

**Report upon the public health and sanitary condition of the Parish of St. Mary, Battersea during the year 1894.**

**Contributors**

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1894/5  
The Vestry of the Parish of St. Mary,  
Battersea.

REPORT

UPON THE

PUBLIC HEALTH & SANITARY CONDITION

OF

The Parish of St. Mary, Battersea.

DURING THE YEAR 1894,

BY

W. H. KEMPSTER, M.D.,

MEDICAL OFFICER OF HEALTH.

*Treasurer of the Incorporated Society of Medical Officers of Health and  
Vice-President of the Metropolitan Branch.*

*Fellow and Member of Council of the British Institute of Public Health.*

*Fellow of the Obstetrical Society.*

*Member of the Society of Arts and the Sanitary Institute.*

1895.





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*With the Compliments of the  
Medical Officer of Health.*

THE STATE OF NEW YORK  
IN SENATE

FILED

PUBLIC HEALTH & SANITARY CONDITION

OF THE CITY OF NEW YORK

FOR THE YEAR 1894

REPORT

OF THE  
COMMISSIONERS OF  
THE  
DEPARTMENT OF  
HEALTH

The Vestry of the Parish of St. Mary,  
Battersea.

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R E P O R T

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1895.

The Society of the Friends of the  
Hospitals

# REPORT

FOR THE

PUBLIC HEALTH



The Society of the Friends of the  
Hospitals

DURING THE YEAR 1861

W. H. KEMPSTER, M.D.

W. H. KEMPSTER, M.D.

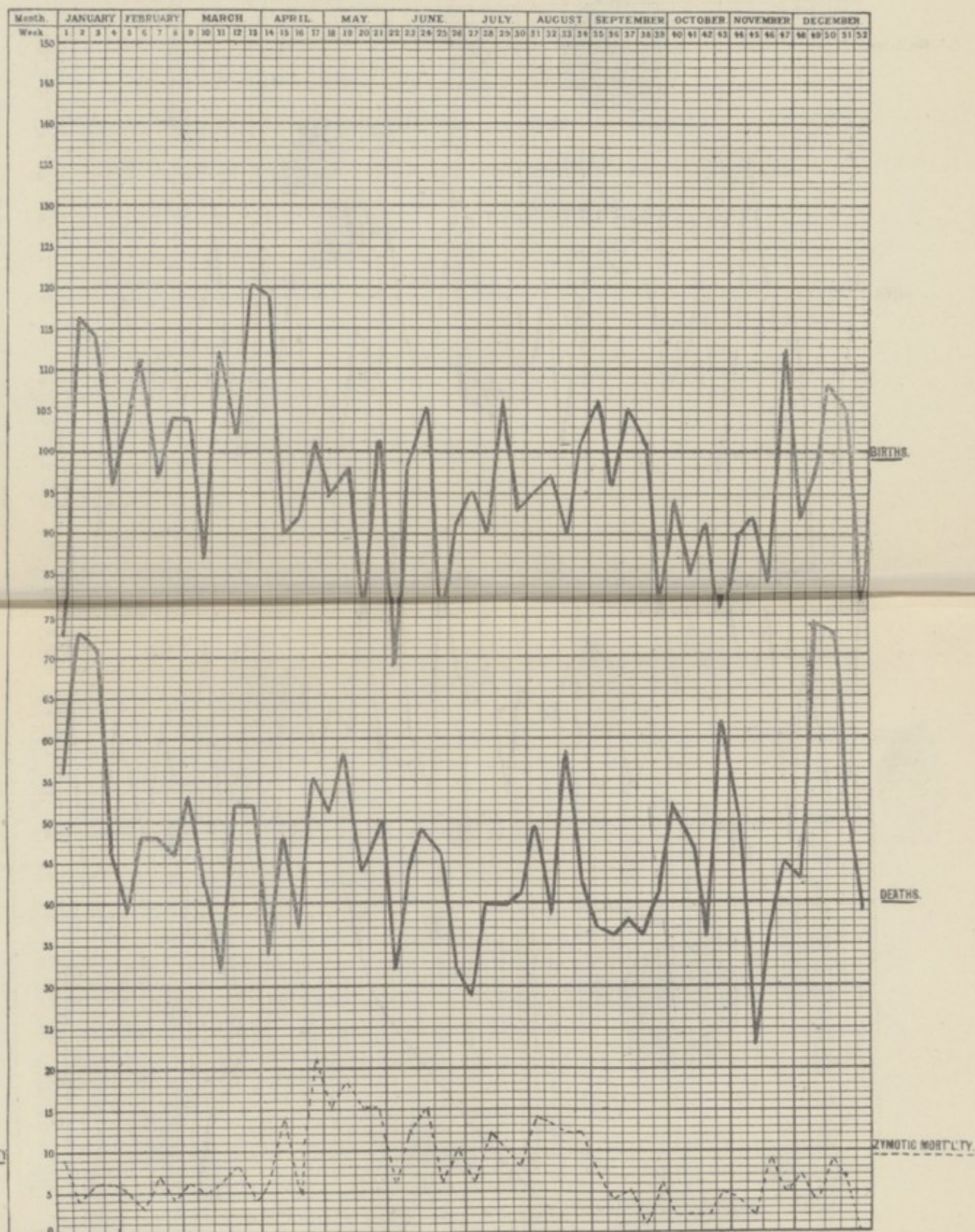
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W. H. KEMPSTER, M.D.

1862



The Vestry of the Parish of St. Mary, Battersea.

Chart indicating number of Births and Deaths registered weekly as occurring within the Parish during the year 1894



The term "Zymotic Mortality" includes deaths from the following diseases:—Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Typhus, Enteric or Typhoid, Simple Continued Fever and Diarrhoea.



## To the Vestry of the Parish of St. Mary, Battersea.

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GENTLEMEN,

The first step to be taken in calculating the birth, death, or other rates during the year 1894, is to carefully estimate the mean or average population for that year.

The mean population of the year 1893, for this parish, was 160,175. To this must be added the annual increase of population which has hitherto been found to exist, and for this purpose the known rate of increase between the two last census enumerations is employed. This increase was at the average rate of 4,319 persons each year, so that if this number be added to the population for 1893, an estimated mean population of 164,494 will be deduced for 1894. On this population the following calculations are based.

As a preliminary it will be desirable to mention a few facts relating to the Metropolis at large during 1894, as a basis of comparison.

The estimated mean population of the Metropolis, arrived at in a similar manner to that described above, as employed for this parish, was 4,349,166 for the year 1894.

The births registered in London during 1894, as given by the Registrar General in his weekly returns, numbered 130,553, and calculated on the estimated mean population the birth rate would be equal to 30.1 per thousand per annum.

The total number of deaths recorded in all London during 1894, was 77,039, which, calculated upon the same population,

would give 17·8 per thousand per annum as the death rate for the Metropolis during 1894, being the lowest recorded.

The following pages will show that the birth rate for Battersea during 1894, was 30·5 per thousand, against 30·1 per thousand for London.

The Battersea death rate was 14·6 per thousand, including all persons dying in the parish, whether belonging thereto or not, the death rate for London was therefore 3·2 per thousand higher than that of Battersea. Subsequent corrections, by eliminating non-parishioners dying in the parish and adding parishioners dying elsewhere, will reduce this difference to 2·2 per thousand in favour of Battersea.

The two thousand four hundred and four persons, including non-parishioners, who died in the parish during 1894, would give a gross death rate of 14·6 per thousand per annum.

East Battersea	...	...	...	884
West Battersea	...	...	...	1,166
(excluding public institutions)				

Wandsworth and Clapham Union Infirmary—

(a) Parishioners	...	153	}	...	344
(b) Non-Parishioners	...	191			

Bolingbroke Hospital—

(a) Parishioners	...	1	}	...	8
(b) Non-Parishioners	...	7			

Masonic School—

(a) Parishioners	...	1	}	...	1
(b) Non-Parishioners	...	—			

Emanuel School—

(a) Parishioners	...	—	}	...	1
(b) Non-Parishioners	...	1			

Total	...	<u>2,404</u>
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being three hundred and ninety-seven fewer than during the preceding year, 1893.

Deaths occurring within the parish, of persons not belonging thereto :

In the Union Infirmary ...	...	...	191
In the Bolingbroke Hospital ...	...	...	7
In the Emanuel School ...	...	...	1
Elsewhere ...	...	...	5
Total			<u>204</u>

In order, however, to arrive at a corrected death rate, it is necessary to eliminate the two hundred and four persons, shewn in the above table as not belonging to the parish who died therein, and to include the deaths of the three hundred and seventy seven parishioners who died in the various public institutions of the Metropolis and elsewhere, by which method a total corrected mortality of two thousand five hundred and seventy seven would be arrived at ; equal to a death rate of 15·6 per thousand per annum. This may be contrasted with the Metropolitan death rate of 17·8 per thousand during the year 1894, the deaths which took place within the boundaries of the parish, including all non-parishioners dying in the Union Infirmary and elsewhere, are shewn in Table A. of mortality, and may be thus summarised.

Deaths occurring outside the parish, of persons belonging thereto :

Union Workhouse, Wandsworth ...	...	8
General and Special Hospitals ...	...	225
Metropolitan Asylums Board Hospitals ...	...	90
County and other Lunatic Asylums ...	...	31
Elsewhere (including River Thames) ...	...	23
Total ...		<u>377</u>

By a singular coincidence these numbers, as well as those in the preceding table, come to the same totals as in the year 1893.

A

Names of localities adopted for the purpose of these Statistics, Public Institutions being shown as separate localities. [a]	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							MORTALITY FROM SUBJOINED CAUSES DISTINGUISHING DEATHS OF CHILDREN UNDER 5 YEARS.																												
	At all ages. [b]	Under 1 year. [c]	1 and under 5 [d]	5 and under 15 [e]	15 and under 25 [f]	25 and under 65 [g]	65 and upwards. [h]	[i]	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia & Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	TOTAL.	
													10	11	12	13	14																			
East Battersea ..	884	323	156	41	31	223	110	Under 5 5 upwards		3	14	11													1	22	39	37	1		4	120	6	10	211	479
West Battersea ..	1166	372	243	48	29	302	172	Under 5 5 upwards			13	5		1											2	116	38	36			4	130	2	14	254	615
Wandsworth & Clapham Union Infirmary St. John's Hill ..	344	23	12	10	15	151	133	Under 5 5 upwards																												
Bolingbroke Hospital, Bolingbroke Grove	8	..	..	1	1	4	2	Under 5 5 upwards																												
Westminster Union School, St. James' Road ..	1	..	..	1	..	..	..	Under 5 5 upwards																												
Emanuel School, Battersea Rise ..	..	..	..	..	..	..	..	Under 5 5 upwards																												
Masonic School for Girls, Battersea Rise ..	1	..	..	..	1	..	..	Under 5 5 upwards																												
Whole Parish ..	2404	718	411	101	77	680	417	Under 5 5 upwards		3	27	16		1											3	144	77	80	1		8	253	8	24	484	1129
THE SUBJOINED NUMBERS HAVE ALSO TO BE TAKEN INTO ACCOUNT IN JUDGING OF THE ABOVE RECORDS OF MORTALITY.																																				
Deaths occurring outside the district among persons belonging thereto	377	38	80	52	42	143	22	Under 5 5 upwards		14	32			1												2	3	5			2	18	6	3	32	11
Deaths occurring within the district among persons not belonging to	204	15	9	5	11	78	86	Under 5 5 upwards																												

Table A. This table is compiled in all sanitary districts under the express direction of the Local Government Board, for the purpose of securing uniformity of tabulation in all parts of the country, of the important particulars contained therein. It is at the same time expressly stated that the Medical Officer of Health of any district is at liberty, in addition, to continue to use any other form of tabulation which, in his opinion, illustrates more fully the sanitary condition of the district for which he acts. For purposes of comparison with the vital statistics of the past thirty nine years, since the year 1856, other tables which have been employed in this parish are also given herewith, and will be found denoted by numbers, those of the Local Government Board being denoted by the letters A. and B.

In Table A. will be found particulars of mortality in the various Registrar's districts and public institutions which are also treated as separate districts. They comprise the Registrar's districts of East and West Battersea, and the following public institutions, situated within the parish, viz. :—Wandsworth and Clapham Union Infirmary, Bolingbroke Hospital, Westminster Union Schools, Emmanuel School, and Masonic School for Girls.

The broad grouping of ages is under and above five years of age, so as to clearly define the mortality of each of these periods of life, more especially the infantile ages under five, as the greatest waste of life has occurred in the past at the early years, and although great improvement has taken place in this respect during the last few years, still much remains to be done in this direction. For instance, 351 Zymotic deaths, out of a total of 1,129 occurred under five years, a proportion which ought to be largely diminished. Particulars of the other ages at death are also given in this table.

Table I. This table contains details of the deaths of Battersea parishioners in public institutions both within and without the parish. The disease from which death ensued,

the sex, age, and particular class of institution are herein indicated, as well as the localities in which other parishioners lost their lives or were found dead, which latter require no comment, the causes of death being set out in the table.

