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Rickmansworth (England). Urban District Council.

Publication/Creation

1902

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FIFTH REPORT
ON THE
SANITARY CONDITION
OF THE
Urban District
OF
RICKMANSWORTH,

FOR THE YEAR ENDING DECEMBER 31ST, 1902.


BY
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Medical Officer of Health.

1903.

BROWN & SON, Printers, Rickmansworth.



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REPORT.

THE RICKMANSWORTH URBAN DISTRICT began its existence in April, 1898. It has been carved out of the old civil Parish of Rickmansworth, which was one of the districts of the Watford Rural Sanitary Authority.

The District consists of the Town of Rickmansworth, the Hamlet of Batchworth, and the most populous parts of the Villages of Croxley Green and Mill End.

For the purposes of this Report, the District is divided into three localities, viz :—(1) Rickmansworth—including Batchworth, (2) Croxley Green, and (3) Mill End.

Rickmansworth is separated from Croxley Green on its East side by the River Chess, and from Mill End on the West side by the Old Belfry Lane, which runs into the Uxbridge Road opposite the “Half-Way-House” Inn, and by an imaginary line continued across to the Southern border of the District.

The part of Croxley Green included in the District, begins on the Eastern side of the junction of the Watford Road with Croxley New Road, and embraces the whole of the latter Road, all the premises on the East side of the Watford Road, Scots Hill, and part of the Copthorne Estate. The District then narrows into an irregular strip comprising the Town and Batchworth (Moor Park and Rickmansworth Park being excluded.) It then widens out so as to include the Cemetery and the cottages known as Bankside Downs on the North-West. From Rickmansworth the District extends on either side of the Uxbridge Road as far as Long Lane, including St. Peter's Vicarage and the Pumping Station of the Rickmansworth and Uxbridge Valley Water Company at Drayton Ford, and, of course, the thickly populated part of the village of Mill End.

The District comprises an area of 572 acres (of which 16 acres are water), less than a square mile, and contains a population, as estimated to the middle of 1902, of 5988 ; giving an average of 10·5 persons to each acre of dry land in the District.)

Geologically the subsoil of the District is gravel upon chalk, Rickmansworth District being on the extensive tracts of gravel lying between St. Albans and Beaconsfield. This gravel is mostly from a few feet to 25 feet in thickness, seldom more ; it varies in character from pebble gravel or shingle (largely made up of flint and quartz pebbles), to coarser gravel and sand.

The chalk of part of the Northern margin of the "London Basin" comes to the surface in the Rickmansworth District. It is interesting to further refer to the more superficial geology of the District as brought to light by the excavations rendered necessary in carrying out the Sewerage Scheme ; these remarks more particularly apply to the lower lying localities of Rickmansworth and Mill End. The last mentioned localities are probably placed upon the site of an ancient river bed, and later a marsh which has produced the so called "drift" frequently met with in low-lying districts generally. This "drift" is both alluvial and diluvial in character and is composed of patches—varying in size—of shingle, clay, gravel, sand and peat, mixed up in the most heterogeneous fashion. The true shingle is the lowest and water bearing stratum lying just above the chalk formation. The true "gravel upon chalk" layer gradually increases as the gradients of the District rise, and finally predominates in the elevated parts.

The elevation of the District varies from about 250 feet above sea-level at its highest point in Croxley Green to rather less than 150 at Batchworth and Mill End; the general fall taking place through Mill End to its most Western boundary.

The District is drained through the Chess, the Colne, and the tributaries of the latter. Water in many of the low lying places is found at from 2 to 4 feet below the surface.

WATER SUPPLY.—The District draws its water for drinking and domestic purposes from the Rickmansworth and Uxbridge Valley Water Company's mains, deep wells with or without pumps, and shallow wells, which are in some instances only 6 to 12 feet in depth.

The sources from which the inhabitants obtain their drinking water are certainly becoming purer, the shallow wells are gradually being abolished.

The Company's water—save for its hardness—is thoroughly good and absolutely free from organic pollution and it seems a pity that more householders do not avail themselves of its use.

On examining a Report, made a few years previous to the creation of the Rickmansworth Urban District, on the water supplies to premises in the District, many of which include 2 to 12 houses, it is found that out of 344 premises investigated—

227 drew their water from wells,

104 „ „ „ the Water Company,

13 only had rain water :

of the wells only 39 are mentioned as having pumps or as being tube wells.

At the present time this state of affairs has been largely remedied, as evidenced by the statement to be found below concerning the number of new connections made during the last four years with the Uxbridge Valley Water Company's mains :—

1899, new connections made,	105
1900, ,, ,,	78
1901, ,, ,,	78
1902, ,, ,,	90

Most of these are to new houses, but several of the older houses and cottages have been supplied with the Company's water, owing to their well supply having been found impure.

DISPOSAL OF EXCRETA AND SLOP-WATER.—This is dealt with by the following means: Cesspools, Privy-Cesspits, Pail Closets and Earth Closets.

In the new houses for the most part the drainage is dealt with by means of water carriage to a cesspool, but the greater number of houses in the District are provided with Pail Closets, Privy-Cesspits or Earth Closets, which are emptied by the contractor to the Urban Council weekly, or oftener if necessary.

The slop water mainly flows into the surface drains or Town Ditch, but in a few cases it is thrown on the gardens and dug in.

THE RICKMANSWORTH SEWERAGE & SEWAGE DISPOSAL WORKS.—The above works, which include the drainage of the whole of the localities of Rickmansworth, Croxley Green and Mill End were commenced on November the thirteenth 1901, and comprise cast iron sewers, where the

depth necessitated their being laid below the level of the subsoil water, and stoneware sewers where they can be laid above that level. The whole of these sewers, with the exception of the low-lying district of Mill End, will empty by gravitation into the underground storage tank at Batchworth. For dealing with this low-lying part of the District a small pumping station will be provided at Mill End for lifting the sewage into the Batchworth main outfall sewer. From Batchworth the sewage will be pumped on to high land, near Woodcocks Hill, and be dealt with by being passed through septic tanks on to 18 acres of suitable land. There is also provided a system of water mains with flush chambers, valves, and hydrants, for flushing the sewers and watering the streets. At the present time most of the sewers and flush water mains in the Rickmansworth and Croxley Green localities are laid, the storage tank at Batchworth is completed, the engine house and rising main are well in hand, and the main sewer, under the rivers and canal, and across the meadows is in hand, and has been completed under the River Colne. Considerable difficulty has been experienced in laying the sewers in the low-lying parts of the District, owing to the large quantity of water met with in the gravel, known locally as washed ballast; this had to be dealt with by laying stoneware drains with open joints at a lower level than the sewer, to convey the water to temporary sump pits, from which it was lifted by steam pumps. The principal difficulty, however, was the construction of the under-ground storage tank at Batchworth, which is close

