3·4	5·1	4·6	5·3	5·5	6·0	7·3
Wetherby ...	11·3	7·4	5·9	8·6	7·1	6·2	8·7	10·4	10·4	12·5
Wharfedale ...	5·9	6·0	7·0	6·4	16·3	14·0	13·5	11·1	14·1	16·8
Wortley ...	3·8	3·6	2·4	3·9	5·5	7·0	5·9	6·9	9·0	10·0

Thus, in 1894 there were, in the West Riding Registration County, 75,869 births, of which 15,791, or 20·8 per cent., were “not accounted for” up to 31st January, 1896, and probably went to add to the unvaccinated popu-



lation; while 51,637 or 68·1 per cent., were successfully vaccinated. These are percentages of *births* only. The increments to the whole population represented by the same figures are 0·6 per cent. of unvaccinated and 2·0 per cent. vaccinated. The remaining 8441 forming 11·1 per cent. of the total births, comprise 1 returned as having "had small pox," 352 "insusceptible of vaccination," and 8,088 "died unvaccinated."

The latest available official returns, with regard to vaccination, relate to the children born in 1894. The table shows the percentage "unaccounted for" in each Union of the West Riding for each of the ten years 1885-94. Vaccination is not under the control of the sanitary authorities, and the data cannot be given for smaller divisions than Unions.

### West Riding Rainfall, 1897.

The following data as to the rainfall in the West Riding during 1897 are taken from "British Rainfall," published by Mr. G. J. Symons, *F.R.S.*, to whom I am indebted for permission to quote the figures. They are here arranged according to Sanitary Districts, grouped in Unions. Where more than two records are available for one district, only the highest and lowest readings are inserted.

Union and Sanitary District.	Height (in feet) above Sea level.	1897.	
		Rainfall in inches.	Wet days (0·01 inch rainfall).
<b>Barnsley Union—</b>			
Barnsley Borough (3) ...	306 to 355	20·91 to 25·19	130 to 192
Barnsley R., <i>Stainborough</i> ...	520	25·06	167
Hoyland Nether ...	181	21·35	116
" ...	330	24·47	152
Worsborough ...	225	23·60	150
<b>Bishophthorpe Union</b> ...	No information		
<b>Bramley Union</b> ...	No information		
<b>Clitheroe Union—</b>			
Bowland R. (9) ...	450 to 1559	59·18 to 80·55	182 to 193
<b>Dewsbury Union—</b>			
Batley ...	492	24·50	
Mirfield ...	200	27·61	178
<b>Doncaster Union—</b>			
Doncaster Borough (3) ...	32 to 46	21·40 to 24·25	152 to 174
Doncaster R. (3) ...	17 to 190	22·48 to 26·42	178 to 198
Tickhill ...	61	21·21	163
<b>Goole Union—</b>			
Goole U. ...	18	21·60	180
Goole R., <i>Swinefleet</i> ...		26·03	140
<b>Great Ouseburn Union—</b>			
Great Ouseburn R., <i>Nun Monkton</i> ...	45	23·64	171



Union and Sanitary District.	Height (in feet) above Sea level.	1897.	
		Rainfall in inches.	Wet days (0·01 inch rainfall).
<b>Halifax Union—</b>			
Brighouse ...	380	29·52	147
Halifax R., <i>Norland</i> ...	800	36·48	
Midgley ...	1060	39·65	
” ...	1350	48·70	
Queensbury ...	1050	38·98	146
Southowram ...	750	32·97	192
Sowerby (3) ...	345 to 450	42·72 to 43·95	202
Warley ...	1425	43·18	
<b>Hemsworth Union—</b>			
Hemsworth R., <i>Hemsworth</i> ...	250	23·46	
” <i>Nostell</i> ...		24·88	142
<b>Holbeck Union</b> ...	No information		
<b>Huddersfield Union—</b>			
Golcar ...	400	39·49	195
Holme ...	861	58·90	179
Holmfirth ...	830	51·70	
” ...	820	61·70	
Honley ...	350	35·49	
Linthwaite ...	800	44·01	231
Marsden (7) ...	900 to 1360	34·46 to 43·77	
Meltham (5) ...	514 to 1212	39·75 to 51·03	214
New Mill ...	930	52·20	
Slaithwaite ...	1149	40·88	
” ...	1149	43·38	
<b>Hunslet Union</b> ...	No information		
<b>Keighley Union—</b>			
Bingley ...	572	26·36	185
Haworth ...	850	45·35	
Keighley Borough ...	400	36·87	211
” ...	395	38·84	194
Keighley R., <i>Morton</i> ...	975	34·54	202
Oakworth ...	1008	45·59	169
Oxenhope (4) ...	875 to 1401	44·09 to 51·75	252
<b>Knaresboro' Union—</b>			
Harrogate Borough (3) ...	380 to 455	27·74 to 28·34	208
Knaresboro' ...	200	26·27	141
Knaresboro' R. (6) ...	170 to 620	24·79 to 33·15	167 to 204
<b>Leeds Union—</b>			
Leeds R., <i>Roundhay</i> ...	400	28·11	181