TABLE I.

DEATHS OF BATTERSEA PARISHIONERS IN PUBLIC INSTITUTIONS  
OF THE METROPOLIS.

DISEASE.	TOTALS	SEX.		AGE.							INSTITUTIONS.				
		Males	Females	Under 1 year	1 to 5 years	All under 5	5 to 15 years	15 to 25 years	25 to 65 years	65 and upwards	Union Infirmary and Workhouse.	General and Special Hospitals	Asylums' Board Hospitals	County and other Lunatic Asylums	Elsewhere
Small-Pox ...	2	1	1	...	...	...	...	...	2	...	...	...	2	...	...
Scarlatina ...	25	12	13	...	14	14	10	...	1	...	...	...	25	...	...
Diphtheria & Membranous Croup ...	51	22	29	1	31	32	17	...	1	1	...	9	42	...	...
Typhus Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric & Typhoid ...	17	10	7	...	1	1	3	6	7	...	1	3	13	...	...
Continued Fever ...	...	...	...	...	...	...	...	6	...	...	...	...	...	...	...
Relapsing " ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal " ...	2	...	2	...	...	...	...	1	1	...	2	...	...	...	...
Cholera ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas ...	5	3	2	...	...	...	...	...	3	2	3	1	...	1	...
Measles ...	6	2	4	1	3	4	2	...	...	...	3	...	2	...	1
Whooping Cough ...	3	2	1	1	2	3	...	...	...	...	...	3	...	...	...
Diarrhœa ...	8	...	8	5	1	6	...	...	1	1	1	5	...	2	...
Other Zymotics ...	2	1	1	...	...	...	...	...	2	...	1	1	...	...	...
Rheumatic Fever ...	3	1	2	...	...	...	...	...	2	1	2	1	...	...	...
Ague ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phthisis ...	63	36	27	...	2	2	1	7	53	...	35	24	1	3	...
Tubercular ...	12	7	5	5	2	7	3	...	2	...	5	7	...	...	...
Respiratory ...	51	32	19	6	13	19	...	4	15	13	19	26	2	4	...
Heart Disease ...	49	34	15	...	1	1	4	9	27	8	20	23	1	2	3
Brain and Nerves ...	50	34	16	1	1	2	3	5	25	15	20	12	...	16	2
Cancer ...	36	22	14	...	...	...	1	2	29	4	9	27	...	...	...
Violence ...	40	33	7	1	2	3	7	6	20	4	2	23	...	...	15
Other Diseases ...	105	45	60	25	10	35	8	8	32	22	38	60	2	3	2
TOTALS ...	530	297	233	46	83	129	59	48	223	71	161	225	90	31	23

In all five hundred and thirty deaths, nine fewer than in 1893, occurred in public institutions and "elsewhere," of whom a large majority were adults. Of these one hundred and sixty one took place in the Wandsworth and Clapham Union Infirmary and the Workhouse, two hundred and twenty five in the General and Special Hospitals of the Metropolis, ninety in the Metropolitan Asylums Board Hospitals for infectious diseases, thirty one in the various Lunatic Asylums, and twenty three "elsewhere" as detailed below.

The twenty-three deaths recorded as having occurred "elsewhere" are here definitely located :

Male	...	Dymock Street, Fulham.
Female	...	24, Charles Mews, Paddington.
Male	...	227, High Holborn.
"	...	42, Queens Road, Chelsea.
"	...	Whitcomb Street, W.C.
Female	...	515, Fulham Road.
Male	...	Gipsy Hill Railway Station.
Female	...	66, Mark Lane, E.C.
Male	...	Thames, Westminster.
"	...	Wandsworth Road Station.
"	...	On way to St. Thomas' Hospital.
"	...	Victoria Station (L. B. & S. C. R.)
"	...	Thames, Putney.
Female	...	On way to St. Thomas' Hospital.
Male	...	7, King William Street, Greenwich.
"	...	Wandsworth Cemetery.
"	...	Thames, Chelsea.
Female	...	Kings Road, Chelsea.
Male	...	L. & S. W. R., Lambeth.
"	...	1, Bedford Circus.
"	...	Thames, off Wapping.
"	...	Streatham (L. B. & S. C. R.)
"	...	Watney's Distillery, Wandsworth.

Tables II., III., and IV., give in tabular form the weekly returns of the District Registrars of Births and Deaths for East and West Battersea respectively, and include the deaths of all persons within the parish and in public institutions, whether parishioners or not. They shew the incidence of births and deaths at the various periods of the year, being grouped in quarters for that purpose, with additional particulars as to causes of death to be found in Table IV.

The first and last quarters of the year exhibit an augmented mortality, the result mainly of diseases of the respiratory system.

The infantile mortality under one year was equal to 141 per thousand births and including mortality at all ages under five years, 222 per thousand births.

TABLE II.  
BIRTHS AND DEATHS, EAST BATTERSEA, 1894.

Week ending:—	BIRTHS.			DEATHS.		
	M.	F.	TOTAL.	M.	F.	TOTAL.
6th January ...	14	22	36	12	16	28
13th " ...	21	30	51	13	18	31
20th " ...	27	23	50	16	9	25
27th " ...	25	20	45	10	9	19
3rd February ...	31	27	58	5	7	12
10th " ...	27	29	56	12	6	18
17th " ...	24	17	41	7	8	15
24th " ...	29	19	48	12	8	20
3rd March ...	20	22	42	14	11	25
10th " ...	20	13	33	7	3	10
17th " ...	28	24	52	9	6	15
24th " ...	22	24	46	17	6	23
31st " ...	29	24	53	6	10	16
1st Quarter ...	317	294	611	140	117	257

7th April ...	28	36	64	4	8	12
14th " ...	14	20	34	2	5	7
21st " ...	21	21	42	5	5	10
28th " ...	25	17	42	11	7	18
5th May ...	24	23	47	8	8	16
12th " ...	30	26	56	8	8	16
19th " ...	16	17	33	5	4	9
26th " ...	26	30	56	10	6	16
2nd June ...	21	13	34	8	5	13
9th " ...	22	26	48	12	6	18
16th " ...	36	28	64	8	9	17
23rd " ...	15	14	29	7	11	18
30th " ...	33	17	50	5	6	11
2nd Quarter ...	311	288	599	93	88	181

BIRTHS AND DEATHS, EAST BATTERSEA, 1894, *continued*—

Week ending .—	BIRTHS.			DEATHS.		
	M.	F.	TOTAL.	M.	F.	TOTAL.
7th July ...	29	15	44	6	4	10
14th „ ...	21	15	36	7	7	14
21st „ ...	22	25	47	5	6	11
28th „ ...	18	25	43	8	12	20
4th August ...	27	21	48	12	8	20
11th „ ...	18	23	41	11	7	18
18th „ ...	21	16	37	14	15	29
25th „ ...	21	23	44	12	8	20
1st September ...	26	22	48	5	5	10
8th „ ...	17	16	33	3	11	14
15th „ ...	22	27	49	7	5	12
22nd „ ...	23	15	38	6	3	9
29th „ ...	21	20	41	4	13	17
3rd Quarter ...	286	263	549	100	104	204

6th October ...	20	24	44	7	14	21
13th „ ...	19	20	39	12	8	20
20th „ ...	22	17	39	6	4	10
27th „ ...	17	20	37	10	12	22
3rd November ...	23	14	37	9	12	21
10th „ ...	18	14	32	6	5	11
17th „ ...	13	16	29	5	7	12
24th „ ...	22	32	54	7	12	19
1st December ...	16	26	42	6	8	14
8th „ ...	18	20	38	15	18	33
15th „ ...	24	29	53	12	18	30
22nd „ ...	30	20	50	9	7	16
29th „ ...	17	14	31	6	7	13
4th Quarter ...	259	266	525	110	132	242
WHOLE YEAR ..	1,173	1,111	2,284	443	441	884

TABLE III.

## BIRTHS AND DEATHS, WEST BATTERSEA, 1894.

Week ending :—	BIRTHS.			DEATHS.		
	M.	F.	TOTAL.	M.	F.	TOTAL.
6th January ...	15	22	37	11	17	28
13th " ...	31	34	65	23	19	42
20th " ...	28	34	62	20	26	46
28th " ...	28	23	51	15	12	27
3rd February...	21	24	45	13	14	27
10th " ...	27	28	55	14	16	30
17th " ...	24	32	56	19	14	33
24th " ...	31	25	56	13	13	26
3rd March ...	29	33	62	14	14	28
10th " ...	30	24	54	16	17	33
17th " ...	26	34	60	11	16	27
24th " ...	29	27	56	16	13	29
31st " ...	34	32	66	21	15	36
1st Quarter...	353	372	725	206	206	412

7th April ...	34	22	56	11	11	22
14th " ...	21	35	56	18	23	41
21st " ...	27	23	50	12	15	27
28th " ...	30	29	59	19	18	37
5th May ...	25	23	48	19	16	35
12th " ...	17	25	42	16	26	42
19th " ...	23	24	47	19	16	35
26th " ...	25	20	45	18	16	34
2nd June ...	17	18	35	13	6	19
9th " ...	26	24	50	17	9	26
16th " ...	20	21	41	19	13	32
23rd " ...	24	25	49	15	13	28
30th " ...	21	20	41	9	12	21
2nd Quarter ...	310	309	619	205	194	399

BIRTHS AND DEATHS, WEST BATTERSEA, 1894, *continued.*

Week ending :—	BIRTHS.			DEATHS.		
	M.	F.	TOTAL.	M.	F.	TOTAL.
7th July ...	23	28	51	8	11	19
14th " ...	22	32	54	12	14	26
21st " ...	30	28	58	13	16	29
28th " ...	21	29	50	6	15	21
4th August ...	25	22	47	14	15	29
11th " ...	27	29	56	7	14	21
18th " ...	27	26	53	14	15	29
25th " ...	28	30	58	12	10	22
1st September ...	27	30	57	13	14	27
8th " ...	31	32	63	12	10	22
15th " ...	26	30	56	10	16	26
22nd " ...	28	35	63	12	15	27
29th " ...	22	18	40	12	12	24
3rd Quarter ...	337	369	706	145	177	322

6th October ...	24	26	50	13	18	31
13th " ...	27	19	46	13	14	27
20th " ...	22	30	52	12	14	26
27th " ...	21	18	39	23	17	40
3rd November ...	34	24	58	8	22	30
10th " ...	30	35	65	7	6	13
17th " ...	23	32	55	14	10	24
24th " ...	28	30	58	11	15	26
1st December ...	28	22	50	12	17	29
8th " ...	26	35	61	19	22	41
15th " ...	29	26	55	21	22	43
22nd " ...	29	26	55	17	17	34
29th " ...	25	21	46	14	9	23
4th Quarter ...	346	344	690	184	203	387
WHOLE YEAR ...	1,346	1,394	2,740	740	780	1,520

TABLE IV.

BATTERSEA. 1894		Births	Deaths	Deaths.		Small Pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea	Cholera	Violence	Inquests	Public Institutions (including Non-parishioners.)
				Under 1 Year.	Above 60 Years											
1st Quarter	E ..	611	257	65	60	..	13	2	11	9	..	6	..	9	32	...
	W ..	725	412	94	125	..	14	..	8	8	3	4	..	12	35	105
2nd Quarter	E ..	599	181	71	23	..	5	1	11	10	1	1	..	7	20	...
	W ..	619	399	83	80	..	104	..	10	10	2	3	..	10	27	86
3rd Quarter	E ..	549	204	95	20	..	4	1	6	14	..	28	2	4	20	...
	W ..	706	322	106	70	..	11	1	7	7	2	29	1	10	21	73
4th Quarter	E ...	525	242	92	36	..	..	..	10	6	2	6	..	5	29	...
	W ..	690	387	112	99	..	..	..	4	13	3	13	..	13	24	90
Whole Year	E ..	2284	884	323	139	..	22	4	38	39	3	41	2	25	101	...
	W ..	2740	1520	395	374	..	129	1	29	38	10	49	1	45	107	354
WHOLE PARISH		5024	2404	718	513	..	151	5	67	77	13	90	3	70	208	354

Table V. contains a veritable sanitary history of the parish of Battersea since 1856, the year in which modern sanitation first came into existence under the provisions of the Metropolis Local Management Act of 1855, and by which sanitary authorities, in the form of Vestries and District Boards, the latter consisting of small parishes grouped together, were first constituted for London as a whole. This parish at that time consisted of a congeries of small villages, between which extended market gardens; the inhabitants and dependents of some few dozens of large houses, the residences chiefly of merchants, with the workers at the market gardens, constituting the principal population. It will be observed that the population was then but 15,069, and at the census of 1861, had but reached the number of 19,582. The birth rate was then a little higher than now. The death rate, however, although the population was very sparse, was much higher than at present. It has been laid down as an axiom that mortality increases in direct proportion to the density of population, and it is the aim of modern sanitation to limit or prevent such increase. That the same parish, of course with the same superficial area, should, with a ten-fold population have a reduced instead of an augmented death rate, shews that the authority having charge of the sanitation, which includes the health condition and duration of lives of the

inhabitants, has amply justified its existence, if results are the test by which it should be judged.

