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ANNUAL REPORT,

1903,

OF THE

MEDICAL OFFICER OF HEALTH

OF THE

ADMINISTRATIVE COUNTY OF SURREY.

TABLE OF CONTENTS.

	PAGE
I. County Sanitary Administration	4-8
II. Public Vaccination	9
III. Vital Statistics	10-18
IV. Phthisis Prevention	19-24
V. Sanitation of Dwellings	25-36
VI. Milk Supply	37-46
VII. Domestic Water Supply	47-54
VIII. Meteorology	55-59

INTRODUCTORY NOTE.

MR. CHAIRMAN, MY LORDS AND GENTLEMEN,

I have the honour to submit the Annual Report for 1903.

The subjects dealt with are set forth in the Table of Contents, and are to be found in detail in the Index.

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

I am,

Your obedient Servant,

EDWARD C. SEATON.

August, 1904.

*To the Council of the
Administrative County of Surrey.*

I. COUNTY SANITARY ADMINISTRATION.

The only changes in the staff in 1903, were in the appointment of Sanitary Inspectors for the districts of Esher and Epsom. In both these districts the duties of the Sanitary Inspector had, till lately, belonged to the Surveyor.

The Annual Reports were, for the most part, presented in good time, but there were a few exceptions to the rule, one of them being a voluminous report which always arrives late. The fact that the reports are much fuller now than they used to be makes the task of examination a longer and more responsible work. But this only in part accounts for the late appearance of the County Report. The chief cause of this delay has been the fact that my attention has been taken up by other matters of importance to the County, at a time of the year which formerly has been comparatively free. There have been many pressing questions, connected with Isolation Hospitals, which are closely engaging the attention of the profession generally; there has been the troublesome and difficult "smallpox hospital" question, which has resulted in action being now taken under the Isolation Hospitals Act; there have also been subjects that I have had to consider very carefully on behalf of the Education Committee, and which do not belong altogether to the Public Health Department: and lastly, there is the Midwives Act, in the proposed administration of which I have been called upon for advice and assistance. In consequence of these special calls I have had to postpone some inquiries and inspections I had intended to make for the

Sanitary Committee, and to my further disappointment I have been obliged to content myself with the issue of this report at a date a good deal later than usual for our County, but not—be it observed—later than the majority of the reports of County Medical Officers of Health.

The question of simplifying and expediting official reporting was brought before the Sanitary Institute in 1902. In 1903 a conference on the same subject took place at Guildford. It was attended by almost all the Medical Officers of Health in Surrey, and was presided over by the Chairman of the Sanitary Committee of the County Council. In discussing the arrangements for the preparation of Annual Reports, suggestions were made, one of which I had hoped would be of assistance to myself as well as the district medical officers of health. But at the end of 1903 and the beginning of 1904, the enormous amount of business connected with the Educational work of the Council led to a postponement of its further consideration.

The subjects with which I have had to confer, advise and correspond about at length are too numerous to mention, but I may note some of them as they indicate a fairly wide range.

Outbreaks of infectious diseases notified periodically or on which I am specially consulted; the use and influence of Isolation Hospitals; scarlet fever “return” or “septic” cases; the Kingston smallpox outbreak; smallpox hospital influence; smallpox diagnosis and preventive measures; inclusion of Penge in the Croydon hospital district; vaccine establishments as at Liverpool; vaccination case at Chertsey; notification of infectious fevers by the P. M. O. from Aldershot and elsewhere;

isolation arrangements at Molesey ; typhoid infected blankets ; precautions against spread of typhoid by ice creams ; school closures ; certification of absentee school children ; diphtheria at Redhill and Reigate ; occurrence of a glanders outbreak ; several meetings of special associations and of County Medical Officers with representatives of the Central Midwives Board ; infant mortality and distribution of the Committee's cards of instructions as to the care of infants, etc. ; the consumption sanatorium at Heatherside, Frimley (references from the District Council and the Board of Governors of the Brompton Consumptive Hospital) ; the milk supply of towns ; the outbreak of septic sore throats at Woking ; underground water supplies and observations of effect of rainfall on Chalk springs and wells. Sutton District Company's water supply ; special reports on Peaslake, Holmbury, and Shere. South West Suburban Company's supply ; Richmond water supply ; houses unfit for human habitation ; public-house sanitation ; inspection of North Camp and several other sewage disposal works for a special report ; sewerage, etc., of Westcott ; the Send and Ripley sewerage question ; the threatened extension of Croydon sewage farm ; the manure and other nuisances at Oxted, Wimbledon and Mitcham ; the drainage and sewage disposal of the new asylum at Netherne, &c.

The monthly summaries of Notification returns continue to be issued, the 108th number having been reached at the end of 1903. The records of rainfall in different geological areas of the county are published at the same time.

The Local Government Board inquiries, that I have attended in accordance with the Standing Orders, have almost

all been "loan inquiries," and for the most part they have related to works of sewerage, drainage and sewage disposal. They were at Carshalton, Ashted, Limpsfield, Ripley, Cheam, Croydon, Mortlake (Richmond Main Drainage Board Works), Westcott, Epsom, Wimbledon, Redhill and Reigate. Some inquiries related only to extensions of sewerage systems; but others, *e.g.*, Mortlake, concerned very large and important improvements, as to which I was able to give information to the Board from my knowledge of the works since they were instituted; others had to do with improvements or developments of bacterial systems which I have watched throughout; and lastly, two schemes of drainage in the Chalk area concerned public water supplies in some degree and were consequently of interest to the County at large.

The inquiry at Charlwood, as to alleged neglect of the Rural District Council in the matter of drainage at Farmfield, was shown to be unnecessary, and was therefore cancelled by the Local Government Board.

The hospital inquiries of the year related to the smallpox hospital at Whitmoor (Guildford joint hospital board), Barnes, Frimley, Hambledon, and Tolworth Hospitals, the hospital at Cheam, in connection with the inclusion of Penge in the county borough of Croydon.

The Local Government Board does not send notice to the Council of other sanitary or public health inquiries such as those that relate to water supplies, mortuaries, &c. But I heard of the proposal as to burial ground extension at Molesey, and I attended the inquiry.

In drawing up the present report I have not attempted to cover the whole field of County and district work of the year.

It has been pointed out that the presentation of so much matter *en bloc* is undesirable. I have therefore confined myself to four subjects, viz: phthisis prevention, sanitation of dwellings, milk supply, and domestic water supply. I have made my statements briefly and in a form which may suggest recommendations to the Council or such other practical steps as, after consideration, the Sanitary Committee deem desirable.

II.—PUBLIC VACCINATION (ACT 1898, SEC. 2).

The following table, which was prepared jointly by the Clerk of the Council and myself and presented at the Easter Sessions, 1904, 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 1903.

County Petty Sessional Division of—	Population, 1901.	Births 1903.	Number of children exempted.					
			1898	1899	1900	1901	1902	1903
Chertsey	42,163	1,016	8	23	15	31	15	20
Croydon	40,305	1,343	34	19	16	18	7	11
Dorking	17,449	392	184	36	63	50	44	51
Epsom	51,642	1,224	91	35	25	26	10	13
Farnham	30,769	814	8	23	13	22	3	16
Godstone	27,864	699	13	8	9	8	9	7
Guildford	59,811	1,477	89	53	49	55	25	57
Kingston	53,034	1,228	13	12	22	23	12	18
Mortlake	1,7821	513	5	2	2	2	0	2
Reigate	15,908	381	60	18	26	27	21	30
Wimbledon	46,162	1,204	21	37	45	33	18	20
County Total ...	402,928	10,291	526	266	285	295	164	245
BOROUGHs :—								
Godalming	8,748	158	39	10	20	17	6	9
Guildford	15,938	331	357	49	40	68	50	54
Kingston	34,375	1,030	11	26	26	62	22	30
Reigate	25,993	567	69	70	90	93	57	72
Richmond	31,672	683	6	5	6	5	5	8
Borough Total ...	116,726	2,769	482	160	182	245	140	173
County and Borough Total	519,654	13,060	1,008	426	467	540	304	418

III.—VITAL STATISTICS.

POPULATION OF THE COUNTY.—At the Census which took place in April, 1901, the population proved to be 521,810. Estimated in the usual way, *i.e.*, by calculating the annual rate of increase or decrease according to the increase or decrease shown by the Census of 1901 when compared with that of 1891, the population at Midsummer, 1903, was 546,000. But inasmuch as for the purposes of this report it is necessary to eliminate the excessive number of deaths which occur at the great London Asylums for sick or infirm persons at Horton, Banstead, Cane Hill, and Caterham, as well as those of some other large establishments, the population of these Institutions which amounts to about 14,000 has also to be deducted in the calculation of the death rate. So that for the purposes of this report the population is estimated in round numbers at 532,000. This number would be increased by 5,218 if the local estimates of population for the Districts of Croydon Rural and Barnes are taken into account. In these two districts the medical officers of health have been at great trouble to arrive at a correct estimate of the population. It is therefore due to them to give their estimates of population, birth-rate, and death-rate, separately in figures below those arrived at in the usual way. It sometimes happens that in districts representing the growing suburbs the population may be increasing much more rapidly than the average annual rate of increase of the last intercensal period indicates. Admitting this, however, it is well to recall the fact that at the last census the populations of three suburban districts, *viz.*, Croydon Rural, Wimbledon, and Kingston, were found to have been largely over-estimated locally, and that at Barnes also the local estimate proved rather too high. The figures relating to this over-

Administrative County of Surrey—Vital Statistics, 1903.

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

RURAL DISTRICT.	Population.			Deaths.	Births.	Deaths per 1,000 Persons living.	DEATH-RATES TO 1000 PERSONS LIVING.					Deaths of Phtisias and other zymotic diseases per 100 Births.
	Con.	1	2				3	4	5	6	7		8	9	10
Chertsey	12,782	285	150	224	11.8	0.6	1.1	1.2	20	7.0	
Egham	12,023	279	129	23.2	10.7	0.8	0.8	1.2	23	10.0	
Farnham	17,700	458	200	26.0	11.3	0.4	1.0	1.1	43	9.4	
Hambleton	22,182	498	239	22.5	10.3	0.9	0.7	1.1	43	8.6	
Guildford	21,900	489	216	22.2	9.8	0.3	0.6	1.0	42	8.6	
Dorking	9,910	217	108	22.0	10.9	0.4	1.4	0.5	17	7.8	
Epsom	20,420	458	197	22.5	9.6	1.1	0.8	1.2	30	6.6	
Croydon	38,437	1,161	585	30.5	15.4	1.2	0.9	1.6	109	9.4	
Reigate	17,300	381	187	22.0	10.8	0.4	0.9	1.6	38	10.0	
Godstone	19,100	495	209	25.9	10.9	0.7	0.6	1.1	56	11.8	
Totals	191,764	4,721	2,210	24.6	11.5	0.7	0.8	1.2	426	9.0	

URBAN DISTRICT.	Population.			Deaths.	Births.	Deaths per 1,000 Persons living.	DEATH-RATES TO 1000 PERSONS LIVING.					Deaths of Phtisias and other zymotic diseases per 100 Births.
	Con.	1	2				3	4	5	6	7		8	9	10
Barnes	18,615	518	247	27.5	13.4	1.7	0.4	1.7	57	11.1	
Richmond	32,808	689	428	20.8	13.0	0.8	0.9	1.6	76	11.1	
Wimbledon	46,000	1,204	424	26.1	9.2	0.7	0.6	1.3	99	8.2	
Han...	1,400	30	11	20.5	7.5	0.0	0.7	4.8	4	13.3	
Kingston	36,311	1,030	492	28.4	18.6	1.0	1.2	0.9	112	10.9	
Esher and Dittons	...	9,865	197	118	19.9	11.9	0.7	0.6	1.3	23	11.7	
Malden & Coombe	...	6,520	195	67	30.0	10.3	1.1	0.9	0.6	15	7.7	
Sarbiton	15,708	351	163	22.3	10.4	0.6	0.3	1.6	36	10.8	
East & West Molesey	...	6,168	156	68	25.3	9.4	0.8	0.7	0.3	15	9.6	
Chertsey	13,130	314	169	26.2	12.9	1.9	1.1	2.0	86	10.5	
Weybridge	5,702	108	45	18.9	7.9	0.4	1.1	0.7	4	3.7	
Walton	10,020	299	130	27.4	11.9	1.4	1.1	3.0	80	10.0	
Farnham	6,573	165	80	25.1	12.2	0.6	1.7	1.4	17	10.3	
Frimley	9,111	191	78	20.9	8.6	0.4	0.9	0.9	15	7.9	
Godalming	8,890	163	77	17.7	8.7	0.4	1.3	0.9	8	5.0	
Guildford	16,380	381	190	20.2	11.6	0.6	1.0	1.5	32	9.7	
Woking	16,040	490	186	30.5	11.6	0.9	0.6	1.6	44	8.9	
Dorking	7,800	175	116	22.4	15.0	0.5	1.2	2.7	16	9.1	
Leatherhead	4,800	107	40	22.3	8.3	0.6	0.4	0.8	6	5.6	
Epsom	10,900	271	109	24.9	10.0	0.5	1.2	1.0	29	10.7	
Sutton	16,453	388	150	23.6	9.2	0.6	0.7	1.2	32	8.2	
Carshalton	7,090	182	82	25.7	11.5	0.3	0.9	2.1	20	11.0	
Reigate	26,150	507	252	21.7	9.6	0.6	0.6	1.1	49	8.6	
Caterham	7,000	204	61	29.1	8.7	1.3	1.6	2.1	17	8.8	
Totals	840,320	8,339	3,773	24.5	11.1	0.8	0.9	1.4	792	9.5	