by the side of the River Colne; the bottom of the excavation for the tank is 30 feet below the level of the water in the river. The work was commenced by sinking a temporary sump pit to the depth of six feet below the bottom of the tank excavations. The steam pumps for keeping the excavations clear of water during the construction of the tank, were placed in this, and all the water from the excavations was conveyed to this sump by sub-drains. Two centrifugal pumps were employed and kept running constantly, night and day, one a twelve-inch, driven by an engine of 66 i.h.p. and capable of lifting 3,000 gallons per minute, and one an eight-inch, driven by an engine of 30 i.h.p. and capable of lifting 1,500 gallons per minute. The storage tank is constructed of concrete, lined with blue brickwork, between the concrete and brickwork there is a cement collar joint. The floor, in the form of an elliptical inverted arch, is four feet thick, and the walls are three feet thick. The upward pressure of the water on the floor of the tank is 9.43 lbs. to the square inch, or, taking the whole of the bottom of the tank, the pressure exceeds 500 tons. The tank is practically water-tight, there being nothing but slight sweating, which the outside pressure forces through the pores of the bricks. The capacity of the tank is 50,000 gallons, and is capable of holding the night sewage when the whole of the District is connected. The excavation required the removal of 1,500 cubic yards of earth. About 500 cubic yards of concrete, and 130 cubic yards of brickwork were needed for its construction. The work on the

tank commenced on the fourth of May, 1902, and was completed about the thirtieth of November. The engine-house is on the top of the tank, being carried over the same by blue brick and concrete arches. The pumping machinery will consist of duplicate sets of three-throw plunger pumps, each capable of lifting 15,000 gallons per hour, and each driven by 22 brake horse power gas engines. An independent pump and engine will be provided for pumping the flush water, and each of the two sets of pumping machinery will be entirely independent of the other, so that in case of accident, or during repairs to one set, the other can do the work.

Good progress has been made during the last twelve months in laying the sewers, twelve thousand yards having been completed, and connections laid; leaving about four thousand yards still to be done. The Contractors have the Works well in hand and there is every prospect of the Scheme being finished by the month of August, very possibly even at an earlier date.

GENERAL STATISTICS.—During the year 1902 seventy-eight deaths have been registered in the Urban District of Rickmansworth, to which must be added for statistical purposes six deaths which took place in the Watford Union Infirmary, three deaths from Enteric Fever in the Isolation Hospital and one death in the Hill End Asylum. Including all cases the death-rate for the year is 14·6 per thousand persons living. It will be noted that the

death-rate is distinctly higher than that of last year.

It is only right that some comment should be made upon the rise this year in the "annual death-rate";— (1) It is to be noted that the Statistical Tables of the Local Government Board require a very strict record to be kept as regards the deaths of original residents dying elsewhere than in the District. (2) Epidemic Influenza must be credited with three deaths as against none last year. (3) This year there are more than double the number of deaths from Bronchitis and Heart Disease than were noted last year as resulting from these diseases: two-thirds are persons over the age of sixty-five years. (4) The four fatal cases of Enteric or Typhoid Fever, out of eight cases notified, must also not be overlooked, as compared with no death from this zymotic disease during the previous year. These four factors alone, are probably sufficient to account for the rise in the "annual death-rate," without referring to minor causes.

It is pertinent to the question to state that if this somewhat sudden rise in the "annual death-rate" had occurred after the new Sewerage Scheme was in working order, some hypercritical persons would have at once been disposed to suggest that the rise in this death-rate was due to the inauguration of the Sewerage Scheme.

From the Report issued for the year 1901, by the Medical Officer of Health for the County of Hertford

we find that Rickmansworth equals Hoddesdon Urban District in its "annual death-rate" (10·8) two only of the Urban Districts having a lower "annual death-rate," in one of which the figure stands at 10·3., in the other at 9·5.

The age distribution was as follows :—

Under one year	....	....	....	16
At one year and under five	....			6
„ five years	„	fifteen	....	4
„ fifteen „	„	twenty-five		4
„ twenty-five	„	sixty-five....		20
„ sixty-five and upwards....	....			28
				—
				78

It will be seen that 20·5% of the registered deaths occurred in children under one year of age, and slightly less than 36% of persons over 65 years of age.

The deaths occurring in the three localities into which the District is divided for the purposes of this Report were as follows :—

Rickmansworth	....	....	....	39
Croxley Green	....	....	....	25
Mill End	....	....	....	14

The "yearly" death-rate per thousand being :—

Rickmansworth	....	....	....	12·1
Croxley Green	....	....	....	13·6
Mill End	....	....	....	14·7

It will be observed from the above figures that Mill End has the highest "annual death-rate" of the three localities which the Urban District contains. The "annual death-rate" of a place is very fair evidence of the sanitary condition of such place. On turning to the Annual Report of the County Medical Officer of Health for last year we find that Mill End far exceeds the "annual death-rate" of the Urban Districts in the County. Further notice will be taken of this question at a later stage in this Report.

BIRTHS.—There were 152 births registered, giving the "yearly" birth-rate for the District as 25·3 per thousand, of these 78 were females and 74 males.

Taking the births in the three localities, the figures are:—

			Females.	Males.	Total.
Rickmansworth	...	....	49	33	82
Croxley Green	....	....	18	25	43
Mill End	....	....	11	16	27
Totals			78	74	152

The "yearly" birth-rates being respectively 25·6 23·4 and 28·4 per thousand, whilst the average birth-rate for England is about 30 per thousand. There were five illegitimate births, one at Rickmansworth, three at Croxley Green (one of which was non-resident), and two at Mill End; this matter will be further referred to in dealing with the subject of Infantile Mortality.

Attention must be seriously drawn to the gradual declension in the birth-rate, not only in this District, where it has been steadily going down, but throughout the country at large. It is becoming a national question fraught with danger as regards the future existence of Great Britain, as one of the leading nations of the world.