TABLE V.

Year.	Mean Population for Year.	Births.	Birth rate.	Deaths.	Death rate.	Zymotic Deaths.	Natural Increase
1856	15,069	536	36.2	320	21.2	45	216
1857	15,970	582	36.0	343	21.4	46	239
1858	16,872	562	33.3	380	22.5	100	182
1859	17,774	685	38.5	394	22.1	96	292
1860	18,676	680	36.4	399	21.3	62	281
1861...	19,582...	750...	38.3	505...	25.7	112	245
1862	23,108	784	33.9	491	21.2	106	293
1863	26,635	1,042	39.1	522	19.5	86	520
1864	30,161	1,140	37.7	669	22.1	129	471
1865	33,688	1,357	40.2	785	23.3	177	572
1866	37,145	1,386	37.3	1,002	26.9	244	384
1867	40,741	1,734	42.5	870	21.3	122	864
1868	44,267	1,975	44.6	1,046	23.6	194	929
1869	47,749	2,096	43.8	1,121	23.4	247	975
1870	51,320	2,170	42.2	1,375	26.7	404	795
1871...	54,847...	2,220...	40.4	1,472...	26.8	463	748
1872	60,244	2,349	38.9	1,202	19.9	220	1,147
1873	65,614	2,659	40.5	1,307	19.9	205	1,352
1874	70,984	2,865	40.3	1,387	19.5	238	1,478
1875	76,354	3,080	40.3	1,724	22.5	307	1,356
1876	81,704	3,455	42.2	1,745	21.3	340	1,710
1877	87,094	3,481	39.9	1,725	19.8	280	1,756
1878	92,464	3,748	40.5	1,803	19.4	322	1,945
1879	97,834	4,001	40.8	1,980	20.2	355	2,021
1880	103,204	4,095	39.6	2,040	19.7	383	2,055
1881...	108,342...	4,452...	41.8	2,033...	18.7	381	2,419
1882	112,661	4,504	39.9	2,214	19.6	353	2,190
1883	116,980	4,711	40.2	2,344	20.0	369	2,367
1884	121,299	5,275	43.4	2,569	21.1	568	2,706
1885	125,618	4,654	37.0	2,566	20.4	432	2,088
1886	129,937	5,140	39.5	2,477	19.0	398	2,663
1887	134,256	5,186	38.6	2,451	18.2	502	2,735
1888	138,565	5,061	36.5	2,187	15.7	363	2,874
1889	142,884	5,161	36.1	2,240	15.6	366	2,921
1890	147,203	5,105	34.6	2,854	19.3	543	2,251
1891...	151,537...	5,237...	34.5	2,619...	17.2	398	2,618
1892	155,856	4,990	32.0	2,692	17.2	473	2,298
1893	160,175	5,225	32.6	2,801	17.4	564	2,424
1894	164,494	5,024	30.5	2,404	14.6	468	2,620

Tables VI., VII., VIII., and IX., with addendum, contain particulars of the mortality respectively of East Battersea, West Battersea, in the Union Infirmary, giving separately parishioners and non-parishioners, and in the addendum of the other public institutions situated within the parish. These tables have been used from 1856, and are continued for purposes of comparison with former years as well as being the basis upon which all the other mortality tables are founded.

TABLE VI.  
STATISTICS OF MORTALITY.

EAST BATTERSEA.			Total Deaths from each Class of Disease, &c. in the Sub-District.	SEX.		AGE.							SOCIAL POSITION.			
Population (Census) 1891, 67,144.				Males.	Females.	Under 1 year.	From 1 to 5 years.	Total under 5 years.	From 5 to 15 years.	From 15 to 25 years.	From 25 to 65 years.	65 years and upwards.	Nobility and Gentry.	Professional Class, Merchants, Bankers, &c.	Middle and Trading Class, Shopmen, Clerks, &c.	Industrial and Labouring Classes.
Estimated mean population for middle of 1894, 71,214.																
I. Zymotic.	Small-pox .. ..	..	22	9	13	9	13	22	..	..	..	..	..	..	1	21
	Measles .. ..	..	4	2	2	..	3	3	1	..	..	..	..	..	..	4
	Scarlet Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Typhus Fever .. ..	..	3	1	2	..	..	..	..	1	2	..	..	..	..	3
	Enteric Fever .. ..	..	5	..	5	..	..	..	..	3	2	..	..	..	..	5
	Puerperal Fever .. ..	..	38	25	13	4	21	25	12	1	..	..	..	..	1	57
	Diphtheria .. ..	..	39	20	19	21	18	39	..	..	..	..	..	..	1	38
	Whooping Cough .. ..	..	3	2	1	1	..	1	..	..	1	1	..	..	..	3
	Erysipelas .. ..	..	43	21	22	32	5	37	..	..	6	..	..	..	1	42
	Diarrhœa, Dysentery and Cholera .. ..	..	11	5	6	..	..	..	1	..	7	3	..	..	..	11
Total of Zymotic Diseases			168	85	83	67	60	127	14	5	18	4	..	..	4	164
II. Constitutional.	Gout .. ..	..	2	1	1	..	..	..	..	..	2	..	..	..	..	2
	Rheumatic Fever .. ..	..	4	2	2	..	1	1	1	2	..	..	..	..	..	4
	Cancer & other Tumours		20	8	12	..	..	..	..	..	13	7	..	..	1	19
	Other Constitutional Diseases .. ..	..	7	2	5	5	2	7	..	..	..	..	..	..	..	7
	Phthisis .. ..	..	62	30	32	1	3	4	3	8	46	1	..	..	2	60
	Tabes Mesæ .. ..	..	24	11	13	17	5	22	2	..	..	..	..	..	1	23
III. Local.	Hydrocephalus .. ..	..	11	6	5	5	4	9	1	1	..	..	..	..	1	10
	Scrofula .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Nervous .. ..	..	72	37	35	19	16	35	3	1	21	12	..	..	3	69
	Circulatory .. ..	..	59	24	35	1	5	6	3	4	36	10	1	..	2	56
IV. Developmental.	Respiratory .. ..	..	201	108	93	67	53	120	6	2	43	30	..	..	8	193
	Digestive .. ..	..	40	21	19	7	3	10	4	3	22	1	..	..	2	38
	Urinary .. ..	..	19	7	12	..	..	..	..	2	13	4	..	..	1	18
	Generative .. ..	..	4	..	4	..	1	1	..	..	3	..	..	..	..	4
	Locomotor .. ..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	1
V. Violence	Integumentary .. ..	..	1	1	..	1	..	1	..	..	..	..	..	..	..	1
	Premature Birth, Low Vitality and Congenital Defects .. ..	..	126	72	54	126	..	126	..	..	..	..	..	..	4	122
VI. All other Diseases	Old Age .. ..	..	38	11	27	..	..	..	..	..	1	37	2	..	3	33
	Violence .. ..	..	25	16	9	7	3	10	3	..	7	2	..	..	..	25
TOTALS .. ..			884	443	441	323	156	479	41	31	223	110	3	..	32	849

TABLE VII.  
STATISTICS OF MORTALITY.

WEST BATTERSEA. [excluding Public Institutions.]			Total Deaths from each Class of Disease, &c. in the Sub-District.	SEX.		AGE.								SOCIAL POSITION			
Population (Census 1891, 83,314.  Estimated mean population for middle of 1894, 91,965.)				Males.	Females.	Under 1 year.	From 1 to 5 years.	Total under 5 years.	From 5 to 15 years.	From 15 to 25 years.	From 25 to 65 years.	65 years and upwards.	Nobility and Gentry.	Professional Class, Merchants, Bankers, &c.	Middle and Trading Class, Shopmen, Clerks, &c.	Industrial and Labouring Classes.	
I. Zymotic.	Small-pox .. ..	123	65	58	26	90	116	7	..	..	..	..	..	..	3	120	
	Measles .. ..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	1	
	Scarlet Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Typhus Fever .. ..	9	7	12	..	1	1	1	2	5	..	..	..	..	..	9	
	Enteric Fever .. ..	12	..	12	..	..	..	..	..	..	..	..	..	..	..	2	
	Puerperal Fever .. ..	29	18	11	1	17	18	10	..	..	1	..	..	..	2	27	
	Diphtheria .. ..	38	17	21	20	18	38	..	..	..	..	..	..	..	..	38	
	Whooping Cough .. ..	5	3	2	2	..	2	..	..	..	2	1	..	..	..	5	
	Erysipelas .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Diarrhoea, Dysentery and Cholera .. ..	41	22	19	29	7	36	..	..	..	5	..	..	..	2	39	
Other Zymotic Diseases	22	9	13	1	..	1	..	1	13	7	..	..	..	4	18		
Total of Zymotic Diseases			270	141	129	79	133	212	19	4	21	14	..	..	11	259	
II. Constitutional.	Gout .. ..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	1	
	Rheumatic Fever .. ..	5	2	3	..	..	..	1	..	3	1	..	..	..	..	5	
	Cancer & other Tumours .. ..	44	16	28	1	..	1	..	..	32	11	..	1	6	37		
	Other Constitutional Diseases .. ..	8	4	4	3	1	4	..	2	2	..	..	..	..	1	7	
	Tubercular. { Phthisis .. ..	96	49	47	..	4	4	6	12	70	4	1	1	4	90		
	{ Tabes Mena .. ..	30	17	13	17	12	29	1	..	..	..	..	..	1	29		
	{ Hydrocephalus .. ..	20	10	10	10	7	17	2	1	..	..	..	..	1	19		
III. Local.	Scrotula .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Nervous .. ..	98	55	43	27	16	43	3	2	20	30	1	1	5	91		
	Circulatory .. ..	71	33	38	2	..	2	5	..	45	19	1	..	2	68		
	Respiratory .. ..	223	112	111	67	63	130	3	2	56	32	..	..	8	215		
	Digestive .. ..	54	25	29	16	3	19	2	3	23	7	..	..	5	49		
	Urinary .. ..	23	11	12	1	..	1	1	..	13	8	..	1	..	22		
	Generative .. ..	6	..	6	..	..	..	..	..	6	..	..	..	3	3		
IV. Developmental.	Locomotor .. ..	2	1	1	..	..	..	1	..	1	..	..	..	..	..	2	
	Integumentary .. ..	1	1	..	1	..	1	..	..	..	..	..	..	..	..	1	
V. Violence	Premature Birth, Low Vitality and Congenital Defects .. ..	138	62	76	138	..	138	..	..	..	..	..	1	5	132		
	Old Age .. ..	40	14	26	..	..	..	..	..	1	39	1	..	2	37		
VI. All other Diseases			3	2	1	..	..	1	..	1	1	..	..	..	3		
TOTALS .. ..			1166	570	596	372	213	615	48	29	302	172	4	5	54	1103	

TABLE VIII.  
STATISTICS OF MORTALITY.

Wandsworth and Clapham Union Infirmary.			Total Deaths from each Class of Disease, &c.	SEX.		AGE.							SOCIAL POSITION			
[Parishioners.]				Males.	Females.	Under 1 year.	From 1 to 5 years.	Total under 5 years.	From 5 to 15 years.	From 15 to 25 years.	From 25 to 65 years.	65 years and upwards.	Nobility and Gentry	Professional Class, Mer- chants, Bankers, &c.	Middle and Trading Class, Shopmen, Clerks, &c.	Industrial and Labouring Classes.
1894.																
I. Zymotic.	Small-pox .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Measles .. ..	..	3	1	2	1	2	3	..	..	..	..	..	..	..	3
	Scarlet Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Typhus Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Enteric Fever ..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	1
	Puerperal Fever ..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	1
	Diphtheria .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Whooping Cough ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Erysipelas .. ..	..	3	1	2	..	..	..	..	..	1	2	..	..	..	3
	Diarrhœa, Dysentry, and Cholera .. ..	..	3	1	2	1	..	1	..	..	..	2	..	..	..	3
Other Zymotic Diseases	..	1	..	1	..	..	..	..	..	1	..	..	..	..	1	
Total of Zymotic Diseases			12	4	8	2	2	4	1	..	3	4	..	..	..	12
II. Constitu- tional.	Gout .. ..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	1
	Rheumatic Fever ..	..	2	1	1	..	..	..	..	..	1	1	..	..	..	2
	Cancer & other Tumours	..	9	5	4	..	..	..	..	..	8	1	..	..	..	9
	Other Constitutional Diseases .. ..	..	2	..	2	2	..	2	..	..	..	..	..	..	..	2
	Phthisis .. ..	..	36	22	14	..	..	..	..	1	35	..	..	..	..	36
	Tabes Mesa. .. ..	..	3	2	1	..	..	..	2	..	1	..	..	..	..	3
	Hydrocephalus ..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	1
III. Local.	Scrofula .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Nervous .. ..	..	19	12	7	1	..	1	..	1	7	10	..	..	..	19
	Circulatory .. ..	..	20	11	9	..	..	..	1	1	11	7	..	..	..	20
	Respiratory .. ..	..	19	10	9	..	1	1	..	2	5	11	..	..	..	19
	Digestive .. ..	..	6	2	4	..	..	..	..	..	5	1	..	..	..	6
	Urinary .. ..	..	2	..	2	..	..	..	1	..	1	..	..	..	..	2
	Generative .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
IV. Develop- mental.	Locomotor .. ..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	1
	Integumentary ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
IV. Develop- mental.	Premature Birth, Low Vitality and Congenital Defects ..	..	2	..	2	2	..	2	..	..	..	..	..	..	..	2
	Old Age .. ..	..	14	5	9	..	..	..	..	..	..	14	..	..	..	14
V.	Violence .. ..	..	2	1	1	..	..	..	1	1	..	..	..	..	..	2
VI.	All other Diseases ..	..	2	1	1	1	..	1	..	..	1	..	..	..	..	2
TOTALS ..			153	77	76	8	3	11	7	6	80	49	..	..	..	153

TABLE IX.  
STATISTICS OF MORTALITY.

