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ANNUAL REPORT,

-1905.-

OF THE

MEDICAL OFFICER OF HEALTH

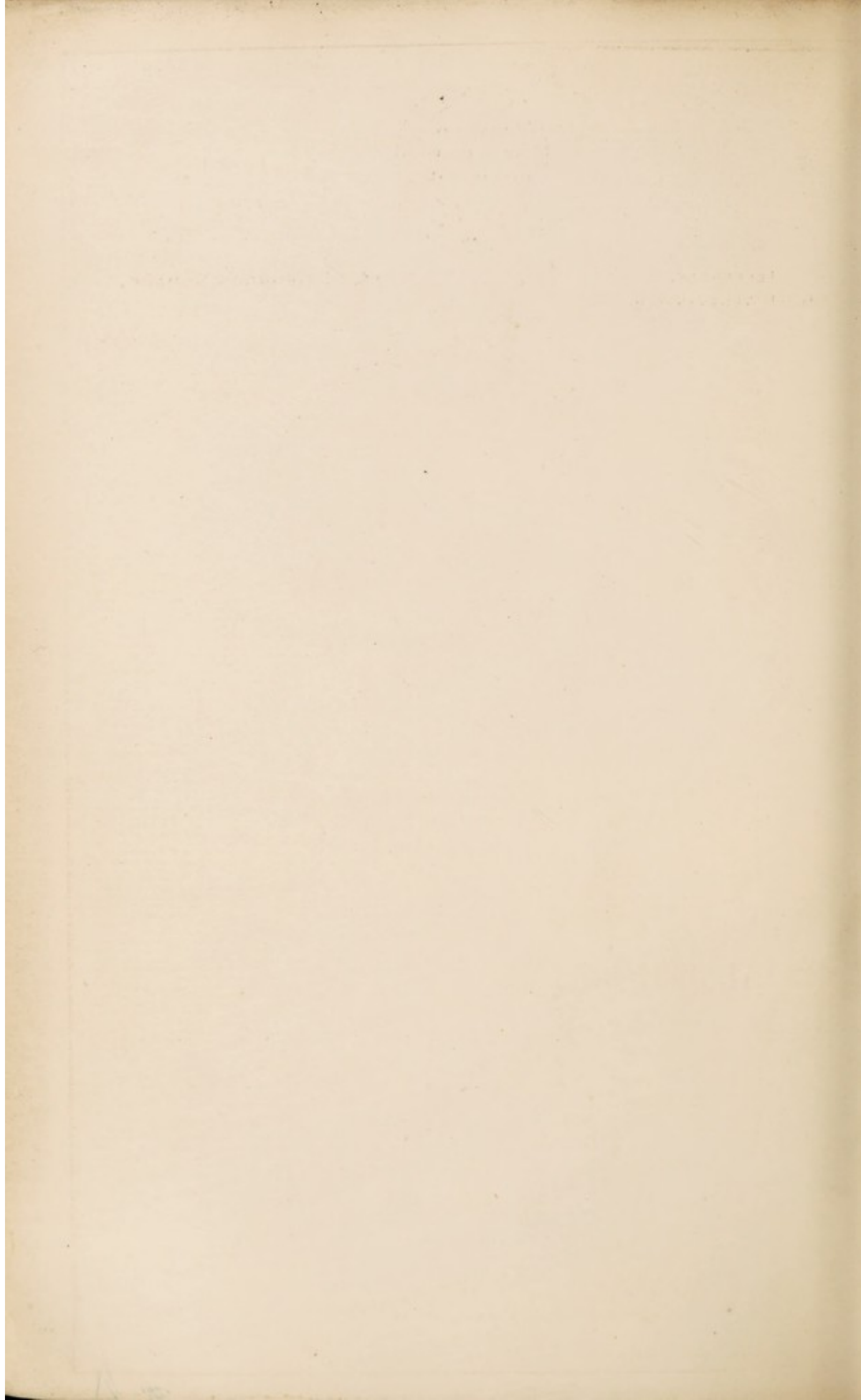
OF THE

ADMINISTRATIVE COUNTY OF SURREY

WITH

A TABLE OF PARTICULARS AS TO PUBLIC  
WATER SUPPLIES IN THE COUNTY.









TELEPHONE,  
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S. W.

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*Rept. with Dr. Seaton's Comments for*

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*The Sec: The Royal College of Surgeons*

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*To the Surrey County Council.*

INTRODUCTORY NOTE.

MR. CHAIRMAN, MY LORDS AND GENTLEMEN,

I have the honour to submit my Annual Report for 1905.

The subjects dealt with in the Report are set forth in the Table of Contents, and are referred to in detail in the Index. They include a Table of Particulars of the Public Water Supplies in the County.

The Population of the Administrative County is now 600,000. I am pleased to be able to record that the death rate is less than 11 per 1,000 of the population.

I have again to express my thanks to Mr. Campbell-Bayard for his interesting and instructive account of the Meteorology of the year.

I am,

Your Obedient Servant,

EDWARD C. SEATON.

*June, 1906.*





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## I.—COUNTY SANITARY ADMINISTRATION.

THE SANITARY COMMITTEE OF THE SURREY COUNTY COUNCIL—The Committee was formed soon after the Local Government Act of 1888 came into operation. Its first Chairman was the late Admiral Egerton, C.A. Subjects having been referred to the Committee which necessitated expert advice and assistance, Admiral Egerton communicated with me on behalf of the Committee. At that time, besides holding the office of Medical Officer of Health for Chelsea, I was open to consulting practice in my own speciality, as my successor is at the present day.\*

Immediately following Admiral Egerton in the chair was the late Mr. Henry Yool, C.A. At a short interview at Newington, towards the end of 1890, the Committee did me the honour to ask me, through Mr. Yool, on what terms I would take the position of Medical Officer of Health in accordance with the provisions of Section 17 of the Local Government Act, 1888. My appointment took place some three months later, since when, my chief endeavour has been to work harmoniously with existing authorities and to assist their officials by expert advice freely given.\*

Upon Mr. Yool's death in 1894, Mr. William Welch, C.A., became Committee Chairman, and continued to occupy the position till about the middle of 1905, when he was succeeded by Mr. Uvedale Lambert, J.P., C.C. Throughout this long period many improvements have been effected in Sanitary Administration, some of which are referred to in a letter from Mr. Welch which is entered on the Minutes of the Committee of the July meeting, 1905.

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\* Second address of the late Chairman of the Council, p. 12,



Except for the statutory obligation on the part of District Sanitary Authorities to send copies of their Medical Officers' Annual Reports to the County Council, the Sanitary Committee has no special power in the direction of administrative control.\* But inasmuch as the reports are collated and reviewed with intimate knowledge of the County, much useful work has been achieved in the co-ordination and raising of the standard of administrative work. The quarterly volumes of the County Council only partly show this. It is, however, described in the fourteen Annual Reports for the County that have been issued. The information there contained may be briefly summarized as follows:—

1. The system of appointing Medical Officers of Health independent of the ties of general practice was recommended in these reports and promoted in other ways.

It has now been adopted in 19 out of 34 separate districts. There are at present as many as eight Medical Officers engaged in the special department of Public Health, whereas formerly there were only two. With regard to some of these appointments the conditions are considered satisfactory, and such as make for complete efficiency. With regard to the others, if not so good, they are at any rate up to the standard of similar appointments elsewhere. In the first of the appointments of this kind in the County, viz., that for Croydon Rural District, I used my best endeavours to get such terms made by the authority and sanctioned by the Local Government Board as are believed to be essential for efficiency. Along with this important change there has been some improvement in the work of "general practitioner" Medical Officers of Health, though there are still some exceptional cases of indifferent administration, chiefly due to the facts that the Medical Officer of Health has no special qualifi-

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\* Local Government Act 1888, Sec. 19.



cation, or that he is absorbed in the duties of his general practice. Such a state of things would be at once overcome if either the Local Government Board or the County from whose funds the "moiety repayment of salaries" are made could require separate District Councils to combine for the purposes of this particular appointment. But unfortunately it appears this could not be done without fresh legislation.

2. It is largely owing to the Committee's representations, that the district Sanitary Inspectors' work has become better recognised and made more efficacious by separation from that of the Surveyor. Those interested in the sanitation of dwellings, especially as it concerns the working classes, will have observed that far more attention is given now than formerly to removal of nuisances and remedy of unwholesome conditions under the powers of the Public Health Acts.

3. The public water supplies of a County were, I believe, for the first time officially and comprehensively reported on in Surrey. This was done in the Annual Report for 1896, and the Report has now, some ten years later, been revised and brought up to date. The establishment and improvement of several large public water supplies has been actively promoted, notably in those of the Wey Valley district, the Sutton District and the area of the West Surrey Company. In these and other cases I was closely engaged, having made many investigations and freely given assistance in the Parliamentary Committee rooms, as well as in other ways.

4. In a similar way the sewerage and sewage disposal systems of the County were reported on in 1899. The work of Purification of Rivers is referred to by Mr. Welch in his summary of ten years' Committee work. He mentions particularly the Tillingbourne, the Wey, the Wandle, the Pyl Brook, the Mole, and the Blackwater. Those who have

followed the work of the Royal Commission on Sewage Purification during this last seven or eight years will understand that the importance of the work is not to be measured by the volume of the "rivers." These are little more than brooks or streams, and on account of their small size might hardly seem worth so much attention. But what is really of significance is the size of the populations and the volume of sewage or effluents naturally draining their way, and the proportion those pollutions bear to the volume of the "river." For example, the Wey receives the effluents of Woking and the fair-sized towns of Godalming and Guildford; the Wandle that of the much larger population of Croydon; and the Blackwater that of the camp populations at and around Aldershot. These effluents, if not sufficiently purified, would soon convert the streams into open sewers, for it is only when the quantity of organic matter contained in effluents has been reduced so as to be relatively small for the volume of the stream which receives them, that the natural self-purifying agencies come into play.\*

The Local Government Board inquiries as to loans for Water Supply and Drainage are mentioned in each quarterly volume of the Council. The inspections that I have made, in connection therewith, are very numerous.

5. The notification of epidemic infectious diseases system has been steadily pressed by the County Council from the early days, in spite of opposition, so that it had become generally adopted in Surrey before it was made compulsory throughout England. I have been at great pains to collect and utilise the information thus obtained, not only for the benefit of the districts separately, but for that of the County as a whole.

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\* Surrey Sanitation, Leading Article "The Times," August 8th, 1899.



We now have records of notifiable infectious illness for eleven years. Even if we omit the year that the system commenced (1895) on account of the returns not being quite complete, we have a whole decennial period, viz., 1896-1905 inclusive. These records are complete, and furnish most valuable material for comparison and estimation of the efficacy of such preventive measures, as hospital isolation in Scarlet Fever, Diphtheria, &c. With some very necessary assistance I could turn this abundant material to excellent account.

The immediate usefulness of these monthly returns, and the reports that I have been able to write upon them was conspicuously shown at the time of the small-pox epidemic or panic of 1901-3. Not only did the issue of the returns assist the District Medical Officers in their work, but by demonstrating to the public the way in which the outbreaks were severally dealt with as they arose, they prevented unnecessary alarm.

As independent testimony of this, I can specially refer to letters received from the General Inspector of the Local Government Board in 1902.

6. VACCINATION AND THE CONTROL OF EPIDEMIC SMALL-POX.—This subject was fully reported on by myself in 1902, the report receiving special notice from medical and expert journals. I have little to add to what was said at that time, viz., four years ago. In that report I strongly advocate certain measures auxiliary to systematic vaccination. They are as follows:—(a) Special supervision at both common lodging houses and casual wards of vagrants at epidemic periods, including the offer of extra inducements to their vaccination and re-vaccination if necessary\*; (b) Promotion

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\* This subject is touched on by the Departmental Committee on Vagrancy in their Report recently presented to Parliament. See p. 101, secs. 376-7.



of vaccination or re-vaccination amongst men or women working with their arms whenever they are specially exposed to infection. This, besides having at hand means for vaccination, involves small payments for loss of time, &c., which need to be regularised; (c) provision of special assistance at times of threatened epidemic at the public expense for the purpose of diagnosis in a certain small proportion of exceptionally difficult cases in which the duty of saying whether a case is or is not small-pox, with its heavy responsibility, should not be allowed to fall wholly on the medical practitioner or the Medical Officer of Health. This also involves expenditure, comparatively trifling in amount, but not as yet provided for by statute.

The promotion by the Council of these auxiliary measures is in my opinion very essential if the cost of small-pox prevention in the future is to be kept down and panics avoided. In fact, the number and size of small-pox hospitals depend on their adoption.

Early in the year under notice an inquiry was held by the Local Government Board as to the establishment of a Small-pox Hospital under the provisions of the Isolation Hospitals Act for the districts in the County not permanently provided for. The proposal was opposed by the Dorking and Epsom authorities. The case for the Council was successfully conducted by the Principal Clerk. The Order was granted, and the Surrey Small-pox Hospital Committee came into existence in the summer. Mr. Deverell, J.P., C.C., was appointed Chairman, and steps were at once taken to acquire a suitable site. There would now appear to be a fair prospect of the unprovided districts being permanently supplied with sufficient accommodation.

In the meanwhile the arrangement which I negotiated for the Council with the Metropolitan Asylums Board in



1904 holds good. Thereby the wants of most of the unprovided districts are—for the time being—met to some extent.

The Committee have decided that one hospital must suffice, and, further, that the permanent accommodation must be on a moderate scale, the strictest economy compatible with efficiency and safety being exercised in the establishment of the institution and the structures erected.

Let me remind the Committee once more of the experience of the last epidemic of small-pox in our County. It was then clearly demonstrated that whereas time after time outbreaks in our County were nipped in the bud, there were three instances in which the essential auxiliary measures could not under existing circumstances be applied, and then the disease quickly spread, in one instance indeed to an extent which threatened to overwhelm the limited amount of small-pox hospital accommodation. From the economic point of view there is everything to be said for limiting the amount of standing hospital accommodation in the County, and so keeping down cost, but it is my duty to insist that in order to ensure efficiency auxiliary measures are absolutely necessary. When the task of meeting the emergency arose, the Sanitary Committee, acting in conjunction with district and hospital authorities, proved most successful in keeping down the number of cases throughout 1901-3. The whole cost to the County for the large number of districts which had not provided for themselves was only £3,000 for hospital accommodation during two years of special need. Contrast that amount with the sums expended in the other counties adjacent to London, and the advantage would be greatly to Surrey. If a recent case for comparison be desired, there is that of one little town in Somersetshire reported on by Dr. Monckton Cope-

man, F.R.S., to the Local Government Board, where a sum equal to the above—viz., £3,000—was expended in badly devised and fruitless efforts to suppress one outbreak of this dreaded disease—small-pox.

7. ISOLATION HOSPITAL ACCOMMODATION GENERALLY.—In 1888 there were only three hospitals for the County, and two of these were very imperfect. Now there are fifteen, including that at Mogden for the use of the Borough of Richmond and the Waddon Hospital, which is resorted to by the Borough of Kingston. Most of these are well equipped establishments approved by the Local Government Board. The Notification Act practically necessitated the provision of a fairly large amount of hospital accommodation. In a good-sized house occupied by intelligent persons an infected patient can be properly isolated in the spare room. But in the case of the poor man the isolation hospital is practically his spare room. The diseases that at present come under the Notification Act are Scarlet Fever, Diphtheria, and Typhoid. The number of these notified during the ten years 1896-1905 were as follows:—

Scarlet Fever	...	...	...	12,909
Diphtheria	...	...	...	6,618
Typhoid	...	...	...	1,699

Now taking into consideration the number of cases, especially those of Scarlet Fever and Diphtheria, a large proportion of which occurring among the wage-earning classes are freely received and treated at the public expense, it is certain that a very large amount of good has been done by the establishment of these isolation hospitals. The low County death rate from these diseases goes to prove this. Immense benefit must have accrued during this time to a host of child sufferers. There is undoubtedly cause



for much satisfaction on this account alone. But having said this, I am bound to admit that the usefulness of these hospitals has fallen short of my anticipation when we consider the matter from the preventive point of view. In giving evidence in favour of the establishment of the Chertsey Hospital at Ottershaw in 1892, I stated what I believed would be the result. I at that time thought the hospital would not infrequently be empty by reason of its having done its preventive work efficiently. My opinion was based not on conjecture, but experience in town populations during the seventies and the eighties. But in those days we had to deal with Scarlet Fever of a type severe in comparison with that which, in these days of improved general sanitation generally prevails; the sufferers were confined to bed almost from the onset of illness, and the existence of mild cases, which may be missed or overlooked, probably did not constitute so much a public danger as at present. But however this may be, the position of things is certainly disappointing, as I intimated last year in my report on Disinfection, especially if we take into account the cost entailed by hospital accommodation and treatment for large numbers of patients.