In the above Table the following Public Institutions have been allowed for as regards Deaths and Populations, viz., the County Asylum, the County and District Asylums, the County and District Schools and Workhouses, The South Metropolitan District and Kingston Schools, and some smaller establishments. Brookwood Asylum Deaths have been allocated to the districts to which they belonged.

estimation are given below and justify the exercise of some caution in accepting local estimates, though personally I am inclined to agree with the medical officers on this occasion.*

COUNTY BIRTH-RATE. The births in 1903 being 13,060 in number, the rate per 1,000 of the population given above is equal to **24·5**.

In table A, it will be seen that the rate was 24·6 in the Rural districts and 24·5 in the Urban districts of the County.

The rate is slightly higher than that of 1901 and 1902.

The districts with high birth-rates, i.e., 30·0 or more per 1,000 population are Croydon Rural (which tops the list on the **lower** population estimate), Maldens, and Woking.

The districts with low Birth-rates, i.e., 20 or less per 1,000 population are Esher, Weybridge, and Godalming.

COUNTY DEATH-RATE. The deaths in 1903 being 5,983 in number, the rate per 1,000 of the population given above is equal to **11·2**.

In Table A it will be seen that the rate was equal to 11·5 in the Rural districts and 11·1 in the Urban districts of the County.

Those with Death-rates of 12·0 or more are Croydon Rural District, Richmond, Kingston, Chertsey, Farnham, and Dorking Urban Districts.

* Name of District in respect of which estimates were carefully made locally by the M.O.H. with the assistance of other local officials.	Estimates given in the Reports for 1900 before the result of the Census was made known.	The actual population as shown by the Census held April, 1901.	Amount of over-estimate of the Population.
Croydon Rural	37,300	34,073	3,227
Barnes Urban	18,300	17,587	713
Wimbledon „	44,000	40,417	3,583
Kingston „	36,604	33,827	2,777

Those with death rates below 9 per 1,000 population are Ham, Weybridge, Frimley, Godalming, Leatherhead, and Caterham Urban Districts.

The County death rates of the last five years correctly calculated according to the Census returns were as follows:—

1899.....	13·7	1902.....	11·9
1900.....	12·5	1903.....	11·2
1901.....	12·2	Average.....	12·3

The gradual reduction of the death-rate, as shown by the above figures, is good evidence of improving sanitary circumstances and increasing attention to the public health in various ways. The date of the Census at which the “age distribution” of the population became known is nearly the centre of the five years covered by the above period. During this time there would have been no change in the proportion of persons living in the County at what are called “healthy” or “unhealthy” ages, such as might make comparison of death rates as a test of local health conditions to some extent fallacious, in a way that was fully explained in the report for 1902. The reduction in mortality is substantial and seems, indeed, to afford gratifying proof of the efficacy of the work carried on by Public Health authorities in Surrey.

ZYMOTIC DEATH RATES. These refer to the following seven principal zymotic diseases, viz.:—Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever (Enteric or Continued), and **EPIDEMIC DIARRHŒA.**

It is the last named of the seven Diseases, viz., Epidemic Diarrhœa or “zymotic enteritis” that chiefly affects the death rate of the whole group in consequence of the large

number of deaths of infants that occur annually in the months of August and September. The disease prevails all over England and Wales, but with varying degrees of severity, as shown by the last thirty-five Annual Reports of the Registrar General. The mortality that it causes is to a considerable extent due to the "want of care in feeding, etc., of infants," a state of things which is far too common, and one which the Sanitary Committee of the County Council has been trying to improve with the *voluntary* assistance of a large number of medical practitioners in Surrey. But this cause of mortality—"zymotic enteritis"—is also very much under the influence of the weather, the prevalence and fatality of this illness being much greater in a hot dry summer than in one like that of 1903.

This freedom from a baneful influence is due to the wonderful efficacy of nature's scavenging in keeping down the nuisance, as from flies and dust, thus preventing microbial infection of milk and food. It is also due to the effect of 'cooling' in arresting the development of infective matters.

The great lesson therefore, that the experience of 1903 together with that of past years—notably that of 1879—teaches, is that by following nature's methods as far as practicable a great saving of infant life may be effected during a critical period of the year.

The fact of the zymotic rate in 1903 being, partly for reasons above mentioned, lower than 0·8 per 1,000 of the population—a rate unusually small even in Surrey—explains in some measure the remarkably low death-rate of the year. But lest the favourable effect of these natural causes should be exaggerated, it may be well to make comparison of the

years 1899 and 1903. The zymotic rates for the two years were respectively 1·6 and 0·8—a difference of just 0·8. In respect of seasonal influences, reference to Mr. Campbell Bayard's tables which are included in my Annual Reports show that the year 1899 was distinctly an unfavourable year, inasmuch as July and August were "the two hottest consecutive months of which he had any record"; while 1903 was, as we know, exceptionally favourable. Making allowance, then, for differences "beyond control" and adding another 0·8 to 11·2, the death-rate of 1903, we have still the large balance 1·7 per 1,000 of the population—to the credit of Preventive Measures.

PHTHISIS DEATH-RATES.—Every year more attention is being given to the diagnosis, prevention, and treatment of phthisis. Much interest attaches to this column of death-rates. The number of deaths in the whole county was 449, giving an annual death-rate of 0·8 per 1,000 of the population. The districts with rates of 1·2 or more were Dorking Rural, Kingston, Farnham, Godalming, Dorking, Epsom, and Caterham Urban. It is well to check the figures of this column (7) by comparison with those of the next column (8), which gives the death-rates of Respiratory diseases other than Phthisis, because sometimes cases of a phthisical nature may be classified in the Respiratory group. Dorking Rural has a low death-rate in column 8, but in Dorking Urban a high Respiratory death-rate accompanies and accentuates the rather high Phthisis death-rate. At Kingston, Godalming, and Epsom the significance of the high phthisical death-rates (col. 7) may be lessened by association with Respiratory death-rates (col. 8) below the average. The contrary is, however, the case at Farnham and

Caterham. The very low death-rates of Surbiton (0·3) and Barnes (0·3 or 0·4) are accompanied by a Respiratory death-rate above the average. The annual rates for Ham are disregarded on account of the smallness of the figures on which they are based.

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 1,218, the death-rate for the County is $\frac{1,218 \times 1,000}{13,060} = 93$ per 1,000 or 9·3 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.	Per cent. of Births.
1899	12,075	1,556	128	12·8
1900	11,984	1,288	107	10·7
1901	12,126 (Birth-rate 23·8).	1,278	105	10·5
1902	12,351 (Birth-rate 23·6).	1,255	101	10·1
1903	13,060 (Birth-rate 24·5).	1,218	93	9·3

It will be seen from this Table that not only was 1903 a year of remarkably low infant mortality, but that a steady reduction in the infant mortality in the County is in progress.

In comparing the small separate districts of the County in which the annual average of Births is much below 1,000, it is more convenient to state the rates as “per cent.” of Births.

This has been the practice in the last two or three Annual Reports.

In 1902, the highest rate was at Molesey, 14·5 per cent., and the next highest was Leatherhead, 13·4 per cent.* In 1903, the year under notice, if we leave out Ham (on account of the figures for one year being too small to strike a fair average), the two highest are Esher 11·7 per cent., and Godstone, 11·3 per cent. On the other hand at Godalming the rate was down to 5·0 per cent. and at Weybridge reached the remarkably low figure of 3·7 per cent. These low rates are, as already explained, partly accounted for by the Meteorological conditions of the past year. But the reduction in the Infant death-rate must also in some measure be due to improved "sanitary conditions and circumstances," using this expression in its widest sense.

Influences of a different kind operate to produce this welcome change and it is manifestly impossible to assign to each the exact amount of credit to which it may be entitled. But those who understand the subject would agree generally that there are three principal directions in which the main causes of infant mortality may be successfully combated.

In order of the direct responsibility of Local Authorities, the condition of the dwellings stands first. The dryness and cleanliness of the back yards and basements of cottages and workmen's houses is most important. Here the sewerage and drainage works in the initiation and extension of which the County and District Councils have for several years been concerned along with other authorities have helped to bring about improvements on a large scale. Instances of this appear

* In the Annual Report for 1902, p. 21, Leatherhead was by mistake credited with the highest rate in the County.

again this year in the section of the Report on the Housing of the Working Classes.

Essential assistance has also been afforded by the sanitary inspectors whose appointments are now generally distinct from those of surveyors and who are in a better position now to attend to the details of house-sanitation under the advice and direction of the medical officer of health.

The purity and cleanliness of the milk supply affects the lives and constitutions of infants and children to an extent that cannot well be over estimated. We may claim some improvement in the County during the last five years, as shown elsewhere in the reports. But it is also evident from these that a vast amount has yet to be accomplished in this Department of sanitary reform, especially in the *rural* districts throughout England. It is not possible to compare the exact condition of Surrey with that of other counties from which much of its milk supply is derived, but there is reason to fear that they are no better and probably worse than our own County. The subject is indeed one of national importance involving immediate financial considerations most important to our agricultural interests as well as the public health. It is earnestly hoped that substantial progress will soon be possible in this direction.

Last, but not least, is the care taken of infants, especially as regards the manner of feeding them, by those directly responsible for their maintenance. Here the Sanitary Committee has done its utmost to arouse interest, diffuse knowledge, and combat ignorance. Each year since 1899 circular letters have been addressed to medical officers of health and medical practitioners

in the County. Cards containing simple information and elementary facts relating to the care and feeding of infants have been freely supplied for the use of practitioners. In 1903 the number of packets sent off by request was 74, containing altogether 1,600 of the cards. The voluntary assistance of medical practitioners in this way is undoubtedly one of the most potent influences for good so far as the welfare of infants is concerned. The saving of many infant lives in every district must be due to these efforts.

Furthermore under certain conditions special institutions are of most valuable assistance in this same direction. In connection therewith, attention is again drawn to the excellent work carried on by the South Wimbledon Day Nursery, which is entirely supported by voluntary contributions.

IV.—PHTHISIS PREVENTION.

Number of Deaths 449. Population 532,000. Death-rate 0·84 per 1000 = 84 Deaths per 100,000 of the population.

Although Surrey compares favourably with many Counties and populous districts the rate of mortality indicated by the above figures exceeds that of the whole group of zymotic diseases, and calls for special attention.

Foremost among the preventive measures are those concerning house sanitation to which a separate section is always given in this report. The steady reduction in phthisis prevalence and mortality, which has taken place in the past in consequence of the improvement of dwellings and general betterment of the people, furnishes a strong reason for keeping the attention of Sanitary Authorities fixed on a kind of work which, though it may not be showy or attractive, is nevertheless most useful and beneficial to the public health.

Over and above that work, an account of which is given in the next section of this report, work of another kind is being developed by many sanitary authorities. The diagnosis, the notification, the treatment of phthisis in sanatoria, the instruction of sufferers in measures of precaution against the possible spread of infection, the provision for disinfection, &c., are subjects concerning which many sanitary authorities are in frequent communication with each other with a view to gaining reliable and useful information. Action taken at present is more

or less tentative and in respect of notification the methods are experimental.