INFANTILE MORTALITY. The deaths of infants under one year were in the proportion of 105·2 to a thousand registered births for the whole District. Dividing up the District into the various localities, the rates of infant mortality are :—

Rickmansworth	....	....	....	73·1
Croxley Green	....	...	....	116·2
Mill End	....	...	....	185·1

It will be seen that in the locality of Mill End the infant mortality stands very high. Infantile mortality is of great importance in dealing with the subject of the Public Health. This death-rate is quite distinct from the general “annual death-rate”; it may be high where the latter is low, or low where the general “annual death-rate” is high. Deaths from Diarrhœa are a fruitful source of mortality amongst Infants, but as regards the Rickmansworth Urban District this does not apply, for on examining the year 1902, no deaths from Diarrhœa are found to have occurred.

It is therefore necessary to enquire into other facts in order that the high rate in Mill End may be explained. Out of the five deaths of children under one year, one died of Whooping Cough, the remaining deaths were attributable to some form of Digestive trouble, which was no doubt largely due to ignorance and carelessness in the general management of the children by their parents.

The valuable comments under this heading made by the Medical Officer of Health for the County of Hertford, in his Report of 1901, may with advantage be quoted here, they are as follows:—“If Sanitary Authorities in Hertfordshire combine with those elsewhere in finding out and applying methods for stamping out infectious disease, and preventing overcrowding and parental carelessness, within perhaps the next fifty years, fifty per cent of the number of Infants who at present die may be saved to their families and the community.”

Before leaving this important subject another factor not to be overlooked is that of the illegitimate births. It is well known that there is a heavy mortality amongst these children, the causes of which are not far to seek, if trouble be but taken to investigate the facts; these children need extra protection from a Public Health point of view.

In concluding the consideration of this important question it is only just in referring to the locality of Mill

End to say that a high birth-rate is usually accompanied by a high death-rate among infants. Comparing Mill End with the other two localities the Birth-rate is higher.

ZYMOTIC DISEASES.—The seven principal Zymotic diseases caused seven registered deaths. Typhoid or Enteric Fever accounted for four deaths out of eight cases notified ; a heavy mortality. Four of the cases notified were from the locality of Rickmansworth with two deaths, three from Mill End with one death and one fatal case occurred in Croxley Green. It is further to be noted that of the three cases from Mill End all came from one house situated in White's Row. There was one death from Whooping Cough in Mill End. The two fatal cases of Measles were from the locality of Rickmansworth. The "yearly" Zymotic death-rate was 1·16 per thousand.

The following table shows the deaths from the various Zymotic diseases :—

Small Pox	....	....	....	....	0
Measles	....	....	....	....	2
Scarlet Fever	....	....	....	....	0
Diphtheria and Membranous Croup					0
Whooping Cough	....	....	....	....	1
Fevers	{ Typhus	...	....	....	0
	{ Enteric	....	....	....	4
	{ Other or doubtful...		....	....	0
Diarrhœa	....	....	....	....	0
					<hr/> 7

WHOOPING COUGH AND MEASLES.—Although only one death is recorded in the District as the result of Whooping Cough and two as occurring from Measles, the Medical Officer of Health would take the opportunity of impressing upon the public the importance of not neglecting these diseases, which, from being so constantly present among the community, and apparently in many cases trivial in their effects, parents and others are liable to ignore them. The diseases themselves in the acute stage are seldom fatal, but from neglect of the seemingly slight chest troubles following in their tracks serious and often fatal results ensue. There has been a considerable absence of Whooping Cough and Measles from the District during the current year.

The Zymotic death-rate is very satisfactory, being lower than that of the previous year, it shows a steady decrease since the formation of the Urban District.

It is necessary again to point to the very marked reduction in the deaths from Diarrhœa as compared with previous years. No deaths from Diarrhœa have occurred during 1902. The deaths from Diarrhœa in 1898 were 11 as compared with 6 for 1899, 4 for 1900 and 1 for 1901. These figures are good evidence of the general improvement in the Sanitation of the District since the Urban Council came into existence. It is only right to again state that the regular and efficient manner in which the street drains are flushed during the dry and summer

months, the thorough cleansing of the ditches by the Inspector of Nuisances and his staff, and the systematic supervision of the District have probably contributed in no small measure to this happy result. On referring to the Annual Report for 1902, of the Medical Officer of Health for the Borough of Croydon it is to be noted that he bears eloquent testimony to the advantage which is obtained in thus constantly "washing" our streets and thoroughfares.

Of course in dealing with this disease it must be said that the low temperature prevailing during last summer and early autumn has undoubtedly been a potent factor in keeping down epidemics of this disorder.

NOTIFIABLE DISEASES.—Since October 1890 the District has been under the operation of the Infectious Diseases (Notification) Act, and during the period over which the Report extends 72 cases have been notified as follows :—

Small Pox	....	....	....	2
Chicken Pox	....	....	....	5
Diphtheria and Membranous Croup				7
Erysipelas	....	....	....	15
Scarlet Fever	....	....	....	35
Enteric or Typhoid Fever....				8
				<hr/> 72

This gives a Notifiable Sickness-rate of 12·1 per thousand of the population.

The epidemic of Small Pox from which the Country, and London more especially, suffered severely during 1901, continued with gradually diminishing intensity, to the middle of the present year. On April the eleventh a case of Small Pox was notified from a house in Church Street. The woman was promptly removed to the Small Pox Hospital, all "contacts" being at once vaccinated or re-vaccinated and the premises immediately disinfected. On examination the case showed very imperfect primary vaccination scars and had not been re-vaccinated. A careful watch was kept upon the inmates of the house and all those persons who had in the least degree been exposed to infection. Another case was reported from the same house on April the twenty-first, which on investigation proved to have been infected by the person notified on April the eleventh. This second case—a very severe one—was at once isolated in the same manner as the one first discovered, and disinfection of the premises again carried out. The second case, gave evidence of very poor primary vaccination marks and was unfortunately not re-vaccinated in time to prevent an attack of the disease. Both patients ultimately made a good recovery.

The inhabitants of the District are to be warmly commended upon the manner in which they have availed themselves of the opportunities of being vaccinated or re-vaccinated which have been afforded them by the District Authorities. This fact to a very great extent accounts,

in the opinion of the Medical Officer of Health, for the immunity from this terrible disease which the Urban District of Rickmansworth has enjoyed during the year 1902.