Union and Sanitary District.	Height (in feet) above Sea level	1897.	
		Rainfall in inches.	Wet days (0·01 inch rainfall).
<b>North Bierley Union—</b>			
Clayton ...	982	36·74	193
Denholme (4) ...	810 to 1075	41·96 to 50·48	218 to 236
Shipley ...	304	32·36	
" ...	500	28·81	147
Wilsden ...	700	43·90	216
" ...	701	40·01	216
<b>Pateley Bridge Union—</b>			
Pateley Bridge R. (11) ...	410 to 1710	37·14 to 62·18	152 to 230
<b>Penistone Union—</b>			
Gunthwaite ...	853	37·37	194
Penistone R. (5) ...	340 to 1358	28·37 to 54·28	164 to 203
Thurlstone (7) ...	717 to 1244	32·45 to 52·05	170 to 207
<b>Pontefract Union</b> ...	No information		
<b>Ripon Union—</b>			
Ripon City ...	120	28·21	209
Ripon City ...	572	38·02	216
Ripon R. (4) ...	225 to 719	25·57 to 35·95	170 to 196
<b>Rotherham Union—</b>			
Rotherham Borough ...	262	22·78	154
Rotherham R. (4) ...	117 to 360	21·50 to 25·37	166 to 186
Wath-upon-Deane ...	185	22·95	176
<b>Saddleworth Union—</b>			
Saddleworth R. (8) ...	630 to 1414	33·83 to 50·70	187
<b>Sedbergh Union—</b>			
Sedbergh R. (4) ...	300 to 400	57·19 to 60·99	197 to 215
<b>Selby Union</b> ...	No information		
<b>Settle Union—</b>			
Settle R. (6) ...	525 to 1296	46·29 to 68·59	205 to 225
<b>Sheffield Union</b> ...	No information		
<b>Skipton Union—</b>			
Silsden (4) ...	370 to 883	29·45 to 33·30	167 to 180
Skipton ...	360	36·44	190
" ...	380	36·50	
Skipton R. (18) ...	350 to 1661	33·58 to 76·16	190 to 233
<b>Tadcaster Union—</b>			
Tadcaster R., <i>South Milford</i> ...	70	25·08	194
<b>Thorne Union</b> ...	No information		
<b>Todmorden Union—</b>			
Hebden Bridge ...	479	45·85	201
Mytholmroyd ...	500	39·34	192
Todmorden R. (3) ...	875 to 1380	43·05 to 48·47	210



Union and Sanitary District.	Height (in feet) above Sea level.	1897.	
		Rainfall in inches.	Wet days (0·01 inch rainfall).
<b>Wakefield Union—</b>			
Wakefield City ...	96	24·95	143
Wakefield R. (3) ...	140 to 250	20·99 to 23·96	137 to 172
<b>Wetherby Union—</b>			
Wetherby R., <i>Pannal</i> ...	350	26·87	189
<b>Wharfedale Union—</b>			
Horsforth ...	250	39·29	196
Ilkley (4) ...	329 to 600	35·06 to 36·42	176 to 215
Wharfedale R. (16) ...	139 to 1275	26·50 to 41·09	159 to 230
<b>Worksop Union</b> ...	No information		
<b>Wortley Union—</b>			
Stocksbridge (20) ...	950	33·75	213
Wortley R., <i>Wortley</i> (22) ...	548	27·04	170



# SCARLET FEVER.

## PRECAUTIONARY MEASURES.

The co-operation of the public is invited to assist in stamping out the threatening epidemic of Scarlet Fever.