Wandsworth and Clapham Union Infirmary.			Total Deaths from each Class of Disease, &c.	SEX.		AGE.							SOCIAL POSITION				
[Non-Parishioners.]				Males.	Females.	Under 1 year.	From 1 to 5 years.	Total under 5 years.	From 5 to 15 years.	From 15 to 25 years.	From 25 to 65 years.	65 years and upwards.	Nobility and Gentry	Professional Class, Mer- chants, Bankers, &c.	Middle and Trading Class, Shopmen, Clerks, &c.	Industrial and Labouring Classes.	
1894.																	
I. Zymotic.	Small-pox .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Measles .. ..	..	3	3	..	..	2	2	..	..	..	..	..	..	..	2	
	Scarlet Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Typhus Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Enteric Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Puerperal Fever ..	..	3	..	3	..	..	..	..	2	1	..	..	..	..	3	
	Diphtheria ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Whooping Cough ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	Erysipelas ..	..	4	3	1	..	..	..	..	..	1	3	..	..	..	4	
	Diarrhœa, Dysentery, and Cholera .. ..	..	6	2	4	2	4	6	..	..	..	..	..	..	..	6	
Other Zymotic Diseases	..	2	2	..	..	..	..	..	..	1	1	..	..	..	2		
Total of Zymotic Diseases			18	10	8	2	7	9	..	2	3	4	..	..	..	18	
II. Constitu- tional.	Gout .. ..	..	3	2	1	..	..	..	..	..	3	..	..	..	..	3	
	Rheumatic Fever ..	..	1	..	1	..	..	..	..	..	..	1	..	..	..	1	
	Cancer & other Tumours	..	12	5	7	..	..	..	..	..	6	6	..	..	..	12	
	Other Constitutional Diseases .. ..	..	2	1	1	2	..	2	..	..	..	..	..	..	..	2	
	Tuber- cular.	Phthisis .. ..	19	10	9	..	..	..	1	4	14	..	..	..	..	..	19
		Tabes Mesa. ..	2	..	2	2	..	2	..	..	..	..	..	..	..	..	2
		Hydrocephalus ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		Scrofula .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
III. Local.	Nervous .. ..	..	21	7	14	..	..	..	1	1	12	7	..	..	..	21	
	Circulatory .. ..	..	23	8	15	..	..	..	..	..	7	16	..	..	..	23	
	Respiratory .. ..	..	26	15	11	1	1	2	..	..	9	15	..	..	..	26	
	Digestive .. ..	..	6	2	4	..	1	1	..	1	2	2	..	..	..	6	
	Urinary .. ..	..	12	10	2	..	..	..	..	..	7	5	..	..	..	12	
	Generative .. ..	..	2	..	2	..	..	..	..	..	2	..	..	..	..	2	
	Locomotor .. ..	..	2	..	2	..	..	..	..	1	1	..	..	..	..	2	
	Integumentary ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
IV. Develop- mental.	Premature Birth, Low Vitality and Congenital Defects ..	..	7	3	4	7	..	7	..	..	..	..	..	..	..	7	
	Old Age .. ..	..	26	9	17	..	..	..	..	..	..	26	..	..	..	26	
V. Violence .. ..			8	6	2	..	..	..	1	..	5	2	..	..	..	8	
VI. All other Diseases ..			1	..	1	1	..	1	..	..	..	..	..	..	..	1	
TOTALS ..			191	88	103	15	9	24	3	9	71	84	..	..	..	191	

Particulars of deaths within the Parish in Public Institutions other than the Wandsworth and Clapham Union Infirmary.

PARISHIONERS.

Bolingbroke Hospital	Female 50 years	Cancer
Masonic School	Female 20 years	Digestive

NON-PARISHIONERS.

Bolingbroke Hospital	Female 70 years	Run over
" "	Male 47 years	Other Const. dis.
" "	Female 12 years	Cancer
" "	Male 48 years	Pneumonia
" "	Male 62 years	Pneumonia
" "	Female 66 years	Urinary
" "	Male 24 years	Violence, fall from cart
St. James, Westminster, Schools	Male 11 years	Congestion of brain

Table B. This, the second table prescribed by the Local Government Board, contains particulars of the population, births, notifications of infectious disease in the several localities and various public institutions (themselves treated as separate localities), situated within the parish, and the cases of infectious disease removed from their homes in these several localities for treatment in the Metropolitan Asylums Board isolation hospitals. The cases of erysipelas are mostly removed to the Infirmary of the Wandsworth and Clapham Union, situated in St. John's Hill, within the parish, as also cases of puerperal fever, other hospitals not providing accommodation for these two diseases.

It will be observed that the several localities and institutions have populations assigned to them. The out-door districts of East and West Battersea have populations based upon the ascertained increase of population during the last inter-censal period, while the institutions have the census populations given.

TABLE B OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH, DURING THE YEAR 1894 IN THE URBAN SANITARY DISTRICT OF BATTERSEA, CLASSIFIED ACCORDING TO DISEASES, AGES AND LOCALITIES.

Names of localities adopted for the purpose of these statistics. Public Institutions being shown as separate localities.	Population at all ages.		Registered Births.	Aged under 5 or over 5	New Cases coming to knowledge of Medical Officer of Health											No. of Cases removed for treatment in Isolation Hospitals.										
					1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11
	Census. — 1891.	Estimate to middle of 1894.			Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Small Pox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.
									Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.							Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.		
East Battersea ...	67144	71214	2284	Under 5 5 upwards	2 4	108 259	79 159	19 6		7 55				4	10 121	1 4	75 162	35 57	2	5 30					2 13	
West Battersea ...	81999	91965	2740	Under 5 5 upwards	1 5	131 338	61 173	5 3		7 83					4 144	1 4	69 196	31 46		3 40				2	15	
Wandsworth & Clapham Union Infirmary, St. John's Hill ...	615	615		Under 5 5 upwards										2	46		1									
Bolingbroke Hospital, Bolingbroke Grove	...	...		Under 5 5 upwards																						
Westminster Union Schools, St. James' Road ..	152	152		Under 5 5 upwards						1										1						
Emanuel Schools, Wandsworth Common	232	232		Under 3 5 upwards																						
Masonic School for Girls, Battersea Rise	316	316		Under 5 5 upwards																						
Whole Parish ...	150458	164404	5024	Under 5 5 upwards	3 9	239 598	140 332	24 9		14 139				10	14 311	2 8	144 359	66 103	2	8 71				2	38	

TABLE X.

*Particulars of Infectious Cases Notified during the year 1894.*

	Cholera	Small Pox	Scarlet Fever	Diphtheria	Membranous Croup	Typhus Fever	Typhoid Fever	Continued Fever	Relapsing Fever	Puerperal Fever	Erysipelas	TOTAL.
Number of Cases Notified	2	12	837	472	33	...	153	1	...	10	325	1845
No. of Fatal Cases at home	1	...	5	45	22	...	13	...	...	8	15	109

TABLE XI.

*Particulars of Cases of Infectious Disease Removed to Hospital during the year 1894.*

	Cholera	Small Pox	Scarlet Fever	Diphtheria	Membranous Croup	Typhus Fever	Typhoid Fever	Continued Fever	Relapsing Fever	Puerperal Fever	Erysipelas	TOTAL.
No. of Cases removed to Hospitals	...	10	503	169	2	...	79	...	...	2	30	795
No. of Fatal Cases in Hospitals.	...	2	25	51	...	...	16	...	...	1	2	97

Below will be found a synopsis of the notifications received during 1894, with removals to hospital:—

		NOTIFICA- TIONS.	REMOVED TO HOSPITAL.
Cholera	...	2	—
Small Pox	...	12	10
Scarlet Fever	...	837	503
Diphtheria	...	472	169
Membranous Croup	...	33	2
Typhus Fever	...	—	—
Typhoid Fever	...	153	79
Continued Fever	...	1	—
Relapsing Fever	...	—	—
Puerperal Fever	...	10	2
Erysipelas	...	325	30
		—	—
		1,845	795
		<u>      </u>	<u>      </u>

#### AGES:—

Under 5 years	...	434	224
5 Years and upwards	...	1,411	571
		—	—
		1,845	795
		<u>      </u>	<u>      </u>

#### WHERE OCCURRING:—

East Battersea	...	833	386
West Battersea	...	962	407
Union Infirmary	...	49	1
Bolingbroke Hospital	...	—	—
Westminster Schools	...	1	1
Emanuel School	...	—	—
Masonic Schools	...	—	—
		—	—
		1,845	795
		<u>      </u>	<u>      </u>

The various Hospitals to which the cases have been removed are as follows :—

Asylums Board Hospitals  
(principally Stockwell and Tooting.)  
Victoria.  
St. Thomas'.  
Belgrave.  
Charing Cross.  
St. George's.  
Westminster.  
Evelina and  
London Fever Hospitals.

Small-Pox. A great decrease in the number of cases of this disease during the year, twelve cases compared with one hundred and thirteen in 1893. Twelve cases are given in Table B., but four were not cases of true small pox but of diseases closely resembling it, and difficult to differentiate. The remaining eight cases were promptly removed to the Metropolitan Asylums Board Hospital Ships, and the necessary disinfections promptly performed, and all other precautions taken.

By the courtesy of Mr. T. Duncombe Mann, the Secretary of the Metropolitan Asylums Board, I am enabled to give a detailed list of the cases admitted to the Hospital Ships in Long Reach, under the care of the Medical Superintendent, Dr. J. F. Rickett, who has been good enough to furnish me with the list which shows that of the eight patients received two died insufficiently protected by vaccination, in one case forty years of age, the scars of vaccination performed in infancy, being less than one-third of an inch, whereas a collective area of half an inch is the standard of efficient vaccination adopted by the Local Government Board. In the other case, aged twenty five years, vaccination had not been performed at all.

SMALL POX CASES ADMITTED TO THE METROPOLITAN ASYLUMS BOARDS HOSPITAL SHIPS AT LONG REACH  
FROM BATTERSEA, DURING THE YEAR 1894.

No	Name.	Age.	Sex.	Address.	Date of Admission.	Statement as to Primary Vaccination.	No. of Scars.	Collective Area.	Re-vaccinated.	
1	A. E. C.	1	M	48, St. Philip Street	Jan. 12	Not vaccinated	None	—	—	Recovered
2	E. L. M.	10	F	9, Robertson Street West	„ 16	In infancy	4	1'02 sq. in.	Not	„
3	G. L. M.	34	M	Do. do.	„ 30	„	3	1'48 „ „	„	„
4	F. C.	40	F	28, Wickersley Road	June 13	„	2	0'31 „ „	„	Died
5	E. F.	20	F	8, Field's Place	July 31	„	4	1'94 „ „	„	Recovered
6	J. L.	30	M	36, Bridge Road	Aug. 2	„	4	0'94 „ „	„	„
7	E. L.	25	M	11, Yelverton Road	„ 11	Not vaccinated	None	—	—	Died
8	H. L.	25	F	Do.	„ 26	In infancy	3	0'58 sq. in.	Aug. 16/95, sucn.	Recovered

Scarlet  
Fever.

Eight hundred and thirty-seven cases of this disease were notified during the year 1894. Five hundred and three in which there was not efficient isolation to be obtained at home, or where, from the severe type of the disease or other causes, proper provision for the nursing and care of the sick could not be there obtained, were removed to the Metropolitan Asylums Board Hospitals, chiefly to the Fountain Hospital at Tooting, which has proved to be of inestimable value to this district, saving long journies and much valuable time. Twenty five of the cases admitted to hospital died, being under five per cent., a very low rate.

The other two hundred and seventy four cases, in which proper nursing and isolation existed, remained at home. These cases would include the milder attacks, five proving fatal, being under two per cent.

Diphtheria  
and  
Membran-  
ous Croup.

These diseases are here grouped together as it is impossible to distinguish between them in many instances, diphtheria of the air passages being generally returned as membranous croup, but not always, many cases being termed laryngeal diphtheria.