VACCINATION.—Four years experience of the working of the Vaccination Act of 1898 is now forthcoming, and the results are gratifying. In some Districts, amongst which Rickmansworth must be included, this is particularly so. There is no doubt that these results are largely due to the entire use of Calf Lymph and to “domicillary” as distinguished from “stational” Vaccination. The following figures speak for themselves.

Vaccination in Rickmansworth and Sarratt Districts, during the last five years.

Year.	Primary Vaccinations.	Re-Vaccinations.
1895	124	
1896	88	
1897	95	
*1898	71	
†1899	172	
1900	144	3
1901	132	121
1902	142	783

N.B.—*The few cases of this year are undoubtedly partly due to Boards of Guardians and Individuals waiting for the New Act.

† New Vaccination Act of 1898 in force.

Satisfactory infant vaccination must not lull the public into the belief that its effect is everlasting ; re-vaccination is required at least once again in youth or early adult life.

It is a regrettable state of affairs that some parents should deliberately, in the face of all scientific knowledge and facts, neglect to protect their children against such a dreaded and loathsome disease as Small Pox, which is still established in our midst. The present Vaccination Act of 1898 comes to an end next year. However, there is reason to believe that its provisions will be extended for another twelve months.

CHICKEN POX.—Owing to the prevalence of Small Pox, on January the second the Urban District Council passed a resolution in favour of adding Chicken Pox to the list of diseases included in the Infectious Diseases (Notification) Act of 1889. This resolution came into force on January the sixteenth for a period of six months. In thus acting the Council have been wise. It is very difficult in some cases to decide at once whether a person is suffering from Chicken Pox or Small Pox.

SCARLET FEVER.—With regard to Scarlet Fever, it will be seen that thirty-five cases have been notified for the year 1902, as against twenty-nine during the previous year, eight cases have come from Rickmansworth, twenty-six from Croxley Green, and one from Mill End.

It will be observed from the figures quoted that the brunt of the epidemic during the year was borne by Croxley Green, practically three-fourths of the whole number of cases notified having come from that locality. Several attempts have been made by the Medical Officer of Health and the Inspector of Nuisances to explain the continuance of the outbreak but without being able to come to any very definite conclusions. The theory of "return cases" will be found to be dealt with under heading of Hospital Accommodation; no doubt in a certain number of instances this factor may account for attacks of Scarlet Fever. It is desirable here to consider the question of School Infection. The Medical Officer of Health holds the opinion that infection was spread at Croxley Green by mild unrecognised cases of children attending the Elementary Schools. The epidemic has been distinguished in the majority of instances by the mildness of the attacks; this is certainly favourable to the view that the attendance at school of children still infectious may have been a dominant factor in the dissemination of the disease. The outbreak prevailed, for the most part, during the first four months of the year. No case has been notified since the first week in September. It is extremely gratifying to state that no death has resulted from the disease during the twelve months under consideration.

DIPHTHERIA.—Concerning Diphtheria, it is a pleasure to record that only seven cases of this disease have been

notified, especially as some surrounding districts have been severely visited. No deaths have taken place from Diphtheria during the year.

At present medical practitioners in the District are at liberty to send "throat specimens" to either the Jenner Institute or to the Laboratory of the Watford Joint Isolation Hospital, at the expense of the Council, in order that they may be examined bacteriologically for the presence of the *Bacillus Diphtheriæ*.

It is only just to note that medical practitioners in the District are availing themselves regularly of the help conferred by the Council with every advantage to their patients.

During the year 1902 eighteen investigations have been made of "throat specimens," three only of which showed the germs of Diphtheria.

The public should be again urged to place no obstacle in the way of their relatives and friends being treated early by means of the Diphtheria Antitoxin. The present is the second year since the formation of the Urban District in which no death has occurred from Diphtheria. There is reason to believe that the prompt treatment of patients in the Isolation Hospital by means of Antitoxin has led in no small measure to these happy results.

PHTHISIS.—Five deaths have occurred from Phthisis (consumption) during the year, three in Rickmansworth, one in Croxley Green, and one in Mill End. One of the cases in Rickmansworth was that of a non-resident and should therefore be deducted. This gives a “yearly” death-rate for this disease of $\cdot 6$ per thousand for the whole District, a very satisfactory record.

With regard to Consumption, statistics show that it is “the cause of one-tenth of the whole mortality in England.”

Every Health Authority is now well aware of the immense importance to the community of this great question. Since the meeting of the Congress on Tuberculosis in London, the great movement for treating “Consumptives” by the “open-air method” has been rapidly spreading. Prominently before the community is the magnificent gift of the King’s Sanatorium, not to mention other Sanatoria which are springing up all over the country for the treatment of this “Great White Plague.” There seems however, to be a considerable dearth of institutions where the poor can be treated. The Medical Officer of Health would urge upon the Council the advisability of taking steps to educate the inhabitants of the District how to prevent this most preventible of diseases, and how to treat Consumption in their own homes. According to present knowledge the treatment should be

carried out upon common sense lines which are more or less within the scope of everyone whether rich or poor. A knowledge of the cause and effects of the Disease is of the utmost importance. Good feeding, fresh air and sunlight, are now known to be among the most valuable of remedies.

It has been proved beyond dispute that the disease is due to a germ, and it is the duty of the community to relentlessly follow up and destroy this ever present, although "unseen foe" of mankind.

CANCER.—With regard to Cancer, one death has been registered in the locality of Croxley Green. The death-rate from this disease is therefore $\cdot 16$ per thousand living, and lower than last year. The mean annual death-rate for England is $\cdot 63$. There seem to be many reasons for considering this to be an infective disease and probably closely associated with insanitary conditions. It is a mistake to imagine that the disease is largely restricted to the low-lying districts and valleys of this neighbourhood, and there is no valid reason to suppose, as some do, that Rickmansworth is more prone to Cancer than other places. On examining the Registrar-General's Report in the decade 1881—1890, it is found that out of the forty-five Counties mentioned, twenty-five have a higher death-rate from Cancer than Hertfordshire; there is therefore no need for unreasonable alarm.

HOSPITAL ACCOMMODATION.—The District is well

provided for in this direction, the Watford Joint Isolation Hospital giving every facility for the removal and care of infectious cases. The Council is to be congratulated upon having such an Institution so near at hand for dealing with infectious diseases; the staff of the Hospital still thoroughly deserve the confidence and thanks of the Urban Council for their hearty co-operation in preventing and dealing with the spread of the notifiable diseases in the Rickmansworth Urban District. Forty-nine cases have been removed to the Hospital during the year.