The subject is one that I will not dwell on at present, except to again suggest that a more discriminate use of hospital isolation—as a measure of public health—is desirable. Selection of cases for isolation is a principle that seems to be gaining ground. In the cases of Phthisis, a disease not compulsorily notifiable at present, it is being observed that it is the advanced cases amongst the poorest and least cared for of the population that constitute the greatest danger if left without hospital accommodation or attention.\*

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\* Recent addresses by Dr. Newsholme and Sir Shirley Murphy at the Epidemiological and Medical Officers of Health Societies.

8. **INFANT MORTALITY.**—In the year 1900 Mr. Welch convened a meeting on this subject, which was attended not only by all the Medical Officers of Health in the County, but by such distinguished physicians and other authorities as Dr. Tatham, of the General Register Office, Dr. Franklin Parsons, of the Local Government Board, Dr. Donkin and Dr. Whitelegge, of the Home Office, Dr. Newsholme, of Brighton, Sir Thomas Stevenson, Professor Axe, and Dr. Richards, of Croydon. As the outcome of this meeting Cards of Hints relating to the care of infants under one year old, suitable for popular use, were prepared by a Sub-Committee, over which Mr. Welch presided. Twenty thousand of these were printed in 1900. The task of placing these cards devolved on me. In each Annual Report from 1900 to 1904 an account is given of the way in which they have been disposed of. We are indebted chiefly to the private medical practitioners of the County for bringing these cards to the notice of those concerned. The 20,000 having been used up, a further supply has been recently obtained and is now available.

I believe that the action originating with Mr. Welch and the Committee has been attended with an amount of success, which I hardly anticipated. The reasons for my belief are given very fully in my Annual Report for 1904. I am decidedly of opinion that the present low rate of infant mortality in Surrey is in no small measure due to what has been done under the auspices of the County Council. I may also mention that an entirely independent authority on the subject has come to the same conclusion as myself.

9. **MILK SUPPLY.**—The physicians and family doctors in large towns are always asking how clean milk can be obtained, and how it is that so many farms are allowed to be in a deplorable condition, and that the management of the milk business is generally so insanitary and out of date?



We have done what we can to influence authorities in the right direction, but it must be sorrowfully admitted that in this respect Rural District Councils generally have failed to justify the principles of local self-government.

Such progress as has been made each year in the adoption of bye-laws has been recorded. In this report I am able to refer to a complete account of the sanitary and insanitary condition of the cowsheds of the Godstone Rural District, made by the Sanitary Inspector, on my suggestion, and under the supervision of the District Medical Officer of Health. The Committee may think it desirable to call the attention of other Rural Districts in the South of the County, viz., Reigate, Dorking, Hambledon, and Farnham, to the need for similar inspections and reports. We should then have reliable information as to the places in the County where sanitary requirements have been well attended to and from which clean milk is procurable.

The practice of boiling the milk before use has been advocated in the County Reports.

10. THE MIDWIVES ACT.—This has come into operation too recently to allow of instructive comment. But, apart from the effect it must have on the safety of child-bearing women, if properly worked, it is calculated to materially lessen infant mortality and improve the hygiene of children.

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The above is a brief summary of County Sanitary Administration during fifteen years. I submit that on the whole it reflects credit to the County generally—that is to the District Councils and to the County Council as the co-ordinating Authority.



About fifteen years ago the death-rate stood at a comparatively high figure. The average for the four years, 1889-92, was shown in my report for 1893 to be 14·1 per 1,000 of the population,\* whereas the average death-rate for the four years, 1902-5, is only 11·3 per 1,000 of the population, that for 1905 being the lowest on record, viz., 10·6. During these years the population has increased from 375,000 to 600,000. But though largely augmented in numbers its character (especially as regards "age distribution," which influences the death-rate) remains about the same. Consequently the reduction of the death-rate by 3·5 per 1,000 of the population represents in the way of life-saving a very real and remarkable gain.

It is obvious that the work above recorded has had much to do with producing this gratifying result. As to my own share in it I am fully sensible that its efficacy is due to the consideration and support I have received from the Committee and the Council generally, as well as to the cordial co-operation of colleagues, for all of which I desire to express my grateful acknowledgments.

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\* Surrey County Council Annual Report of the County Medical Officer of Health, 1893, p. 10.

## II.—METEOROLOGY OF SURREY, 1905.

REPORT BY

FRANCIS CAMPBELL BAYARD, Esq.,

*Secretary Royal Meteorological Society.*

—o—

The year may be described as one in which the mean pressure and temperature were about the average, the rainfall somewhat above the average, with a very large number of rainy days, and an amount of sunshine slightly above the average. The corn crops, with the exception of oats, were good, but the hay was deficient in quantity and somewhat poor in quality, and there was practically no fruit of any description, the whole of the blossom having been destroyed by the cold winds in May. The year will also be noted for its somewhat windy character. To shew the year more in detail, I will take the different meteorological elements, which together make up the climate of a district, separately, and compare them with my own observations at Wallington, a climatological station, regularly inspected, and which has an average of 15 years, 1886—1900.

### BAROMETER.

Pressure was above the average in six months, and in every one of them the rainfall was considerably below the average. In the remaining six months where it was below the average the rainfall was abundant and in excess of the average. With reference to the months of January and December, in which the excess of pressure was greatest, I may remark that this mean reading for December has not been exceeded, and that with respect to January the mean reading has only been exceeded in 1896 and 1898 in my record. With respect to the low mean reading in March, there are only two lower readings, viz., in 1888 and 1897. The highest individual reading, viz., 30·940 in., occurred on the 29th January, and the lowest on the 13th November, viz., 28·865 in., which gives a range during the year of 2·075 in., a high value. The result is a slight excess over the average.



## TEMPERATURE.

The day temperature has been rather low, whilst the night temperature has been high, resulting in a mean temperature slightly above the average. Like last year 1904, there are six months in which the day temperature, and seven months in which the night temperature, is above the average. The mean temperature of February, March and July was extraordinarily high, and was occasioned by a high temperature both by day and night. *The four consecutive months of August, September, October and November have very low mean temperatures, both the days and the nights being cold.* With respect to the month of May, the mean temperature was actually above the average, and the shade minimum never went below  $32^{\circ}$ , whilst the grass minimum only gave four days on which frost occurred, but the very cold northerly winds lasting from the 4th to the 23rd, both inclusive, effectually destroyed all the fruit blossom, and deprived us of what at one time appeared likely to be a record fruit year. I should like to direct attention to the very high night temperatures of February, March, and July, and the very low ones of October and November. The minimum temperatures on the grass follow very closely the shade minimum ones, though as is usual, the values are somewhat larger. The highest shade maximum  $81.3^{\circ}$  occurred on July 14th, and the lowest  $29.8^{\circ}$  on January 1st, whilst the highest shade minimum  $62.5^{\circ}$  was on July 12th, and the lowest  $21.4^{\circ}$  on November 21st. This gives a range of  $59.9^{\circ}$ , which is nearly  $7^{\circ}$  smaller than that of 1904. The highest solar radiation temperature (Black Bulb thermometer in vacuo) was  $137.9^{\circ}$  on June 3rd, and the lowest minimum reading on the grass was  $17.2^{\circ}$  on January 2nd.

## RELATIVE HUMIDITY.

This element, derived from the difference between the temperature of the air and the temperature of evaporation, is of some considerable importance to the public health. If we carefully compare column 2 with the rainfall column we shall be struck with the fact that it does not necessarily follow that because there is a good deal of rain there is also a good deal of Humidity. A very great deal depends on the height above Ordnance Datum, for it is found, as a rule, that the lower a place is the greater is the amount of Humidity. The character of the soil is also a great feature. In the year under discussion it will be noticed that notwithstanding the rain, March and August were comparatively dry, whilst June and September were damp, and that December was very damp, whilst the rainfall was very small. The departures from the average, except in February, May and June, are not very large.



## CLOUD.

The amount of cloud is on the year's mean in excess of the average. On comparing the cloud column with that of the rainfall, it will be noticed that during the first nine months where the cloud is below the average there is a deficiency of rain, and vice versa. In the last three months this relation is exactly reversed. Attention may also be called to the small amount of cloud in May, a great contrast to May, 1904, to the large excess in the months of April, June, August and December, and to the large deficiency in January, February and May.

## WIND.

The year will be noted for its windy character. We have to go back to the years 1886 and 1887 to find a more boisterous one. In nine months there is an excess of Wind Force, which is very considerable, especially in March. It may be noticed that in nine months where there is an excess or defect in the Wind Force there is also an excess or defect in the rainfall. The only exceptions to this rule are the months of January, February and May, where there is an excess in the Wind Force and a deficiency in the Rainfall.

## RAINFALL.

It is exceedingly difficult to say whether as a whole there is an excess or a deficiency in the rainfall, so far as this county is concerned. From the returns of rainfall published by the Croydon Natural History Society, there are many stations with an excess of rain, and there are also many with a deficiency. The only way of determining this is by taking the stations with the longest records, and comparing them with the neighbouring station of Greenwich. If we do this we shall come to the conclusion that there is a deficiency on the year's total of about one and a half inches. The wettest months of the year are those of March, June, and November, whilst the driest are those of July, October and December. With the exception of 1903, we have to go back to 1879 for such a wet June, to 1897 for such a wet March (at Greenwich we have to go back to 1851), and to 1899 for such a wet November. With respect to the three months of July, October and December, as to July we have to go back to 1899 (at Greenwich to 1897) for so large a deficiency; as to October to 1897, and as to December to 1873.



With respect to the number of rainy days of .01 in. and upwards, there is a large excess. It is a singular fact that in the months of February and October where there is a deficiency of rainfall, which in the case of October is very considerable, there is an excess above the average in the number of rainy days, thereby giving an indication that the individual falls of rain must be small. The excess in the number of rainy days in March, April, June and September, is considerable, but as the excess of the rain in April and September is not very large, this also indicates that the individual falls must be somewhat small. The largest deficiency in the number of days is in January, though this month did not have the smallest fall, which occurred in December, when the deficiency in the number of days was only two-fifths of the number in January.

#### SUNSHINE.

The amount of sunshine during the year was in excess of the average by  $37\frac{1}{2}$  hours or nearly 2 per cent. Six months had an excess, and of these two, March and November, were wet ones. January, May and July were unusually sunny, whilst April and September had large deficiencies, largely accounted for by the fact that these months were very cloudy and also windy, though the excess of rainfall was not very large. Of the holiday months of June, July, August and September, only one, July, had an excess of sunshine.

## Abstract of Meteorological Observations at Wallington, Surrey.

	Barometer reduced, &c.		Relative Humidity.	Maximum Temp in shade.		Minimum Temp. in shade.		Minimum Temp on Grass.		Mean Temp.		Cloud Amount		Wind Force.		Total Rainfall.		No. of Rainy Days		Sunshine (Jordan).		Sunshine (Jordan).	
	Mean	In.	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Days	Days	Amt.	Amt.	Amt.	Amt.
1905	+ avg.		+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.	+ avg.
Jan.	30.284	+ .275	88	43.9	+ 1.4	32.7	— 0.3	28.4	— 0.9	38.3	+ 0.5	6.6	— 1.2	2.2	+ 0.3	1.10	— 0.81	8	— 10	87.8	+ 45.6	34	+ 18
Feb.	30.139	+ .099	84	46.7	+ 2.5	37.9	+ 5.2	34.3	+ 5.4	42.3	+ 3.9	6.6	— 1.0	2.7	+ 0.6	1.09	— 0.39	16	+ 3	85.1	+ 23.0	31	+ 9
Mar.	29.734	— .185	84 avg.	51.8	+ 2.7	39.1	+ 4.5	35.1	+ 4.7	45.5	+ 3.7	7.6	+ 0.9	3.4	+ 1.2	3.29	+ 1.40	21	+ 7	141.4	+ 26.4	38	+ 7
April	29.850	— .094	78	53.4	— 2.4	40.9	+ 2.2	36.7	+ 2.0	47.2	— 0.1	8.4	+ 1.7	3.0	+ 0.9	1.85	+ 0.39	18	+ 5	114.7	— 45.2	28	— 10
May	30.111	+ .132	66	65.0	+ 2.2	43.2	— 0.5	38.7	— 1.9	54.1	+ 0.8	5.5	— 1.0	2.8	+ 0.6	1.11	— 0.69	7	— 5	257.9	+ 57.3	54	+ 12
June	29.934	— .087	80	67.0	— 2.4	52.0	+ 1.7	51.0	+ 3.0	59.5	— 0.3	7.8	+ 1.3	2.4	+ 0.6	5.65	+ 3.99	17	+ 7	165.9	— 40.1	34	— 8
July	30.047	+ .080	72	74.8	+ 3.1	56.8	+ 3.5	54.8	+ 3.5	65.8	+ 3.3	6.4	— 0.2	1.8	— 0.2	0.97	— 1.74	9	— 3	245.2	+ 35.1	49	+ 7
Aug.	29.862	— .103	75	68.2	— 2.5	52.4	— 0.5	50.1	— 0.6	60.3	— 1.6	7.7	+ 1.2	2.6	+ 0.7	2.83	+ 0.55	19	+ 4	190.1	— 8.2	42	— 2
Sep.	29.931	— .100	85	62.0	— 4.4	49.2	+ 0.1	47.2	+ 0.5	55.6	— 2.2	7.0	+ 0.8	2.1	+ 0.2	2.14	+ 0.43	18	+ 7	114.2	— 46.0	30	— 13
Oct.	30.024	+ .103	84	51.9	— 4.7	37.8	— 4.6	34.0	— 5.4	44.9	— 4.6	7.1	+ 0.5	1.7	— 0.1	1.16	— 1.80	17	+ 2	90.5	— 9.9	28	— 2
Nov.	29.688	— .278	91	47.3	— 2.7	36.0	— 3.0	32.4	— 3.2	41.6	— 2.9	7.6	— 0.4	2.6	+ 0.7	4.04	+ 1.10	20	+ 4	54.4	+ 3.1	20	+ 1
Dec.	30.236	+ .278	91	44.5	+ 0.3	36.5	+ 2.8	33.8	+ 3.7	40.5	+ 1.5	8.8	+ 1.5	1.7	— 0.4	0.55	— 1.80	12	— 4	35.3	— 3.6	14	— 2
Year	29.987	+ .010	82 avg.	56.4	— 0.6	42.9	+ 0.9	39.7	+ 0.9	49.6	+ 0.1	7.2	+ 0.3	2.4	+ 0.4	25.78	+ 0.63	182	+ 17	1582.5	+ 37.5	34	+ 2



## III.—PUBLIC VACCINATION.

The following table, which was prepared jointly by the Clerk of the Council and myself and presented at the Easter Sessions, 1906, shows the state of public Vaccination in the County and its constituent parts.

*A Return showing the number of Children in the various Petty Sessional Divisions exempted from Vaccination during the year 1905.*

County Petty Sessional Division of—	Popula- tion, 1901	Births 1905.	Number of children exempted.							
			1898	1899	1900	1901	1902	1903	1904	1905
Chertsey ...	42,163	1040	8	23	15	31	15	20	29	26
Croydon ...	40,305	1343	34	19	16	18	7	11	17	20
Dorking ...	17,449	382	184	36	63	50	44	51	59	55
Epsom ..	51,642	1277	91	35	25	26	10	13	10	20
Farnham ...	30,769	897	8	23	13	22	3	16	16	24
Godstone ...	27,864	679	13	8	9	8	9	7	9	6
Guildford ...	59,811	1343	89	53	49	55	25	57	53	59
Kingston ...	53,034	1322	13	12	22	23	12	18	14	33
Mortlake ...	17,821	600	5	2	2	2	0	2	2	2
Reigate ...	15,908	366	60	18	26	27	21	30	22	29
Wimbledon ...	46,162	1404	21	37	45	33	18	20	16	20
County Total	402,928	10653	526	266	285	295	164	245	247	294
BOROUGHs :—										
Godalming ...	8,748	184	39	10	20	17	6	9	9	13
Guildford ...	15,938	478	357	49	40	68	50	54	57	69
Kingston ...	34,375	1015	11	26	26	62	22	30	33	28
Reigate ...	25,993	585	69	70	90	93	57	72	57	92
Richmond ...	31,672	696	6	5	6	5	5	8	4	10
Borough Total	116,726	2958	482	160	182	245	140	173	160	212
County and Borough Total	519,654	13611	1,008	426	467	540	304	418	407	506

**TABLE B.**

**ADMINISTRATIVE COUNTY OF SURREY, 1905.**

Table B, showing the Populations, Number of Births, Deaths, Deaths of Infants under one year: Deaths from Epidemic Diseases, Phthisis, and Diseases of Respiratory Organs, occurring respectively in three groups of Districts, viz.:—I.—The Districts Suburban to London; II.—The Rural Town Districts; III.—The Rural Districts.