With regard to preventive measures of this class I have in the Annual Reports for 1902 and preceding years given reasons for proceeding carefully, and while urging practicable precautions, doing so in a manner not likely to cause undue alarm of *infection* as to which many people have already exaggerated and mistaken ideas.

For the information of the Sanitary Committee of the Council I have extracted from the district reports the passages which relate to phthisis prevention. In several districts the medical officers of health do not specifically refer to the subject; or the information, when given, as to bacteriological diagnosis, voluntary notification, disinfection of "phthisis houses," arrangements for disinfection of bedding, clothing, &c., is insufficient, especially when we note the number of deaths from the disease recorded in each district and think of the very much larger number of cases they indicate. The Committee may therefore deem it desirable to direct the issue of a circular of inquiry with a view to supplementing the information I am at present able to submit.

EXTRACTS FROM URBAN DISTRICT REPORTS.

BARNES.—Medical Officer of Health reports voluntary notification continued, special attention paid to dwellings in which Phthisis has been known to exist, and after death or removal disinfection offered, and in almost every instance readily accepted; cleansing by landlords of several houses in which phthisis had occurred secured by statutory notice. An Assistant Inspector has been appointed for routine visitation of infected houses, and the necessary disinfection has been performed by that official. *Seven deaths.*

RICHMOND. - There were 54 deaths from tuberculosis, of which 31 were due to Phthisis. Of the 54 deaths, 25 occurred between the ages of 25 and 65. Medical Officer of Health reports 15 cases notified voluntarily; houses of the patients as well as of those certified as suffering from this disease in the monthly returns received from the Clerk to the Guardians have been visited, and advice given to inmates as to the precautions to be adopted; in several instances rooms disinfected after removal or death; bedding and such-like articles being sent to Mogden. *Thirty-one deaths.*

WIMBLEDON.—After deaths from Phthisis, disinfection encouraged, and on request of the occupier or medical attendant, rooms are fumigated and clothing and bedding disinfected. The number of cases so dealt with is not mentioned. *Twenty-seven deaths.*

HAM.—No note on Phthisis. *One death.*

KINGSTON-ON-THAMES.—Medical Officer of Health recommends prohibition of spitting in public places, and disinfection of houses after removal or death, but he adds, "the great safeguard is to make the body resistant to the germ by physical training, by an open-air life, by rational food, and, above all, by strict temperance." *Forty-three deaths.*

ESHER AND DITTONS.—No note on Phthisis. *Six deaths.*

MALDEN AND COOMBE.—No note on Phthisis. *Six deaths.*

SURBITON.—No note on Phthisis. *Five deaths.*

MOLESEY.—No note on Phthisis. *Four deaths.*

CHERTSEY.—The Inspector's list contains the item of five houses disinfected after Phthisis. *Fourteen deaths.*

WEYBRIDGE.—Disinfection of houses after Phthisis is referred to in the Inspector's tabular statement. *Six deaths.*

WALTON.—No note on Phthisis. *Twelve deaths.*

FARNHAM.—No note on Phthisis. *Eleven deaths.*

FRIMLEY.—No note on Phthisis, but a great deal of time of the Medical Officer of Health, with the County Medical Officer of Health, has been devoted to the arrangements of the Consumption Sanatorium, at Heatherside. *Eight deaths.*

GODALMING.—No note on Phthisis. *Sixteen deaths.*

GUILDFORD.—No note on Phthisis. *Sixteen deaths.*

WOKING.—No note on Phthisis. *Nine deaths.*

DORKING.—Medical Officer of Health reports on examination, at the expense of the Council, at the Lister Institute, of one specimen from a patient suspected to be suffering from Phthisis, with negative results. Disinfection was carried out by the Inspector at three houses at which Phthisis had occurred. *Nine deaths.*

LEATHERHEAD.—Medical Officer of Health reports on examinations made at the Lister Institute, at the expense of the Council, of two specimens of sputum of patients suspected to be suffering from Phthisis, with positive results in one case. *Two deaths.*

EPSOM.—Medical Officer of Health reports that rooms vacated by consumptive patients were disinfected under his directions. *Thirteen deaths.*

SUTTON.—Circulars have been sent to medical practitioners calling attention to the Sanitary Authority's willingness to cause the disinfection, free of charge, of all rooms vacated by consumptives. This has been carried out in five cases during the year, as compared with three in the previous year. *Eleven deaths.*

CARSHALTON.—No application for bacteriological examination was received. The Council undertook the disinfection of rooms after deaths from Phthisis, free of charge, but the offer was accepted in two only of the five cases.

REIGATE.—Nine specimens sent by medical practitioners for examination by the Lister Institute or by Dr. Blackler, with the result that tubercle bacilli were found in three, but not in the other six. The number of cases of pulmonary consumption voluntarily notified was 17. The number of houses at which rooms vacated by consumptive patients were disinfected free of charge in 1903. was 10, as against 4 in 1902, 16 in 1901, 2 in 1900, and 3 in 1899. *Sixteen deaths.*

CATERHAM.—No note on Phthisis. *Eleven deaths.*

EXTRACTS FROM RURAL DISTRICT REPORTS.

CHERTSEY.—No note on Phthisis. *Fourteen deaths.*

EGHAM.—No note on Phthisis. Five deaths occurred among persons over 65 years of age. *Nine deaths in all.*

FARNHAM.—No note on Phthisis. *Seventeen deaths.*

HAMBLEDON.—No note on Phthisis. *Fifteen deaths.*

GUILDFORD.—In describing the chemical and bacteriological work of the Laboratory established at the Council's offices at Guildford (at which a great deal of valuable work is done), the Medical Officer of Health states that the work for assisting diagnosis was light, only 14 specimens having been received from medical men, 3 of them were specimens of sputum, of which 1 was positive and 2 negative. *Thirteen Deaths.*

DORKING.—Medical Officer of Health reports—that rooms vacated by persons suffering from consumption were disinfected by the Inspector. *Fourteen Deaths.*

EPSOM.—One specimen of sputum was examined at the Lister Institute, at the expense of the Council, for the tubercle bacillus, with a negative result. Rooms disinfected. *Seventeen deaths.*

CROYDON.—Medical Officer of Health reports—that during the year he has examined the sputum of 71 persons, and the bacillus was present in 40 instances. Disinfection has been largely carried out in the rooms occupied by phthisical persons with, of course, very beneficial results. *Thirty-three deaths.*

REIGATE.—Specimens 1, Notifications 8, Rooms disinfected 7. *Sixteen deaths.*

GODSTONE.—The late Medical Officer of Health commented in his report on the fact that there was no deaths among infants from diarrhœa due to tuberculosis, and that at the other extreme of life bronchitis and pneumonia deaths were few in number, which he thought may have been the result of the heavy rainfall and comparative freedom from "dust infection." *Eleven deaths.*

Table showing the number of Deaths in each District from three groups of Diseases, viz. :—1 Zymotic, 2 Phthisis, 3 Diseases of Respiratory Organs.

				URBAN DISTRICTS.		
				Z.	Ph.	R.
Barnes	...	...	...	31	7	32
Richmond	...	...	...	27	39	51
Wimbledon	...	...	...	33	27	57
Ham	...	...	...	0	1	7

	Z.	Ph.	R.
Kingston	38	43	32
Esher and Dittons	7	6	13
Malden and Coombe	7	6	4
Surbiton	10	5	25
Molesey	5	4	2
Chertsey	25	14	26
Weybridge	2	6	4
Walton	15	12	33
Farnham	4	11	9
Frimley	4	8	8
Godalming	4	16	8
Guildford	9	16	24
Woking	14	9	24
Dorking	4	9	21
Leatherhead	3	2	4
Epsom	5	13	11
Sutton	10	11	19
Carshalton	2	6	15
Reigate	13	16	30
Caterham	9	11	15
	<hr/>	<hr/>	<hr/>
	281	290	474

RURAL DISTRICTS.

	Z.	Ph.	R.
Chertsey	7	14	15
Egham	10	9	14
Farnham	3	17	20
Hambledon	20	15	25
Guildford	6	13	21
Dorking	4	14	5
Epsom	22	17	25
Croydon	45	33	61
Reigate	7	16	27
Godstone	13	11	20
	<hr/>	<hr/>	<hr/>
	137	159	233

V.—SANITATION OF DWELLINGS AND HOUSING OF THE WORKING CLASSES.

In preceding reports I have given as full an account of the work of the sanitary authorities as the importance of the subject demands. There is less need for me to dwell on it now, inasmuch as most of the thirty-four district councils have adopted the system strongly recommended by the Committee of appointing officials or inspectors, whose duties relate immediately to the details of house sanitation and who are in a fairly good position to carry out such duties. It is owing to this great improvement in administration that so much good work is being done in the County. On the whole I think the progress made is satisfactory, although there are still some districts in which the reports are deficient in detailed information. Among them are to be noted the rural districts of Hambledon and Farnham.

I subjoin extracts from the reports of the Medical Officer of Health, grouped under three headings, as in the reports for the preceding two years.

1. DISTRICTS SUBURBAN TO LONDON.

BARNES.—Population 21,150. Medical Officer of Health reports specially on housing accommodation of the working classes. Two houses reported "unfit," and in 129 instances cleansing operations directed under the Public Health Act, and 3,642 house to house visitations by Inspectors. Six cases of overcrowding brought to light.

The difficulty arising from double tenements has still to be dealt with by Bye-laws.

The power recently conferred on Sanitary Authorities by the Act of 1903, for more summary procedure in case of houses "unfit," has proved advantageous.

The Workmen's Dwellings planned by the Council's Surveyor are described and classified by him as follows:—Class A consists of eleven dwellings at 7s. 9d. each, one living room, kitchen, scullery with fitted bath, coals, larder, w.c., and two bed rooms.

Class B¹ consists of twenty-one dwellings at 8s. 3d. each. Sitting room, kitchen scullery, coals, larder, w.c., and three bed rooms. Class B² consists of twenty-one dwellings at 7s. each. Sitting room, kitchen, scullery, larder, coals, w.c., and two bed rooms. Class C consists of fourteen dwellings at 7s. 3d. each. One living room, kitchen, scullery with fitted bath, coals, larder, w.c., and two bed rooms.

RICHMOND.—Population 32,808. Medical Officer of Health reports on the work of the Health Department. Inspections to secure abatement of Nuisances numbered 2,651 in 1,055 houses and premises. Full particulars of the details are filed. They include an account of 68 houses in which a new system of drainage was constructed, and 118 instances of reconstruction as regards flushing and ventilation of water closets. For cottage property the closets have been required to have concrete flooring with a fall towards the door.

Medical Officer of Health reports five houses closed as "unfit". Three houses in the Kew Road, previously reported, have been demolished and the site built on. The houses built by the Corporation under Part III. of the 1890 Act, continue to be in a satisfactory condition and are all occupied.

WIMBLEDON.—Population 46,000. The drains of 150 houses and premises have been entirely reconstructed and laid to stand the water test, with manholes, &c., for inspection and cleansing purposes. The localities thus improved are mentioned. House to house inspection was carried out in a specified part of the district and the results in the direction of cleanliness and repair are stated. In 100 houses in the poorer parts of the district a valuable improvement has been effected by either cementing or tar-paving the back yards close to the house for a width of from 3 to 5 feet. Certificates were applied for under the

Customs and Inland Revenues Act in ten cases, and granted after necessary improvements in water supply and drainage.

KINGSTON-ON-THAMES.—Population 36,311. Medical Officer of Health reports on five houses in which he considers magisterial proceedings necessary, others in which the required alterations are proceeding too slowly, and again others in which the owners have, to his great satisfaction, straightway proceeded to do what is required on their attention being drawn to the matters. As regards the larger question of housing of the working classes, the Medical Officer of Health states that houses formerly let at weekly rents of 4s. 6d. now fetch 7s., but that this difference is almost entirely due to increased demand for accommodation. He then suggests a scheme under the Housing of the Working Classes Act, giving some details of his proposals.