During the month of July, by virtue of a Provisional Order, the Watford Joint Hospital was transferred to the management of a Joint Hospital Board, constituted out of the three Sanitary Authorities contributing to its maintenance, viz.: Watford Urban District Council, Watford Rural District Council, and Rickmansworth Urban District Council. This was done because the accommodation of the Hospital was not equal to the demands made for the admission of patients; it was therefore necessary to enlarge it. The Joint Committee had no convenient power to borrow money for the purposes of this extension, consequently the creation of a separate Authority was needed before funds could be provided by means of a loan.

During August the Hospital became so crowded that the Joint Board had to erect tents for the accom-

modation of Scarlet Fever patients; in this manner twenty beds were added to the Scarlet Fever wards.

When the extension of the Hospital is completed twenty-four additional beds will be provided, as well as improvements and alterations in the Administrative Block.

Under the head of Hospital Accommodation notice must also be taken of the "return cases" which have cropped up in houses to which patients have recently returned from the Isolation Hospital as cured. This question of "return cases" is no doubt a most difficult and complicated problem. The present method of isolation and management of Scarlet Fever in Hospitals leaves considerable room for improvement. It is tolerably certain that in the majority of "return cases" the cause of the infection has been the presence of discharge, however slight, from the throat, nose, or ears of the home-coming convalescent. It is often difficult to prevent this state of affairs owing to the fact that the discharge towards the end of convalescence may be absent for a day, or even days, and then recur after the patient has been allowed to return home. In these cases it seems most important that the passages of the throat, nose, and ears should be thoroughly disinfected for some time prior to the return of the patient from Hospital. A further point whilst dealing with this question is the desirability of providing "convalescent blocks" for the

cases recovering. The majority of persons suffering from Scarlet Fever are soon convalescent and it seems therefore highly unwise to expose such patients to the poison of fresh cases admitted from time to time into the ward, and thus possibly re-infecting those already recovering from the disease.

Before leaving the consideration of this matter, it is well to point out that an appreciable number of so-called "return cases" are due to infection from some article which has escaped disinfection, either by design or ignorance, when the initial case was removed to the Hospital. On the first case returning home, the article over-looked may be brought into use again, other members of the family thereby becoming infected.

The Medical Officer of Health is of opinion that the whole question of Scarlet Fever Isolation demands the most careful enquiry by the Local Government Board and Sanitary Authorities generally.

DISINFECTION.—Bedding and such other articles as cannot be safely and efficiently disinfected at the patients' homes, are removed by the Isolation Hospital Authorities, and dealt with by means of the Steam Disinfector, and then returned to the houses of the owners.

On the recommendation of the Inspector of Nuisances the Council have provided a "Spray Disinfector" in which Formalin is used, which substance is

now recognised as a more efficient germicide and less disagreeable to use than the fumes of burning Sulphur.

ROADS AND STREETS.—There is but little to be said under this heading at the present time, the thoroughfares in consequence of the excavations for the Sewer trenches are in a very bad state. It is to be hoped that after the Sewerage Scheme is completed considerable improvement will take place in the condition of the roads throughout the District. Norfolk Road still requires proper paving for foot passengers.

WATER ANALYSIS.—During the year fourteen samples of water were sent for analysis, of which five were good and nine bad. The closer supervision of the water supplies of the district has certainly produced satisfactory results.

I have made an analysis of the water drawn from the Rickmansworth and Uxbridge Valley Water Company's main passing through the High Street, carrying water from the well at Batchworth, which is now being used by the Company until their new well at Batchworth Mill has been made, with the following result :—

Colour	....	....	....	good
Odour	....	....	....	none.
Turbidity	....	....	....	none.
Sediment	....	....	....	slight white powder (chalk).
Microscopic Examination	....	....	....	nothing definite.

Residue on examination	....	white (chalk).
Chlorine ....	....	1.23 grains per gallon.
Total Hardness	....	14.0 „ „
Permanent Hardness		3 „ „
Nitrites ...	....	.... absent.
Nitrates ...	....	.... a trace.
Oxygen absorbed	....	.... 1 part per million.
Free Ammonia or Saline Ammonia	0.004 parts per million.	
Albuminoid Ammonia or Organic Ammonia	0.012 parts per million.	

It is evident that this would be a really good, pure water if it were not so hard. The question of hardness is more to be looked at from a domestic than a hygienic point of view, in that it is not likely to cause any waterborne or zymotic disorder, but the amount of "chalk" that the consumers have to try to digest is certainly not good for their constitutions. Hard water is distinctly bad for kettles and boilers, necessitating their constant cleaning and repair, which if postponed is liable to cause danger to householders by the possible bursting of the boiler. Every boiler in this district should be cleaned, that is the incrustation of lime should be removed at least once in every three months, if an effective heating of the water is desired. The crust which forms in boilers may be loose or hard, the former condition is the result of the deposit of salts, causing temporary hardness, the latter the result of salts causing permanent hardness. It is

stated that one quarter of an inch of incrustation—which is a bad conductor of heat—produces waste of coal to the extent of 45 per cent. It has been calculated that 1 grain of chalk wastes 8 grains of soap, and hence arises the difficulty for washing purposes of the hard water such as is drawn from the deep chalk formations. Owing to the hardness much soap is needed for lathering. Occasionally when water is drawn into a vessel from the service pipe of the Water Company's Mains it appears to be "milky," or even "chalky." If the vessel or glass receptacle be allowed to stand, it will be found that the water gradually clears from below upwards, which proves that the cloudiness is due to air. This state of affairs is brought about by the water having been super-aerated during the process of pumping into the mains from the Waterworks. This condition of the water need cause no anxiety on the part of the consumers.

HARDNESS.—In all the Annual Reports of the Medical Officer of Health prominent notice has been taken of this question. Again this year it is strongly commented upon.

It is probably productive of many minor ailments which in their cumulative effect may become serious.

There is every reason for regret, that in a matter so important for the well-being of the inhabitants of the District, there is no appeal to the Local Government Board or other superior Authority.

An immense benefit would be conferred on the community by the Rickmansworth and Uxbridge Valley Water Company if they could see their way to mitigating the hardness of the water by some softening process, as is done in other parts of the country; it would add greatly to the popularity of the supply which is very pure, apart from its hardness. The present time, as has been strongly insisted upon in an earlier page of this report, seems opportune for the Rickmansworth Urban District and neighbouring Districts to combine, and with the help of the residents in the neighbourhood, to agitate for some process to be adopted whereby the great hardness of the Company's Water could be lessened.