Group.	Population.	Births.	Deaths.	Infant Deaths.	Epidemic Deaths.	Phthisis Deaths.	Respiratory Organs Deaths.
I.—Suburban Districts including that of Croydon "Rural" **	275,500	6681	2893	596	231	231	450
II.—Rural Towns of Western & Southern Surrey †	145,500	3394	1569	275	109	112	202
III.—Rural Districts excluding that of Croydon "Rural" †	154,000	3536	1619	244	96	110	238
Total ...	575,000	13,611	6,081	1,115	436	453	890

\* For List of Districts included see p. 36.

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„ p. 40.

„ p. 44.

„ p. 44.



**TABLE B—Continued.**

The Rates calculated on the above in the usual way.

Group.	Birth Rate per 1000 per- sons living.	Death Rate per 1000 per- sons living.	Rate of Mortality of Infants under one year to Births		Epidemic Death Rate.	Pythisis Death Rate.	Respiratory Organs Death Rate.
			Per 1000.	Per 100			
I.—Suburban Districts including that of Croydon "Rural" *.	24.3	10.5	89	8.9	0.8	0.8	1.6
II.—Rural Towns of Western and South- ern Surrey. †	23.3	10.8	80	8.0	0.8	0.8	1.4
III.—Rural Districts excluding that of Croydon "Rural" ‡	23.0	10.5	69	6.9	0.6	0.7	1.5
Total Rates for whole County.	23.7	10.6	82	8.2	0.8	0.8	1.5

\* For List of Districts included see p. 36.

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‡

For List of Districts included see p. 40.

For List of Districts included see p. 44.

#### IV.—VITAL STATISTICS.

This section of the report always requires very careful preparation. Figures have to be verified and sometimes corrected. Comparison has to be made of the District and County calculations of rates. All this, with the correspondence involved, takes a good deal of time. It is, therefore, quite necessary if this Report is to be produced before Midsummer that the district reports should be in my hands by the end of March at the very latest. I regret to say that in three or four districts it is hardly ever that the reports are officially received at the County Hall within the time specified in the printed regulations issued to District Councils by the Local Government Board. Much inconvenience and loss of time may arise in consequence of this default on the part of an exceptionally few districts, as not a single County table can be properly prepared before all the reports have been received. This year additional delay has been incurred because the population estimated by one Medical Officer of Health in his Annual Report (which was received as late as April 26th) was very far in excess of the estimate made in the usual way. Although the estimate could not be accepted unreservedly, an appreciable increase to the County estimate seemed nevertheless allowable. This alteration involved the recasting of County statistical tables, which had been already marked for the printer.

**POPULATION OF THE COUNTY.**—The total population in 1905, estimated in the usual way, was approximately 595,000.\* But this figure includes the population of the London and other Public Institutions, which amount in

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\* This figure, 595,000, represents the population requiring attention from Sanitary Authorities, the Public Institutions often needing a large amount of attention.



round numbers to 20,000. As in the estimation of Death-rates the deaths at these institutions are eliminated and referred to the districts to which they belong, so the populations are also deducted in estimating District and County mortality. The number of the population arrived at for the purposes of this part of the report is **575,000**. This figure takes account of an exceptional increase which may be fairly claimed in the Croydon Rural District.

The District populations can only be approximately estimated. In the County report the estimates are given in round numbers sometimes slightly below and sometimes slightly above the local estimates. Discrepancies in the County and District rates are generally very small indeed, but in a few instances where there has evidently been miscalculation locally, it is rectified in this report.

**COUNTY BIRTH RATE.**—The births in 1905 being 13,611 in number the rate per 1,000 of the population (viz., 575,000) was **23·7**.

The England and Wales Birth-rate for the year was 27·2.

The decline in the Birth-rate of the Country is now a matter of general comment. Incidentally it is proving not altogether a misfortune, in that it conduces to an increased solicitude for infant life at the present day. Still, regarded from the national point of view, the marked decline in the Birth-rate gives rise to serious reflections.

Among the lowest Birth-rates are those of Weybridge, 18·3, and Surbiton, 18·9.

The highest Birth-rate was that of Croydon Rural, where the population is said to be increasing rapidly by immigration, this being one of the first parts of Surrey to receive the overflow of the London population in a southern direction.

**COUNTY DEATH RATE.**—The deaths in 1905 being 6,081 in number the rate per 1,000 of the population was **10·6**.

The England and Wales Death-rate for the year was 15·2. The return for the County of Surrey is, therefore, remarkably favourable.

The districts with rates as low as 9·0 and under were as follows:—

Ham (popn. only 1,500) ... ..	6·0
Maldens and Coombe ... ..	6·9
Surbiton ... ..	8·4
Sutton ... ..	8·8
Reigate Rural ... ..	8·8
Wimbledon (popn. nearly 50,000)	8·9

The districts with rates as high as 12·0 and over were as follows:—

Barnes ... ..	12·0
Woking ... ..	12·1
Farnham U. ... ..	12·3
Dorking U. ... ..	12·4
Chertsey U. ... ..	12·7
Richmond ... ..	12·9
Leatherhead ... ..	13·0
Farnham R. ... ..	13·3
Molesey ... ..	13·8

**INFANT MORTALITY.**—This is calculated in a different way to the other death-rates. Instead of being the rate per 1,000 of the population, it signifies the rate or proportion of deaths “under one year of age” to a given number, 1,000 or 100, of the births in the year under notice. The number of deaths of infants in the County being 1,115, the death-rate for the County is  $\frac{1,115 \times 1000}{13,611} = 82$  per 1,000, or **8·2** per cent.



Comparing this with the rates of preceding years the figures are as follows:—

Year.	Number of Births.	Infant Deaths.	Rate per 1,000 Births.	Rate per 100 Births.
1899	12,075	1,556	128	12·8
1900	11,984	1,288	107	10·7
1901	12,126	1,278	105	10·5
1902	12,351	1,255	101	10·1
1903	13,060	1,218	93	9·3
1904	12,208	1,432	108	10·8
1905	13,611	1,115	82	8·2

In comparing the small separate districts of the County in which the annual average of Births is much below 1,000, it is more suitable to state the rates as “per cent.” of Births. It has been the practice to do this in the Annual Reports of late.

*Table B*, which was introduced for the first time in the Report for 1904, will be found instructive and useful for reference. From this table it again appears that the conditions of the Rural Districts of Surrey are on the whole more favourable to infant life. The death-rate there is 6·9, whereas that of Suburban Surrey is 8·9. The rate of the rural towns, 8·0, occupying an intermediary position.

EPIDEMIC OR ZYMOTIC DEATH-RATES.—These refer to the following seven principal epidemic diseases, as to which statistics appear every week in the national returns of the Registrar-General, viz.:—Smallpox, measles, scarlet fever, diphtheria, whooping cough, fever (enteric, typhus, or continued), and epidemic diarrhœa. The above list, it will be

noted, does *not* include influenza, and *does* include epidemic diarrhœa. Misapprehension on this point accounts sometimes for discrepancies in the returns published locally, and those which, after revision, appear in this report.

It is the last named of the officially included epidemic diseases, viz., epidemic diarrhœa, that chiefly affects the death-rate of the epidemic group. This is in consequence of the large number of deaths of infants from this cause that occur annually in the months of August and September. The disease prevails all over England and Wales, but with varying degrees of severity. The mortality that it causes is to some extent due to ignorance or want of care in the feeding, &c., of infants.

The epidemic death-rate for the whole County was 0·8 per 1,000. That for England and Wales was 1·52 per 1,000, or nearly double as much.

From the administrative and financial point of view the diseases treated at rate-supported hospitals are of direct importance to the County as a whole. The following are the three diseases so dealt with, viz.:—Diphtheria, Scarlet fever and Typhoid.

DIPHTHERIA.—Number of notifications, 631.

Number of deaths ... ..	59
Case mortality ... ..	9·3
Death-rate per 1,000 population ...	0·1

A large proportion of these cases are treated at Hospital. Great benefit is derived from the Antitoxin Treatment now generally adopted. Many mild cases (and it is even said many cases with no symptoms of illness whatever!) are declared, on the authority of Bacteriologists, to be "missed." The whole question of "missed cases" there alleged, share in the spread of Diphtheria, and the assistance that Bacteriology may prove in its prevention requires careful investigation by the light of recent observations.



**SCARLET FEVER.**—Number of notifications, 1,231.

Number of deaths ... ..	18
Case mortality ... ..	1·5
Death-rate per 1,000 population ...	0·03

A very large proportion of cases are isolated (in certain districts as much as 90 per cent. In some of these good results are claimed therefrom in preventing the spread of the disease, as well as in its treatment. On the other hand, many districts cannot show decrease in the spread of the disease at all commensurate with the efforts of the authorities in respect of hospital isolation. The problem before us is very complex, and cannot be solved by recourse merely to statistical evidence, but the special requirements of each district must be considered. In each district, not only must the class of inhabitants, and their habits of their housing be taken into account, but there must also be noted the great differences in activity in sanitary administration, the number and alertness of sanitary officers, and especially the interest shown by the Medical Officer of Health in the subject. In some districts the Medical Officers exercise discrimination in the removal of cases to hospital. It is important to ascertain the effect of this. The records of ten years are now available for an investigation. I know the districts well, and if some expert and clerical assistance can be afforded I am ready to undertake the work.

The mildness in the present type of cases, compared with those which we had to deal with at hospital thirty years ago, materially affects the question of spread, and the possibility of its prevention.

**TYPHOID.**—Number of notifications, 151.

Number of deaths ... ..	26
Case mortality per cent. ... ..	17·2
Death-rate per 1,000 population ...	0·05

There is no question here as to the advantage of removal to hospital as soon as the diagnosis is quite established. Many cases occur in dirty and insanitary houses when there is overcrowding. The harm that may be done locally, not only by direct infection but especially by contamination of water, milk, or foods, is obviated by hospital isolation.

A remarkable example of the spread of Typhoid by food infection is given in the reports for Wimbledon Urban and Croydon Rural Districts. They appear as an Appendix to this Report, pp. 59—64.

The other chief epidemic diseases are the following, viz.:—Measles, whooping cough, and epidemic diarrhœa.

#### MEASLES.

Number of deaths ... ..	114
Death-rate per 1,000 population...	0·20

Not generally notified. At Farnham the notification has been tried lately. The system is the subject of a careful report presented in 1905 by the Medical Officer of Health. He has been at great pains to give it a favourable trial, but is unable to show encouraging results.

#### WHOOPING COUGH.

Number of deaths ... ..	102
Death-rate per 1,000 population...	0·18

Fatality chiefly amongst infants.

#### EPIDEMIC DIARRHŒA.

Number of deaths ... ..	114
Death-rate per 1,000 population...	0·20

Fatality chiefly amongst infants.

#### PHTHISIS.

This is the disease which from the preventive point of view is attracting so much attention at present. It is not compulsorily notifiable, and therefore our knowledge of the number of cases in the County—and of the case mortality—is very uncertain. But that it is widely prevalent is shown by the mortality.

Number of deaths ... ..	458
Death-rate per 1,000 population ...	0·8

From *Table B* it will be observed that, as in 1904, there was practically no difference in the Urban and Rural death-rates for this disease.



## V.—PHTHISIS OR CONSUMPTION.

The National Association for the prevention of Consumption has addressed a memorial relating to this *preventable disease* to every public authority directly or indirectly responsible for the public health, urging upon their attention the duty of exercising all the powers vested in them for its prevention. This memorial has been before the Sanitary Committee, and I have been instructed to report on the questions raised from the administrative point of view in our own County.

The several paragraphs of this important document may at present be briefly discussed in a general way, leaving it to a future occasion to enter more fully into different parts of the subject.

### 1.—PREVENTION OF CONSUMPTION A NATIONAL AND INTERNATIONAL QUESTION.

The work done in Germany and France is pointed to, and the Association emphatically declares that its chief object is protection of the community.

### 2.—COST TO NATION.

The paragraph is as follows:—

“In England and Wales there are 60,000 deaths from consumption and other forms of tuberculosis every year. This loss of life, which exceeds that from all other forms of infectious disease put together, is all the more serious from the fact that consumption is most prevalent from the age of fifteen onwards to forty-five or fifty, the working and wage-earning period of

life, when a man ought to be at his best and of greatest service to the community. The protracted course of the disease moreover exhausts the resources of the family; and, when it is the bread-winner who is attacked, leads to poverty and privation, which predispose the children to all forms of disease. Very often the family comes upon the rates, and the sufferer drifts into the workhouse infirmary. The direct cost, and indirect loss, to the country occasioned by consumption may be reckoned in tens of millions of pounds."

Paragraph 13 may be taken in connection with the above, as it points out that "Consumption is a cause as well as a consequence of poverty."

The economic aspect of sanitary and preventive medical work generally is thus made prominent. By similar arguments the late Dr. Farr, many years ago in his classical reports for the Registrar General, urged the adoption of measures now spoken of as "Sanitation," the recognised work of public health authorities generally. The money value of human life was constantly dwelt upon by that great Statistical Authority as one of the most powerful reasons for expenditure in this direction.

### 3, 4 & 5.—PREVENTION POSSIBLE.

The terrible nature of the disease and its devastating effects are here dwelt upon.

The common ways in which the microbes of consumption infect persons is described. They are present in countless millions in the expectoration (sputum) of those affected, especially in the advanced stages; and (after the expectoration has dried on floors, walls, furniture, carpets, clothing,



bed-clothes, pocket handkerchiefs, &c., and has been pulverized and dispersed in the air of the room) they get inhaled into the lungs and infect the food.

One of the chief methods of prevention, therefore, is to instruct all phthisical patients as to the danger to themselves and others arising from "the sputum," *i.e.* "what is coughed up," and how "*the sputum*" can with a little care easily be disinfected and rendered harmless.

#### 6.—THREE CLASSES OF CASES.

The sufferers from pulmonary consumption may be divided roughly into three classes, which have to be dealt with separately. (1) The advanced cases unfit for work and mostly confined to the house. (2) Patients not yet seriously ill; able, perhaps, to work or to attend to business or household duties, going about in railway carriages and public vehicles, mixing freely with the general population frequenting public houses, places of entertainment, hotels, lodging houses. (3) Those in quite an early stage, coughing much, perhaps, but spitting little, capable of all the ordinary duties of life."

#### 7.—VOLUNTARY NOTIFICATION.

To ascertain the existence of the cases of different classes *Voluntary* Notification is urged on the ground that it has been successfully worked in Manchester, Liverpool and Brighton.

In several districts in the administrative County more might be done than at present in securing voluntary notification. A circular letter to the authorities drawing attention to the subject is desirable.

## 8.—DOMESTIC ISOLATION OF ADVANCED CASES.

A great deal of good may be done through the agency of competent persons visiting the sick, by the provision of spittoons, and by seeing to the destruction of sputa and disinfection generally.

## 9 &amp; 11.—INSTITUTIONAL ISOLATION.

The Association dwells on the necessity of Sanatoria. In connection therewith it will be remembered that the London County Council issued in April 1905 a summary of information on the Provision of Sanatoria for Consumptives. In twenty-one counties of England and Wales some steps have been taken in the matter. The question of cost is the great consideration. So far as the Administrative County of Surrey is concerned it may be thought well to institute inquiries as to the number of cases in workhouse infirmaries really requiring separate ward accommodation. I have already visited some workhouse infirmaries to ascertain this.

It is of course, well to know that the Brompton Consumption Hospital has found a location in Surrey, and that there are several other kindred institutions in our area. But these are mainly for the treatment of early cases of consumption.

## 10.—SPITTING TO BE FORBIDDEN.

The National Association congratulates itself that through its persevering remonstrances spitting in public places has been made a punishable offence in London, Liverpool and elsewhere.

Notices as to spitting are to be seen at Railway stations and on the tram-lines in the County.



## 12.—HYGIENIC PREVENTIVE MEASURES.

The importance of these measures, especially as regards the sanitary condition of dwellings, their dryness and the provision of light and air about has been steadily kept before the public in all the County Reports.

The value attached to these measures is shown by the prominence which is given every year to the work of sanitary authorities in improving House sanitation and the Housing of the Working Classes.