Of these combined diseases, which originate as far as modern research extends from the same source, and therefore here grouped together as diphtheria, five hundred and five cases were notified during 1894. One hundred and seventy nine were sent to hospital, many *in extremis*, for the sake of having tracheotomy performed as the only method of averting death from suffocation. Fifty three hospital cases died, just thirty one per cent.

Three hundred and twenty six, including the milder cases such as diphtheritic sore throat, remained at home. Of these sixty seven died, just over twenty per cent. of cases.

The mortality of diphtheria in all cases treated in hospital or at home was slightly over twenty five per cent., shewing the

more fatal character of this disease as compared with the type of scarlet fever which has prevailed during the year under report.

Enteric  
and other  
Fevers.

Enteric fever has been somewhat prevalent during the year 1894, one hundred and twenty-three cases having been notified. Seventy nine were removed to hospital, of whom sixteen died or slightly above twenty per cent. The other seventy four were treated at home, the majority being mild cases, and thirteen of these died or nearly eighteen per cent. The total mortality of all cases was nineteen per cent.

One non-fatal case of continued fever was notified and requires no comment.

Puerperal Fever was notified in ten cases of whom nine died, this disease being almost invariably fatal. Two were sent to hospital of whom one recovered. All the cases treated at home died.

Erysipelas.

This disease still continues prevalent, three hundred and twenty five cases being notified in 1894, against four hundred and thirty nine in 1893, and three hundred and thirty-three in 1892. Thirty cases were removed to hospital, two of whom died, the rest, two hundred and ninety five, remained at home of whom fifteen died. Those removed were taken to the Wandsworth and Clapham Union Infirmary in the majority of instances, as general hospitals do not admit such cases as a rule, and the Metropolitan Asylum Board Hospitals do not receive them. The term erysipelas covers so many degrees and forms of inflammatory affections, that no profitable conclusions could be deduced from any further detail.

Diarrhœa.

In consequence of the prevalence of Diarrhœa and like affections of the digestive tract during the hotter months, more especially among hand fed infants, the Sanitary

Committee directed the preparation and issue of precautions to be taken in the method of feeding and generally treating young children. These are appended :—

### PRECAUTIONS AS TO DIARRHŒA.

In consequence of the prevalence of Diarrhœa amongst young children, more especially those brought up by hand, the Vestry as the Sanitary Authority acting under the advice of their Medical Officer of Health, beg to direct the attention of Parents and others having care of young children to the great advisability of boiling all water and milk used for feeding such children.

Care should be taken as to the sound condition of every article of food for children, anything not fresh being withheld. Fruit especially should not be given if in the slightest degree decomposed.

Cleanliness of person and dwellings with frequent flushing of house drains is of the greatest value.

Disinfectants in case of illness are supplied free of charge on application to the Sanitary Department, Town Hall Road, between the hours of 9 a.m. and 5 p.m., and on Saturdays, between 9 a.m. and 2 p.m.

Measles. The number of cases which occurred during the earlier months of 1894 cannot be ascertained, as this, the most fatal of all zymotic diseases, still remains non-notifiable. The number of fatal cases became so grave that I was directed to draw up a bill giving the public instructions as to the necessary precautions to be observed during an epidemic of this disease, and they are here given.

PRECAUTIONS TO BE OBSERVED  
DURING THE  
EPIDEMIC OF MEASLES.

The Vestry, as the Sanitary Authority for the Parish, and as advised by the Medical Officer of Health, desire to direct the attention of parents and others to the importance of checking the spread of Measles, which is now prevalent in an epidemic form and is causing much mortality by complications, such as Bronchitis and Pneumonia.

All children suffering from Measles, even in the earliest stage, before the eruption appears, should be isolated from others. The first symptoms of Measles are running at the eyes and nose, with repeated sneezing and a puffy appearance of the face and eyelids and, a few days after, the appearance of the rash which is raised and red or purplish in colour.

The child should be kept in bed from the first appearance of the symptoms until the rash has finally disappeared, in order to avoid the danger of lung complications which are the real causes of death, uncomplicated measles not being usually fatal. Medical aid should be sought in every case where difficulty of breathing is observed.

Disinfectants in a dilute form should be freely used in every case of measles in a warm bath at the onset and termination of the disease, and to sponge the face and other parts during the illness.

In case of inability to obtain suitable disinfectants the same will be supplied, free of charge, on application to the Vestry's Sanitary Department, Town Hall Road, Lavender Hill.

The epidemic declined during the summer months, but was accompanied and followed by deaths from whooping cough and other respiratory disorders.

Influenza. The fifth epidemic of this disease, which first appeared in this country after an absence of nearly fifty years in 1889, again affected a large number of persons in the early months of the year. Although many hundreds were incapacitated the mortality was much below that of other years during which it was prevalent, the total number of deaths ascribed to it being thirty three.

There can, however, be no doubt that the high mortality from diseases of the respiratory system was much influenced by this disease.

By the order of the Sanitary Committee a list of precautions to be taken was drawn up by me and printed and circulated largely throughout the parish, and is here reproduced.

#### PRECAUTIONS AGAINST INFLUENZA.

The Vestry of the Parish of St. Mary, Battersea, as the Sanitary Authority and as advised by the Medical Officer of Health, in consequence of the renewed prevalence of Influenza, desire to direct the attention of the public to the extremely infectious character of the disease, and to point out that to the exposure of those in an infective condition from influenza, by neglect to isolate themselves during the period of such infective condition, the spread and maintenance of the disease is chiefly due. It is probable that the breath of those so affected is the principal medium by which infection is conveyed.

The early symptoms of influenza are chiefly chills and shivering, accompanied by great muscular weakness and prostration, often amounting to inability to stand or move, with pains in the spine or other parts of the body. It is desirable that persons thus affected should at once go to bed and there remain until convalescence is established in order to avoid the dangers of Pneumonia or Bronchitis, which are the chief complications to be feared, as likely to lead to fatal results.

Early recourse to medical assistance is desirable in every case, both for the determination of the real nature of the disease and for the prevention of the more serious complications.

A most important memorandum has been issued by the Medical Officer of the Local Government Board at the time of writing, and been produced as the result of questions in Parliament, addressed to Ministers, on the subject of a very fatal outbreak at the end of 1894 and beginning of 1895, and is here set out.

#### MEMORANDUM ON EPIDEMIC INFLUENZA.

Influenza became epidemic in England in the winter of 1889-90; it recurred in epidemic form in the spring of 1891, and was maintained up to June of that year; a third epidemic took place in the winter of 1891-92, and after a minor recrudescence in the spring of 1893, a fifth prevalence on a wide scale took place in the winter of 1893-94. England is now passing through a sixth epidemic period. Two detailed reports have been issued by the Board on the subject. The first was Dr. Parsons, "On the Influenza Epidemic of 1889-90," with an introduction by Sir George Buchanan, M.D., F.R.S., the Board's Medical Officer at that date. The second was a "Further Report on Epidemic Influenza, 1889-92," by Dr. Parsons, with papers on the Clinical and Pathological aspects of the Disease, by Dr. Klein, F.R.S., and an introduction by myself.

A "Provisional Memorandum upon Precautions advisable at times when Epidemic Influenza threatens, or is prevalent," was also drawn up by me in January, 1892, and was issued by the Board to local sanitary authorities.

The further study made by the Medical Department as to the natural history of Influenza, and as to its clinical and bac-

teriological characteristics, goes to show that it is a disease against which it is most difficult to apply measures of prevention with any substantial prospect of success.

Influenza is highly infective from person to person ; its infectious quality is often manifested before the disease is fully recognised ; its incubation period is one of the shortest of all infectious diseases ; it varies so much in intensity that many cases are never diagnosed at all ; one attack confers no marked immunity against another ; and the infection is largely eliminated by means of the lungs, the sputa of the sick being invariably charged, during the acute stage of the disease, with its pathogenic micro-organism. The disease calls primarily for measures of isolation and of disinfection, but there are difficulties in making any such measures universally applicable. Wherever they can be carried out, the following precautions should, however, be adopted :—

- 1st. The sick should be separated from the healthy. This is especially important in the case of first attacks in a locality or a household.
- 2nd. The sputa of the sick should, especially in the acute stage of the disease, be received into vessels containing disinfectants. Infected articles and rooms should be cleansed and disinfected.
- 3rd. When Influenza threatens, unnecessary assemblage of persons should be avoided.
- 4th. Buildings and rooms in which many people necessarily congregate should be efficiently aerated and cleansed during the intervals of occupation.

It should be borne in mind that the liability to contract Influenza, and also the danger of an attack, if contracted, are increased by depressing conditions, such as exposure to cold, and to fatigue whether mental or physical. Attention should hence be paid at epidemic periods to all measures tending to the

maintenance of health, such as the use of clothing of suitable warmth, and a sufficiency of wholesome food.

Persons who are attacked by Influenza should at once seek rest, warmth, and medical treatment, and they should bear in mind that the risk of relapse, with dangerous complications, constitutes a chief danger of the disease.

R. THORNE THORNE.

Local Government Board,  
Medical Department,  
March 6th, 1895.

It will be perceived that the contents of the above memorandum are in accord with the precautions issued by this parish early in 1894, and now re-issued for the guidance of the public.

TABLE XII.

*Comparative Table of Zymotic Mortality during the past 11 years.*

	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894
Small-Pox ...	5	2	—	—	—	—	—	—	—	—	—
Measles ...	134	112	70	82	87	104	159	37	90	90	151
Scarlet Fever ...	31	8	14	68	25	12	10	10	15	17	5
Diphtheria ...	18	10	9	23	22	21	27	35	28	90	67
Enteric, &c. Fevers ...	45	18	23	17	13	15	21	19	8	14	13
Whooping Cough ...	106	121	104	112	119	81	146	104	100	115	77
Epidemic Diarrhœa...	178	126	152	175	75	112	121	104	99	120	93
Other Zymotic Diseases	51	35	26	25	22	21	59	89	133	118	62
Total Deaths from Zymotic Diseases...	568	432	398	502	363	366	543	398	473	564	468
Zymotic Death Rate	4·6	3·4	3·0	3·7	2·6	2·5	3·6	2·6	3·0	3·5	2·8
Death-rates from all Diseases ...	21·1	20·4	19·0	18·2	15·7	15·6	19·3	17·2	17·2	17·4	14·6

TABLE XIII.

*Comparative Table of all non-zymotic causes of Deaths during the past 11 years.*

	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1884
Tubercular, including Phthisis ...	479	420	439	367	342	334	320	285	237	355	304
Of Brain, Nerves, &c. ...	298	282	289	280	223	212	261	195	259	213	211
Of the Heart, &c. ...	148	159	159	128	113	108	148	141	183	159	173
Of the Respiratory Organs, excluding Phthisis	489	630	584	528	474	391	618	572	635	653	471
Of Digestive Organs	85	88	96	86	113	100	118	122	112	127	197
Of Urinary Organs ...	34	46	31	53	24	39	34	49	72	60	57
Of Organs of Generation	16	23	14	19	6	14	15	16	15	14	12
Of Joints, Bones, &c.	16	8	20	30	9	3	4	7	2	3	6
Premature Birth, Low Vitality, Malformation, &c. ...	149	137	175	202	175	205	206	238	256	295	273
Of Uncertain Seat Cancer, Syphilis, Dropsy, &c. ...	91	105	106	105	79	96	70	89	233	130	114
Age ...	64	76	99	88	57	52	71	74	122	103	118
Violence ...	57	61	63	63	56	60	77	60	81	102	70
Constitutional ...	9	4	5	—	—	—	—	2	12	23	20
TOTAL ...	1935	2039	2080	1949	1671	1614	1942	1850	2219	2237	1936

Table XII. gives the zymotic mortality for the past eleven years with particulars as to the zymotic and other death rates. It will be seen that the non-notifiable infectious diseases are the more fatal. Thus from measles, one hundred and fifty one deaths arose, from whooping cough seventy seven, epidemic diarrhoea ninety three, and other zymotic diseases, chiefly influenza sixty two. Thus three hundred and eighty three deaths occurred from diseases not notified to the Medical Officer of Health, and therefore not under any supervision compared with eighty five from the whole of the notifiable zymotics, viz. :—From scarlet fever five, from diphtheria sixty seven, and from enteric and other fevers thirteen. This but confirms the experience of former years that when a disease is notified and to a certain extent under control it tends to dwindle away, but when not so controlled increases both in number and

fatality. The time will no doubt arise when all communicable diseases will be notified to those charged with the care of the public health, and in other countries, notably Italy, this is being to a large extent carried out.