SURBITON.—Population 15,703. Attached to the report of Medical Officer of Health is a full account of works carried out. Five cases of over-crowding were dealt with. 29 houses were provided with dust receptacles, and 65 houses had their back yards paved or concreted in a manner already described in former County Reports. The work of redraining houses proceeds, but in a district such as Surbiton, these operations chiefly affect houses of another class than those let at weekly rents. Eight houses in the Tolworth part of the district were found unfit and statutory proceedings were taken for their improvement which is now in progress. The localities are given where the necessary sanitary improvements have been effected.

ESHER AND DITTONS.—Population 9,855. Medical Officer of Health reports on increased work in House Inspection, and particulars as to rents as well as sanitary condition have been obtained in 726 cottages. They are classified as follows :—

- A. Houses with six rooms, small hall, and staircase, lighted and ventilated. Rent 8s. to 10s. per week.
- B. Cottages with five or six rooms, with staircase not lighted and ventilated. Rent 6s. to 8s. per week.
- C. Cottages with three and four rooms, with a staircase leading out of living room neither lighted nor ventilated. Rent 5s. to 6s. per week.

The following table gathered from the report shows the proportion of the dwellings of the three different classes in the divisions of the district.

Class.	Thames Ditton.	Esher.	Long Ditton.	Claygate.	TOTAL.
A.	40	37	79	2	158
B.	65	77	130	10	282
C.	81	103	55	47	286
TOTAL ...	186	217	264	59	726

The superiority of Class A from a sanitary point of view is obvious, the air of the house being pleasanter and more wholesome. But the rent is high for workmen. Medical Officer of Health states there is still a great need of cottages at rents from 5s. to 8s. a week, as a considerable number of men employed in the district are obliged to find dwellings outside.

In the course of the house to house inspection, all defects in cleanliness, repair and ventilation (so far as it is capable of improvement), as well as overcrowding nuisances were methodically dealt with as they were discovered.

It is satisfactory to report that the value of all this work is better recognised in the district now than formerly.

MOLESEY.—Population 6,168. Attached to the report of Medical Officer of Health is a tabular statement, by the Surveyor, of nuisances dealt with. No detailed information is given as to localities, &c. It is noted that in East Molesey there are now 1,161 houses (including 995 old houses) connected with the sewerage system. From this it would appear that nearly all the houses of the district are on a modern system so far as water supply and drainage are concerned.

In the future nuisances arising from other causes than want of proper house-draining may be dealt with, and it would certainly be an advantage if the localities in which they are discovered were indicated.

MALDENS & COOMBE.—Population 6,520. Medical Officer of Health reports that a new Sanitary Inspector was appointed early in the year and gives a statement furnished to him by that officer.

It includes a few improvements in water supply and drainage of houses at Coombe, the particulars of which are fully given.

At New Malden, as might be expected in a district containing a large proportion of houses or tenements let at weekly rents, water supply and drainage nuisances (including defective w.c. pans) constantly arise and require perpetual attention. The localities in which they occurred are given at pp. 12 and 13 of the report. The improvements effected represent a substantial gain to the tenants, not only as regards the healthiness, but also as regards the comfort of their dwellings.

In addition, a few houses were entirely redrained and the foundations concreted to prevent dampness. Two filthy houses were required to be cleaned, and two cases of overcrowding were discovered and the nuisance in each case abated by the occupants of the overcrowded houses leaving the district.

In old Malden the connection of a few houses with the main sewerage system is reported and one filthy house was required to be cleaned.

CROYDON "RURAL."—Area in acres 22,766, population 41,120. This district includes Mitcham, Merton and Wallington, as well as the growing neighbourhood of Tooting station, all of which localities are more of an urban than rural character, so that although the district has not got urban powers, it is more convenient to consider it along with the other districts contiguous to London.

In previous annual reports to the County Council a full description has been given of the sanitary administration of the district which is modern and complete. The whole of the work of the Public Health Department is immediately directed by the Medical Officer of Health. No less than 8,083 inspections and visits to premises have been made. They relate chiefly to the houses of the working classes, and as every kind of sanitary defect discovered is accounted for, it is plain that—through the pressure brought to bear on house property owners—a large amount of work has been accomplished at the public expense, immensely to the advantage of the wage-earning classes.

2. URBAN DISTRICTS IN RURAL SURREY.

CHERTSEY.—Population 13,130. The District includes Addlestone. The sewerage of the District is progressing, Medical Officer of Health reporting work as “satisfactory” in Addlestone. He expects that in a few months house connections to main drainage will commence and the cesspool nuisances, which so often tend to make the houses of the district insanitary, will soon begin to disappear; in the meanwhile he has made some practical suggestions for minimising the nuisances caused by the emptying process. Systematic house inspection is in progress under the direction of the Medical Officer of Health. The Inspector’s Table shows 217 houses cleansed and generally repaired, and 162 more where dampness has been remedied by repairs to roofs and rainwater pipes. This is very important work. It would add to the value of the report if the localities were mentioned in which improvements were effected. In addition to the improvements of cottage property brought about under the powers of the Public Health Act, Medical Officer of Health reported on 35 cottages, which were very damp and defective under the Housing of the Working Classes Acts. In six of these cases the requirements of the Council were complied with. The bye-laws and regulations, in so far as they relate to the efficient drainage of the working class dwellings of the district, have received the special attention of the Council.

WALTON-ON-THAMES.—Population 10,920. Nothing special is said about the improvement of cottages and working class dwellings under the Public Health Act or the arrangements for systematic inspection, whereby they are brought about. The Inspectors’ Table given by the Medical Officer of Health refers to 162 cases of dirty walls and ceilings, 164 cases of damp walls and ceilings, and 194 cases of dustbins wanted. These are important items of information. The localities in which these improvements were effected are not indicated. The Medical Officer of Health mentions that as many as 21 houses in the district had been allowed to become so bad as to necessitate representations under the Housing of the Working Classes Acts; 15 of these were situate in Hersham and 6 in Walton. Four of the Hersham houses were in such a dangerous and insanitary condition as to justify action under Section 8 of the Housing of the Working Classes Act, 1903, and justice’s closing orders were applied

for and obtained without the form of serving notice on the owner or occupier of the premises to abate the nuisance. Of one of these houses the Medical Officer of Health remarks "it was the filthiest it has ever been my misfortune to visit."

WEYBRIDGE.—Population 5,702. The district being chiefly residential there is not so much need for inspection as elsewhere in the neighbourhood. Medical Officer of Health reported on one house under the Housing of the Working Classes Act, and the owner complied with the requirements of the Council. In other cases where sanitary defects were discovered by Medical Officer of Health and Surveyor they secured the necessary alterations without recourse to statutory proceedings.

WOKING.—Area in acres 8,889. Population 16,040. In addition to the information given under the headings of water supply, drainage and sewerage, Medical Officer of Health gives particulars and results of the systematic house to house inspection carried out by him or under his direction. The locality in which improvements have been effected being indicated adds materially to the interest and usefulness of the report.

FARNHAM.—Population 6,573. Medical Officer of Health reports that cottages are almost unattainable in the town. The Council has built eight houses on a site bought in 1902. Four of them have three, and four two bed rooms each. There is another site of 12 houses for which the Council has borrowed money. Medical Officer of Health reported on Potter's Yard and Beaver's Yard, and recommended a house to be pulled down in Beaver's Yard, "to let in light and air to the surrounding houses." Unsanitary rows of cottages have been improved, two in Wheat-sheaf Yard being demolished, one in Hale Road closed, one in Potter's Yard, and one in Downing Street, reported under the Housing of the Working Classes Act, and rendered fit by repairs. Eleven houses in Mead Lane, two in Park Lane and one in West Street, though in a very old and bad condition, have also been considerably improved. Altogether the record of work is a good one for a small district.

FRIMLEY.—Population 9111. 524 inspections and re-inspections were made in the course of the year. These were chiefly for the purpose of sanitary improvement of houses let at weekly rents, and the work was carried out entirely to the satisfaction of the Medical Officer of Health.

GODALMING—Population 8,890. The specific nuisance of overcrowding and insanitary houses is occupying the serious attention of the Sanitary Authority, the subject of a municipal scheme being still under the consideration of a special committee who have already reported that it cannot be carried out without further burden on the rates. In the meanwhile ordinary health nuisances which tend to make houses “unfit” are receiving special attention. The insanitary condition of 36 houses in George Street, Farncombe, abutting on the Borough, which has been specially reported to the County Council, and as to which there has been much correspondence, is now to be dealt with.

GUILDFORD.—Population 16,330. Medical Officer of Health reports that systematic inspection of streets and courts is in progress. As to overcrowding, a case is mentioned in which, after the magisterial order for abatement had been obtained, the Council felt they could not proceed to extreme measures owing to the acknowledged difficulty of obtaining accommodation. Part III, of the Housing of the Working Classes Act has been adopted and four acres of land have been acquired where the Council have determined to build 80 artizan dwellings. A full account of the proceedings under the Housing of the Working Classes and Public Health Acts is appended, the localities where improvements have been effected being named.

DORKING.—Population 7,800. The Medical Officer of Health made inspection of 70 houses in Orchard and Harrow Roads, at one of which overcrowding was discovered. Many other defects were discovered. They consisted chiefly of want of cleanliness, leaking roofs, damp walls, unpaved yards, want of flushing apparatus to closets. Notices were served and the remedies suggested were carried into effect in nearly every case by the end of the year.

LEATHERHEAD.—Population 4,800. The sanitary condition of a large number of cottages was materially improved by the substitution of water closets for tub closets, and the connection of the drains with the sewerage system. 524 premises were “connected,” the “water test” being applied to the drains in every case. Seven cottages were dealt with as “unfit” under the Housing of the Working Classes Act. Three of them were rendered fit before the end of the year.

EPSOM.—Population 10,900. The Council appointed a sanitary inspector to specially attend to the duties of the office. Medical Officer of Health reports that already a considerable number of nuisances due to the defective drainage of houses have been removed. The localities where the chief improvements have been effected are generally indicated.

CARSHALTON.—Population 7,090. Eighty houses were inspected and re-inspected, including four which had been reported as “unfit,” with the result that they were placed in a state of cleanliness and good repair. The localities where improvements have been effected are indicated by the Medical Officer of Health.

SUTTON.—Population 16,453. Medical Officer of Health has reported four houses closed as “unfit.” One of them has been improved by structural alterations, so as to comply with the requirements of the law. Six cases of overcrowding discovered and abated. The demand for houses is insisted on, Medical Officer of Health emphatically stating that the erection of houses within recent years, mostly of a class that command a rental of 10s. per week or more, does not in any way assist this great sanitary problem of the housing of the working classes in residential districts.

REIGATE.—Population 26,150. The report on house sanitation does not appear in the Annual Report of the Medical Officer of Health for this district. This is a departure from the usual custom which is to be regretted for reasons that have already been fully explained in previous reports. The Sanitary Inspector refers to the steady improvement in house drainage and sanitary fittings and notes with gratification that there is comparatively little friction between the Sanitary Department and house property owners. A tabular statement is appended. Localities where improvements have been effected are not mentioned.

CATERHAM.—Population, apart from asylum and barracks, 7,000. On the representation of Medical Officer of Health, the Council made an Order prohibiting the use of two houses for human habitation. One case of overcrowding was dealt with in the year. The boarding out of holiday-home children has been carefully watched with a view to preventing overcrowding.

3. RURAL DISTRICTS IN THE COUNTY.

CHERTSEY.—Area in acres 24,649. Population 12,732. Medical Officer of Health reports on the want of sewerage systems in the districts of Horsell and Byfleet which affects the condition of a good many cottages and working class dwellings. The subject is receiving the earnest attention of the District Council at the present time. Medical Officer of Health made eight representations under the Housing of the Working Classes Act with respect to one house in Thorpe and seven houses in Windlesham.

EGHAM.—Area in acres 7,786. Population 12,623. As explained in the report for 1902, this district is part of a large Berkshire "combination" for the medical and sanitary administration, of which Dr. Woodforde, a most experienced official, has for many years been responsible. He, the Medical Officer of Health, has expressed in his report his satisfaction with the operation of the Building Bye-laws and system of sanitary inspection for keeping the district "*in a sufficiently good sanitary condition without any large public expenditure*" When the conditions of domestic water supply and drainage are declared satisfactory by such an authority as Dr. Woodforde, there would seem to be no sufficient reason for pressing on the district a sewerage scheme which must involve large expenditure, and which must incidentally add to the rates and the rents of houses occupied by the working classes.

The number of houses and premises inspected in detail was 123.