## 14.—MILK PRECAUTIONS.

This subject is referred to elsewhere in the report. I would here repeat the suggestion that one practicable measure might be taken under the auspices of the Sanitary Committee, and that is to procure if possible reports on the Cowsheds of the districts such as the Croydon and Godstone Rural Councils have published. From this a list could be made of the Cowsheds, Dairies, &c., in the County where sanitary precautions including veterinary examination of cows are observed.

This Annual Report has to be kept within limits of size. It has not therefore been possible to devote a special section this time to the subject of milk supply. It may however be stated that the Medical Officers of Health for Malden and Coombe, Sutton, Esher, Chertsey Rural, Walton, Weybridge, Woking, Epsom Urban and Rural, Carshalton, Dorking Rural and Guildford give full and instructive reports.

In some of these the bacteriological examination of milk is urged. The question of applying tests of the purity of

milk, other than those which have for so many years satisfied the requirements of the Adulteration Act, most urgently needs consideration.

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The rest of the memorial is devoted to showing what a powerful influence the County Council may exercise by the co-ordination of efforts in the ways suggested above, and especially by bringing charitable societies and charitably disposed persons into relation with a central organization—say the Sanitary Committee of the County Council—whose object would be to assist such societies or persons in doing an immense amount of good not only to individual sufferers but to the public generally by checking the spread of a sad, lingering, and frequently fatal disease.



## VI.—SANITATION OF DWELLINGS. HOUSING OF THE WORKING CLASSES ACT.

For the purposes of this Section the Districts are arranged in three groups, for each of which the vital statistics have been separately estimated in *Table B*.

### GROUP I.—DISTRICTS SUBURBAN TO LONDON.

*General Character.*—Largely composed of suburban villa residences, but also comprising a fair proportion of workmen's dwellings. Surbiton is the only one of the group in which the proportion of such dwellings is notably small. The area represents the part of the County which is most rapidly growing by the overflow of the London population. Soil—Alluvial gravel beds, overlying the London clay, which itself forms the surface soil of a large area. The more distant component parts, viz., Esher, Sutton, and Croydon Rural, extend on to the Bagshot sands and the bare chalk. Mostly in the area of the Metropolitan Water Board, and is therefore mainly supplied with river water, supplemented by deep wells in the chalk formation, and two or three other minor sources. Efficient main drainage systems are in complete working order throughout. Scavenging is fairly well attended to, but there might be better watering of the by-ways of the poorer parts in the summer time, and in this way infant mortality might be reduced. The old system of having surveyor inspectors is becoming obsolete, and, with perhaps two exceptions, an efficient staff of sanitary inspectors is everywhere provided. The details of house sanitation are now generally receiving adequate attention.

*Vital Statistics.*—Population, 275,500. Birth-rate, 24·3. Death-rate, 10·5. Infant mortality, 8·9 per cent. Epidemic death-rate, 0·8. Phthisis death-rate, 0·8. Respiratory death-rate, 1·6.

Includes the following thirteen districts, viz., Barnes, Richmond, Wimbledon, Ham, Kingston, Esher and Dittons, Maldens and Coombe, Surbiton, Molesey, Epsom, Sutton and Carshalton, with the addition of Croydon Rural. This last-named district, with its large Mitcham, Merton and Wallington population, has, on the whole, closer affinity with the suburban than the rural districts.

**BARNES.**—The Workmen's Dwellings constructed by the Council are well kept, and are all tenanted. Schemes for increasing the provision have been considered during the year, but no definite steps have been taken. The Medical Officer of Health is of opinion that there is far less difficulty in securing cottages than there was five years ago. Building Bye-laws are urgently needed to control the erection of double tenements and maisonettes.

The Council empowered the Clerk and Medical Officer of Health to take all necessary steps to secure a constant water supply for the district. The Water Board were approached, and all houses, to the number of 4,953, which had not already a constant supply, were inspected by March 1st. The fittings in 2,319 houses were found to require alterations, which were completed by the end of September, and shortly afterwards the constant supply was installed by the Board. The carrying through of this matter involved practically a house to house inspection of the whole district, in the course of which several defective drains, etc., were discovered and amended.

A table shewing the work done in the Sanitary Department in each of the five years 1901—1905 is given in an appendix to the Report. Number of Inspections in 1905, 4,454. Notices served, 681. Legal Proceedings, 1.

**RICHMOND.**—Report of Medical Officer of Health not received in time for inclusion.

**WIMBLEDON.**—Medical Officer of Health reports the completion of the house to house inspection in East, South, and Hubert Roads, and parts of other roads. 210 houses in all were inspected. The drainage system and sanitary arrangements of 179 houses were reconstructed, and other sanitary improvements were carried out. The groups of houses which were redrained are specifically mentioned.



The defects in several houses were dealt with more effectively and promptly under the Council's Bye-laws with respect to houses let in lodgings.

Nos. 244 to 254, Haydon's Road, and 1 to 25, Wandle Road, were redrained, yards were paved, and premises were put into good structural repair, upon representation by the Medical Officer of Health, under section 32 of the Housing of the Working Classes Act.

Number of Nuisances abated, 2,869. Legal Proceedings, 1. A number of nuisances from piggeries and stables were abated.

HAM.—The District was visited by the Medical Officer of Health on 42 occasions, with the result that 26 nuisances, including 2 from overcrowding, were abated.

KINGSTON-ON-THAMES.—The Medical Officer of Health reports that the houses are generally of good character, with the exception of a few old houses of bad construction in Cambridge Road and neighbourhood, Richmond Park Road, Cowleaze Road, Canbury Place, and Mill Street. None are bad enough to be condemned as unfit for habitation. He again drew attention to his scheme for dealing with the worst area, adjoining Cambridge Road, under the Housing of the Working Classes Act. There is good supervision over new houses.

SURBITON.—Report of Medical Officer of Health not received in time for inclusion.

ESHER AND DITTONS.—The Medical Officer of Health reports that continual inspection is always in progress from house to house. Recording sheets are filled in at each house with full particulars of the sanitary condition, and are subsequently bound; 1,137 inspections and 220 re-inspections were made under the Public Health Act. Interiors of 44 dwellings were wholly or in part cleansed, three cases of overcrowding were abated, drainage was improved, and wooden dustbins were replaced by moveable galvanised iron receptacles.

The supply of water is still intermittent in parts of Thames Ditton and Long Ditton. The matter has been referred to the County Council.

MOLESEY.—The Medical Officer of Health notes the improvement in the sanitary condition of the houses where the drains have already been connected with the sewers, and the Sanitary Inspector, who gives a short tabular statement of the number of inspections made and the nuisances dealt with, draws attention to the large number of cottages without proper ashbins. With these exceptions, no comment is made upon the sanitary condition of the district. Inspections, 183. Nuisances discovered, 116; abated, 106.

**MALDENS AND COOMBE.**—The Sanitary Inspector's report is appended to that of the Medical Officer of Health. It gives a full tabular statement of inspections and of sanitary improvements, followed by a detailed account of work done under various sections of the Public Health Act. The premises at which the drains were relaid or improved, to the number of 54, are specifically mentioned. Premises inspected, 210. Overcrowding abated, 2. Legal proceedings, 3. Visits to works in progress, 800. A large proportion of time was taken up in inspecting new buildings, of which 180 were certified as fit for habitation.

The water supply is intermittent, but application has been made for a constant supply.

**EPSOM.**—The Medical Officer of Health states that the Sanitary Inspector reported at each meeting of the Sanitary Committee upon nuisances discovered in the course of his inspections, and continued to report progress until the abatement of the nuisances. Premises inspected, 352. Insanitary cottages repaired and cleansed, 28. Flushing apparatus provided to defective closets, 38. Drains reconstructed under supervision of Inspector, 1,357 yards. A cottage on the Common was closed by Justices' Order, upon representation by the Medical Officer that it was unfit for habitation, and two cottages in East Street were closed by the owner upon service of notice.

**SUTTON.**—The Medical Officer of Health reports that he certified two houses to be unfit for habitation, and that systematic inspection was regularly maintained throughout the year. He comments upon the high rental of cottages for the labouring class population, amounting to 10s. per week or upwards in the case of newly erected cottages.

"Two cases of overcrowding were found to exist and the nuisance abated. Although overcrowding in houses to such an extent as to render the occupants liable to the action of the sanitary laws has not been frequent, there are many dwellings where the number of persons residing therein is more than advisable for the perfect well being of the inhabitants."

Premises inspected under the Public Health Act, 460. Drains reconstructed, 78. Ventilation of rooms improved, 24. Legal proceedings, 0.

**CARSHALTON.**—The Medical Officer of Health reports house to house inspections at Little Woodcote, Swan Yard, West Street Lane, Palmerston Road, and Willow Cottages, and complete re-inspection throughout Harold Road, where the structural repair and cleansing



of cottages, the lowering and paving of yards, and the provision of an efficient system of surface-water drainage, brought about a marked improvement in the sanitary conditions in this road. Two cottages in the Square, which had been closed by the owner, under notice from the Council, were made fit for habitation.

Three cases of overcrowding were abated. All stables and piggeries were visited, and the requirements of the Bye-laws were enforced.

The usual tabular report of the Inspector is appended.

CROYDON RURAL.—Report not received in time for inclusion.

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## GROUP II.—RURAL TOWNS AND RESIDENTIAL DISTRICTS OF WESTERN AND SOUTHERN SURREY.

*General Character of the Group.*—Not rapidly growing, as far as working class dwellings are concerned. Situate in attractive country, they are favourite residential neighbourhoods and holiday resorts for the summer. Geologically the component parts are almost entirely on porous soils, viz., the Bagshot sands, the Chalk, and the Lower Greensand. The Woolwich beds of the London clay form the surface soil of parts only of Leatherhead and Guildford. The Thames Valley Towns and districts are supplied by river water companies, and the source of the supply of the others is indicated by the proximity of the great water-bearing stratum of the Chalk and the less copious storage of the Bagshot sands and the Lower Greensand, the supply being chiefly by public companies. In all the districts there are now main sewerage systems, some of them having been in operation for several years. The sanitary staff is not generally up to the standard of Group I., but it is improving, and in some cases there are special inspectors appointed to work under the direction of the district Medical Officer of Health.

*Vital Statistics.*—Population, 145,500. Birth-rate, 23·3. Death-rate, 10·8. Infant mortality, 8·0 per cent. Epidemic death-rate, 0·8. Phthisis death-rate, 0·8. Respiratory death-rate, 1·4.

Includes the following twelve rural towns and residential districts of Western and Southern Surrey, viz., Chertsey, Weybridge, Walton, Farnham, Frimley, Godalming, Guildford, Woking, Dorking, Leatherhead, Reigate and Caterham.

CHERTSEY.—The Medical Officer of Health reports that two representations were made to the Council under the Housing of the Working Classes Act in respect of houses unfit for human habitation, and that the nuisance at two other houses, which were found in an unfit condition, was at once remedied by the owner.

Minor nuisances were remedied upon application to the owners, or after service of notice.

The Medical Officer presented a Report upon the Common Lodging Houses, with the result that the number of lodgers for which the four houses were registered was reduced from 117 to 74, allowing 500 to 600 cubic feet of air-space for each lodger.

Nearly all the connections of house drains to the main sewers in the Addlestone Ward were completed, and the third section of sewers in the Chertsey Ward was taken over by the Council.

The number of visits and inspections recorded is 1,211.

WALTON-ON-THAMES.—The Medical Officer of Health reports that a number of inspections of cottage property was made during the year, but it was only found necessary to make one representation under the Housing of the Working Classes Act, all other nuisances being remedied under the provisions of the Public Health Act.

Number of inspections recorded, 1,367. Re-inspections, 1,056. Nuisances abated, 1,091.

WEYBRIDGE.—The Medical Officer of Health reports that the Sanitary Inspector continued the house to house inspection, in the course of which 369 premises were visited in 16 roads, and defects were found at 43 premises. All the nuisances were remedied upon service of a preliminary notice.



WOKING.—The Medical Officer of Health reports that it was not found necessary to report any dwelling as unfit for habitation. A few blocks of double-tenements were erected, besides a large number of cottages, which are quickly taken up. The rents are beyond the reach of many of the working classes, with the result that parts of houses are sub-let, and overcrowding occurs.

A new series of Bye-laws, less stringent than the ordinary code, was adopted by the Council, and received the sanction of the Local Government Board. Clauses have been inserted requiring the paving of at least 100 square feet of the area in connection with new dwellings, and also the paving of yards in connection with houses already erected, if such yards are insanitary.

The Medical Officer again draws attention to the necessity of enforcing the requirements of the Bye-law relating to the trapping of sink waste-pipes.

A separate Report is submitted by the Sanitary Inspector. Inspections and re-inspections, 1,744. Sanitary improvements carried out, 412.

FARNHAM.—The Medical Officer of Health reports that the 12 cottages in course of construction by the Council at the time of his last Report, were completed in June, in addition to the 8 already erected. All the cottages have been continuously let since their first occupation.

The 5 cottages in Red Lion Lane, which had been represented to be unfit for habitation in the previous year, were closed by order of the Magistrates; one of them was made habitable, and the other four remain unoccupied. Of the 10 in the same Lane, which had been reported on as nuisances, 2 are unoccupied and 8 have been repaired.

Two cases of overcrowding were discovered and their abatement secured.

The Inspector procured the abatement of 80 nuisances by direct negotiation with the owners or occupiers.

FRIMLEY.—The Medical Officer of Health reports that 463 inspections and re-inspections were made, 3 houses were condemned as unfit for habitation, and 91 additional houses were connected with the Water Company's Supply during the year.

**GODALMING.**—The Medical Officer of Health reports that 12 houses were dealt with during the year, and structural alterations were carried out which converted them into fairly good houses. Nine houses which were condemned about two years ago have been demolished, and modern cottages have been erected in their place. Several cases of overcrowding were abated.

**GUILDFORD.**—The Medical Officer of Health reports that 4 cottages were reported to the Council as being unfit for human habitation, two in Stoughton Lane, for which a closing order was obtained, and two at Slyfield, which the owner decided were not worth repairing, and intends to pull down.

Six cases of overcrowding were discovered and abated, with considerable difficulty, owing to the scarcity of suitable cottages.

There are many old cottages which are scarcely fit for habitation, but active measures cannot be taken until suitable cottages are supplied.

A Local Government Board enquiry was held into the application of the Council to borrow £4,441 for the erection of 18 cottages at the end of Cline Road, but the plans were remitted in December with suggestions for amendment of the plans. The Council also propose to develop some land recently acquired by them near Bell fields, for the erection of cottages, and the Medical Officer reported upon the suitability of the site and the number of the plots proposed to be laid out. He pointed out that the estimated population of the area would be 84 persons per acre, if the proposed plans were adopted, and he made certain suggestions for altering the plans so as to obtain the maximum amount of air and sunshine for each cottage.

The Council are revising the existing series of Building Bye-laws.

A Report by the Sanitary Inspector, setting out the work done for the abatement of nuisances, etc., is appended to that of the Medical Officer.

**DORKING.**—The Medical Officer of Health reports that the Local Government Board informed the Council, in response to their application for permission to lease a portion of the land at the Outfall Works for the erection of Workmen's Dwellings, that the land could be leased or disposed of under Section 74 (2) of the Housing of the Working Classes Act, 1890, and that they stated that they would raise no objection to the proposal, after a plan of the site had been submitted to them. The Council, however, had received no application which they were able to accept.



Inspections of a number of houses in Church Street, Cotmandene, and elsewhere, were made, and the defects that were found were remedied. There are several groups of old cottages which require frequent inspection.

Flushing apparatus was provided for 18 hand-flushed closets during the year.

LEATHERHEAD.—The Medical Officer of Health reports that he inspected a group of insanitary cottages in the Fairfield, which were in a bad state of repair, and in a dirty condition, and that he also made inspections in River Lane, Gravel Hill, and other parts of the district. The chief defects were remedied before the end of the year. A cottage in the Kingston Road, which had been represented to be unfit for habitation in the previous year, was closed by the owner upon receipt of notice from the Council.

REIGATE BOROUGH.—The Report of the Medical Officer of Health does not deal with the question of the sanitation of dwellings, beyond the statement that "Statistics as to the Nuisances dealt with, etc., will be found in the Sanitary Inspector's Report," which is issued as an independent report.

CATERHAM.—The Medical Officer of Health gives a short list of sanitary defects remedied during the year, amounting to 105 in all, and, apart from this, he only mentions that one case of overcrowding was successfully dealt with.