**HOME.**—Parents and others having charge of patients suffering from infectious diseases, such as scarlet fever, should isolate the sick in a warm bed-room, and should themselves abstain from visiting or attending public places.

**SCHOOL.**—It is dangerous and contrary to law to send any child to school unless it is free from infection, however mild the case may be. No child living in a house in which there is a case of scarlet fever should attend school or be allowed to play with other children or go into any other house.

**PERIOD OF DANGER.**—Infection continues until all trace of "peeling" has disappeared from the hands and feet, which rarely happens within six weeks from the date of the rash; a discharge from the ears or nose is specially infectious, and may continue after the peeling has disappeared.

(Signed) .....

Date .....

*Medical Officer of Health.*

## WARNING.

### THE PUBLIC HEALTH ACT PROVIDES THAT—

(1) Any person, who, while suffering from scarlet fever, exposes himself without proper precautions against spreading this disease in any street, public place (school), shop, inn, or public conveyance; or

(2) Being in charge of any person so suffering so exposes such sufferer; or permits such exposure; or

(3) Gives, lends, sells, transmits, or exposes without previous disinfection any bedding, clothing, rags, or other things which have been exposed to infection from such disease,

SHALL BE LIABLE TO A PENALTY OF FIVE POUNDS.



# DIARRHŒA

AND

## ENTERIC FEVER (Typhoid).

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### PRECAUTIONARY MEASURES.

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#### FOOD—

- (1) Eat only wholesome and easily digested food.
- (2) Avoid stale fish and tainted meat of all kinds; also fruit and vegetables in a state of decay.
- (3) Thoroughly cook all food, and boil milk. Special care should be taken in feeding infants, by using clean bottles and freshly prepared food.
- (4) Food should not be kept in dark, damp, or fusty cellars, but in clean, dry, and well-aired places.

#### WATER—

- (5) All water for drinking purposes should be boiled before use when there is any doubt as to its purity, and such water supplies should be examined. The water when cold might be flavoured with tea, coffee, burnt bread, &c. Filters should be carefully cleansed or re-charged.

#### CLEANLINESS—

- (6) Dispose of all animal and vegetable refuse by burning, and not into the ashpit, which should be kept perfectly dry and free from slops.
- (7) All uncleanly premises, outhouses, and privies should be white-washed at least twice a year.
- (8) Any accumulations of an offensive character near a house, whether arising from ill-paved yards, from defective drainage, from collections of manure improperly kept, or from defective cleansing of privies should be at once reported to the Medical Officer of Health or Inspector of Nuisances.
- (9) Personal domestic cleanliness should be practised, and free ventilation of the house by opening doors and windows during certain parts of the day.
- (10) It is important to prevent all foul smells; drain-traps should be examined regularly, and kept charged with water or disinfecting fluid. Drains should be flushed with solution of carbolic acid (one in twenty) or other disinfectant.

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- (11) Every case of bowel disorder should receive prompt attention from a qualified medical practitioner as it is of the greatest importance to treat such diseases early.

*Medical Officer of Health.*

*Date* .....



# SMALL POX.

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The attention of the public is urgently directed to the following—

## NOTICE.

### INFECTION—

Small Pox is the most infectious of all diseases. In the improperly vaccinated it is often disfiguring and loathsome; and in the unvaccinated most deadly. A general outbreak means great pecuniary and commercial loss, affecting all classes of society.

### PREVENTION—

The only certain protection is efficient vaccination fortified by re-vaccination after 12 years of age; and efficient vaccination means at least three proper marks. The recent Royal Commission reported that the State should not cease to require vaccination, but ought to continue to promote the vaccination of the people.

The public are invited to assist the health officers by promoting cleanliness and the removal of all filth; by reporting all existing insanitary conditions; and by the prevention of over-crowding in dwellings.

### DUTY OF INHABITANTS—

Avoid exposing yourself or your family to infection.

Have no communication with those living in an infected house.