Egham is, in some respects, an exceptional district. Thirteen houses were closed under the Housing of the Working Classes Act. With the consent of the Local Government Board, land has been purchased for depositing dry refuse thereon, and a system of scavenging is about to be commenced.

FARNHAM.—Area in acres 28,257. Population 17,700. 137 new buildings were erected in 1903, as against 99 in 1902, but the Medical Officer of Health complains of the scarcity of cottages and urges modification of the bye-laws to allow of "the erection of cottages with less brickwork and more concrete."

HAMBLEDON.—Area in acres 63,910. Population 22,182. The report of Medical Officer of Health is deficient. He says there is need for more cottages in the district, but he gives no details whatever.

Mr. Lunn, the Surveyor, gives information which is of value. Plans for 102 separate dwelling houses were approved, but as the erection of 52 of these belonging to one owner was deferred, the increase for the year 1903 was only 50 as against 44 in 1902. It does not appear, therefore, that the demand for house accommodation is being supplied.

With the introduction of sewerage systems, useful sanitary work is in progress in the villages of Bramley and Cranleigh. Opportunity is taken when connecting houses with new sewerage systems to redrain them on modern principles, with the result that their healthiness is improved. Mr. Lunn reports 30 houses dealt with in this way at Bramley.

GUILDFORD RURAL.—Area in acres 55,851. Population 21,960. Medical Officer of Health gives detailed information of the improvements in water supply in various parts of the district, viz.:—Peaslake and Holmbury St. Mary, Ockham, Compton, and Puttenham, the cottages at Jacob's Well, Ash Road, Broad St. Common and Shere. The action taken on the initiative of Medical Officer of Health in this district to protect the local wells from contamination is most important. Much consideration has also been given to local schemes for sewerage for certain parts of the district where such systems unfortunately appear to have become necessary. At George Street, Farncombe, the insanitary condition of the houses, arising from want of proper drainage, was officially reported on as urgently requiring attention, and arrangements have now been arrived at with the Godalming Corporation for the sewerage of the street. Medical Officer of Health reported on four cottages at Eashing as being unfit for human habitation, and the owner put them into thorough repair at considerable cost. The scarcity of working class dwellings is referred to. It is rare to find an empty cottage unless it is old and dilapidated.

DORKING.—Area in acres 39,517. Population 9,910. Medical Officer of Health has continued his systematic inspection of cottages. 416 such inspections were made by himself or by the Sanitary Inspector under his directions. At South Holmwood considerable improvements in the

sanitary condition of a large number of cottages have been brought about by the practical completion of the work of connecting the house drains with the new sewers under the supervision of the Surveyor. The Medical Officer of Health has also finally dealt with a recurring nuisance arising from closet and drainage defects which from, time to time, made 16 cottages "unfit."

EPSOM.—Area in acres 30,736. Population 20,420. Medical Officer of Health has continued his systematic inspection of cottages. 873 such inspections were made by himself and his staff, at Banstead, Tadworth, the Bookhams, Ashtead and Ewell, with the result that under the powers of the Public Health Act many of the cottages were cleansed and repaired defects of drainage were remedied, and water supply was improved, the details of improvement being stated in tabular form. Three cottages, were dealt with under the Housing of the Working Classes Act.

REIGATE.—Area in acres 49,908. Population 17,300. The report on house sanitation does not appear in the Annual Report of the Medical Officer of Health for this district as it should do. The following is from a separate report of the Sanitary Inspector of the District Council. During the year 333 preliminary notices and 50 statutory notices were served for abatement of nuisances, the nature of which is given in detail. The re-inspections of works ordered by the Council numbered 1,116. Systematic house-to-house inspection was made in the following parts of the district:—*Merstham* 86, Albury and Albert Roads and High Street; *Horley* 41, Charlesfield, Albert and Brighton Roads; *Charlwood*, 49 houses in various portions of the parish; *Chaldon*, 4 houses; *Nutfield*, 27 houses; *Leigh*, 3 houses; *Betchworth*, 4 houses; *Burstow*, 5 houses.

GODSTONE.—Area in acres 49,908. Population 19,100. This report was prepared by the late Medical Officer of Health and is dated February 22nd, 1904. Besides giving a full account of the improvements in cottage property which have been rendered possible by the provision of sewerage schemes for the villages of the district, a Table is attached to the report showing the nuisances dealt with in each of the 14 villages of the district. The reports of the late Dr. Oldman have always been very methodical and carefully prepared. The work carried out under his directions for the better housing of the working classes has been most valuable.

VI.—MILK SUPPLY.

As the subject is now before the Sanitary Committee of the County Council, it has been thought desirable to give the substance of all the district medical officers' Reports for 1903. The statements of the Chertsey Rural medical officer of health is given fully, because attention has been drawn to the district by what occurred at Horsell last year, and because it is most important now that public interest is aroused that we should ascertain what is being done by the local committee to improve admittedly bad sanitary conditions. At the same time it will be noticed that in two or three districts, an account of which immediately follows that of Chertsey Rural, there is no evidence to show that the conditions are any better, or that the sanitary authority is taking steps to ascertain the existing state of affairs, with a view to its improvement. It may be considered desirable by the Committee to address inquiries to those district councils, the reports of whose medical officers and inspectors are most deficient.

The attention of sanitary authorities generally might also with advantage be drawn to the economic as well as the sanitary advantages of cooling milk.

Three or four years ago, under the influence of the reports of *two* Royal Commissions, on the prevention of the spread of tuberculosis, there was a growing interest in the important subject of cowhouse and dairy sanitation. That, unfortunately,

received a check from Koch's manifesto at the Congress in 1900, which made it appear that the conclusions arrived at by the two separate Royal Commissions were unsound. As the utterances of the Professor were considered to necessitate the appointment of a *third* Royal Commission, which has not yet fully reported, it did not surprise administrative officials that the public interest (on which they have to rely mainly for the furtherance of sanitary reform) diminished. But as time goes on it becomes more and more evident that the cleanliness and wholesomeness of the milk supply is of very wide importance, and that quite apart from the tuberculosis question, it must affect the health and physique of the rising generation to a material extent, so that it becomes a matter really of national concern. It is hoped that now with renewed and increasing interest in the subject further substantial improvements will be effected by several sanitary authorities, for in connection with the public health nothing but good can come of effort in this direction, and the expenditure at first entailed will soon lead to profit.

I subjoin extracts from the reports of the medical officers of health for the urban and rural districts respectively.

URBAN DISTRICTS.

BARNES.--Medical Officer of Health reports that there are 29 cowsheds, &c., altogether and the number of inspections recorded is 70.

RICHMOND.--Medical Officer of Health reports 29 cowsheds, &c., altogether. Regulations under Sec. 13, Dairies, Cowsheds and Milkshops Order adopted April 7, 1903, after being submitted to the Local Government Board.

WIMBLEDON.--The Register kept in accordance with the provisions of the Dairies, Cowsheds, and Milkshops Order contains the names of 7 cow-

keepers and 45 dairymen and purveyors of milk. Cowsheds inspected quarterly, and the other premises at irregular intervals.

HAM.—Medical Officer of Health inspects the premises once a quarter.

KINGSTON-ON-THAMES.—Cowsheds inspected quarterly. Number of cows reduced to 52. District supplied largely by "railway milk." The largest cowkeeper in the town has now an apparatus for cleansing his cans by steam.

ESHER AND DITTON.—Number of registered premises, 18. Regularly inspected. Improvements in drainage, ventilation, and cleanliness effected at 6. All limewashed, &c., in Spring and Autumn. Medical Officer of Health reports that better lighting required.

MALDENS AND COOMBE.—Milk supply from 4 farms in the District, from Croydon, Cheam, Kingston, Raynes Park, and railway borne milk from without the District. Medical Officer of Health has had experience in Country as well as Suburban Districts, and gives reasons for preferring milk obtained by the consumer direct from the dairy farmer as being less likely to be contaminated or to contain preservatives in unknown quantity. The necessity for always separating cows suffering from Garget, or any inflammatory disease of like character, is insisted on. The Milkshops have always been regularly inspected, and found clean and in good sanitary condition, and all necessary alterations have been carried out.

MOLESFY.—Medical Officer of Health refers to inspection, but no details given in report.

CHERTSEY.—Systematic inspection instituted. Register contains list of 20 cowkeepers and 11 purveyors of milk. Number of inspections 71. All sheds and dairies cleaned and limewashed twice.

WALTON-ON-THAMES.—Medical Officer of Health inspected all the cowsheds (10 in number, as set out in a table) twice and reported two as being in a dirty condition, without sufficient light and ventilation and without means of drainage. Defects since remedied. The Sanitary Inspector has also frequently inspected the premises. The result has been material improvements in their general condition.

WEYBRIDGE.—There are 7 persons on the Register, 4 of them cowkeepers. The sheds have been regularly inspected. The Council decided to adopt Regulations approved by the Local Government Board.

FARNHAM.—Medical Officer of Health reports on 5 cowhouses which he inspected and found in fair condition. He gives the names of the owners and the exact situation of the premises. He further reports on two cases, one in East Street (closets without water at a milkshop), and the other at Bourne Mill (water supply polluted, town water since laid on).

FRIMLEY.—Medical Officer of Health makes no reference in his report, except in the summary of the work done in the Sanitary Department. Dairy and cowshed inspections, 34, no further particulars.

GODALMING.—Medical Officer of Health makes no reference in his report.

GUILDFORD.—Medical Officer of Health makes some important remarks on the general subject of cowhouse and dairy sanitation generally. The whole of the milk consumed in the district is imported. There are 22 dairies and milkshops, all of which were inspected, action being taken as regards the cleansing of milk cans.

WOKING.—As might be expected a fair portion of the report of the Medical Officer of Health is given to the question of cleanliness, wholesomeness, and purity of the milk supply of the district. At the end of the year (after the outbreak of septic sore throat which has called attention so prominently to the whole subject), under the instruction of the Sanitary Committee of the District Council, the Medical Officer of Health examined the milks of the district. Briefly the results were as follows :—

“Bacteriological analysis of the samples shewed that eight contained an excessive amount of dirt indicating a great want of cleanliness in the production or handling of the milk. Fourteen of the remaining samples were not quite so impure, but the analysis shewed that insufficient care was taken to avoid the exclusion of dirt during the process of milking or

subsequent handling of the milk. The remaining six samples were considerably better, and the results shewed that they were produced under more cleanly conditions. No evidence of pollution of a similar character to that which took place at Horsell was found in any of the samples.

Of the eight worst samples four came from a distance, two from a neighbouring district, and two from within the district.

Of the six best samples; two were from farms within the district and four from farms in an adjoining district.

The results of the investigation proved that there is much room for improvement in the matter of cleanliness in milk production."

SUTTON.—Medical Officer of Health refers generally to the subject. The premises were frequently inspected and generally speaking the sanitary conditions were found to be good. The Inspector makes a return of 17 registered cowkeepers, etc., in two of which improvements in lighting, ventilation, drainage, etc., were required.

REIGATE.—The reports under the Cowsheds, Dairies, and Milkshops Order, 1885, is published separately from that of the Medical Officer of Health, contrary to the usual custom in reports presented in accordance with the regulations of the Local Government Board. The Inspector reports there are 37 persons registered, occupying 41 premises. Of the 37 registered persons, 18 keep their premises exclusively for the purpose of carrying on the business for which they are registered. There are 204 cows kept by the persons registered and a large amount of the milk supply of the Borough is derived from the neighbouring parishes, viz., Buckland, Chaldon, Chipstead, Gatton, Leigh, Mason's Bridge, Merstham, Nutfield, and Plumpton.

CATERHAM.—Medical Officer of Health reports there are 13 cowkeepers and 10 registered dairymen and purveyors of milk in the district. Lighting, ventilating, cleansing, and drainage carried out according to regulations. Water supply sufficient and good. Milkshops and milkcans clean.

RURAL DISTRICTS.