### GROUP III.—RURAL DISTRICTS OF SURREY.

For the most part sparsely populated. House accommodation for the working classes notably deficient in some districts. Landlords generally unwilling to build cottages. Overcrowding of houses, which takes place in consequence, very difficult to deal with. Soil conditions most favourable. The porous strata, Alluvial beds of gravel, Bagshot sands, chalk, and Lower Greensand form the chief surface soils. The Gault is but a very narrow band across the County, and the Weald clay of South Surrey forms the surface soil of portions, and those the least populous, of only four rural districts. Local water supplies are available. In several

instances sewerage systems have been necessitated by the operation of the Thames Conservators Act. The naturally salubrious conditions of this large country area are to a certain extent neutralized by the deficient house accommodation already referred to, and (in some districts indicated below) very imperfect sanitary administration, especially as regards inspection of nuisances and the discovery of overcrowding. With an increased population and a growing rateable value, the conditions dependent on district administration would doubtless tend to improve, and the figures given below would be even better than they are now.

*Vital Statistics.*—Population, 154,000. Birth-rate, 23·0. Death-rate, 10·5. Infant mortality, 6·9. Epidemic death-rate 0·6. Phthisis death-rate, 0·7. Respiratory death-rate, 1·5.

Includes the following nine rural districts of Chertsey, Egham, Farnham, Hambledon, Guildford, Dorking, Epsom, Reigate and Godstone.

CHERTSEY.—Area in acres, 24,936. Population, 13,225. The Medical Officer of Health reports that at Byfleet the adoption of a General Sewage Scheme was not approved at a Parish Meeting held for the purpose of considering such a scheme, but the matter is likely very soon to become urgent. A drainage scheme was unanimously approved by the Horsell Parish Council, and the Local Government Board held an inquiry in April into the application of the District Council for sanction to borrow £24,000. The Local Government Board asked that a less expensive scheme should be considered, and the Woking Urban Council were approached as to whether they were able and willing to receive and treat the sewage from the parish of Horsell. Negotiations were in progress at the end of the year.

The District Council again endeavoured to come to terms with the South West Suburban Water Company for the provision of a proper water supply for the Parishes of Chobham, Windlesham and Thorpe. They were unable to arrive at an agreement, as the Council considered the demands of the Company to be unreasonable.

An insanitary house at Bagshot was closed by the owner upon receipt of a preliminary notice. Inspections: general, 816, Scavenging, 384.



EGHAM.—Area in acres, 7,621. Population, 12,361. The Medical Officer of Health reports that he represented 21 houses, mostly in one of the roads at the bottom of Egham Hill, to be unfit for habitation. Seven of them were closed, 11 were repaired and rendered sanitary, and overcrowding was abated in 2 cases. Number of premises inspected, 195. Nuisances were found on 176, and were abated on 143. Ninety of the latter related to foul closets and house drains. The district is still without any system of public sewers.

The mains of the Egham Water Company are now extended to the Hythe Road and neighbourhood, but it is very desirable that they should be laid over the whole of the populous areas of the district, as analysis shews the water from private wells to be generally bad.

FARNHAM.—Report not received in time for inclusion.

HAMBLEDON.—Area in acres, 63,154. Population, 22,730. The Medical Officer of Health reports that house accommodation remains in much the same condition as in 1904. Wonersh is now connected with a Main Drainage Scheme with Bramley. Shalford has still no Drainage Scheme. One hundred and twenty-eight nuisances were dealt with during the year. The Sanitary Inspector reports that one old cottage was closed as unfit for habitation, and several others were improved. Five cases of overcrowding were remedied. The Surveyor reports that 16 additional houses were connected with the sewers at Cranleigh, 44 at Bramley, and 61 at Wonersh.

GUILDFORD RURAL.—Area in acres, 55,000. Population, 17,500. The Medical Officer of Health reports that he made representations under the Housing of the Working Classes Act respecting two cottages, one at Sutton, Shere, which was altered so as to be made habitable, and another on Ockham Common, which was closed by the owner. He again deals at considerable length with the question of Building Bye-laws, and suggests to the Council the adoption for the whole of the district of a uniform set of bye-laws based on the Rural Models, with alterations, among others, in the clauses respecting privies and cesspools, and the addition of a clause regulating the height and ventilation of rooms.

The Shere and Gomshall Sewers, and the sewerage of George Street, Farncombe, were completed. The transference of the connections from the old to the new sewers at Ripley proceeded slowly, and the Council instructed the Sanitary Inspector in December to examine the existing drains and conveniences throughout the village, and to serve the necessary notices. A system of sewerage or scavenging for Pirbright still requires to be carried out.



The provision of a wholesome water supply for Pirbright is required. Fifty-nine houses previously supplied by shallow wells have been connected with the Woking Company's mains, chiefly in the parishes of Pirbright, Worplesdon, and Send and Ripley, and all the houses in Puttenham, with some half a dozen exceptions, were connected with the mains of the Wey Valley Company.

**DORKING.**—Area in acres, 39,385. Population, 10,000. The Medical Officer of Health reports that he continued inspections with the Sanitary Inspector. At Newdigate the chief defects dealt with were insanitary privies, drains discharging into ditches, and dampness and want of cleanliness of walls and ceilings. At Capel inspection was made mainly into the water supply, but insanitary conditions were noted and remedied. At Abinger an inspection was made with regard to the discharge of drainage into water-courses, and at Holmwood with regard to nuisances caused by want of connection of drains with the sewers. The Sewerage Works at Westcott were completed and 131 houses had been connected by the end of the year.

Water was laid on from the mains of the East Surrey Water Company to several houses in the Parish of Newdigate, which had been dependent upon an unsatisfactory supply from private wells, and the mains of the Dorking Water Company were being extended to Capel and Ockley.

Inspections, 564. Nuisances, 112. Overcrowding abated, 1.

**EPSOM.**—Area in acres, 31,057. Population, 21,700. The Medical Officer of Health reports that he made inspections of groups of cottages in each parish with the Inspectors. At Banstead a number of defective drains were repaired and ventilated. At Cheam the drainage was improved, and ashbins were provided after an inspection in Washington Road, and a group of cottages at North Cheam were repaired, yards were paved, and drains were connected with the sewers. At Ewell cottages were repaired and cleansed, drains were relaid and connected, and offensive pigsties were removed. At Bookham cottages were re-drained, new water-closets and cesspools were provided, after legal proceedings had been threatened, and a Justices' Order was obtained to prevent recurrence of nuisances from overflowing cesspools in East Street and High Street. At Downside, Cobham, new drains and water-closets were provided to a number of houses, and others were repaired and cleansed under notice. At River Hill cottages were repaired and cleansed, ventilation of bedrooms was improved, and yards were paved. At Tartar Hill the Inspector carried out works of drainage, on failure of the owner to comply with notices, and the cost of the work was recovered.



The Building Bye-laws were revised, the clauses relating to the material to be used in the construction of walls of dwellings being relaxed.

Premises inspected, 921. Overcrowding abated, 4.

REIGATE.—Area in acres, 43,200. Population, 17,700. The Medical Officer of Health reports that he made representation to the Council that a cottage in Smithy Lane, Kingswood, appeared to be unfit for habitation. The owner closed the house, and afterwards considerably improved its condition. The Medical Officer asked the Council to consider the question of applying to the County Council for authority to adopt Part III. of the Housing of the Working Classes Act, and to erect houses for the Working Classes in parts of their district, but no action has so far been taken in the matter.

The report states that "Statistics as to Nuisances, Breach of Bye-laws, and other defects, which were discovered and dealt with by Mr. King, the Inspector of Nuisances, will be found in his separate Report for the year."

GODSTONE.—Area in acres, 49,907. Population, 20,364. The Medical Officer of Health reports that "the scarcity of cottages renders it difficult to carry out the provisions of the Act, from the fact that if cottages are declared unfit for human habitation, and closed, there is no accommodation available for the families so displaced. The only closing order obtained during the year illustrates this fact. Six houses in Tatsfield, known as Redhouse Cottages, were closed on account of the inability to prevail upon the owner to place them in a habitable condition, and they now remain unoccupied. The provision of proper cottages by the Council, under the power conferred upon them by the Act, would be of great benefit to the District."

## VII.—MIDWIVES ACT, 1902.

A full report on this subject was printed in the Annual Report for 1904, which was issued in August, 1905.

The subject has since been transferred from the General Purposes Committee to the Sanitary Committee.

Tables were submitted in April, 1906, summarizing the reports of the District Medical Officers of Health on the number of women visited and reported upon in the year 1905. These tables show the number on the roll of the Central Midwives' Board (*a*) practising and (*b*) not practising in the County. They also show the number of persons belonging to what is called the 1910 class. Those again are divided into two sub-classes, viz: (*c*) those who are continuing to practise and (*d*) those who announce their intention of giving up. There is a further column (*e*) of those who, on inspection, were found to be acting simply as monthly nurses and who, being under the supervision of medical practitioners do not require further visits. The number practising is (*a*) 161, (*b*) not practising 16; (*c*) continuing 22; (*d*) giving up 19; (*e*) monthly nurses 23. This makes a total of 241 persons who had to be visited. The number of those who had to be inspected in the year 1904 was 316. There is a considerable reduction in the number for 1905, but not so much as might have been expected, had the persons, who definitely stated their intention of giving up practice done so. Croydon Rural is the only district in which there has been an *increase* in the number brought under inspection.

In the report of 1904 an explanation is given of the difference between the two classes of midwives, namely, those coming under the clauses relating to the year 1905 and the year 1910 respectively. In the year 1904 the number of



persons who it was thought likely would belong to the 1905 class was 245, and the number actually found to be enrolled is 177. The number belonging to the 1910 class is only 41, as against an estimated number of 72. It is also found that as many as 23 have become nothing more than monthly nurses, that is to say, they only attend cases under the immediate supervision of a medical man. These last named persons will not require further inspection.

It was decided last year that as regards the 1910 class, (that is to say, persons who though not enrolled and not technically calling themselves midwives, yet practise midwifery "habitually and for gain," as they are privileged to do under the Act), that they should equally with the enrolled class be under supervision. With regard to these persons, and with regard also to some of the enrolled (mostly "bonâ fide") class, I have suggested to the Medical Officers of Health to put pressure upon the most aged, and those who appear to be least competent, to abandon practice.

The particulars which I asked the Medical Officers to include in their report were, first of all, the name and approximate age of the midwife; secondly, the cleanliness of person and house; thirdly, whether the midwife was able to keep satisfactory records of cases, and was sufficiently intelligent to understand what her obligations were under the Act; fourthly, the extent of her practice; fifthly, the number of still births with an account of the same; and finally, general remarks. The reports for the most part take account of these points and are, on the whole, sufficient for present purposes. Some of them, indeed, are very full and give abundance of information, showing that a great deal of pains has been taken by the reporting officer. I might mention particularly those of the Guildford Urban and Rural districts, Woking, Dorking Urban and Rural



Districts, Epsom Urban and Rural Districts, and Leatherhead. On the other hand, some of the reports were defective, and a few were given in such general terms as made it impossible to include them in the classification based on the headings above mentioned. The Committee decided that in future the minimum requirement of information must be given in the report of each Medical Officer acting under the arrangement made by the Council.

Taking the headings separately. Ages are not mentioned in the two districts in which the largest numbers of midwives are reported. I further find that cleanliness of person and house of those inspected was noted in 109 cases, and of those 9 were reported as decidedly unsatisfactory and 3 as only fairly satisfactory. With regard to literacy, 94 were reported upon, and of these 20 were either illiterate or did not keep proper records. As regards extent of practice, although the facts are not always easy to obtain, particulars are given in as many as 112 cases. Particulars of still-birth are given in 25 cases. In 23 instances midwives in practice appear to have had no patients.

In some cases very decided remarks are made by the Medical Officers on the fitness or unfitness of the midwives, and with regard to the latter I shall confer with the Medical Officers as to what steps are being taken to put pressure upon those persons to abandon practice. At the same time better arrangements will be made for recording the practising midwives at the new year and for keeping medical officers informed of midwives coming into their districts.

There has been one person who has been removed from the Roll on account of her advanced age and incompetency.

The report of the Medical Officer of Health for the Farnham Rural District contains valuable suggestions as to the training of midwives.



## VIII.—PUBLIC WATER SUPPLIES.

EXPLANATORY NOTES TO THE TABLE OF PARTICULARS AND  
COUNTY WATER MAP.

The publication of the "Table of Particulars" with this Annual Report, together with the revision of the County Water Map, make it necessary to add a few notes in explanation thereof. A section dealing fairly comprehensively with the above subject would extend beyond the limits of this pamphlet. Such a report, however, will be subsequently presented to the Committee and may be issued in a separate form or not as thought desirable.

The County Water Map was originally prepared in 1896-7, with the co-operation of the officials of the Companies, and with the assistance of an expert draughtsman. I have now been able, nine years later, to repeat what was then done, bringing the details of supply up to date and showing the areas of the County which have come within the sphere of Public Water Supplies since 1896. The Map shows the areas of the Companies or District Authorities furnishing supplies, their mains, their reservoirs, and their pumping stations. Where the supply is derived from a subterranean source the pumping station indicates the position of the well or wells. The above information is of general interest and is found useful to persons who are about to take residences in the County. It is intended that the map should be kept up to date year by year. It is at any time on view in the room marked County Medical Officer at the County Hall, Kingston.

The sources of the supplies are indicated in the map by colours. They are also arranged in the Table of Particulars accompanying this report according to whether they are derived from—(A) The River Thames; (B) The Sand Formations; (C) Partly from the Sand Formations and partly from the Chalk Formation; (D) The Chalk Formation.\*

The map shows at a glance that the first and the last, viz., A. and D., are the two sources of chief importance in the County.

In Column 4 of the Table the Parishes supplied are enumerated.

A. The area of the Metropolitan Water Board includes nearly the whole of the district suburban to London. (See Section VI. on Sanitation of Dwellings, etc., p. 35). Population 275,500. Water chiefly from the Thames, but the Chalk Formation within the area is also drawn upon.

D. Nearly the whole of East and Central Surrey, South of the Metropolitan Board's Area is supplied from the Chalk Formation. Generally, from wells of considerable depth; in some cases from the uncovered and fissured Chalk; in others, as at Epsom, from underneath the protective strata of the London Clay.

Reports and analyses are issued separately every month by the Local Government Board and by the Metropolitan Water Board, and are regularly sent to the Council by arrangement. This information is of great and increasing value, not only to London but the Counties adjacent thereto.

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\* The Gravel Formation of the Alluvial Beds is not as yet drawn upon for public supplies outside the Metropolitan Board's area.



With regard to analytical reports on other supplies, (Column No. 6), in the County, the information is frequently only partial. The publication solely of favourable reports of this kind has occasionally proved misleading. The Particulars as to "Quality" are therefore for the present confined to statements as to "degrees of hardness."

The term "Water Examination," in preference to that of "Water Analysis," was introduced in the County Annual Reports of nearly ten years since. The term is now of general use. It connotes even more than Analysis, Physical, Chemical or Bacteriological, for it takes into account topographical knowledge and the valuable information to be gained from the observations of geological experts. It has for its aim the *direction* of the work of the laboratory expert. In some cases where water supplies are from unimpeachable sources, frequent analyses are superfluous; in others, on the other hand, their need is more apparent than ever, and they should be so planned as to make every analysis part of a series intended to prove a certain point or to clear up doubts. In this way the practical value of analysis would be fully brought out.

In Column 7 the storage capacity is recorded. The sufficiency in quantity of supplies, equally with the question of their quality, requires ample space for discussion. It must be matter of ever increasing concern to the Metropolitan Water Board which has before it the problem of supply to a population which before very long will number some ten millions!

In the Administrative County the growing pressure of the wants of such a vast population manifests itself by schemes intended for the abstraction of water belonging to districts of the County, for the purposes of adjoining populous areas within other jurisdiction. Such schemes have received and continue to receive special attention.



In Columns 9 and 10 the numbers of the population of the area of supply are given. In some instances—that of the Croydon Rural District for example—they have largely increased since the Census of 1901. The term users or consumers means the number of householders taking the Company's supply. If the number be multiplied by five the population supplied is approximately arrived at. In some instances the particulars furnished give the number of the population directly as is indicated in the Table.

Column 11 is devoted to General Remarks. Of such there is none more important than that which briefly refers to the separate arrangement made by the Corporation of the Borough of Richmond for the use of water direct from the River Thames for the purposes of watering streets or gardens, flushing sewers, etc. The use of water for such purposes, which has undergone expensive processes of purification or softening must always, on the very face of it, appear extravagant. But whether the system generally in vogue is really, on the whole, the best from the economical point of view, and whether the conditions of Richmond are to be considered altogether exceptional, are obviously matters for expert engineering assistance.