Surely some such simple system as that based on the principles of the "Porter-Clark" process might be inaugurated by the Rickmansworth and Uxbridge Valley Water Company whereby the water could be softened. If this course were adopted it is certain that it would lead to an increased consumption of the water, which many people at the present time refuse to use owing to its hardness.

According to the Sixth Report of the River Pollution Commissioners, this water comes under the tenth and last classification of waters as to their softness.

In connection with this subject it should be mentioned that complaints were received during the last week in July by the Medical Officer of Health from

residents in the town regarding the disagreeable taste in the water drawn from the Company's mains. The complaints were mostly limited to the whole of Church Street, London Road, Frogmore Lane and part of High Street. Most careful consideration was given to the matter, both by the Urban District Council and the Water Company. Several samples were analysed on behalf of the Council and the Company without a definite cause being found to account for the peculiar "oily" taste of the water. Nothing could be found out of order in the Water Company's reservoirs, wells, pumps, mains or pipes. On the results of the investigation being carefully weighed the conclusion arrived at was that the impervious varnish with which the surface of the water mains is covered might possibly, in some way, have been disturbed. The water mains might have been "jarred" during the process of driving into the surface of the roads the heavy iron wedges used in making the excavations for the sewers.

HOUSING OF THE WORKING CLASSES.—As was pointed out in the last Annual Report, there is still a great need for Cottage accommodation in and around the District, the supply being unequal to the demand. To a large extent this is due to the fact that landowners in the neighbourhood will not sell land for this purpose, except in positions which cannot be considered from a health point of view as conducive to the well-being of the future inmates. In the near future, one of the serious

problems to be worked out by the Rickmansworth District Council in common with many other Local Authorities is the "Housing of the Working Classes." The Public and Parliament at the present time are still giving serious attention to the matter.

It is not too much to expect that the provision of well ventilated, well lighted and reasonably commodious cottages for the poorer class would largely help to prevent disease and to stem the tide of Drunkenness and its attendant evils, by encouraging the occupiers to spend more of their leisure hours in healthy and comfortable homes rather than in the "Public House."

HOUSES UNFIT FOR HUMAN HABITATION.—In the month of January the Sanitary Committee visited the premises known as Marble Arch, situated in Church Street, which in their opinion were unfit for human habitation, they therefore decided to recommend the Urban District Council to apply for an order to close the premises, under the Housing of the Working Classes Act of 1890. The Urban Council acted on the recommendation of the Committee and a "Closing Order" was obtained. The Sanitary Committee at the same time visited the premises called White's Row, or White Wash Row, in the locality of Mill End, and recommended certain works to be done in order that the cottages might be made fit for human habitation. The necessary alterations and additions have been carried out; it is to be hoped that these may

improve the health of the inmates of these dwellings. Three cases, out of eight cases of Typhoid or Enteric Fever were removed during the year from the last mentioned premises where there is still considerable room for sanitary improvement.

During the same month the row of cottages known as Two Stones were visited by the Medical Officer of Health who reported that the houses were very damp and alterations needed. The owner has so far carried out some of the suggestions of the Council, but the sanitary condition of these cottages is far from satisfactory.

In another case, where a family was discovered to be using a stable as a dwelling-house the necessary notice was served, with the effect that the family found dwelling accommodation elsewhere. This last instance shows the importance of a constant supervision being exercised throughout the District in such matters; it further brings out the fact that the persons concerned probably erred through ignorance. Hence the importance of educating the Public in matters which relate to living under healthy conditions.

One of the two cottages at Mill End, referred to in last year's Report as unfit for human habitation is still inhabited, their demolition has been postponed until further progress has been made with the existing Sewerage Scheme for the District.

INSANITARY DWELLINGS.—Apart from a purely health point of view the financial effect of Insanitary Dwellings upon the District is apt to be overlooked. The necessity for the institution of an Isolation Hospital arises chiefly from dwellings of this character. Better-class houses have means of isolation where Hospitals are not provided by the Ratepayers. It is stated that for the past year the Isolation Hospital has cost the Urban District a sum equal to a rate of eightpence in the pound, which is a serious burden upon the community. The Sanitary Rates to be paid in respect of these particular houses will not suffice to recoup the District for the next thirty or forty years. In other words these houses are a serious financial incubus upon the general body of Ratepayers, and more particularly upon those who adopt efficient Sanitary methods.

DAIRIES, COWSHEDS, MILK SHOPS AND BAKEHOUSES.—These have been regularly inspected, and no fault is to be found in the storage or purveyance of the articles of food kept in or conveyed from them.

The position of Dairies just outside the Urban area is somewhat anomalous. Most of these Dairies depend for their support almost entirely upon residents in the Urban District, and have but few customers in the Rural District. However, the Urban Council has no right of supervision over these Dairies, but must rely upon the Rural Authority for their supervision. In case, however,

it can be shown that a person is suffering from an infectious disease attributed to milk supplied from a Dairy outside the District, an order for inspection may be obtained from a magistrate acting for the District in which the dairy is situate, but this is after the mischief has happened. It would seem that there should be something in the nature of a concurrent right of inspection in cases of this character, so as to insure that the requirements of the Dairies, Cowsheds and Milkshops Order are being complied with.

Whilst considering this subject it is highly desirable to draw the attention of Health Authorities to the importance of seeing that the milk sold to the Public is reasonably clean; there can be no doubt that a great deal of milk is consumed which is not so. In many country cowsheds there is a great carelessness in all matters which relate to the collecting, storing and distributing of milk. It behoves all Sanitary Authorities to insist upon the model regulations in force being strictly carried out. In concluding these short observations on the matter, it should be stated that there is a general feeling, that the addition of drugs to milk for the purpose of preserving it, is unnecessary and dangerous to health.

SLAUGHTER HOUSES.—Improvements have been made in dealing with the offal. In consideration of the immense and increasing importance of the question of

Consumption and the frequency with which the germs of this disease are found in meat, the value of Public Slaughter-houses being provided in every District must again be prominently brought forward. It is only by constant and thorough inspection of carcasses after slaughtering that the general public can be protected against having to consume, in many instances, meat thus diseased. It is evident that such supervision cannot be effectively carried out unless the numerous Slaughter-houses in a District are merged into one Public Abattoir.