CHERTSEY.—The Medical Officer of Health reports that he made a complete inspection of the cowsheds, etc., of this district in 1903. The following table shows the number of registered cowkeepers in the districts, with the number of cowsheds, and approximately the number of cows :—

				No. of Registered Cowkeepers.	No. of Cowsheds.	No. of Cows.
Bisley	...	...	..	4	7	28
Byfleet	...	...	...	7	8	57
Chobham	...	...	...	17	27	115
Horsell	...	...	...	8	12	80
Thorpe	...	...	...	7	12	86
Windlesham	...	...	...	15	24	90
Total	...	...	...	58	90	456

In December, 1903, he was called on by the Local Government Board for a special report on account of the outbreak of septic sore throats at Horsell and Woking, and in order to bear out the statements made in that report, he states that as regards the lighting of the sheds, he found 15 without any windows at all and without any other means of lighting than might be obtained by the doors of the sheds being left open. Three other sheds had in addition to the doors single openings closed by means of hinged shutters, and habitually kept closed.

The want of provision for effectual drainage of the Sheds is even worse than the defective lighting arrangements. He found 19 Sheds without any channel or other means of drainage and in many others the uneven channel formed of small cobbles or irregular pieces of brick laid at uneven intervals with but slight, if any, fall is worse than useless.

The Regulations of the District Council make no mention of a suitable channel and as regards drainage the only stipulation made is that every Dairy and Cowshed shall be effectually drained in such a manner as not to allow of direct communication by means of any drain between the interior of the Dairy and Cowshed, and any sewer or cesspool. This regulation is of less use than Article 8 of the Order of 1885, and it is immeasurably inferior to the regulation dealing with drainage in the model Bye-Laws.

He proceeds:—

“I inspected one Shed for 4 cows which had an opening for a window 1 ft. 6 in. by 9 in. but this was blocked up in the winter time. There was an irregular brick channel in the Shed and the only means of ventilation, which I must admit seemed to be sufficient, was from the defective construction of the wooden walls which stood on about 6 courses of bricks. Another Shed for 4 Cows had a window one foot square and the interior of the Shed was very dark. In one Shed for 7 Cows I visited shortly after noon I found the Cows in the Shed and the doors and window shutter closed. I was informed that this was done to prevent any draught affecting one of the Cows who had a slight cold. The desired effect was certainly obtained, but at the sacrifice of light and ventilation.

In another Shed, and that one of the most isolated in the District I found the Cows had not been turned out, and the door and one small window opening closed.

These are a few of the worst examples of sheds in the district, and it is for sheds such as these that it is so desirable to have some regulation which will provide for a definite stated lighting area which must be permanent. If the lighting area is provided for by means of permanent openings instead of or in addition to windows, so much the better as then ventilation is likely to be more satisfactory.

The lightest shed is as a rule the cleanest, and light and ventilation should always be well provided for.

The reason why cowkeepers, as a rule, prefer close sheds is obvious, but it seems to me that the extra amount of milk gained hardly compensates for the deterrent effect close quarters must have upon the health of the cows.

I was pleased to see in the course of my inspections one shed that was only closed in on three sides. Nine cows were stalled in this open shed and I was informed by the cowkeeper that these cows were always healthy, but gave rather less milk than the cows kept in a close shed near at hand. In an open shed such as this there can be no question as to the lighting, ventilation and cubic space being sufficient.

Although cubic space is not so important as lighting and ventilation, a minimum amount of space per cow should be enforced in all cowsheds, whether in town or country.

Certainly less space is required in the open country than in towns, but if cows are huddled up close together in a shed it is almost impossible to provide for sufficient ventilation without creating draughts, which might be injurious to the cows, and certainly would be to cows recently calved."

The above report, dealing with the condition of the cowsheds as existing in 1903, is given fully on account of the importance of the subject. The Medical Officer of Health states in his report to the Local Government Board of December 17th, 1903—that a Committee of the District Council had been appointed "to consider the advisability of adopting a new series of regulations" (and presumably to enforce them when adopted). It is very desirable that a further report should be made on the steps that have been taken on the reports of the Medical Officer of Health to the Local Government Board and to his District Council.

EGHAM.—Medical Officer of Health reports that 15 cowsheds and milkshops were inspected and with two exceptions were found satisfactorily kept as required by the Cowsheds, Dairies, and Milkshops Order.

FARNHAM.—Medical Officer of Health makes no reference to the subject in his report. The report of the Sanitary Inspector, which is attached, merely states with reference to the Cowsheds, Dairies, and Milkshops Order, that the number of registered premises was 81; that they were all inspected at intervals, and all necessary steps have been taken in respect to any contravention of the Dairies Order.

HAMBLEDON.—Medical Officer of Health reports that there are 76 premises registered under the Cowsheds, Dairies, and Milkshops Order. He adds "notwithstanding the rainy season these have been well kept," he at the same time advises "more systematic inspection."

GUILDFORD.—Medical Officer of Health reports as follows:—"There are now 97 registered dairies and cowsheds in the district and they have all been visited by the Sanitary Department during the year, and many of them more than once. The old regulations framed in 1888 being out of print, I suggested the adoption of the model regulations of the Local Government Board as being more suitable and uniform with those in force in other districts.

The Committee decided instead to amend the old regulations, and these, after being twice returned by the Board for further amendment, were

adopted, and came into force on August 11th. They are now practically identical with the model regulations. Two very important clauses dealing with the cleanliness of the cow's udders and teats, and also the hands of the milkers have been introduced. The enforcement of these clauses ought to bring about a great improvement in the purity of the milk.

The lime-washing of cowsheds is now compulsory twice a year, instead of once a year. There is great laxity in the carrying out of this simple requirement, and an intimation or notice to this effect is nearly always necessary when the sheds are visited. If a circular were sent out at the beginning of May and October, reminding cowkeepers of their duty in this matter, it might produce good effect.

Numerous notices have also been served for the improvement of the lighting and flooring. The provision of impervious flooring and a suitably placed manure channel have an important influence on the cleanliness of cows and indirectly on that of the milk. There is no doubt that the average cowkeeper is not alive to the necessity of either taking all possible precautions to prevent fouling of the cow's udders and hind quarters by manure, or of grooming them when they become fouled, so as to prevent contamination of the milk. The objection to such contamination is not merely sentimental, for there is little doubt that frequent and sometimes fatal illness is thereby produced, especially in infants."

The Medical Officer of Health for this District is also the Medical Officer of Health for Woking, whose report drew so much attention to the subject in the autumn of 1903. It is plain that in the District now reported on there is a great deal to be done in the way of ordinary sanitation and common sense precaution; but the Medical Officer of Health has also made some suggestions as to the systematic Bacteriological Examination of milk which are worthy of consideration.

CROYDON.—Medical Officer of Health reports in detail on the 75 premises registered under the Cowsheds, Dairies and Milkshops Order at the end of 1903. In previous reports for the County, I have dwelt upon one very good feature of this report, and that is the publication in a tabular form as an Appendix a complete account of the sanitary condition and sanitation of every Cowhouse, Dairy, or Milkshop in the District. Here there are no vague and unsatisfactory statements, such as will be seen from the

above are far too common in the reports of the various Sanitary Departments ; on the contrary, everything is definitely stated in a way that easily allows of verification. It is, no doubt, partly owing to this method of reporting year by year that the Medical Officer of Health is able to give as good an account as he does of the District. The system might, with advantage, be adopted in some other Districts of a even more distinctly rural character than that now referred to.

REIGATE.—The report is in a separate publication issued by the Sanitary Authority, apart from that of the Medical Officer of Health. This is unusual in the case of reports required under the regulations of the Local Government Board.

There are 89 premises registered under the Cowsheds, Dairies and Milkshops Order. 24 persons have applied to be registered during the year. 126 inspections were made and notices served as follows:—(a) to remedy defective drains, 28. (b) to cleanse and whitewash cowsheds and dairies, 25. (c) to provide proper light and ventilation, 10. (d) to abate overcrowding in sheds, 2. (e) to properly pave sheds, 17.

The Inspector considers there has been considerable improvement in cleanliness.

GODSTONE.—No special reference was made to this subject in the last report of the late Medical Officer of Health, but on previous occasions he has shown his sense of its importance as a question of public health. The Inspector's report gives account of 65 registered premises, of which 252 inspections were made in 1903.

The account of the Urban Districts of Carshalton, Epsom, Leatherhead, and Dorking ; also the Rural Districts of Epsom and Dorking having been accidentally omitted from the above section are printed at the end of the report.

VII.—DOMESTIC WATER SUPPLY.

The most important action taken during the year was that relating to the Sutton District Water Company's supply. This is derived from wells of the fissured Chalk, in the populous neighbourhood of Carshalton Road, not far from Sutton railway station. In addition to the area of the Sutton district council the company supplies the district of Carshalton, and part of the Croydon and Epsom rural districts. Some time ago I ascertained that the population deriving its supply from this source was over 40,000, and since then it must have largely increased. It is unnecessary here to recapitulate what took place from 1898 to 1903 for the purpose of preventing any possible contamination from soak-away cesspits or leaking sewers. The Council's action though fairly successful could not be considered entirely so. But when the Company early in 1903 sought for powers under a new Act to construct additional works, it was evident that an opportunity offered whereby complete security could be obtained against the effects of possible contamination. The process of "softening" affords this safeguard. Therefore, with a view to ensuring the adoption of this process I, in conjunction with the district councils and their officers, organised an opposition to the Bill which proved entirely successful. That is to say, concessions were granted by the Company and by Section 7 of their Act of 1903. They undertake that

"From and after the first day of August, 1906, all water delivered by the Company from their works to their consumers,

within the limits of supply as existing at the date of the passing of this Act, shall be softened to a degree of hardness not exceeding nine degrees and according to the process known as Clark's process, or such other process as shall be at least as applicable and efficacious, and the Company may enter into such arrangements and generally do all such things as may be expedient for such purpose.

“ Provided that if the Company make default in complying with the provisions of this Section it shall be lawful for the High Court of Justice, upon the application of any Local Authority within the area of supply, to enforce the same by mandatory order or otherwise as the circumstances of the case shall require.”

So that in two years' time the District will be supplied with water, good for dietetic purposes ; very pleasant for use ; financially advantageous to the consumers by the saving of soap and safety of boilers ; and from the sanitary point of view vastly superior to a water supplied direct from wells (situated as they are at Sutton), which is not exposed to any purifying influences, natural or artificial.

The discoloration, due to floods, of the water supplies derived from the River Thames was noticeable in various degrees in the areas supplied by Metropolitan and other companies. I do not know whether the medical officer of the London County Council has observed any increase in Typhoid prevalence in his area, which could possibly be ascribed to the water supply. But, as regards the Administrative County of Surrey, I was keenly on the look out for evidence of any connection between the rainfall, the condition of the Water, and the prevalence of Typhoid. However I found none.

I shall soon be in a position to summarise the observations and records I have made on this subject throughout a period of ten years.

In the districts of Barnes, Esher and The Dittons the medical officers of health complain of the intermittent supply. The proper course in these cases is for the officials to represent to their district councils the desirability of their appealing to the County Council for assistance, a course which was adopted some time since by the Corporation of Kingston-on-Thames.

I desire to refer specially to the work which may be done in districts with gravelly and sandy soil to protect and utilise water from surface wells. Dr. Poore, the distinguished writer on rural sanitation, has demonstrated that, against purely surface contamination of the soil, as by manuring the ground, &c., the water derived from wells can be secured by excluding the surface water and that which trickles into the well from the top-soil. I wish, especially, to draw attention to the good work which is being done in the Guildford rural district, in thus protecting and utilizing (with advantage from an economic as well as a health point of view) the local sources of water supply, which, in this instance, is derived partly from the Bagshot sand and alluvial beds of gravel. The observations, analyses, reports, and plans of the medical officer of health, and the surveyor, might, perhaps, if the Sanitary Committee of the County Council deem it desirable, be circulated among some other district authorities in the county.

From the subjoined extracts it will be seen that most of the district reports contain particulars about the water supply,

and that it is, indeed, quite the exception to find reports devoid of any specific or useful information whatever.

URBAN DISTRICTS.

BARNES.—Medical Officer of Health again urges desirability of constant water supply, and points out that the longer it is deferred the greater will be the expense involved, as in the new houses which are being so rapidly erected, the fittings are suitable for an intermittent supply only.

RICHMOND —At various periods Medical Officer of Health made chemical analyses of the water from three sources, viz. ; the Deep Well, Petersham Well, and Southwark and Vauxhall Water Company. Results of analyses, together with suggestions reported to Health and Water Committees, are under consideration by the Water Committee.

WIMBLEDON.—From time to time complaints were received from householders of the dirty condition of the water, who before complaining, had thought their storage cisterns required cleansing and had this done, but still the water continued to be dirty ; when the water was drawn from the rising main it was of a deep brown colour.