Table XIII. is most interesting from the sanitarians point of view. It shews that these diseases instead of increasing with the population, which has increased more than 43 per cent. during the period included in the table, tend to diminish both relatively and absolutely. This bears out the experience of all communities, that proper drainage and other efficient methods of sanitation not only affect the zymotic diseases but those which are usually regarded as not being in that category. Thus in well drained towns the deaths from tubercular phthisis have been found to diminish by something like one half after the provision of proper and effective drainage compared with the antecedent periods. This seems to point out the fact that all these diseases depend upon their surroundings or environments, even in cases such as cancer which would seem to be least liable to be so affected, it is shewn that a considerable and constant increase of such diseases as compared with other localities, is found in the case of damp or water-logged soils. But for the continued high rate of mortality from diseases of the respiratory organs adversely influenced by the constantly recurrent epidemics of influenza, a great diminution of deaths of this class would have been shewn. The premature births also continue to increase in numbers in proportion to the increase in population.

*Inquests.* During the year 1894, 224 cases came under the notice of the Coroner. Sixteen of these were cases in which he decided that no further inquiry was necessary, and they are marked in the Registrar's Returns as "submitted to Coroner," which is considered sufficient to authorise registration."

In the other 208 cases inquests were held with the following results, as given in the verdicts of the respective juries :—

From Natural Causes	...	...	...	138
From Accidental Causes :—				
Suffocation	...	...	...	14
Burns	...	...	...	2
Scalds	...	...	...	1
Run over	...	...	...	5
Drowning	...	...	...	2
Poisoning	...	...	...	1
Want of attention at birth	...	...	...	2
Falls, &c.	...	...	...	16
Gunshot	...	...	...	1
Injury to thumb	...	...	...	1
Lifting heavy weight	...	...	...	1
Injury at birth	...	...	...	1
			—	47
From Homicidal Causes :—				
Suicide—Hanging	...	...	...	2
Drowning	...	...	...	1
Poisoning	...	...	...	5
Run over	...	...	...	1
			—	9
Murder—Suffocation from fire and smoke	...	...	...	1
Fractured Skull	...	...	...	3
			—	4
Manslaughter : Blow	...	...	...	1
			—	1
Open Verdicts :—				
Found dead	...	...	...	2
"    drowned	...	...	...	6
Injuries to head	...	...	...	1
			—	9
			—	
Total	...	...	...	208
			—	

Twelve deaths were due to suffocation whilst in bed with parents, the dates and days of the week being as follows :—

28th February	Wednesday.	17th May	Thursday.
9th March	Friday.	26th "	Saturday.
11th "	Sunday.	22nd June	Friday.
31st "	Saturday.	30th August	Thursday.
19th April	Thursday.	28th November	Wednesday.
20th "	Friday.	25th December	Tuesday.

Differently arranged, the following table shews the incidences of these cases on the several days of the week. It must be remembered that the day given is invariably that of the early morning during which the child is found dead :—

			NO. OF CASES.
Sunday	...	...	1
Monday	...	...	—
Tuesday	...	...	1
Wednesday	...	...	2
Thursday	...	...	3
Friday	...	...	3
Saturday	...	...	2
Total			12

It will be observed that the increased number of cases in which infants were found dead on Sunday morning has ceased, an indication of the more temperate habits of the parents.

#### SOCIAL POSITION OF PERSONS DYING DURING 1894.

	Number.	Per Cent.
Nobility and Gentry	7	0·3
Professional Class	5	0·2
Middle and Trading Classes	88	3·6
Industrial and Labouring Classes	2,304	95·9
	<u>2,404</u>	<u>100·0</u>

This table shews the great preponderance of the industrial element in our population. The low rates given in this report tend to shew that many of the best and most prudent of the class reside in this parish.

Water  
Supply for  
London.

This most important subject, more especially with reference to the health and sanitary condition of the inhabitants of this vast metropolis, among whom of course are included the many thousands of persons who are

inhabitants of Battersea, is now engaging the attention of Parliament. The water companies have bills in the House of Commons and the London County Council has introduced measures giving it control over the water supply. In my report for last year the subject was very fully discussed, and as the matter is one in which every public man should take a strong personal interest, a condensed account of the present position of the question is here given.

This most important subject has been under consideration by a Royal Commission which sat during 1892 and 1893. The Chairman was Lord Balfour of Burleigh; Sir Archibald Geikie, Professor Dewar, Dr. Ogle, Mr. Mansergh, Mr. Hill, and Sir George Bruce constituted the Committee, all men of eminence and selected for their intimate knowledge of the subject. No Commissioner was in any way connected with either of the London Water Companies, and Mr. Mansergh is the Engineer who is now bringing water to Birmingham from Wales, while Mr. Hill is supplying Manchester from Thirlmere.

The witnesses examined include nearly one hundred of the leading sanitarians and engineers, together with representatives of the great public bodies of the Metropolis and elsewhere, the Local Government Board, the London County Council, the Corporation of London, and the various Water Companies and others having interests in the Water Supply of the Metropolis.

Briefly reviewing the inquiry, the main question referred to and considered by the Commission was whether the water of the Thames and Lea Valleys was good, and whether enough of it could be obtained for the London of the future without injury to the interests of other districts in those watersheds. They find, as the Companies always maintained, that "the water as supplied to the consumer in London is of a very high standard of excellence and of purity, and that it is suitable in quality for all household purposes," and also that the Thames and Lea

Valleys may, without prejudice to the claims or material injury to the interests of districts outside the area of Greater London, be made to supply more than double the present population of the Metropolis with 35 gallons per head daily.

The Commissioners recommend that the inspection of the River Thames should be more thoroughly done than it is at present, and that increased provision should be made, in the form of reservoirs for avoiding the taking in of water while the river is in a state of flood. Of all the sites that have been suggested to them as suitable for reservoirs they consider none in the Thames Valley so reliable as can be found upon the London clay, only a short distance above the Hampton intakes. From the Thames, when required, may be taken 300,000,000 gallons a day; from the Lea, 52,500,000 gallons; from wells in the Lea Valley, 40,000,000 gallons; and from wells in the Kent Company's district, 27,500,000 gallons; besides a further considerable quantity, should it ever be wanted, from the Valley of Medway and the country to the east of it.

The Commission, as might be expected, deal with the question broadly, without committing themselves to details. It would be going beyond the duty of useful criticism to discuss some of the interesting scientific, though minor, points upon which the Commissioners adopted views adverse to those of some of the distinguished witnesses who appeared before them. There are, however, in the enquiry two points which rather hang upon one another, and about which we wish the Commission had told us a little more. These are :—

- (1) The effect which might be expected upon the Thames of taking double the present quantity of the water from the river during periods of drought.
- (2) The amount of storage space to be provided above the intakes in order to make the taking of any more of this water unnecessary.

It is obvious, from the evidence of the late Mr. Hawksley and others, that the water passing the intakes is purest when the river is lowest. In their report (paragraphs 73 to 78) the Commission deal at length with Mr. Peregrine Birch's proposal to take vast quantities more of this water when needed, and with the antidote Mr. More suggested, in the interests of navigation, in case another 100,000,000 gallons should be required from the river in the driest times.

Mr. More's suggestion was that a lake of 25 acres be excavated in the Old Deer Park at Richmond to hold 8 feet of tidal water between high and low water marks ; that this should be filled by the rising tide and discharged during the three or four hours of lowest water. The alternative to this would appear, from some newspaper reports, to be the construction of 1,200 acres of reservoir 40 feet deep, and the passing into the tideway of the water most suitable for domestic supply.

The Commissioners do not discuss the reasonableness of local objection to a 25 acre lake being cut in the Old Deer Park, nor express an opinion as to whether, as Mr. Birch told the Commission, the same result could be effected by the manipulation of the weirs ; but they venture to predict that, whoever in future may own the London water works, the time will never come for passing on the best of the water by means of works including 1,200 acres of special reservoirs, although the 400 acres of reservoirs suggested by Messrs. Hunter and Fraser as desirable in future, so that the Companies may avoid taking in flood water, will, of course, be made as rapidly as the increased demands upon the works require them.

The conclusion of the Commission is most distinct that there is ample supply of water derivable from the Rivers Thames and Lea, from wells in the chalk in the Lea Valley, and also in the district of the Kent Water Works Company, which will be sufficient to meet the requirements of London for fifty years to come. As to the purity of these supplies, the

chemical and bacteriological evidence of Dr. Frankland, Dr. Odling, Professor Crookes, Professor Ray Lankester, Dr. P. F. Frankland and others, is most satisfactory; and no evidence submitted as to impurity could stand the test of the investigations and inquiries of the Commissioners. In their report, however, they very properly advise that further efforts shall be made to keep pollution of all kinds out of the Rivers, and maintain their purity in every possible way.

The report of the Commissioners, given below sums up the evidence and gives a general outline of the whole enquiry and is followed by the conclusions at which they finally arrived and their consequent recommendations.

The Commission, which was appointed in January, 1892, constituted for the purpose of ascertaining "whether, taking into consideration the growth of the population of the Metropolis and the districts within the limits of the Metropolitan Water Companies, and also the needs of the localities not supplied by any Metropolitan Company but within the watersheds of the Thames and the Lea, the present sources of supply of these Companies are adequate in quantity and quality, and, if inadequate, whether such supply as may be required can be obtained within the watersheds referred to, having due regard to the claims of the districts outside the Metropolis but within those watersheds, or will have to be obtained outside the watersheds of the Thames and the Lea." For the purpose of acquiring the information necessary to enable them to form a judgment upon the questions submitted, the Commissioners placed themselves in communication with the Metropolitan Water Companies, the Corporation of the City of London, the London County Council, and the Councils of the Counties of Bedford, Berks, Buckingham, Essex, Gloucester, Hants, Hertford, Kent, Middlesex, Oxford, Surrey, and Wilts. They also invited the Boards of Conservators of the Thames and Lea, and all the Urban and Rural Sanitary Authorities whose districts are wholly or partially situated within the watersheds

of those Rivers, and all the Water Companies and Public Authorities who have waterworks in the same area to give them any information bearing on the subject which they might be in a position to afford. The Commissioners sat on 45 days, 32 of which were occupied in having oral evidence. There were 92 witnesses examined, most of whom were put forward by the Metropolitan Water Companies or the County Councils of London and the counties of Hertford, Middlesex, Surrey, Essex, and Buckingham, and by other public bodies in London and the neighbourhood. Some of the evidence produced was of such a character that it was found necessary to employ an Assistant Commissioner to visit the localities under enquiry, and to ascertain upon the spot the precise facts. For this purpose, with the sanction of the Treasury, Mr. R. E. Middleton, M. Inst. C.E., was appointed.

The inquiry, as far as possible, was conducted in two divisions, the first of which comprised all the particular evidence as to the individual circumstances of the Water Companies at the present time, and the anticipations of the future which might be based upon them. Under this division was taken the evidence of the Metropolitan Water Companies as to the quantity of water which they were daily supplying per head of the population, the sources at their command to meet that supply, and the grounds upon which, in their opinions, future demands ought to be based; the evidence of the Officers of the Conservators of the River Thames and Lea as to the powers of the Water Companies to abstract water from those Rivers and the measures taken to prevent their pollution; the evidence as to the amount of rainfall in the valleys of the Thames and Lea, and the existing pollutions of these Rivers; evidence prepared at the General Register Office as to the populations of the areas affected by the inquiry; and, lastly, evidence offered by Councils of counties and by corporations and local boards within the watersheds. Nearly the whole of this division of the evidence was taken before the end of July,

1892; and the sittings of the Commissioners from the month of October of that year were mainly devoted to the second division of evidence, which included the general evidence of engineers, geologists, chemists, bacteriologists bearing upon the subject as a whole.

The areas affected by the enquiry may be defined as extending over "Greater London" as that name is used in the General Register Office, where it is applied to the area included within the Metropolitan and City Police districts. Such area includes all parishes wholly comprised within a circle of 15 miles radius from Charing Cross, and all other parishes of which any part is included within a circle of 12 miles radius from the same centre. Greater London thus not only includes the whole of the Administrative County of London, but extends widely beyond it, and contains in all an area of 701 square miles. In the evidence given before the Commission the area within Greater London and outside the County of London was called the "Outer Ring," and it is within this area that at present the most rapid increase of population appears to be taking place. The areas supplied form together a district which is usually spoken of as "Water London," comprising about 622 square miles. The areas are not co-extensive with any districts of which the populations are given by the Registrar-General in the census returns, and no exact statement of the population being obtainable from official returns the Companies found it necessary to rely upon estimates compiled from such other sources of information as they had at their command. According to the returns made by the Companies themselves the total population supplied by them in 1891 was estimated at 5,469,791; but it would seem, however, that 5,237,062 persons must be accepted as the closest approximation that could, under the circumstances, be made.

In turning to the future requirements of this ever-increasing population, the first question that presented itself for discussion was what area ought to be taken into account; and it soon

became apparent that neither Registration London nor the London of the County Council, nor even Water London, was sufficiently extensive for the purpose. Not only should suburban districts be included in the area to be reported upon by the Commission, but such more remote districts must be considered as might reasonably be expected to be reached by the spreading of the population of London at no very distant time. After due consideration, the Commissioners determined to take as their basis that area known as Greater London, and to add to it certain parts of Water London which lie outside Greater London as now computed. The report states that the increase in population of this area, as shewn by the census returns for the last 50 years, has been far from equable. Taking, however, the average annual increase per cent. in the whole period as a basis, they think it may safely be computed that the population of Greater London will continue to increase at the rate of 18·2 per cent. decennially, or in the ratio of 1·82 per cent. annually.