The Rickmansworth Urban District Council are provided with Bye-laws for the regulation of Slaughter-houses, and those interested in the matter can inform themselves thoroughly as to the requirements of the Council.

The drainage for the most part is of a temporary character, it is hoped that on the completion of the Sewerage Scheme, this will be remedied.

UN SOUND FOOD.—Two complaints were received under this heading during the year, one of which, investigation, proved to be groundless. The first referred to a cake, which was found, on analysis, to be quite wholesome; the second related to a liver exposed for sale, which, on examination, was discovered to be tuberculous and unfit for human food, and was destroyed. The Council decided, on careful consideration of the circumstances not to prosecute.

FACTORY AND WORKSHOPS' ACT, 1901.—This Act, amongst other things, provides that “The Medical Officer of Health of every District Council shall in his Annual Report to them, report specifically on the administration of this Act in workshops and work places, and he shall send a copy of his Annual Report or so much of it as deals with the subject to the Secretary of State.”

The Factories in the District have been visited, and no faults are to be found which it is the duty of the Urban District Council to remedy.

Thirty-six Workshops have been inspected during the year as follows:—

Bakeries	....	....	....	....	....	8
Millinery and Dressmaking Establishments						7
Builders' and Plumbers' Shops	....			....		5
Wheelwrights' and Blacksmiths' shops	....					3
Cycle-repairing Shops	....		....	....		3
Tailoring Shops	....		....	....		3
Boot Manufactories....	....		....	....		2
Miscellaneous Workshops	....		....	....		5

The Sanitary conveniences of most of these are not by any means all that could be desired, but with the completion of the Sewerage Scheme so near at hand it is to be hoped that proper drainage and sanitary fittings will shortly be substituted for those now in use. It will be necessary for the Council to take into consideration the question as to whether one of the Bakehouses

in the District does not come under the restrictions which the Act imposes upon "Underground Bake-houses."

Referring to Table V, it will be noted with pleasure that no summonses have been taken out by the Council. Great credit is due to the Inspector of Nuisances for the care, trouble and tact which he has exercised in dealing with cases in which the Public Health Acts have been contravened.

The Medical Officer of Health again gives his hearty thanks to the Clerk, Inspector of Nuisances, Collector of Rates, and the District Registrar of Births and Deaths, for their kindness and courtesy in furnishing information of value in the framing of this Report.

TABLE I.

Vital Statistics of Whole District during 1902 & previous years.
Rickmansworth Urban.

Year.	Population estimated to middle of each Year.	Births.		Total Deaths registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-residents registered in Public Institutions in the Dist ^t	Deaths of Residents registered in Public Institutions beyond the Dist ^t	Nett. Deaths at all ages belonging to the District.	
		Number.	Rate.*	Under 1 year of age.		At all ages.					Number.	Rate.*
				Number.	Rate per 1,000 Births registered.	Number.	Rate.*					
1	2	3	4	5	6	7	8	9	10	11	12	13
1891.	4769†	—	—	—	—	—	—	—	—	—	—	—
Half-Year 1898.)	5780	91	31·4	12	131·8	36	12·1	—	—	—	35	12·0
1899.	5885	160	27·2	17	106·2	57	10·0	—	—	2	59	10·0
1900.	5550	171	30·8	16	93·5	51	9·1	—	—	3	54	9·7
1901.	5640	155	27·4	16	103·2	56	9·9	—	—	5	61	10·8
Aver. ages for years 98-1901	5718	164·8	29·2	17·4	108·7	57·1	10·3	—	—	3	59·7	10·6
1902	5988	152	25·3	16	105·2	78	13	—	—	10	88	14·6

† No other data available.

* Rates calculated per 1,000 of estimated population.

Total population of all ages, 5627

Number of inhabited houses, 1181

Average number of persons per house, 4.76

At Census of 1901.

Area of District in acres (exclusive of area covered by water, 556.

Institutions outside the District receiving sick and infirm persons from the District.

Watford Union Workhouse.

Watford District Joint Isolation Hospital.

Watford District Cottage Hospital.

Hill End Asylum, St. Albans.

TABLE II.

Vital Statistics of separate Localities in 1902 & previous years.
Rickmansworth Urban District.

Names of Localities	Rickmansworth.				Croxley Green.				Mill End.			
Year.	Population estimated to middle of each Year	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year	Births registered.	Deaths at all Ages.	Deaths under 1 year.
1898 } Half-Year.	3145	49	16	4	1850	34	15	6	785	8	4	2
1899.	3200	76	33	8	1895	56	20	6	790	28	6	3
1900.	3000	87	30	8	1750	56	16	4	800	28	8	4
1901.	3040	82	36	10	1790	46	17	3	810	27	8	3
Averages of Years 1898 to 1901.	3096.2	84.0	32.7	8.5	1821.2	54.8	19.4	5.4	796.2	26.0	7.4	3.4
1902	3204	82	39	6	1834	43	25	5	950	27	14	5

TABLE III.

Cases of Infectious Disease notified during the Year 1902.

Rickmansworth Urban District.

Notifiable Disease.	Cases notified in Whole District.							Total Cases notified in each Locality.			No. of Cases removed to Hospital from each Locality.		
	At all Ages.	At Ages—Years.						Rickmansworth.	Croxley Green.	Mill End.	Rickmansworth.	Croxley Green.	Mill End.
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.						
Small-pox	2	—	—	—	—	1	1	2	—	—	2	—	—
Chicken Pox	5	2	2	1	—	—	—	4	—	1	—	—	—
Cholera	—	—	—	—	—	—	—	—	—	—	—	—	—
Diphtheria	7	—	2	2	1	2	—	5	—	2	5	—	1
Membranous croup	—	—	—	—	—	—	—	—	—	—	—	—	—
Erysipelas	15	—	1	—	1	9	4	8	3	4	—	—	—
Scarlet fever	35	—	5	22	6	2	—	8	26	1	8	26	1
Typhus fever	—	—	—	—	—	—	—	—	—	—	—	—	—
Enteric fever	8	—	—	5	1	2	—	4	1	3	2	1	3
Relapsing fever	—	—	—	—	—	—	—	—	—	—	—	—	—
Continued fever	—	—	—	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	—	—	—	—	—	—	—	—	—	—	—	—
Plague	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	72	2	10	30	9	16	5	31	30	11	17	27	5

Isolation Hospital: Watford Joint District Isolation Hospital. Situated in the Watford Rural District.