To the same category of problems requiring engineering advice, is the possibility of different adjacent Companies joining their mains and so accommodating each other at times of need, as the Frimley and Wey Valley Companies do now. These subjects, together with the question of more general adoption of a softening process for the supplies from the Chalk Formation, especially those situate in populous areas, might be fairly discussed in a separate report.

In addition, the subject of Typhoid prevalence in the County requires consideration. Not that water-borne Typhoid has been at all remarkably in evidence in Surrey



# COUNTY OF SURREY PUBLIC WATER SUPPLIES.

## TABLE OF PARTICULARS.

(1)

A.

A.—Supplies from River Thames.

B.—Supplies from Sand Formations.

C.—Supplies from Sand and Chalk Formations.

D.—Supplies from Chalk Formations.

1. Name of Company or Authority.	2. Date of Incorporation.	3. Capital powers.	4. Area of supply.	5. Source or sources of supply.	6. Quality of Water, hardness, chemical analysis, etc.	7. Storage Capacity.	8. Length of Mains.	9. Population of the area of supply, 1901.	10. Number of users or consumers.	11. General Remarks.
West Surrey Water Co.	1869	Total amount authorised £212,250.	Walton-on-Thames, Hersham, Otlands, Weybridge, Addlestone, Chertsey, Ottershaw, Byfleet. Cobham is also in the Company's area, but is supplied by the Leatherhead Water Co. Shepperton, Holford & the Parish of Littleton. These are in Middlesex.	The River Thames.	Hardness 14.5°.	Storage for filtered water on St. George's Hills, 2,000,000.  Storage for river water before filtration, 29,000,000.	Circ: 60 miles	Circ: 35,000	Circ: 32,000 Pop.	The water is first raised from the Thames into the storage reservoirs (when the water is clear in the river), it is then passed on to the filter beds and after filtration is then raised to the reservoirs on St. George's Hills and from there to the consumers.
South West Suburban Water Co.	By Act of Parliament in 1883; further powers obtained in 1900.	Ordinary Shares, £120,000 Preference Shares £100,000 Loan Capital (Debentures) £55,000	98 square miles. Districts: Norwood (Middlesex), East Bedfont, Feltham, Cranford, Staines, Stanwell, Ashford, Laleham, Egham, Virginia Water, Sunninghill, Sunningdale, Ascot, Winchfield and Old Windsor.	From River Thames, filtered through sand, polarite, etc. Upward filtration takes place in Sabidence Reservoir. Is followed by ordinary downward filtration (sand filters of ordinary type).	Hardness 14°	780,000 gals. 1 Reservoir at Englefield Green 1 Reservoir at Cleary Down, near Ascot. 1 Reservoir at Southall.	Circ: 120 miles		Circ: 6,000	Supply by pumping and gravitation.
Richmond Town Council.	1876		The Borough of Richmond, Surrey.	Metropolitan Water Board in bulk Deep well Oolite Chalk " " with Adits. Petersham well in gravel beds.	Moderately hard	750,000 gallons in Richmond Park.	Domestic and Auxiliary 53 miles.	Circ: 33,000	Practically the whole of the inhabitants of the Borough.	Nearly a quarter of the water supplied is taken direct from the River and is not for domestic use, but for other sanitary purposes, for gardens and trades, thus economising the purified supply. Water Rate=8d in the £ on rateable value. No extra charges for baths, w.c.'s, horses, carriages, or high service cisterns. Half the Town under constant supply.





# County of Surrey Public Water Supplies—Table of Particulars—(Continued).

(2)

A.—Supplies from River Thames.

B.—Supplies from Sand Formations.

C.—Supplies from Sand and Chalk Formations.

D.—Supplies from Chalk Formations.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Name of Company or Authority.	Date of Incorporation.	Capital powers.	Area of supply.	Source or sources of supply.	Quality of Water, hardness, chemical analysis, etc.	Storage Capacity.	Length of Mains.	Population of the area of supply, 1901.	Number of users or consumers.	General Remarks.
Cranleigh Water Co., Ltd.	1886	£10,000 borrowing powers. £2,500. Present capital £7,000 fully paid shares.	Parish of Cranleigh, and small part of Wonerish.	Nore, in parish of Bramley, Greensand.	Soft	Nore Reservoir. 140,000 gals. Bookhurst Reservoir. (In course of construction). 500,000. The two reservoirs to be connected.	10 miles	Circ: 3,000	2,250 Pop.	Whole supply by gravitation. Constant supply.
Limpsfield & Oxted Water Co.	1888 and 1902	Share capital £54,500. Debenture Stock £14,000. Present Capital: Shares fully paid, £22,500. Debenture Stock, £6,000.	Oxted, Surrey. Limpsfield, Surrey. (Edenbridge, Kent). (Part Westerham, Kent). Part of Tatsfield, Surrey. Titsey, Surrey.	a "Pain's Hill," Limpsfield. b Westwood, "Tatsfield."	Hardness in degrees. a Temp. 4°·5 Perm. 2°·6 Total 7°·1 b Temp. 9°·4 Perm. 1°·0 Total 10°·4	"Partings" Reservoir, Limpsfield. 100,000 gals. "Ken" Hatch Reservoir, Limpsfield. 240,000 gals.	36 miles	Number in "Consumers' Ledger," 728. In some cases a number of cottages, etc. under one number.	Constant supply by gravitation.	
Dorking Water Co.	1869	£47,000	Parishes of Dorking, Dorking R., Capel & Ockley.	Dorking, Rookery, Westcott, Redlands, Holmwood, and Station Road.	Soft, 3½ to 7°.	780,000	61 miles	13,423	11,000 Pop.	Supply constant. 94,906,000 gallons were supplied to consumers in 1905, which average 23 gallons per head per day.
Sir R. M. Bray's Private Works.			North Ward, or by permission of the Guildford Rural District.	Two shallow wells.	Rather hard.	99,900 gals.	4½ miles	Population of Shere 2,184	150	The Population of the North Ward not yet ascertained. The Hurtwood Water Co. supply the South.

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# County of Surrey Public Water Supplies—Table of Particulars—(Continued).

(3)

B.—(Continued).										
A.—Supplies from River Thames.			B.—Supplies from Sand Formations.		C.—Supplies from Sand and Chalk Formations.			D.—Supplies from Chalk Formations.		
1. Name of Company or Authority.	2. Date of Incorporation.	3. Capital powers.	4. Area of supply.	5. Source or sources of supply.	6. Quality of Water, hardness, chemical analysis, etc.	7. Storage Capacity.	8. Length of Mains.	9. Population of the area of supply, 1901.	10. Number of users or consumers.	11. General Remarks.
Hurtwood Water Co., Ltd.	1903	£10,000. Present Capital £5,000.	Parish of Shere. South Ward. Part of the Parishes of Ewhurst and Cranleigh.	Tillingbourne Valley from Well at Gomshall.	A little hard.	130,000 gals.	Circ. 12 miles	Circ. 1,200.	120 houses or about 600 people.	Another mile and half of main to Ewhurst Village now being extended. Supply from well near Netley Mill and pumped up to Reservoir on Holmbury Hill, about 720 feet above sea level.
Godalming Corporation.	Purchased 1900 (Company formed 1878)	Total amount borrowed £81,313	Parishes of Bramley, Compton (part), Elstead (part), Godalming, Godalming Rural, Hambledon (part), Peperharow (part), Shalford (part), Witley (part).	Godalming, Lower Greensand.	Moderate hardness.	Pumping Reservoirs, Godalming. 200,000 gals. Frith Hill Reservoir. 300ft. O.D. 411,000 gals. Frith Hill Tower. 375ft. O.D. 21,000 gals. Munstead Reservoir. 419ft. O.D. 200,000 gals. Munstead Tower. 525ft. O.D. 40,000 gals.	Circ. 40 miles.	17,500 (estimated)	11,500 (pop.)	Constant supply. Whole supply pumped to service Reservoirs
Farnham Water Co.	1836	Auth. Cap. £20,000. Amount issued and fully paid £7,000 Ord. Shares £6,000 Pref. Shares. Borrowing powers to paid up capital.	Farnham Urban District.	(1) By pumping from Greensand Wells at works near Railway Station. (2) By gravitation by Conduits from high lying land near Hale.	Soft.	Reservoir at 362ft. O.D. for 600,000 gals.	10 miles	7,000	Over 1,000 at this date, April, 1906	Constant supply from Reservoir.





# County of Surrey Public Water Supplies—Table of Particulars—(Continued).

(4)

A.—Supplies from River Thames.

B.—Supplies from Sand Formations.

C.—Supplies from Sand and Chalk Formations.

D.—Supplies from Chalk Formations.

1. Name of Company or Authority.	2. Date of Incorporation.	3. Capital powers.	4. Area of supply.	5. Source or sources of supply.	6. Quality of Water, hardness, chemical analysis, etc.	7. Storage Capacity.	8. Length of Mains.	9. Population of the area of supply, 1901.	10. Number of users or consumers.	11. General Remarks.
Frimley & Farnboro' District Water Co.	1893, 1898, 1901-4	Shares 10% authorised, £36,000. Ditto issued, £36,000. Shares (7%) authorised, £86,230. Ditto issued, £44,230. Debentures, 3½% authorised, £32,500 Ditto issued, £18,550.	Frimley and Ash (in Surrey), Farnboro', Yateley, Cove, Crondall, Fleet, Odisham & Winchfield (in Hants), Crawthorn and Sandhurst (in Berks).	Sturt Road, Frimley, Bagsshot sand. Itchell, Crondall, chalk.	Soft water. Hard water.	Frith Hill. 365ft. O.D. 1,000,000 gals. Heathley Park. 610ft. O.D. 1,500,000 gals.	131 miles			Soft water aerated, subsided and filtered.
Wey Valley Water Co.	1898	£60,000. Borrowing powers, £15,000. Present Capital, £40,500.	Northern district. Parishes of Farnham, Seale, Puttenham, Wimbomborough and part of Frensham; also Bentley, Binstead, Kingsley, Bockenfield, Headley and Bramshott by agreement with the District Councils. Southern district. Grayshott, Shottermill, Linchmere, Fernhurst, and North Ambersham.	Northern district. Meter supply from the Frimley and Farnboro' District W. Co.'s pumping station at Itchell (chalk). Southern district. Company's own wells at Hindhead (greensand).	15° hardness softened to 9°.  Soft.	Northern district. The F. & F.D.W. Co.'s reservoirs at Heathy Park, 615 feet above O.D. 1,500,000 gals. Southern district. Reservoir at Hindhead, 840ft. above O.D. 300,000 gallons.	57 miles	Circ. 20,000.	1,567	The mains in the two districts are not connected.  Both supplies are by gravitation and constant.

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# County of Surrey Public Water Supplies—Table of Particulars—(Continued).

(5)

A.—Supplies from River Thames.

B.—Supplies from Sand Formations.

C.—Supplies from Sand and Chalk Formations.

D.—Supplies from Chalk Formations.

1. Name of Company or Authority.	2. Date of Incorporation.	3. Capital powers.	4. Area of supply.	5. Source or sources of supply.	6. Quality of Water, hardness, chemical analysis, etc.	7. Storage Capacity.	8. Length of Mains.	9. Population of the area of supply, 1901.	10. Number of users or consumers.	11. General Remarks.
East Surrey Water Company.	1862	Authorised £583,000. Paid up, £504,353 (Lady Day, 1905).	170 square miles, com- prising parishes of: Betchworth, Headley, Bletchingley Horley, Buckland, Horne, Burstow, Leigh, Cawerham, Lingfield, Chaldon, Merstham, Charlwood, Newdigate, Chipstead, Norfield, Coulston, Reigate, Crowhurst, Sanderstead, Farley, Tandridge, Gatton, Walton, Godstone, Warlingham	Borings in chalk at Purley & Kenley.	Water softened by Clark's precipita- tion process.	Service Storage Reservoirs 1½ mil- lion gallons.  Company now con- structing further service storage reservoirs to hold 3½ million gallons.	381 miles	72,936 (1901)	14,209 Con- sumers at Lady Day, 1906.	The population supplied, number of consumers multiplied by 5.6.  Constant supply.
Chelsham and Woldingham Waterworks Co., Ltd.	1891	Authorised capital £20,000. Subscribed £6,490 Debentures, 1st and 2nd, £2,700.	Parish of Wolding- ham and part of Chelsham Parish.	A well 200ft. deep with headings in the chalk. In the Parish of Chels- ham.	Degrees of hard- ness 15°3.	72,000 gals. Reservoir at about 800ft. level.	6 miles	Circ. 500	65	Whole supply by gravitation. Con- stant supply.
Leatherhead & Dis- trict Waterworks Company.	31st May, 1883.	Share Capital £69,500. Borrowing powers £17,375. Capital issued:— Shares, £45,500. Deb. Stock £9,375. Premiums £10,225.	Leatherhead, Ashted, Mickleham, Fetcham, Great Bookham, Little Bookham, Stoke D'Abernon, Church Cobham, Street Cobham, Effingham, Chessington, part of this parish in bulk.	Artesian Well. Boring into deep chalk at Fetcham, by the River Mole, near the town.	Hardness— Permanent 5 Temporary 9½  Total 14½	Reigate Rd. Reser- voir. Height O.D. 316ft. 125,000 gals. Highland Road Reservoir. Height O.D. 366ft. 1,100,000 gals.	60 miles	14,371	2,763 houses and 175 meter supplies for trades, gardens etc.	Constant supply.

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# County of Surrey Public Water Supplies—Table of Particulars—(Continued).

(6)

D.—(Continued).										
A.—Supplies from River Thames.			B.—Supplies from Sand Formations.		C.—Supplies from Sand and Chalk Formations.			D.—Supplies from Chalk Formations.		
1. Name of Company or Authority.	2. Date of Incorporation.	3. Capital powers.	4. Area of supply.	5. Source or sources of supply.	6. Quality of Water, hardness, chemical analysis, etc.	7. Storage Capacity.	8. Length of Mains.	9. Population of the area of supply, 1901.	10. Number of users or consumers.	11. General Remarks.
Sutton District Water Company.		Shares or Stock, £270,000. Deb. £64,252. Total, £334,252.	Parishes of Sutton, Carshalton, Cheam, Wallington, Beddington, Morden, Banstead, Ewell, and Cuddington.	Wells connected in the chalk at Sutton.  Boreholes at Wood- mansterne.	Quality hard. Average hardness. Temporary 16.3 Permanent 4.4 — 20.7	Reservoirs— Brighton Road. 245ft. O.D. 500,000 gals. Langley Park. 295ft. O.D. 1,000,000 gals. Banstead Downs. 351ft. O.D. 360,000 gals. How Green. 503ft. O.D. 1,400,000 gals. Burgh Heath. 579ft. O.D. 470,000 gals. Tadworth Tower. 631ft. O.D. 20,000 gals. Total capacity, 3,750,000 gals.	150½ miles	48,353	10,600	Constant supply.
Guildford Corpora- tion.	Acquired Water Under- taking 1864.	Total amount bor- rowed, £14,320. Total amount ow- ing, March 1st, £10,112.	Old Borough, Artington, Shalford, Stoke Parish, Extra part of borough included by the Extension Order, 1904.	Town Well 36ft. deep. 15½in. borehole. 329ft. in depth. Sealed 100ft. from surface by a 10ft. cement joint.  Note.—The water from the borehole has not yet been sent out to con- sumers.	15° hardness.	1,050,000 gals. High Service Reser- voir 364ft. above O.D. Low Service Reser- voir, 210ft. above O.D.  Note.—The construction of a new reservoir situate 470ft. above O.D. to hold 100,000 gallons, has received the sanction of the L.G.B., and the work will be commenced within the next few weeks. The reservoir is necessary to supply the extreme heights in the added area of the Borough.	16 miles 9½ miles — 25½ miles —	15,937 2,505 — 18,442 —	Practically all the population of the area of supply.       Note.—When the negotia- tions now in progress with the Woking Water Compy. are complete, the Corpora- tion will supply a further esti- mated popula- tion of 4,000 people.	Constant supply.       Whole supply lifted into Reservoir before gravitating to consumers.





# County of Surrey Public Water Supplies—Table of Particulars—(Continued).

(7)

**D**—(Continued). **A.**—Supplies from River Thames. **B.**—Supplies from Sand Formations. **C.**—Supplies from Sand and Chalk Formations. **D.**—Supplies from Chalk Formations.