The report sets out at length a table showing the yearly and monthly daily average both of water returned to the Official Water Examiner under the Metropolis Water Act, 1871, as supplied by the Companies in the year 1891. From this and similar calculations made from other returns, it appears that the quantity of water consumed per head of the population differs widely in the districts of the several Companies. Taking the population estimated by them as being actually supplied, the quantities consumed per head per day range from 26·71 gallons in the case of the West Middlesex Company to 47·72 gallons in that of the Grand Junction Company; the average over the whole of the population being 31·19 gallons per head per day. The report next gives the present sources from which the water supplied by the Companies are derived. These are of four kinds, viz. :—(1) the River Thames and Lea; (2) gravel beds adjoining the main stream of the Thames and other gravel beds at Hanworth; (3) natural springs; and (4) wells sunk into the chalk or other strata at such points in the

watersheds as may have been selected. The Commissioners discuss these in the order named. All the Companies, except the Kent Company, are dependent for some part of their supply upon water derived either from the Thames or the Lea.

Turning to the question of the "necessities of the future," the Commissioners set out in the report the views of the several Companies who adopted the same term, viz., 40 years, as the period for which it is desirable to look forward. The following table gives the figures laid before the Commission by each Company as to the estimated population and requirements of their district in 1931 :—

NAME OF COMPANY.	Estimated Population in 1931.	Estimated Daily Supply per head in 1931.	Supply required per day.	Supply available per day.
New River ...	1,658,000	28·5	47,250,000	*56,500,000
East London ...	1,697,000	33·0	56,000,000	66,000,000
Chelsea ...	375,000	35·0	13,125,000	22,000,000
West Middlesex ...	959,187	28·0	26,857,236	24,500,000
Grand Junction ...	584,969	42·0	24,500,000	24,500,000
Lambeth ...	1,136,441	25·0	28,411,025	30,500,000
Southwark & Vauxhall	1,215,457	25·0	30,386,425	41,000,000
Kent ...	900,000	30·0	27,000,000	29,000,000
TOTAL ...	8,526,054	29·73	253,529,686	294,000,000

\* Deducting 330,000 gallons of unfiltered water from Hampstead Ponds.

The suggestions made by the Companies for extending their works, and so augmenting the volume of distributable water, may be stated as follows :—

(1) The abstraction of more water from the Thames without providing storage. (2) The abstraction of more water from the Thames and Lea with provision for storage. (3) The abstract of water from gravel beds adjoining the Thames. (4) The abstraction of more water from deep wells in the chalk formation.

The report next proceeds to deal with the several suggestions which were laid before the Commissioners as to the con-

struction of large storage reservoirs. Of the schemes submitted that of Messrs. Hunter and Fraser was considered the best. It was brought forward by Mr. W. Hunter, M. Inst., C.E., a Director, and Mr. Alexander Frazer, M. Inst., C.E., the Engineer of the Grand Junction Company. It consists in the construction of nine reservoirs upon land in the neighbourhood of Staines, at a spot only a few miles from the existing works of the Company. The storage capacity was to be obtained by excavating below the surface in almost flat ground, and forming the material removed into banks so as to increase the depth. By this combined process of sinking and raising a depth of 40 feet would be obtained; the digging being entirely in gravel, which overlies the clay to a depth of from 20 to 30 feet. The advantage rightfully claimed for this scheme was that it could be carried out by instalments, as might be from time to time required.

After setting out the evidence given as to the estimated supply of water that would be procured from gravel beds and deep wells, the report summarizes the total capacity of the supply as returned by the representatives of the Companies as follows :—From the Thames, with additional storage 300,000,000 gallons per day; from the Lea, with the East London Company's projected storage 52,500,000 gallons; from chalk springs and wells 87,000,000 gallons; total, 439,500,000 gallons, or (say) 440 million gallons per day.

The report next deals with the objections which have been raised to the proposals of the Companies in regard to increasing the draught upon the Thames, the Lea and the chalk formation for the purpose of meeting further demands; and the conclusions arrived at by the Commission are stated as follows :

“From the River Thames.”—In estimating the quantity of water which may be obtained from the Thames, we have

given full consideration to the topographical, meteorological, geological, statistical, and engineering evidence which has been laid before us by the representatives of all the parties, although we shall now quote figures only from a few of the proofs. The area within the Thames watershed down to Kingston was assumed by the Duke of Richmond's Commission (on evidence then received) to be 3,676 square miles; and this figure has been adopted by Mr. Hawksley, Mr. Baldwin Latham and others in the present enquiry as to the area down to Teddington Weir. Both Mr. More and Mr. Binnie have made new and independent admeasurements, and compute this area respectively at 3,766 and 3,789 square miles; and Mr. More (being Engineer of the Thames Conservancy) may be assumed to possess the fullest acquaintance with the watershed, we propose to adopt his figures. From Mr. Topley we accept 3,548 square miles as being approximately the area above the intakes of the Water Companies. Mr. More has put in gaugings of the discharge of the Thames at Teddington for the years 1883 to 1891 with an added column showing the rainfalls.

"In the third column of the table the average yearly discharge of the nine years at Teddington is given as 435,931,000,000 gallons. But this quantity is subject to some correction, for we found on investigating the details of the gauging arrangements at Teddington that it was desirable to check the results by simultaneous measurements at Molesey and Sunbury Weirs, and having entrusted this work to Mr. Middleton and considered his report we accept his opinion that Mr. More's quantities should be increased by 7 per cent. To the 435,931,000,000 gallons we therefore add 40,515,170,000 gallons, making 466,446,170,000 gallons. To this again must be added the average quantity taken by the Companies, viz., 30,896,000,000 gallons, giving a grand total of 497,342,170,000 gallons. Divided by 365 this gives a daily average of 1,362,581,288 gallons.

Year.	Total Quantity of Water abstracted by the Water Companies.	Volume of Discharge at Teddington Weir as gauged by the Thames Conservancy	Total flow of River Thames Col. 2 x Col. 3.	Average Annual rainfall on Thames Basin above intakes of the Water Companies.
	<i>Gallons.</i>	<i>Gallons.</i>	<i>Gallons.</i>	<i>Inches.</i>
1883	26,197,000,000	659,657,000,000	685,584,000,000	28'41
1884	29,946,000,000	330,648,000,000	360,594,000,000	22'90
1885	29,654,000,000	339,130,000,000	428,784,000,000	29'15
1886	30,350,000,000	544,786,000,000	575,136,000,000	31'07
1887	32,154,000,000	390,296,000,000	422,450,000,000	21'32
1888	30,280,000,000	427,656,000,000	457,936,000,000	28'45
1889	31,419,000,000	437,059,000,000	468,478,000,000	25'64
1890	32,876,000,000	261,916,000,000	294,792,000,000	22'81
1891	35,185,000,000	472,228,000,000	507,413,000,000	33'31
TOTAL	278,061,000,000	3,923,376,000,000	4,201,437,000,000	243'06
Average of the 9 years.	30,896,000,000	435,931,000,000	466,827,000,000	27'01

"During the nine years in question the rainfall averaged only 27'01 inches as compared with 28'50 inches which Mr. Symons gives as the mean fall of a long term upon the watershed. We therefore increase the daily volume to 1,437,747,750 gallons, raising it in the ratio of 27'01 to 28'50 inches. This quantity must, however, be reduced in the proportion of the area above Teddington, viz., 3,766 square miles, to that above the intakes, which is 3,548 square miles, thus bringing down the nett daily quantity to 1,354,521,778 gallons. This, we believe, is a very close approximation to the daily average flow of the Thames down to the waterworks intakes during a long series of years, and we will call it, in round figures, 1,350,000,000 gallons. The average daily discharge of three consecutive dry years we estimate at 1,120,000,000 gallons, and of the driest year at 900,000,000 gallons.

"These being the facts, we are of opinion that, by the construction in the neighbourhood of Staines, of reservoirs of adequate capacity, into which water shall be pumped and stored in times of excess, to be used in times of deficiency, at least 300,000,000 gallons a day may be obtained for the supply of London.

"We believe this can be done without taking in the more turbid of the flood waters, and without injuriously diminishing the volume of the River below the point of abstraction. To ensure the best results in both these respects, the takings of the water should be subject to strict regulations laid down by Parliament. The water allowed to be taken from the River should, in our opinion, include any water which may be pumped from the general beds in the vicinity of the River.

"From the River Lea.—The available drainage area of the Lea above the lower intake of the East London Company is stated by Mr. Bryan to be 460 square miles; and the mean rainfall upon it is stated by Mr. Symons to be 26 inches. No gaugings of the discharge has ever been made at or below the intakes; but they have been kept for many years at Fielde's Weir, which has above it (as before stated) an area of 422 square miles. From this point we have made out that, on the average of three consecutive dry years, 81,000,000 gallons a day will flow off by the River. We have no definite evidence as to the capability of the district below; but from some remarks of Mr. Bryan's, we judge that he does not calculate upon getting an additional quantity proportional to the whole area, and we shall probably be safe in calling the total available quantity 85,000,000 gallons. Of this the New River Company draw 22,500,000 gallons direct from the River above Ware; and the East London Company have at times taken 37,000,000 gallons. Dealing with the River as a whole, this abstraction is, in our opinion, too great with the storage now in existence; but if other reservoirs were constructed, adequately increasing the storage capacity on well recognized lines, 52,500,000 gallons a day may be obtained. The taking of the water should be under regulations similar in character to those suggested for the Thames, viz.—the first flush of floods to be rejected, and in dry weather no water to be abstracted when the flow has run down to a quantity hereafter to be determined.

"From Wells in the Lea Valley.—Into this part of the case we have already gone very fully; and we need only

repeat here that in very dry years the Companies should not calculate upon obtaining more than 40,000,000 gallons a day.

“From the Chalk on the South Side of the Thames.—From the existing wells in the Kent Company, and others which may be sunk within their district, we think that 27,500,000 gallons a day may safely be taken. From the tract of chalk country in the valley of the Medway and larger area farther eastward to the coast, a very considerable addition is also undoubtedly procurable.

“The summary of the several quantities above stated is as follows:—From the River Thames; 300,000,000 gallons per day; from the River Lea, 52,500,000 gallons; from wells in the Lea Valley, 40,000,000 gallons; from wells in the Kent Company's district, 27,500,000 gallons—total 420,000,000 gallons, sufficient, at 35 gallons per head per day, for a population of 12,000,000.”

#### CONCLUSIONS.

The Commissioners then state that—

“We are strongly of opinion that the water as supplied to the consumer in London is of a very high standard of excellence and of purity, and that it is suitable in quality for all household purposes. We are well aware that a certain prejudice exists against the use of drinking water derived from the Thames and the Lea, because these rivers are liable to pollution, however perfect the subsequent purification, either by natural or artificial means, may be. But, having regard to the experience of London during the last thirty years, and to the evidence given to us on the subject, we do not believe that any danger exists of the spread of disease by the use of this water, provided that there is adequate storage, and the same is efficiently filtered before delivery to the consumers.

With respect to the quantity of water which can be obtained within the watersheds of the Thames and the Lea,

we are of opinion that, if the proposals we have recommended are adopted, a sufficient supply to meet the wants of the Metropolis for a long time to come may be found without any prejudice to the claims, or material injury to the interests, of any district outside the area of Greater London. We are of opinion that an average daily supply of 40,000,000 gallons can be obtained from wells and springs in the chalk of the Lea Valley without affecting any material interests, but that, if this quantity be exceeded, it is probable that the springs and wells in the parts of the Valley immediately adjacent to the wells and all the districts farther down the Valley may be injuriously affected.

From wells in the chalk area on the south side of the Thames, in the district of the Kent Company, we are of opinion that a daily average supply of 27,500,000 gallons may be obtained. We think it of very great importance that distinct obligations should be laid upon any company or Local Authority which is allowed to pump water from the chalk for purposes of public supply to keep accurate observation of the effect of their operations on the level of the water in the wells from which they pump, and return the results to the Water Examiner under such regulations as may be framed.

The great difficulty which we have had to encounter has been in getting accurate and reliable information as to the actual effect of the operations now carried on. The importance of procuring this will increase each year as the limit of what can be taken from any district with safety is gradually being reached. From the River Lea we are of opinion what with adequate additions to the present system of storage, 52,500,000 gallons may be taken daily. We are of opinion that, by the construction of storage reservoirs in the Thames Valley, at no great distance above the intakes of the Companies, it will be possible to obtain an average daily supply of 300,000,000 gallons without taking in any objectionable part of the flood water. The average daily flow of the Thames at Teddington Weir, adding the water taken by

the Companies, is about 1,350,000,000 gallons per day. It will thus be seen that, when 300,000,000 gallons are taken, there will be left to flow down into the tidal portion of the river an average daily quantity of not less than 1,000,000,000; and we think that regulations could be framed under which the quantity we suggest could be taken, not only without reducing the flow of the river on the rare occasions of exceptional drought to the present minimum, but in such a way as to secure that the volume of water left in the river at these times should be substantially greater than it is under existing conditions.