Seek medical advice in all cases of suspicious rash, especially if accompanied by pain in the back.

*Immediate Notification to the Medical Officer of Health is required by law, both by the head of the household, and by the Medical Attendant.*

(Signed) .....

*Medical Officer of Health.*

*Date* .....



Administrative County	000001	000002	000003	000004	000005	000006	000007	000008	000009	000010	000011	000012	000013	000014	000015	000016	000017	000018	000019	000020	000021	000022	000023	000024	000025	000026	000027	000028	000029	000030	000031	000032	000033	000034	000035	000036	000037	000038	000039	000040	000041	000042	000043	000044	000045	000046	000047	000048	000049	000050	000051	000052	000053	000054	000055	000056	000057	000058	000059	000060	000061	000062	000063	000064	000065	000066	000067	000068	000069	000070	000071	000072	000073	000074	000075	000076	000077	000078	000079	000080	000081	000082	000083	000084	000085	000086	000087	000088	000089	000090	000091	000092	000093	000094	000095	000096	000097	000098	000099	000100
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Doncaster Borough*	J. Mitchell Wilson, M.D., D.P.H.	1136	4391	74	55	129	43	27	70	29.3	15.9	0.2	3.4	3.1	101
Drighlington	Robert Forsyth, M.D.	1136	4391	74	55	129	43	27	70	29.3	15.9	0.2	3.4	3.1	101
Eccleshill*	J. Pitney Aston, L.S.A.	1220	8541	100	90	190	86	75	161	22.2	13.4	1.8	1.0	2.2	100
Elland	R. N. Denning, M.D., B.A.	1992	11237	121	137	258	86	14	28	35.7	18.9	5.4	2.7	2.0	143
Emley	R. H. Townend, M.B.	3556	1484	30	23	53	14	6	13	15.3	22.1	nil	3.4	11.8	151
Farnley Tyas	W. P. T. Daniel, L.R.C.P., D.P.H.	1785	589	5	4	9	7	38	69	23.1	11.5	1.2	1.0	2.8	222
Farsley	F. W. Lambert, L.R.C.P.	814	5976	76	62	138	31	98	215	56.0	24.5	3.0	0.6	4.8	130
Featherstone	A. Buncle, M.B., C.M.	4429	8766	243	248	491	117	8	17	29.1	13.8	0.8	nil	nil	193
Flockton	J. A. Smith, M.R.C.S.	1108	1234	19	17	36	9	35	64	38.6	21.0	2.3	1.3	5.0	167
Gildersome*	J. B. Brereton, L.R.C.P., L.R.C.S.	993	3003	54	62	116	29	71	148	23.1	14.9	0.3	1.4	2.6	164
Golcar*	A. G. Webster, M.R.C.S.	1593	10155	120	115	235	77	30	53	25.5	13.9	1.0	0.3	3.4	132
Gomersal*	H. O. Steele, M.R.C.S.	1096	3878	43	56	99	23	128	271	29.1	13.2	1.8	1.1	2.0	121
Goole*	J. Mitchell Wilson, M.D., D.P.H.	1441	19694	293	281	574	143	21	54	30.4	15.8	0.6	0.9	2.6	167
Greasborough	J. F. Cheeswright, L.R.C.P., M.R.C.S.	2412	3422	62	42	104	33	34	55	18.4	12.6	1.1	1.4	1.8	125
Greetland	J. Brown, L.R.C.P., L.R.C.S.	641	4358	46	34	80	21	32	64	32.1	14.8	1.4	1.4	2.3	100
Guiseley	W. H. Cheetham, M.D., D.P.H.	1554	4331	67	72	139	32	3	7	23.7	18.5	nil	nil	0.3	144
Gunthwaite	D. A. MacGregor, M.B., C.M.	2057	379	5	4	9	4	113	222	40.0	18.0	2.7	1.0	3.7	nil
Handsworth	A. W. Scott, M.D.	3638	12400	264	231	495	109	132	252	21.0	12.1	1.2	1.1	1.2	168