1. Name of Company or Authority.	2. Date of Incorporation.	3. Capital powers.	4. Area of supply.	5. Source or sources of supply.	6. Quality of Water, hardness, chemical analysis, etc.	7. Storage Capacity.	8. Length of Mains.	9. Population of the area of supply, 1901.	10. Number of users or consumers.	11. General Remarks.
Woking Water & Gas Co.	18th July, 1881	Share Capital, £228,250. Borrowing powers, £57,062.	Woking, Sand, and Ripley. West Clandon. East Clandon. West Horsley. East Horsley. Merrrow, Horsell, Pirbright, part of Stoke, Worplesdon, Bisley, Pyrford, Wisley & Ockham, etc.	Chalk wells at Clandon and Horsley. Gravel wells at Chertsey.	Fairly hard.	Chertsey. 2 Reservoirs, 2,000,000 gals. Clandon. 1 Reservoir, 500,000 gals. 1 Reservoir, 300,000 gals. 1 Reservoir, 50,000 gals. 1 Reservoir, 25,000 gals.	Circ. 120 miles		6,034	Whole supply by gravitation. Constant supply.
Aldershot Gas and Water Co.	1866	Shares £284,500. Loan £78,283 Applicable to both Gas and Water.	Parish of Aldershot in the County of Southampton, and the Hamlet of Tongham in the Parish of Seale, County of Surrey.	Aldershot in the County of Southampton.	Extract from Annual Report of the M.O.H., Aldershot, for 1905. "The water is of great purity and is obtained from a series of artesian wells (9 in number) by a process of direct pumping. The supply is constant, the average consumption per head per day being about 25 gallons.	No. 1 Reservoir, 150,000 gals. No. 2 Reservoir, 220,000 gals.	Circ. 21 miles	17,300 (estimated)	3,550, and Barracks, North and South Camps Aldershot.	Constant supply.
Epsom Urban District Council	1853		Urban District Council Area.	Deep borings in the chalk under Tertiary.	Hard.	Old Reservoir 370ft. above O.D. 149,000 gals. New Reservoir 400ft. above O.D. 781,700 gals. Total capacity 930,700 gals.	30 miles	15,800 including institutions.		Constant supply since 1900.

THE HISTORY OF THE COLONY OF SOUTH CAROLINA  
FROM 1670 TO 1733

By J. H. COLEMAN, Esq.  
OF THE BAR AT LAW, IN THE CITY OF CHARLOTTE.

Printed and Sold by J. H. COLEMAN, Esq.  
OF THE BAR AT LAW, IN THE CITY OF CHARLOTTE.  
1833.

Entered according to Act of Congress, in the year 1833,  
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THE HISTORY OF THE COLONY OF SOUTH CAROLINA  
FROM 1670 TO 1733



TABLE A 1.

## Administrative County of Surrey—Vital Statistics, 1905.

Table showing Birth-rates, Death-rates from all Causes, from the principal Epidemic Diseases, from Phthisis, and from Diseases of the Respiratory Organs, and Infant Mortality.

RURAL DISTRICT.	Popu- lation.	Births.			Deaths.			DEATH-RATES TO 100 PERSONS LIVING.					Deaths of Infants under one year of age.	
		1	2	3	4	5	6	All Causes.	Principal Epidemic Diseases.	Phthisis.	Respiratory Diseases.	10	Deaths of Infants under one year of age.	Deaths under one year of age.
<b>Cols.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Chertsey ...	13,000	335	179	258	107	0.9	0.9	1.4	17	5.1				
Egham ...	12,000	259	124	216	103	1.6	0.9	1.4	16	6.2				
Farnham ...	18,000	487	240	271	133	0.8	0.7	1.7	46	9.4				
Hambleton ...	23,000	474	246	206	107	0.3	0.8	1.5	30	6.3				
Guildford ...	18,000	375	184	208	102	0.5	0.8	1.2	26	6.9				
Dorking ...	10,000	285	98	205	98	0.5	0.7	1.5	11	5.4				
Epsom ...	22,000	538	208	245	95	0.6	0.5	1.4	40	7.4				
Croydon ...	50,000	1,408	529	282	106	1.0	0.8	1.7	138	9.8				
Reigate ...	18,000	383	158	213	88	0.1	0.5	1.3	21	5.5				
Godstone ...	20,000	480	222	240	111	0.9	0.8	2.5	37	7.7				
<b>Totals ...</b>	<b>204,000</b>	<b>4,944</b>	<b>2,148</b>	<b>2,442</b>	<b>1,055</b>	<b>0.7</b>	<b>0.7</b>	<b>1.6</b>	<b>382</b>	<b>7.7</b>				

URBAN DISTRICT.	Popu- lation.	Births.			Deaths.			DEATH-RATES TO 100 PERSONS LIVING.					Deaths of Infants under one year of age.	
		1	2	3	4	5	6	All Causes.	Principal Epidemic Diseases.	Phthisis.	Respiratory Diseases.	10	Deaths of Infants under one year of age.	Deaths under one year of age.
<b>Cols.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
Barnes ...	24,000	600	289	250	120	0.9	1.3	1.4	72	12.0				
Richmond ...	34,000	696	439	205	129	1.4	0.8	2.0	61	8.8				
Wimbledon ...	48,000	1,146	426	239	89	0.8	0.7	1.5	80	7.0				
Han ...	1,500	36	9	240	60	0.7	0.7	3.3	2	5.6				
Kingston ...	32,000	1,015	432	260	116	0.9	1.1	2.0	91	9.0				
Esler and Dittons	10,000	223	98	253	98	0.3	0.6	1.0	17	7.6				
Maldens & Coombe	9,000	193	62	215	69	0.4	0.3	0.6	15	7.8				
Surbiton ...	17,000	321	142	189	84	0.3	0.8	1.4	18	5.6				
East & West Molesey	6,000	159	83	265	138	0.7	0.8	2.2	20	10.6				
Chertsey ...	13,000	336	165	258	127	0.9	1.2	1.2	24	7.1				
Weybridge ...	6,000	110	70	183	117	1.2	0.8	1.3	11	10.0				
Walton ...	12,000	222	114	243	95	0.5	0.6	1.9	25	8.6				
Farnham ...	7,000	156	86	223	123	1.4	0.7	1.9	10	6.4				
Frimley ...	10,000	234	105	254	105	0.6	0.9	2.0	14	5.5				
Godalming ...	9,000	184	92	204	102	0.7	0.4	1.3	14	7.6				
Guildford ...	22,000	478	268	217	95	0.2	0.7	0.8	30	6.3				
Woking ...	18,000	494	217	274	121	1.8	0.8	1.9	52	10.5				
Dorking ...	8,000	177	99	221	124	0.5	0.8	2.4	24	13.6				
Leatherhead ...	5,000	129	65	25.8	130	0.4	1.4	1.6	12	9.3				
Epsom ...	12,000	296	127	247	106	0.9	0.8	1.7	29	9.8				
Sutton ...	17,000	325	150	232	88	0.5	1.0	0.6	34	8.6				
Carshalton ...	8,000	193	87	242	109	0.5	0.5	2.0	19	9.9				
Reigate ...	27,000	585	267	216	99	0.4	0.6	0.9	45	7.7				
Caterham ...	8,500	199	81	234	95	1.1	0.7	1.2	14	7.0				
<b>Totals ...</b>	<b>371,000</b>	<b>8,667</b>	<b>3,933</b>	<b>234</b>	<b>1,066</b>	<b>0.8</b>	<b>0.8</b>	<b>1.5</b>	<b>733</b>	<b>8.5</b>				

In the above Table the following Public Institutions have been allowed for as regards Deaths and Populations, viz.: Horton, Basset, Case Hill, Caterham and Earlswood Asylums, Caterham Barracks, The Holborn Schools and Workhouse, The Kensington Schools, and some smaller establishments. Brookwood Asylum Deaths have been allocated to the districts to which they belonged.

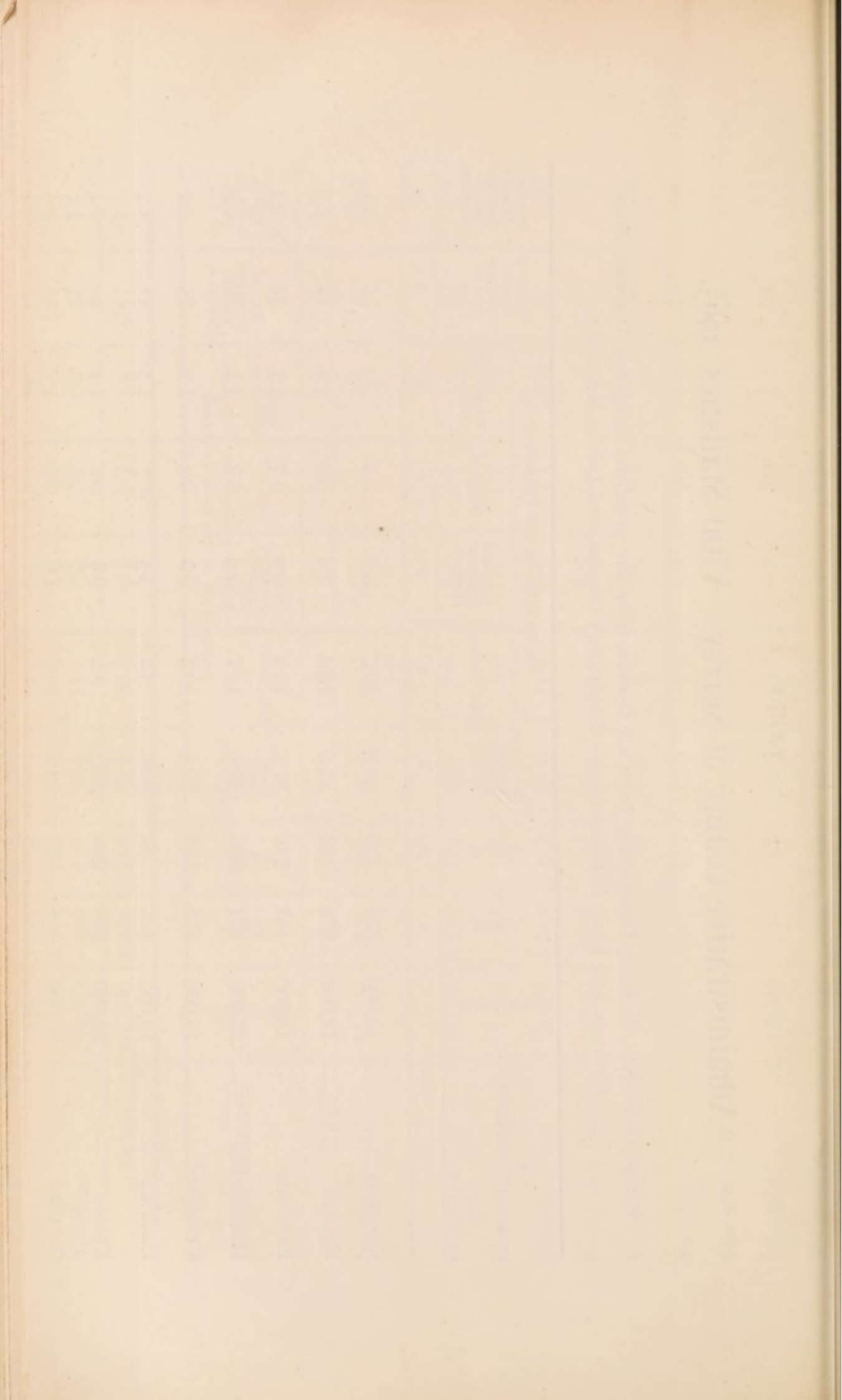
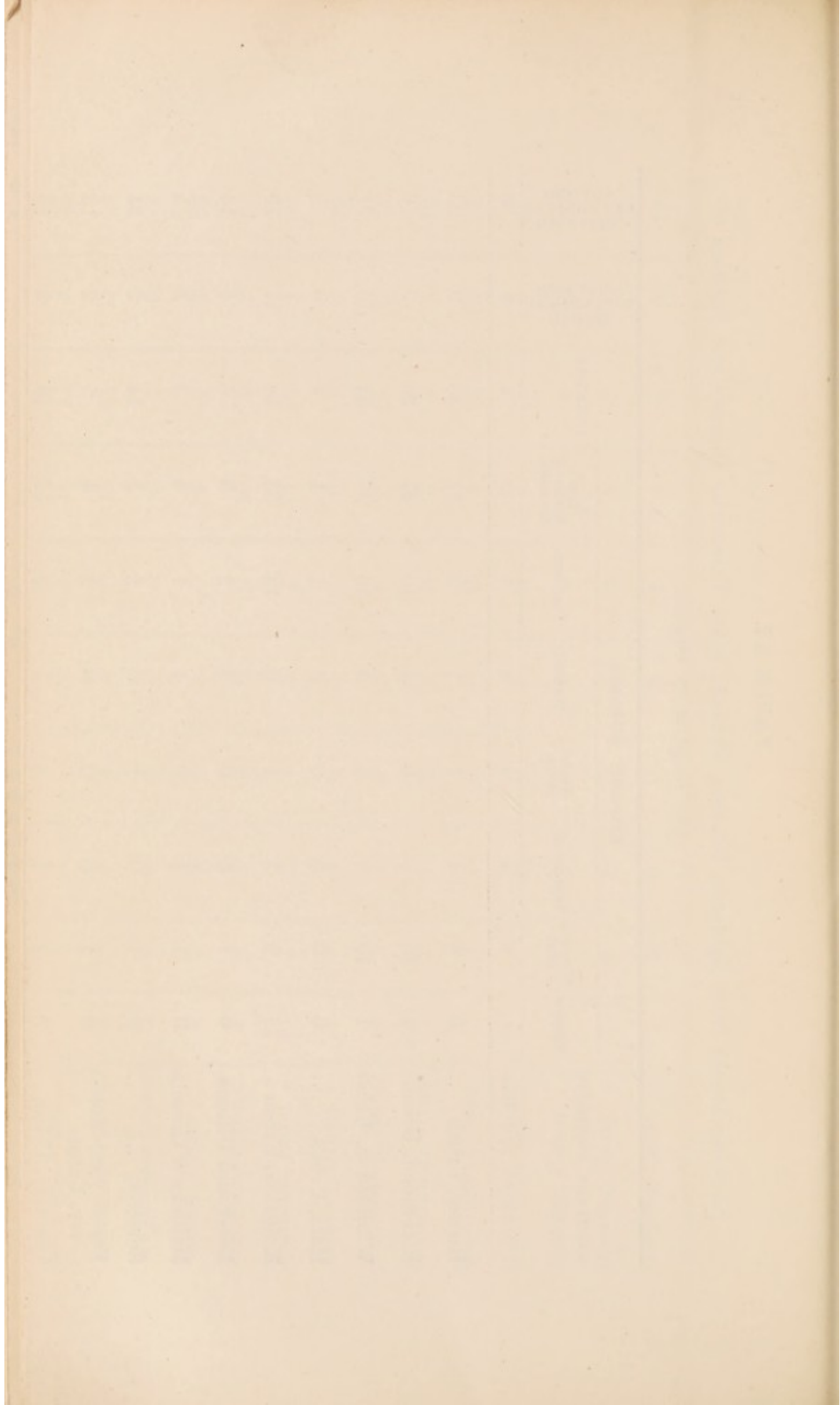




TABLE A 2.

Showing Deaths from Epidemic Diseases, Pthisis, other Tubercular Diseases and Diseases of the Respiratory Organs.