ESHER AND DITTONS.—Intermittent water supply still obtains in parts of the district. The discolouration of the water at flood time is noted.

SURBITON.—Hook and portions of Tolworth and a limited part of Surbiton have a continuous water supply. The discolouration of the water at flood time is also noted.

CHELTSEY.—Water from the West Surrey Water Company was laid on to 111 houses, of which the wells had been rendered useless by the pumping in connection with the Sewerage Works. Medical Officer of Health examined the water from 12 wells and found 5 of the samples very impure, 2 of doubtful quality and 5 fit for drinking purposes. The cottages, from which 4 of the impure samples were taken, were afterwards condemned as unfit. Arrangements have been made for extension of the Company's mains at Ottershaw.

WEYBRIDGE.—Reports were made by the Lister Institute on behalf of the four Councils, Weybridge, Walton and the two Chertseys. They varied considerably, but on the whole they were not satisfactory. On the other hand a report was furnished by the Company stating that the water was

chemically and bacteriologically satisfactory in quality. Medical Officer of Health reports two sporadic cases of Enteric Fever, but he could not in any way associate them with the water supply.

FARNHAM.—The water supply is derived from two sources, viz., (1) Old Supply, from the surface land at Hale, and (2) the supply from the well near the river. The supplies join and the mixed water is filtered before distribution. In October, complaints were received of its being discoloured, owing, it appeared, to inefficient filtration; the Company were communicated with thereon.

FRIMLEY.—146 additional houses in the district have been connected with the public water supply. Twenty samples of well water were examined, nine of which were found unfit for drinking purposes, and one was of a suspicious character; as a result of this, 16 houses have been connected with the public supply.

GUILDFORD.—The quantity has been ample, the heavy rains have caused the valley of the Wey to be frequently flooded, and it has been found that this, at times, causes a distinct deterioration in the quality of the water. This might easily have passed almost undetected by chemical analysis, but the bacteriological analysis gave rise to suspicion. The chalk marl which separated the surface water from the deep water, and which was at first thought to be an impervious stratum, is now regarded by the Consulting Engineer as unlikely to be such, and he suggests that there is communication between the two sources. The Medical Officer of Health has presented a special report upon the subject, which will be considered and reported on separately.

WOKING.—The Medical Officer of Health reports upon his analysis of the supply of the West Surrey Water Company. Mains have been extended and altogether 70 old houses have been connected with the mains. Six samples of water from shallow wells were analysed, and in four cases were found to be heavily polluted with sewage or manurial matter.

DORKING.—Quarterly analyses of samples of water from the four sources of supply of the Dorking Water Company were made by an arrangement with an expert with satisfactory results, except that the Redlands and Rookery supplies were found to contain an excess of vegetable matter after

a heavy rainfall in October ; the water returned to its normal condition in a few days.

EPSOM.—A new adit was driven in the chalk to connect up the various wells and boreholes at the Water Works, dispensing with the syphon, which was filled with concrete down to the chalk, and the Garden Well was encased in iron cylinders grouted with cement, thereby cutting off all communication between the surface water and the deep chalk water.

The monthly bacteriological examinations made at the Lister Institute gave unfavourable results from time to time during the year, but after the completion of the above mentioned works, satisfactory reports upon the condition of the water were received from other experts. Chemical examination failed to indicate any departure from the normal purity of the water throughout the year.

LEATHERHEAD.—The Company's water was laid on to 77 houses, which had previously obtained their domestic supply from private wells ; this result was mainly brought about by the necessity of obtaining water for flushing purposes, upon the connection of the drains with the new sewers.

SUTTON.—This district along with Croydon Rural, Carshalton and Epsom Rural were concerned in the proceedings taken in 1903 with a view to safeguarding the public water supply and materially reducing the hardness of the water.

REIGATE.—Ten samples of water from private wells examined ; 4 were of good quality, 4 of doubtful purity, and 2 very impure. Notices of the results of analyses were given to the owners of 6 of the wells, the company's water was laid on to cottages supplied by one of the wells, and two other wells were cleared out. Periodical chemical and bacteriological examinations were made of the East Surrey Company's water.

CATERHAM.—Expert analyses of the water supply are referred to.

RURAL DISTRICTS.

CHERTSEY. — The Medical Officer of Health reports—particulars of examinations and analyses of 62 waters, 47 of which were declared unfit for drinking purposes ; 24 of them were in the Parish of Pyrford. The district is within the area of the Woking Water Company. An account is given of the steps taken to obtain a supply from that Company.

Arrangements for analysis of both the West Surrey and the Woking Water Company's supplies are recorded.

Complaints having been made of the pollution of the Windle Brook at Bagshot, steps were taken to prevent the recurrence of this nuisance.

EGHAM.—The Medical Officer of Health states that—the supply of the South-West Suburban Water Company was below its proper standard, and that the provision of better storage and filtration arrangements are necessary.

FARNHAM.—The Medical Officer of Health refers to the water supply of Rowledge, which is from surface wells which may be polluted. The report contains no mention of the source of the Wey Valley Company's supply at Hindhead, or of the steps taken to preserve its gathering ground from possible pollution by soak-away cesspits.

HAMBLEDON.—Medical Officer of Health strongly advises improvement of the water supply of Dunsfold, Chiddingfold and some other parts of this district, but nothing is said as to any action of his department in the matter.

GUILDFORD.—Water supply improvements are among the most important that have been secured by the Medical Officer of Health for cottages, &c. They are referred to in the Section of the Housing of the Working Classes. I have followed the work of the Medical Officer of Health in this direction with close attention. I subjoin the paragraph of his report bearing on this important matter.

“The suggestions I, the district medical officer of health, and certain builders made to the Council in September, 1902, as to the desirability of recommending property owners to so construct new wells and improve old ones as to exclude surface water were adopted, and a draft circular to that effect was drawn up by the Surveyor and myself. Plans were also prepared by the Surveyor of various methods of carrying out the suggestions, and these were ready for distribution in October of last year. It is confidently anticipated that the adoption of these plans will bring about in time a great improvement in the quality of the water supply of such houses as must from their isolated positions be unable to connect with the water mains. Wells for new houses have hitherto usually been constructed of loose brickwork,

and although a sample taken from the new well for the purpose of obtaining a water certificate may, owing to the then uncultivated nature of the ground, give a satisfactory result, the ground around the well usually is soon cultivated and manured, and the surface water which is thereby polluted is washed into the well. The water is perhaps for some reason again examined at a later date and is found to be polluted and condemned."

The formation of The Hurtwood Water Company and the arrangements in connection therewith of the District Council for the better supply of Peaslake and Holmbury St. Mary are described.

The need for a proper water supply at Ockham is insisted on, and the best means of supplying Puttenham is discussed. The extension of Company's mains to various localities in need of pipe supplies is mentioned. The list of water certificates granted after analysis by the Medical Officer of Health is added.

DORKING.—The Medical Officer of Health reports that he analysed ten samples of water, in most instances upon application for water certificates, which were withheld in several cases until the wells had been properly protected against the ingress of surface water. Supplies for domestic use were laid on to a number of cottages at South Holmwood from the mains of the Dorking Water Company, when the drains were connected with the new sewers.

EPSOM.—The Medical Officer of Health reports that, of 17 samples of water from wells supplying about 50 houses in the parishes of Ashted, Great Bookham, Cobham and Fetcham, he found, upon chemical examination, 13 to be unfit for domestic use, and in each case a supply was obtained from the mains of the Leatherhead Water Company.

CROYDON.—This District was one of those concerned in the action taken with regard to the supply of the Sutton Water Company.

REIGATE.—Where the Inspector considers there is any possible pollution of well water, the matter has been reported to the Medical Officer of Health.

GODSTONE.—Twelve samples from private water supplies were analysed and reported on by the late Medical Officer of Health. Twelve samples from public water supplies were also submitted for report according to arrangement made by the District Council with an Expert.

EDWARD C. SEATON.

VIII.—APPENDIX AND REPORT ON METEOROLOGY OF SURREY, 1903.

By

FRANCIS CAMPBELL-BAYARD, Esq.,
Secretary Royal Meteorological Society.

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The year has been a very singular one. It is characterised by a somewhat low barometer, a somewhat low day temperature and a high night temperature, an exceedingly large rainfall, and a sunshine rather over the average. It has been on the whole a healthy year as the report of the Medical Officer shows, but it has also been a year in which all fruit has been practically destroyed owing to the great frost which took place from the 16th to 20th April both days inclusive. To go into particulars, I will take the different elements more in detail, and for the purpose of comparison I have given in a tabular form an abstract of my own observations at Wallington, 140 feet above ordnance datum. This station has for many years past been regularly inspected by the Royal Meteorological Society, and is furnished with properly verified instruments, and the time of observation is 9 a.m. The year's results are compared with the average of the 15 years 1886-1900.

THE BAROMETER.

Pressure was above the average in two months only, viz., February and November, and it will doubtless be considered singular that whilst there was a slight excess of rain in February there was a considerable deficiency in November. In the other ten months pressure was deficient more particularly in October and December. In October the pressure is the lowest for that month in my record and the rainfall for that month largely exceeded the average, whilst in December though the deficiency has only been twice exceeded in that month, in the years 1885 and 1901, the

rainfall was nearly a quarter of an inch below the average. In the exceedingly wet month of June and the wet September, pressure was but slightly below the average. The result of the year's mean is that there is a somewhat large deficiency from the average.

TEMPERATURE.

The first three months of the year were exceedingly warm both during the day and night, the month of February being the warmest February in my record here. But with respect to the day temperatures with the single exception of October, all the other months were cold, April, June, July, August and December being especially so, the months of June and August being the coldest June and August in my record. The night temperatures were however higher than the day ones, there being only April, June and August below the average. With reference to the minimum on the grass, it is somewhat singular that August was above the average, whilst November was below. On the year's mean the day temperatures are nearly one degree below, whilst the night temperatures are nearly two degrees above the average. If we now take the mean temperature, we find that January, February, March and October were much above the average, and May slightly so, whilst April, June and August were much below the average, July somewhat less, and September, November and December but slightly below. The result of these fluctuations is that on the year's mean, the mean temperature is nearly half a degree above the average.

CLOUD.

It is a somewhat singular fact that the only month, in which this element of climate is below the average is the month of January, of the remaining months May and June have the average amount, a somewhat singular fact with respect to June which was the wettest month of the year. The second wettest month, viz., October had the largest excess, whilst December, in which there was very nearly the same excess, had an actual deficit in its rainfall. As noticed in last year's report, March was a warm month and had a large excess of cloud, whilst this year, though the month was exceedingly warm, the excess of cloud was but small. The result on the year's mean is that the amount of cloud was above the average.

WIND.

The Wind Force on the year is just about the average. October was the windiest month, and the wind force largely exceeded the average for that month. The next windiest months were in order, August, January, March and February. The calmest month was November, and then followed December, which is rather unusual, for it very often happens that December is rather windy. April and May were also rather less windy than usual.

RAINFALL.

The year, as is well known, has over the county been exceedingly wet, and if we may take the long record of Greenwich in the neighbouring county of Kent as a standard, I think that we may fairly say that there has not been such a heavy rainfall in the County for over 100 years. If we take the record published by the Croydon Natural History and Scientific Society of the rainfall of its district and compare it with the average 1891-1900, a dry period, we shall find that the rainfall of the County varied from 20 inches to 10 inches above the average according to the height above sea level. The rainfall at Wallington was just $17\frac{1}{2}$ inches above the average of the fifteen years 1886-1900, an amount over $\frac{2}{3}$ of the average rainfall. If we now look at the monthly values in the table we shall be struck with the fact that there are only two months below the average, and that their total deficiency did not reach $\frac{3}{4}$ inch. With respect to the months with the largest excess of rain, we have June with nearly $5\frac{1}{2}$ inches, May with just over $3\frac{1}{2}$ inches, and October with just over 3 inches, then come July with just 2 inches, August with just over $1\frac{3}{4}$ inches, and September with just over 1 inch. It will be noticed that these months are just those in which most persons take their holidays. The number of rainy days, that is, days on which $\cdot 01$ inch and upwards of rain fell, was very largely in excess of the average, though there were a larger number of rainy days in 1891 when the number was 207, and the total rainfall only 32.12 inches. It will be noticed that the rainy days were above the average during each of the months mentioned as the holiday months. A curious feature is to be observed with respect to November, in which month though the rainfall was nearly $\frac{1}{2}$ inch below the average, the number of rainy days was 4 above. The Bourne commenced to flow at Marlpit Lane, Carshalton and Ewell in November.