Harrogate Borough*	W. J. C. Ward, L.R.C.P., M.R.C.S.	1268	17689	191	180	371	120	65	124	23.7	15.4	1.0	1.5	3.8	146
Haworth	F. E. Atkinson, L.R.C.P., M.R.C.S.	2234	8063	97	94	191	59	41	98	20.9	13.4	1.7	0.8	3.0	136
Hebden Bridge*	J. Lawson, M.B., B.A.	478	7615	87	72	159	57	98	204	25.3	21.4	3.8	0.9	2.7	113
Heckmondwike*	H. T. Broughton, M.R.C.S.	697	9986	133	120	253	106	13	35	23.3	10.0	0.3	1.7	2.2	206
Hipperholme	R. Davidson, M.D.	1138	3567	38	45	83	22	2	8	19.8	15.8	0.4	0.2	0.2	60
Holme	R. H. Trotter, M.B.	3390	506	5	5	10	6	53	108	21.7	10.6	0.4	1.7	1.0	100
Holmfirth	R. H. Trotter, M.B.	7770	10194	109	112	221	55	41	102	15.2	17.8	0.2	2.1	2.3	68
Honley	R. H. Trotter, M.B.	2435	5729	47	40	87	61	46	85	29.0	14.9	1.0	1.8	2.0	99
Horbury*	B. Kemp, M.R.C.S.	1279	6101	83	94	177	39	51	128	27.2	17.2	1.7	1.3	3.1	130
Horsforth*	J. Nightingale, M.B.	2801	7620	110	97	207	77	119	247	41.3	20.9	4.9	0.6	4.7	179
Hoyland Nether	W. L. Allott, M.R.C.S.	2085	11817	246	243	489	128	8	11	25.4	18.6	nil	5.1	5.1	208
Hoylandswaine	F. McDonald Swallow, L.R.C.P.	2024	591	6	9	15	8	3	11	25.4	18.6	nil	5.1	5.1	67
Hunsworth	G. H. Moorhead, L.R.C.P.	1380	1332	17	21	38	5	15	20	28.5	15.0	3.0	0.8	3.0	105
Idle	R. Honeyburne, M.D.	1689	7432	73	80	153	40	50	90	20.6	12.1	0.5	1.0	2.8	98
Ilkley*	T. Johnstone, M.D.	3822	6513	82	59	141	57	41	98	21.6	12.6	0.5	0.8	2.0	177
Keighley Borough*	W. Scatterly, M.D.	3670	39196	613	515	1128	363	299	662	28.8	16.8	1.7	1.3	3.6	139
Kirkburton	J. Lockwood, M.R.C.S.	1286	3006	33	23	56	39	18	57	18.6	19.0	0.3	3.0	5.6	89
Kirkheaton	W. T. Smith, M.R.C.S.	1674	2562	27	21	48	22	29	51	18.7	20.0	1.6	0.4	5.5	125
Knaresborough*	I. D. Mackay, M.B., C.M.	470	4442	64	86	150	62	55	117	33.8	23.2	3.4	1.8	3.0	160
Knottingley	T. Percival, M.R.C.S.	1481	5650	98	104	202	47	43	90	35.8	15.9	1.4	0.5	3.2	134
Lepton	W. T. Smith, M.R.C.S., L.R.C.S.	1863	2757	34	21	55	25	22	47	20.0	17.0	0.4	2.9	3.6	127
Linthwaite	A. G. Webster, M.R.C.S.	1320	7009	103	80	183	48	36	84	25.9	11.9	0.1	1.0	1.1	120
	D. H. Chapman, M.R.C.S.	2130	14270	215	238	453	123	114	237	31.7	16.6	1.7	1.0	2.4	168







Drighlington	13	19	37	8	2	18	95	6	19	31	12	96	13	8	20	83	54	26	18	52	5	1	15	9	23	37	102	1	4	15	25	157	5	6	24	27	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
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TABLE III.—Notification, Isolation, Adoptive Acts, Etc.

64, 65, 66, 67, 68, 69 Diseases added to Notification Schedule: a measles, b whooping cough, c German measles, d chicken pox.

(a) Table C not furnished. (b) Report not printed. E Epidemic recorded. F Prevalence recorded.

In Columns 2 brackets indicate that the hospital is not yet erected; and *italics* signify that the hospital is not a permanent building erected for the purpose.



[illegible]



FC