SANITARY DISTRICTS.	EPIDEMIC DISEASES.										OTHER TUBERCULAR DISEASES.	PHTHISIS.	OTHER DISEASES OF RESPIRATORY ORGANS.
	Measles.	Whooping Cough.	Diphtheria.	Scarlet Fever.	Typhoid.	Diarrhoea.	Total Epidemic Diseases.						
Cols.	1	2	3	4	5	6	7	8	9	10			
Barnes, Urban ...	0	6	4	1	1	9	21	30	9	33			
Richmond, Urban	4	26	3	0	4	10	47	26	9	76			
Wimbledon, Urban	1	10	2	3	5	16	37	34	10	71			
Ham, Urban ...	0	0	0	0	0	1	1	1	0	5			
Kingston, Urban ...	15	2	3	1	0	12	33	44	11	79			
Esher and Dittons	0	1	0	0	0	2	3	6	1	14			
Maldens & Coombe	0	1	1	0	1	1	4	3	3	5			
Surbiton ...	0	1	0	1	0	3	5	14	2	24			
East & West Mole- sey, Urban	0	1	0	0	0	3	4	5	2	13			
Chertsey, Urban ...	3	2	1	3	1	2	12	16	9	15			
Chertsey, Rural ...	7	0	1	1	1	1	11	11	2	18			
Egham, Rural ...	1	11	5	1	1	0	19	11	2	17			
Weybridge, Urban	3	3	0	1	0	0	7	5	0	8			
Walton, Urban ...	2	2	0	1	1	0	6	7	3	23			
Farnham, Urban ...	7	2	1	0	0	0	10	5	2	13			
Farnham, Rural ...	10	1	0	1	2	1	15	12	9	30			
Frimley, Urban ...	1	0	3	0	1	1	6	9	0	20			
Hambleton, Rural	4	1	1	0	0	0	6	19	6	35			
Godalming, Urban	3	2	1	0	0	0	6	4	2	12			
Guildford, Urban...	0	0	1	0	0	3	4	16	10	17			
Guildford, Rural...	2	1	2	0	1	3	9	15	6	21			
Woking, Urban ...	26	1	0	0	1	4	32	14	7	34			
Dorking, Rural ...	0	0	2	0	0	3	5	7	1	15			
Dorking, Urban ...	1	1	0	0	0	2	4	6	4	19			
Leatherhead, Urban	0	0	1	0	0	1	2	7	4	8			
Epsom, Rural ...	0	7	1	1	0	3	12	11	4	30			
Epsom, Urban ...	0	2	2	1	0	6	11	9	3	20			
Sutton, Urban ...	4	1	1	0	0	3	9	17	10	10			
Carshalton ...	2	0	1	0	0	1	4	4	1	16			
Croydon, Rural ...	10	4	18	2	3	15	52	38	15	84			
Reigate, Urban ...	0	4	4	0	0	3	11	17	6	24			
Reigate, Rural ...	0	1	0	0	0	1	2	9	5	23			
Godstone, Rural ...	2	8	2	0	3	2	17	15	4	49			
Caterham ...	6	1	0	0	0	2	9	6	1	9			
Total for County...	114	103	61	18	26	114	436	453	163	890			





since the County Notification system came into operation. During that time there have been 1887 cases, and I can only point to one, or perhaps two, definite and unmistakable epidemics of water origin. Both were on a small scale, their nature having been promptly detected at the outset. But whenever an occurrence of this kind does take place it is likely to prove disastrous to a town or district. It may be remembered that when the water epidemics of Worthing and Maidstone took place some years ago, there was consternation among authorities whether directly or indirectly responsible for the care of such matters. So again more recently occurrences at Basingstoke and elsewhere have given rise to an uneasy feeling pervading a good many districts. The Authorities of such districts must reflect that there are not a few existing sources of supply, including their own, the circumstances of which are not very different from those of the places referred to, and whose escape hitherto must be attributed to good fortune rather than foresight.

Such considerations may render a comprehensive review of the situation by the light of modern knowledge and general experience desirable from a wide public point of view.

## APPENDIX I.

ESTIMATED POPULATION OF PARISHES AND  
WARDS, 1905.

RURAL DISTRICTS.		RURAL DISTRICTS—continued.	
<i>Chertsey.</i>		<i>Hambleton—continued.</i>	
Bisley ... ..	750	Hascombe ... ..	430
Byfleet ... ..	1840	Haslemere ... ..	2750
Chobham ... ..	3220	Peperharow ... ..	180
Horsell ... ..	2800	Shalford and Wonersh ...	4260
Pyrford ... ..	570	St. Martha ... ..	230
Thorpe ... ..	500	Thursley and Witley ...	4420
Windlesham ... ..	3550		
	<hr/>		<hr/>
	13230		22780
	<hr/>		<hr/>
<i>Egham</i> ... ..	12360		
<i>Farnham.</i>		<i>Guildford Rural.</i>	
Frensham ... ..	2210	Albury ... ..	1350
Dockingfield ... ..	260	Shere ... ..	2250
Shottermill ... ..	1810	East Clandon ... ..	300
Ash ... ..	3940	West Clandon ... ..	400
Seale ... ..	1140	East Horsley ... ..	330
Farnham Rural ... ..	8640	West Horsley ... ..	700
	<hr/>	Godalming Rural ... ..	1950
	18000	Puttenham ... ..	470
	<hr/>	Compton ... ..	580
		Wanborough ... ..	270
<i>Hambleton.</i>		Artington ... ..	420
Alfold ... ..	560	Merrow ... ..	1630
Bramley ... ..	2050	Send and Ripley ... ..	2440
Chiddingfold ... ..	1660	Ockham ... ..	580
Cranleigh ... ..	2870	Wisley ... ..	160
Dunsfold ... ..	680	Pirbright ... ..	1670
Elstead ... ..	970	Worplesdon ... ..	2000
Ewhurst ... ..	1040		
Hambleton (and Work- house) ... ..	680		<hr/>
			17500
			<hr/>



## RURAL DISTRICTS—continued.

*Dorking.*

Abinger	...	...	...	1470
Wotton	...	...	...	550
Ockley	...	...	...	700
Capel	...	...	...	1470
Newdigate	...	...	...	660
Dorking Rural	...	...	...	3850
Effingham	...	...	...	540
Mickleham	...	...	...	760

---

10000
*Epsom.*

Banstead	...	...	...	3550
Cheam	...	...	...	4200
Ewell	...	...	...	2900
Ashted	...	...	...	2200
Great Bookham	...	...	...	1410
Little Bookham	...	...	...	220
Cuddington	...	...	...	880
Stoke d'Abernon	...	...	...	590
Chessington	...	...	...	550
Fetcham	...	...	...	450
Headley	...	...	...	390
Cobham	...	...	...	4360

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21700
*Croydon.*

Addington	...	...	...	670
Beddington	...	...	...	5790
Coulsdon	...	...	...	7140
Merton	...	...	...	9150
Mitcham	...	...	...	20620
Morden	...	...	...	1040
Sanderstead	...	...	...	1660
Wallington	...	...	...	7940
Woodmansterne	...	...	...	770

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54780

## RURAL DISTRICTS—continued.

*Reigate.*

Betchworth	...	...	...	1820
Buckland	...	...	...	500
Walton-on-the-Hill	...	...	...	880
Chaldon	...	...	...	260
Kingswood	...	...	...	810
Chipstead	...	...	...	690
Gatton	...	...	...	220
Horley	...	...	...	4550
Burstow...	...	...	...	1570
Leigh	...	...	...	560
Merstham	...	...	...	2120
Nutfield	...	...	...	1940
Charlwood	...	...	...	1780

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17700
*Godstone.*

Bletchingley	...	...	...	2250
Chelsham	...	...	...	480
Crowhurst	...	...	...	240
Farley	...	...	...	120
Godstone	...	...	...	2950
Horne	...	...	...	740
Limpsfield	...	...	...	2140
Lingfield	...	...	...	3960
Oxted	...	...	...	2420
Tandridge	...	...	...	650
Tatsfield	...	...	...	740
Titsey	...	...	...	130
Warlingham	...	...	...	3250
Woldingham	...	...	...	310

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20370

## URBAN DISTRICTS.

*Barnes.*

Barnes (Parish) ... ..	12250
Mortlake „ ... ..	12000
	<hr/>
	24250

*Richmond.**Wimbledon.*

St. Mary's Ward ... ..	6560
St. John's Ward ... ..	5330
Cottenham Park Ward ...	4080
Dundonald Ward ... ..	5580
Trinity Ward ... ..	13250
South Park Ward ... ..	13450
	<hr/>
	48250

<i>Ham</i> ... ..	1460
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*Kingston.*

Town Ward ... ..	6630
Canbury Ward ... ..	9210
Hill Ward ... ..	11250
Norbiton Ward ... ..	10760
	<hr/>
	37850

*Esher and Dittons.*

Thames Ditton Ward ...	3560
Long Ditton Ward ... ..	2340
Esher Ward ... ..	2700
Claygate Ward ... ..	1460
	<hr/>
	10060

*Maldens and Coombe.*

New Malden Ward	
(Parish) ... ..	6820
Old Malden Ward	
(Parish) ... ..	580
Coombe Ward (Parish) ...	1240
	<hr/>
	8640

## URBAN DISTRICTS.

*Surbiton.*

Surbiton ... ..	11670
Tolworth ... ..	3560
	<hr/>
	1700

16930

*East and West Molesey.*

East Molesey Ward	
(Parish) ... ..	5340
West Molesey Ward	
(Parish) ... ..	970
	<hr/>
	6310

*Woking.*

Station & Maybury Ward	9990
Village & Mayford Ward	1960
Sutton & Bridley Ward...	1210
St. John's and Goldsworth	
Ward ... ..	2020
Knaphill and Brookwood	
Ward ... ..	2340
	<hr/>
	17520

<i>Chertsey U.*</i> ... ..	13460
<i>Weybridge</i> ... ..	6060
<i>Walton-on-Thames*</i> ...	11500
<i>Farnham U.</i> ... ..	6750
<i>Frimley*</i> ... ..	9500
<i>Godalming</i> ... ..	9020
<i>Guildford*</i> ... ..	21900
<i>Dorking U.</i> ... ..	7920
<i>Leatherhead</i> ... ..	5000
<i>Epsom U.</i> ... ..	12000
<i>Sutton*</i> ... ..	16800
<i>Carshalton</i> ... ..	7500
<i>Reigate U.*</i> ... ..	27500
<i>Caterham*</i> ... ..	8420

\* Populations of Wards not estimated.



## APPENDIX II.

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### REPORT ON ENTERIC FEVER CASES NOTIFIED IN LOWER WIMBLEDON DURING THE MONTHS OF JULY, AUGUST AND SEPTEMBER, 1905.

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In the nine weeks between July 22nd and September 27th, there were eighteen cases of Enteric Fever notified.

These cases occurring one after another were a source of considerable anxiety, in order if possible to find their origin, as until this was found and the cause removed or remedied, the possibility of the outbreak becoming an epidemic was always present.

The majority of the houses were of a class where it was impossible to effectually isolate or nurse, nor could the people afford the cost.

Fortunately a bed was available at the hospital for every case requiring isolation.

In looking for the cause the water supply was first considered, and as the whole of South and a considerable portion of North Wimbledon derive their supply from the mains of the Lambeth District of the Metropolitan Water Board, and as the Enteric was confined to a small district in the neighbourhood of High Street, Merton, this could not be the cause.

In the next place the features were not those of a milk epidemic, and the source of the milk supply in almost every house was different.

The suddenness of the outbreak, and the dates at which the attacks occurred pointed to the infection being probably through some form of infected foods. From the evidence I am satisfied this was so. There were two groups of cases in which infection was derived

from different sources. In three if not four instances, ice cream was the medium, and that cold stewed eels sold from a hawker's barrow was the primary cause of six cases in this district, with 9 or 10 in the adjoining district—Merton.

Two others (mother and son) contracted the disease when away for holidays. Another contracted the infection whilst staying at Basingstoke. As regards the stewed eels group, six persons were infected directly from a child named G—, who was thought, until after death, to have had Summer Diarrhoea, but in the light of after events, the evidence is strongly in favour of it having been Enteric, seeing that her grandmother, grandfather and uncle, who assisted in nursing her from a few days before she died, were all within 12 days of her death notified as undoubtedly suffering from Enteric Fever, as also were an aunt and her husband from another district who visited her during her illness. The grandmother and the aunt both died. The house where the child G— lived was of good sanitary construction, and the drains proved perfectly sound to the water test. But as will appear below the atmosphere of the room where the sick child and where the eels were prepared and stored for sale, must have been very poisonous.

Two other children from a house a few doors round the corner, I have been informed by the Middlesex Hospital Authorities, are suffering with Enteric Fever at that institution. It is probable that they contracted the disease from the child G—.

Three other patients in the same neighbourhood, in my opinion, contracted the disease indirectly from the same source, probably through infected excreta carried through the sewers. In each instance the house drains were of old construction, connected direct to the sewer, and in a very defective condition.

In the three remaining cases the source of the infection has not been traced, but they appear to have no connection whatever with the others and may be termed Sporadic. They occurred in St. George's Road and Worple Road, Wimbledon.

The origin of the outbreak was for some time a mystery, and was eventually solved by Mr. Johnson, your Sanitary Inspector, to whom much credit is due. After a great deal of trouble he succeeded in ascertaining the following facts:—

At a house in High Street, Merton, on the ground floor, had lived until August with his family, a man named J—, who prepared for sale, in the scullery and kitchen of his dwelling, stewed eels and whelks.



There was nothing outwardly to lead one to suppose that a business of this kind was being carried on in the house.

In the month of July several members of his family were ill with acute Diarrhoea.

The child G—, on the first floor of the same house, was given eels and whelks by Mrs. J—.

About July 28th, little G—, when ill, left this address and went to her grandparents at DeBurgh Road, where she died on August 14th.

About the same date both the grandparents and their son, who had helped to nurse G—, fell victims, as did also an aunt and uncle from Brixton who visited the house when she lay ill.

About the same time when the whelks and eels were given to G—, and while several of the inmates of the house were ill with Diarrhoea, J— stood at night with a stall selling stewed eels and shell fish outside the "Prince of Wales" and "Albion" Public Houses at Singlegate, Merton.

Information of this was given to the Officers of the Croydon Rural District Council, and their inquiries shewed that at least six men in that district notified to the Local Authority, had partaken of stewed eels bought from J—, and a considerable number of other persons had, after partaking of them, been very ill for some time.

To show how the stewed eels became the medium of infection, it should be explained that in the first place they were stewed or boiled in water, the liquid being thickened with flour. After cooling, the man stood selling the stuff outside different public houses from a barrow very much like that used by an ice cream vendor, the eels being sold from a receptacle somewhat of the nature and shape of a pail, the top of the barrow being used as a table on which stewed eels, with their portion of gravy, were dealt out on small plates placed for the purchasers to eat from. The kitchen, living or bedroom where the stewpan was measures 12 feet square and is of 1,320 feet cubic capacity. It was very dirty and ill-kept. In it, during the time to which this report relates, lay one of the worst cases of illness. It was in this atmosphere reeking with infection that the eels were stewed and left to cool.

Several persons in houses where cases occurred were unwell, would not call in a doctor, and refused to have the Poor Law Medical Officer. These were seen by myself from time to time, until it was quite certain they had not contracted the disease.

It only remains to add that every case was visited by myself to ascertain the date of onset of illness, and to verify the diagnosis.

E. POCKLINGTON,

Medical Officer of Health.

October 17th, 1905.



### APPENDIX III.

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#### REPORT ON CASES OF TYPHOID NOTIFIED IN THE MERTON PORTION OF THE CROYDON RURAL DIS- TRICT, DURING JULY AND AUGUST, 1905.

---

During the months of July and August, 10 cases of Typhoid Fever were notified to me as occurring in the parishes of Mitcham and Merton. Two cases occurring in the same family were undoubtedly contracted while on a visit to Margate. It was not until the return of the parents to Mitcham that it was recognised to be Typhoid Fever. Excluding these two cases, therefore, the remaining 8 cases suggested, that, as they occurred at much about the same time, that there was a common cause for this outbreak. After much enquiry, I am able to determine the probable reason of this outbreak. I would mention here that in Wimbledon a certain number of cases also occurred during this period of which I have no full particulars, but I understand that the cause of that outbreak is probably identical with that in the parishes of Mitcham and Merton, namely, contaminated fish. A man named J—, residing in a house at High Street, Merton (on the Wimbledon side of the road), has been for some time past in the habit of selling stewed eels outside local public houses, particularly "The Albion," "The Prince of Wales," and "The Nelson." Six of the patients undoubtedly ate these eels, another case denies having had any of them, and as it was extremely doubtful whether he had Typhoid Fever, it would be as well to exclude him from further consideration. Two cases, children, probably contracted the disease from their father, who, in the light of subsequent events, seems undoubtedly to have had Typhoid Fever, although it was not recognised as such, early in July. So far as can be ascertained, it is certain that on one evening early in July the eels that were then being sold were in such a condition that, at any rate, one purchaser could not eat them, and told J— that they were bad, and J— said that everybody was grumbling about

them. In addition several men had stewed eels, which was followed by acute diarrhoea and vomiting. On enquiry being made by the Wimbledon Authorities, it was found that at J—— (the eel vendor's house), all the children had been suffering from diarrhoea, and that a child of lodgers occupying the first floor of J—— house was taken away while so suffering by its relatives, and several of them contracted Typhoid Fever from this case. Unfortunately, in three instances the cases ended fatally. These three cases died in the Isolation Hospital, Beddington Corner, and the type of disease was extremely severe. The Typhoid bacillus undoubtedly gained access to the stewed eels, and the gelatinous condition of this stew when cold would prove an almost ideal medium for the propagation of these bacilli. Possibly a larger number of cases of either true or abortive Typhoid Fever have resulted from eating these eels without having come to my knowledge.

C. M. FEGEN, Medical Officer of Health.





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