SUNSHINE.

The amount of sunshine in the year is slightly above the average. As might be expected, the first three months of the year had a large excess. September also had a large excess, and August a smaller one. It may be noticed in passing that the rainfall of all these months was above the average. The deficiency of sunshine was very large in June as might be expected, and fairly large in May and July, and also in December, but was comparatively small in October, when there was a large excess of rain.

In conclusion, it may be mentioned that though the hay crop was got in in fair condition, all fruit and cereal crops were very deficient both in quality and quantity.

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.		Rainfall.		No. of Rainy Days (Total).		Sunshine (Jordan). Possible Duration.		
	Mean	In. In.	Mean	± avg.	Mean	± avg.	Mean	± avg.	Mean	± avg.	Mean	± avg.	Mean	± avg.	Mean	± avg.	Depth	In. In.	No. No.	± avg.	Amt.	± avg.	p.c. p.c.
1903																							
Jan.	29.985	—024	90	avg.	44.8	+2.3	36.7	+3.7	32.5	+3.2	40.8	+3.0	7.0	—0.8	2.32	+0.41	17	—1	54.3	+12.1	21	+5	
Feb.	30.132	+092	86	—3	49.9	+5.7	39.6	+6.9	35.7	+6.8	44.7	+6.3	7.7	+0.1	1.58	+0.10	12	—1	92.1	+30.0	33	+11	
Mar.	29.848	—071	80	—4	52.4	+3.3	40.1	+5.5	35.0	+4.6	46.3	+4.5	6.9	+0.2	2.40	+0.51	19	+5	165.2	+50.2	45	+14	
April	29.890	—054	72	—5	51.5	—4.3	36.6	—2.1	32.8	—1.9	44.0	—3.3	6.9	+0.2	1.69	+0.23	12	—1	153.2	—6.7	37	—1	
May	29.875	—104	75	+3	61.7	—1.1	45.6	+1.9	42.3	+1.7	53.6	+0.3	6	avg.	5.39	+3.59	14	+2	189.5	—11.1	39	—3	
June	30.012	—009	76	+3	63.2	—6.2	48.2	—2.1	47.0	—1.0	55.7	—4.1	6.5	avg.	7.09	+5.43	13	+3	174.1	—31.9	35	—7	
July	29.930	—037	73	avg.	68.9	—2.8	53.3	avg.	51.3	avg.	61.1	—1.4	7.3	+0.7	4.65	+1.94	14	+2	194.1	—16.0	39	—3	
Aug.	29.856	—109	75	—3	67.2	—3.5	52.0	—0.9	51.0	+0.3	59.6	—2.3	7.5	+1.0	4.09	+1.81	19	+4	201.8	+3.5	45	+1	
Sept.	30.024	—007	80	—1	65.2	—1.4	49.9	+0.8	47.3	+0.6	57.6	—0.2	6.6	+0.4	2.76	+1.05	15	+4	183.3	+23.1	48	+5	
Oct.	29.651	—270	85	—2	57.9	+1.3	47.7	+5.3	44.4	+5.0	52.8	+3.3	7.8	+1.2	6.06	+3.10	25	+10	97.5	—2.9	29	—1	
Nov.	30.054	+088	90	avg.	49.2	—0.4	39.1	+0.1	35.2	—0.4	44.2	—0.1	8.6	+0.9	2.48	—0.46	20	+4	42.2	—9.1	16	—3	
Dec.	29.741	—217	92	+2	42.0	—2.2	35.0	+1.3	31.5	+1.4	38.5	—0.5	8.4	+1.1	2.13	—0.22	13	—3	28.3	—10.6	12	—4	
Year	29.917	—060	81	—1	56.2	—0.8	43.7	+1.7	40.5	+1.7	49.9	+0.4	7.3	+0.4	42.64	+17.49	193	+28	1575.6	+30.6	33	+1	

VI.—MILK SUPPLY—*continued.*

DORKING URBAN. Medical Officer of Health reports regular visitation by the Inspector, but no details are given.

LEATHERHEAD.—Medical Officer of Health reports that the premises were inspected, and that badly constructed sheds, upon which he had previously reported, were abandoned in two instances.

EPSOM URBAN.—Medical Officer of Health reports that the Register was revised; improvement in drainage was effected in four cases under notice from the Council, and an insanitary shed was abandoned.

CARSHALTON.—The sheds were regularly inspected, and found to be kept in compliance with the regulations.

DORKING RURAL.—Medical Officer of Health reports that he inspected the cowsheds in five villages in the district, and that the defects in drainage and means of ventilation discovered by him were remedied. Quarterly inspections were made by the Inspector, who paid 162 visits to the 55 premises on the Register.

EPSOM RURAL.—Medical Officer of Health reports that the Register was revised, and all cowsheds were visited and measured; nine cases of over-crowding of cattle in sheds were abated, and a number of sheds were repaired, cleansed, ventilated, and drained, under notice from the Council.

INDEX.

	PAGE		PAGE
Annual Reports for Districts	4	Phthisis Prevention	2
Barnes, Domestic Water		Sanitation of Dwellings....	34
Supply	50	Vital Statistics	10, 24
Milk Supply	38	County Medical Officer of	
Phthisis Prevention	20	Health, Expert advice	
Sanitation of Dwellings....	25	and general work of ..	5
Vital Statistics	10, 23	Cowsheds, Special Report,	
Birth Rates	11	Chertsey Rural	42
Carshalton, Domestic Water		Croydon Rural, Domestic	
Supply	52	Water Supply	54
Milk Supply	60	Milk Supply	45
Phthisis Prevention	22	Phthisis Prevention	23
Sanitation of Dwellings....	33	Sanitation of Dwellings	29
Vital Statistics	10, 24	Vital Statistics	10, 24
Caterham, Domestic Water		Death Rates, General	11
Supply	52	,, Phthisis	14
Milk Supply	41	,, Zymotic Diseases	12
Phthisis Prevention	22	Deaths from Zymotic Diseases,	
Sanitation of Dwellings....	33	Phthisis, and Respiratory	
Vital Statistics	10, 24	Diseases	23
Chertsey, Domestic Water		Diarrhœa	12
Supply	50	Domestic Water Supply	47
Milk Supply	39	Dorking, Domestic Water	
Phthisis Prevention	21	Supply	51
Sanitation of Dwellings....	30	Milk Supply	60
Vital Statistics	10, 24	Phthisis Prevention	22
Chertsey Rural, Domestic		Sanitation of Dwellings	32
Water Supply	52	Vital Statistics	10, 24
Milk Supply	42		

INDEX—*continued.*

	PAGE		PAGE
Dorking Rural, Domestic		Sanitation of Dwellings....	31
Water Supply	54	Vital Statistics.....	10, 24
Milk Supply	60	Farnham Rural, Domestic	
Phthisis Prevention	23	Water Supply	53
Sanitation of Dwellings ..	35	Milk Supply	44
Vital Statistics	10, 24	Phthisis Prevention	23
Egham, Domestic Water		Sanitation of Dwellings ..	34
Supply	53	Vital Statistics.....	10, 24
Milk Supply	44	Frimley, Domestic Water	
Phthisis Prevention	22	Supply	51
Sanitation of Dwellings ..	34	Milk Supply	40
Vital Statistics	10, 24	Phthisis Prevention	21
Enteritis, Zymotic	12	Sanitation of Dwellings....	31
Epsom, Domestic Water		Vital Statistics	10, 24
Supply	52	Godalming, Milk Supply	40
Milk Supply	60	Phthisis Prevention	21
Phthisis Prevention	22	Sanitation of Dwellings	32
Sanitation of Dwellings....	33	Vital Statistics.....	10, 24
Vital Statistics	10, 24	Godstone, Domestic Water	
Epsom Rural, Domestic Water		Supply	54
Supply	52, 54	Milk Supply.....	46
Milk Supply.....	60	Phthisis Prevention	23
Phthisis Prevention	23	Sanitation of Dwellings....	36
Sanitation of Dwellings....	36	Vital Statistics.....	10, 24
Vital Statistics.....	10, 24	Guildford, Domestic Water	
Esher, Domestic Water Supply	50	Supply	51
Milk Supply.....	39	Milk Supply.....	40
Phthisis Prevention	21	Phthisis Prevention	22
Sanitation of Dwellings....	27	Sanitation of Dwellings....	32
Vital Statistics.....	10, 24	Vital Statistics.....	10, 24
Farnham, Domestic Water		Guildford Rural, Domestic	
Supply	51	Water Supply.....	53
Milk Supply.....	40	Milk Supply.....	44
Phthisis Prevention	21		

INDEX—*continued.*

	PAGE		PAGE
Phthisis Prevention	23	Monthly Notification Returns	6
Sanitation of Dwellings....	35	Molesey, Milk Supply	39
Vital Statistics.....	10, 24	Phthisis Prevention	21
Ham, Milk Supply	39	Sanitation of Dwellings....	28
Phthisis Prevention	21	Vital Statistics	10, 24
Vital Statistics	10, 23	Phthisis, Death Rates	14
Hambledon, Domestic Water		,, Deaths from	23, 24
Supply	53	,, Prevention	19
Milk Supply.....	44	Population	10
Phthisis Prevention	23	Rainfall	57
Sanitation of Dwellings....	35	Reigate, Domestic Water	
Vital Statistics	10, 24	Supply	52
Housing of Working Classes	25	Milk Supply.....	41
Infant Mortality	15	Phthisis Prevention.....	22
Kingston-on-Thames, Milk		Sanitation of Dwellings....	33
Supply	39	Vital Statistics.....	10, 24
Phthisis Prevention	21	Reigate Rural, Domestic	
Sanitation of Dwellings....	27	Water Supply	54
Vital Statistics	10, 24	Milk Supply.....	46
Leatherhead, Domestic Water		Phthisis Prevention	23
Supply	52	Sanitation of Dwellings....	36
Milk Supply.....	60	Vital Statistics.....	10, 24
Phthisis Prevention	22	Reports, Conference as to....	5
Sanitation of Dwellings....	32	Respiratory Diseases, Deaths	
Vital Statistics	10, 24	from	23, 24
Local Government Board En-		Richmond, Domestic Water	
quiries	6, 7	Supply	50
Malden, Milk Supply	39	Milk Supply.....	38
Phthisis Prevention	21	Phthisis Prevention	21
Sanitation of Dwellings....	29	Sanitation of Dwellings....	26
Vital Statistics	10, 24	Vital Statistics	10, 23
Meteorology	55-59	Sanitation of Dwellings.....	25
Milk, Examination of, Woking	40	Surbiton, Domestic Water	
Milk Supply.....	17, 37	Supply	50

INDEX—*continued.*

	PAGE		PAGE
Phthisis Prevention	21	Intermittent Supplies	48
Sanitation of Dwellings....	27	Protection of Wells, Guild-	
Vital Statistics.....	10, 24	ford Rural.....	49, 53
Sutton, Domestic Water		Weybridge, Domestic Water	
Supply	52	Supply	50
Milk Supply.....	41	Milk Supply.....	40
Phthisis Prevention.....	22	Phthisis Prevention.....	21
Sanitation of Dwellings....	33	Sanitation of Dwellings....	31
Vital Statistics	10, 24	Vital Statistics.....	10, 24
Sutton District Water		Wimbledon, Domestic Water	
Company's Bill	47	Supply	50
Vaccination. Table of Ex-		Milk Supply.....	38
emptions from	9	Phthisis Prevention	21
Vital Statistics	10, 23	Sanitation of Dwellings....	26
Walton-on-Thames, Domestic		Vital Statistics.....	10, 23
Water Supply.....	50	Woking, Domestic Water	
Milk Supply.....	39	Supply	51
Phthisis Prevention	21	Milk Supply.....	40
Sanitation of Dwellings....	30	Phthisis Prevention.....	22
Vital Statistics	10, 24	Sanitation of Dwellings....	31
Water Supply	47	Vital Statistics.....	10, 24
Discolouration of Thames		Zymotic Diseases, Death Rates	12
Supply	48	,, Deaths from	23