TABLE IV.
Cause of, and Ages at Death, during Year 1902.
Rickmansworth Urban District.

Causes of Death.	Deaths in whole District at subjoined Ages.							Deaths in or belonging to Localities at all Ages.			Deaths in Public Institutions.
	All ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Rickmansworth.	Croxley Green.	Mill End.	
Small-pox	—	—	—	—	—	—	—	—	—	—	—
Measles	2	—	1	1	—	—	—	2	—	—	—
Scarlet fever	—	—	—	—	—	—	—	—	—	—	—
Whooping-cough	1	—	1	—	—	—	—	—	—	1	—
Diphtheria and mem- branous croup	—	—	—	—	—	—	—	—	—	—	—
Croup	—	—	—	—	—	—	—	—	—	—	—
Fever { Typhus	—	—	—	—	—	—	—	—	—	—	—
	Enteric	1	—	—	—	1	—	1	—	—	3
	Other continued	—	—	—	—	—	—	—	—	—	—
Epidemic influenza	3	—	—	—	1	—	2	2	1	—	—
Cholera	—	—	—	—	—	—	—	—	—	—	—
Plague	—	—	—	—	—	—	—	—	—	—	—
Diarrhœa	—	—	—	—	—	—	—	—	—	—	—
Enteritis	—	—	—	—	—	—	—	—	—	—	—
Puerperal fever	—	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	—	—	—	—	—	—	—	—	—
Other septic diseases	—	—	—	—	—	—	—	—	—	—	—
Phthisis	5	—	—	—	2	3	—	3	1	1	—
Other tubercular diseases	1	—	—	—	—	1	—	1	—	—	—
Cancer, malignant disease	1	—	—	—	—	—	1	—	1	—	—
Bronchitis	10	1	1	—	—	1	7	3	5	2	—
Pneumonia	4	1	1	—	—	1	1	3	1	—	—
Pleurisy	—	—	—	—	—	—	—	—	—	—	—
Other diseases of Res- piratory organs	—	—	—	—	—	—	—	—	—	—	—
Alcoholism } Cirrhosis of liver }	—	—	—	—	—	—	—	—	—	—	—
Venereal diseases... ..	—	—	—	—	—	—	—	—	—	—	—
Premature birth	3	3	—	—	—	—	—	1	2	—	—
Diseases and accidents of parturition	1	—	—	—	—	1	—	1	—	—	—
Heart diseases	16	—	—	1	1	3	11	9	5	2	1
Accidents	2	—	—	—	—	2	—	1	—	1	—
Suicides	2	—	—	—	—	2	—	2	—	—	—
All other causes	26	11	2	2	—	5	6	10	9	7	6
All causes	78	16	6	4	4	20	28	39	25	14	10

V.

RICKMANSWORTH URBAN DISTRICT COUNCIL.

INSPECTOR'S REPORT.

OF THE

Sanitary Work completed in the Year 1902.

Total No. of Complaints received ...	...	...	...	145
" " Houses and premises visited ...	...	...	...	543
Houses cleansed and repaired ...	...	...	...	27
Notices served ...	...	...	...	41
New water closets erected ...	...	...	...	11
Privy or sink cesspools emptied ...	...	...	...	62
Privy Middens converted into pail closets ...	...	...	...	—
Accumulations of offensive matter removed ...	...	...	...	13
House Drains—Repaired, cleansed, trapped, &c. ...	...	...	...	24
Ventilated ...	...	...	...	1
Smoke-test applied ...	...	...	...	3
Water Supply—Samples for Analysis ...	...	...	...	13
Wells closed ...	...	...	...	6
Houses connected with water mains ...	...	...	...	90
Night soil and House refuse removal—Complaints received and attended to ...	...	...	...	24
Infectious Disease—Patients removed to Isolation Hospital ...	...	...	...	49
Houses inspected ...	...	...	...	58
Houses disinfected ...	...	...	...	42
Bedding, &c., removed to steam disinfectors ...	...	...	...	32
Schools—Visits made ...	...	...	...	Frequent.
Bakehouses—No. on Register ...	...	...	11	} Regularly inspected.
Dairies and Cowsheds—No. on Register ...	...	...	10	
Slaughter Houses—No. on Register ...	...	...	8	
New Buildings—Plans passed ...	...	...	...	31
Canal Boats Acts 1877 and 1884—No. of boats inspected ...	...	...	...	50
No. of Contraventions {	Absence of Certificate ...	...	1	} 9
	Boats with cabin in dirty state, and requiring painting ...	...	3	
	No proper water vessel ...	...	5	

NOTE.—1120 pail closets or privy cesspits are scavenged once or twice weekly as circumstances demand, and house refuse is removed by contract.

VI.

SUMMARY OF WORK.

Done through the Sanitary Inspector in the Urban Sanitary District of Rickmansworth during the year ended December 31st, 1902, as required by the Hertfordshire County Council.

	Total No. for year.	Result of Inspection, &c.
1. Complaints received	145	{ in 10 instances no nuisance existed at the time of visit.
2. Nuisances detected without complaint	76	
3. Nuisances abated	220	
4. Notices served	41	on Register } Frequent Inspections
5. Summonses taken out	—	
6. Convictions	—	
7. Cottages inspected	32	
8. Lodging-houses inspected	—	
9. Slaughter-houses inspected	8	
10. Bakehouses inspected	11	
11. Dairies and Milk Shops inspected ...	7	
12. Cowsheds inspected	9	
13. Workshops inspected	36	
14. Filthy houses cleansed, sec. 46 Public Health Act, 1875	15	
15. Houses disinfected	42	
16. Overcrowding abated	1	
17. Houses placed in habitable repair ...	10	
18. Houses closed	6	
19. Houses erected or re-built for which Water "Certificates" were applied	—	
20. "Certificates" granted	—	
21. " " deferred	—	
22. Wells sunk, or improved supplies of water afforded	6	
23. Wells cleansed or repaired	—	
24. Wells closed	6	
25. Houses connected with sewers	—	
26. " " with water mains	90	
27. Earth, pail or improved Privies constructed or existing Privies altered	10	
28. Privies & W.C.'s repaired; W.C.'s supplied with water	—	
29. Cisterns cleansed, repaired or covered	1	
30. Animals improperly kept	—	
31. Samples of water taken for Analysis	13	
32. Compensation paid for destruction of infected bedding	—	
33. Seizure of unsound Meat, &c. ...	1	

(Signed) ALBERT FREEMAN.