To our minds, one great advantage of such a scheme of storage reservoirs is that it can be carried out progressively to meet the increasing demands for water; and should the population not grow so rapidly as we have thought it right to contemplate, the extensions may be from time to time deferred as successive decennial enumerations reveal that the ratio of increase is remaining stationary or even falling. From the sources and by the methods we have mentioned, a daily supply of 424,000,000 gallons can, in our opinion, be obtained. This is a sufficient quantity to supply 35 gallons per head to a population of 12,000,000 persons, which is about three-quarters of a million in excess of what the total population of Greater London, together with the outlying parts of Water London, will have become in 1931 even if the ratio of increase in the last decennial period from 1881 to 1931 is fully maintained. We are further of opinion that a large supply of water might be obtained from the chalk area east of the Kent Companies' district in the basis of the Medway, and in the district further east, without any risk whatever of damage to that area.

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#### THE LONDON COUNTY COUNCIL AND ITS VIEWS UPON THE WATER SUPPLY.

Of these witnesses examined whose evidence was directly adverse to the reservoir and storage schemes put forward by the Companies, that of Mr. A. R. Binnie, M. Inst., C.E., Chief

Engineer to the London County Council, was the most important. Mr. Binnie's evidence was to the effect that the supply that could be drawn from the Thames and the Lea was wholly insufficient to meet the future wants of Greater London; and he stated that, in his opinion, deeper storage reservoirs in the Thames Valley were impracticable, and, further, that any large increase in quantity pumped from the chalk formations would only ultimately diminish the amount of surface water in the various contributory streams, and therefore could not be reckoned on for increasing the supply.

The Water Committee of the London County Council issued a memorandum by its Chairman and a series of reports by the principal officers of the Council on the report of the Royal Commission on the Metropolitan Water Supply by which it will be seen that the conclusions of the Royal Commission are controverted to a certain extent. An admirable synopsis of the views of the London County Council and its chief officials appeared in the *British Medical Journal*, which is here closely followed.

#### THE WANT OF FINALITY IN THE COMMISSION'S RECOMMENDATIONS.

Mr. Basset Hopkins, the Chairman of Committee, in his memorandum, insists strongly on the narrowness of the scope of the inquiry by the Royal Commission, and points out that mischievous consequences may follow, and the Council may be grievously hampered in its action if people accept the idea that the report was the result of an all-embracing investigation of the general subject. The real question which is of most interest to Londoners is what is the best course for London to pursue under the circumstances? But this never entered into the reference to the Commission, and in considering their report it has constantly to be borne in mind that whatever they say in support of the prospective sufficiency (for forty years only) of the watersheds of the Thames and Lea has no bearing on the

real question whether new gathering grounds ought not to be sought for outside that area altogether.

Considerable stress is laid on the shortness of the term of forty years to which the Commission have limited their forecast. The capacity of the Thames and Lea watersheds as sources of supply may be expected to have reached, or nearly reached, their limit about the year 1931, and then it will be impossible any further to delay turning to some outside source. By that time, however, the best gathering grounds in the country, which "are already being rapidly taken possession of by other municipalities," may be lost to us. In regard to this, one has to bear in mind the long time which is required for the execution of the vast works necessary in large water schemes, and Mr. Binnie, the Council's chief engineer, says plainly that the people of London, "will, at some not very distant date (probably twenty years hence) have to contemplate the exhaustion of the supplies which can be obtained in the Thames Valley" and the necessity of looking elsewhere for an increased supply.

"One of the greatest blots upon the finding of the Royal Commission" is that "it can in no way be considered a final settlement of case." This limitation of forecast to forty years is all the more curious in view of the fact that two members of the Royal Commission, giving evidence before the House of Lords on the Birmingham water scheme, gave much longer periods as the time for which estimates should be made, Mr. G. H. Hill stating that provision for a large town should be for a period of not less than 50 years, and Mr. James Mansergh, the engineer to the scheme, indicating that he calculated his supply for some sixty-four years, and on that basis laid out the works which the Corporation of Birmingham are now carrying out.

#### THE EFFECT OF DRY SEASONS.

Mr. Binnie shows in a striking way the difference between averages and actualities in regard to the flow of water down a

river bed. The Royal Commissioners contemplating taking 300 million gallons from the Thames daily, trusting to the fact that the average daily flow at Teddington weir is about 1,350 million gallons; but Mr. Binnie shows that during certain dry months the total average flow would often only slightly exceed the amount of water required by the Companies, and in such a case as that of September, 1893, the total flow would not come up to the requirements. If the extreme minimum flow per twenty-four hours is taken, the difficulty of providing a supply both for the River and the Metropolis is still more apparent.

#### TESTS NOT TO BE RELIED ON.

There is a good deal of common sense in some of the remarks in the reports about the safety, or otherwise, of polluted waters. Mr. Binnie draws attention to the fact that "the Royal Commissioners received, although they do not quote it, some very strong evidence from one of the highest authorities, namely, Sir G. Buchanan, M.D., F.R.S., late Chief Medical Officer to the Local Government Board." This evidence was to the effect that neither chemical nor bacteriological tests were to be relied on as to the purity of water, that we did not know how small an amount of morbid material, if it gained access to the water, might set up disease, and that the way to gain information as to purity and safety was to search out the conditions surrounding water courses and water services. Asked what would be his treatment of the water if it were found to be polluted, he could only answer that "there was nothing for it but either to boil the polluted water, or else to leave it alone."

In face of such evidence from such an authority we turn with interest to the paragraphs in Mr. Binnie's report summarising the pollutions of the Thames water, which the Commission thinks good enough for London. It seems that at the census of 1891 there was a population of 1,056,415 persons draining into the river above the intakes, and that in the last

thirty years this population had increased from 816,814 to its present number. That, however, gives but a poor idea of the increase which is going on in the urban population living on the banks of the Thames and its Tributaries, many of these towns having more than doubled their size in thirty years. "Besides this human population there are probably 1,600,000 animals inhabiting the above area." Consequently it is clear that if the Thames is to be retained as a source of water supply, the people of London must drink the more or less clarified excreta of this vast population.

To show what is likely to happen in the future, it is mentioned that in the present session of Parliament "the authorities of Swindon and Ticehurst, Pangbourne and district are applying for further water powers. What must be the result? They will either pump from wells or the River comparatively clean water which now flows down to supply London, and after defiling it by passing it through their bodies and water closets will return it directly or indirectly into the Thames to flow down and be drunk by the people of London."

#### IMPOSSIBLE TO KEEP OUT SEWAGE.

Now about the purification of this water. Dr. Frankland is quoted as saying "That it is practically impossible to keep sewage or sewage effluents out of the River."

"There is no positive evidence that the filtered water is unwholesome, but the lives of a large community ought not to be dependent on the efficient filtering plant of commercial companies. Under present circumstances, a serious epidemic of typhoid or cholera in the Thames basin above the intakes, would be attended with great risk to the water drinkers of London. Such experiments should not be tried upon large communities."

It would appear, then, that while Edinburgh, Glasgow, Liverpool, Manchester, and Birmingham find it necessary "to

go to great distances to secure undoubtedly pure and uncontaminated water, even to the extent of excluding the flow from cultivated land, yet it is quite sufficient for the people of London to supply them with the effluent water of their neighbours' water closets."

#### THE QUALITY OF PRESENT SOURCES OF SUPPLY.

Mr. Shirley Murphy, Medical Officer to the London County Council, confines his observations to that portion of the report of the Royal Commission which relate to the quality of the present sources of supply. The Royal Commission had before it evidence, he says, which showed that the rivers from which the Water Companies draw their supplies receive from the towns, situated on their banks at varying distances above the intakes sewage effluents, which, after treatment of the sewage, either by filtration through land or by chemical processes, enter smaller rivers. In addition to these numerous pollutions from smaller populations discharging into cesspools and ditches reach, untreated, the streams at times of heavy rainfall. Such sewage must not infrequently contain the excremental matter of persons suffering from typhoid fever and may not improbably in the future contain from time to time the excreta of persons suffering from cholera. The virus of both these diseases has been found by past experience to have been disseminated by water and to have produced fatal results in persons drinking such water.

"Not only are these diseases known to be waterborne, but experience has shown that a very small amount of the excremental matter of persons suffering from them is capable under favourable circumstances of infecting vast volumes of water."

#### INSUFFICIENCY OF NATURAL PURIFICATION.

After describing the various circumstances which are shown by the Commission to contribute to the purification of the rivers, Mr. Murphy says: "The fact may be accepted that

these powers exist and are operating in the Thames and Lea to an extent which contributes in no small degree to the safety of the London water consumer." Yet the Commission evidently does not look upon these natural processes as in themselves sufficient to render the water fit for domestic purposes, but is only satisfied that agencies and the operations of the water companies combined, suffice to ensure that wholesome water is supplied to the consumer.

As it is probable that the completeness of the future operations of the water companies may depend upon the necessity which can be shown for efficient filtration, it is a matter of great importance that the natural processes of purification should not be held to be more deserving of confidence than they really are.

After a careful study of the statements in the Commission's report, Mr. Murphy is led to think that some of the reasons given for assuming that the London population is not exposed to risk are less deserving of acceptance than appears at first sight.

The very full information afforded in the report of the Royal Commission is of the utmost possible value as assisting to give definite form to a general comprehension of the real condition of the water supply of the Metropolis, present and future. It has always been a cherished article of faith in this country that the water of the River Thames is of unsurpassable quality for all domestic purposes. Nothing can be found in the report which in any way disturbs this conviction, and it may be assumed, as has always been urged in these reports, that the water supplied to London, if properly treated by the avoidance of pollution, ample storage (in order to avoid the necessity of taking in water from the river when in flood, as the organic pollution is then at the maximum), and efficient filtration, is all that can be desired. The second point as to how long the quantity will suffice for the needs of ever-growing London is also fully gone into, and half-a-century is defined as the probable period. Of

course there is much to be said on the other side, and that is lucidly given in the objections to the report of the Royal Commission urged by the London County Council and its officers.

Although very little is definitely said on the subject, the impression which the perusal of the report leaves upon the mind is that the whole control of the water supply, from the sources to the final delivery to the consumer, should be in the hands of one authority, and that the time has arrived when competing companies, the result of private enterprise, should no longer be left in possession of a monopoly of the primary necessity of existence.

The information on the whole subject of the Metropolitan Water Supply given above will enable it to be clearly understood, and to place in a permanent form for future reference the necessary data, and will, it is to be hoped, justify this somewhat condensed statement of the views held by both parties in the controversy which has now to be finally decided by Parliament.

At the time of writing, owing to severe frost, the supply of water to whole districts of the Metropolis has been almost entirely cut off from the inhabitants of this and other localities. The cause is undoubtedly that the mains and service pipes are laid too near the surface, and obviously the depth of the service pipe will depend upon that of the main where the latter is laid at an insufficient depth. This will strengthen the case for municipalisation of the water supply to which reference has been made above.

Factories  
and Work-  
shops Bill.

The Home Secretary has introduced a Bill to amend and extend the law relating to Factories and Workshops. In the journal of the Incorporated Society of Medical Officers of Health, *Public Health*, the matter has been somewhat fully gone into and a revised and condensed epitome is here given.

It comprises fifty-two clauses in three principal divisions, of which the first (clauses 1—18) is on "*General Law relating to Factories and Workshops*"; the second (clauses 19—31) refers to "*Special Rules and Requirements*"; and the third consists of "*Miscellaneous Amendments*." From a point of view totally different from that of mere arrangements of clauses, viz., that of administration, the Bill may be regarded as consisting of two parts, not structurally divided, yet distinct from each other. One of these parts concerns Sanitary Authorities and their executive officers on whom it casts new duties and responsibilities; the other is principally to be dealt with by the Government Inspectors of Factories and Workshops. It may be convenient to consider the Bill on this basis. It should be premised that the provisions relating specially to the hygiene of certain trades (clauses 25—31) do not, for the purposes of the Bill, come within the province of the Sanitary Authority. Recent legislation in respect of Factories and Workshops affords abundant illustration of mischievous overlapping of duties of distinct authorities in matters relating to health, and the consequent reduplication of the work of the respective officers of these authorities. The administration of the statutes in question involves greatly increased inspection on the part of Inspectors of the Sanitary Authority. The Bill, whilst on this point not differing from its predecessors, goes a great deal further than any of them in proposing, so to speak, to place Sanitary Authorities under Government Inspectors of Factories, as will presently appear (clause 3).

The clauses of the Bill, directly affecting Sanitary Authorities, are the following :—

*Clause 1* defines *overcrowding* in Factories and Workshops, which hitherto has been undefined. The limit is placed at 250 cubic feet, or during overtime 400 cubic feet per person. These amounts are subject to modification by the Secretary of State during the use of *artificial light*, and to increase in particular processes or handicrafts.

The clause omits to specify (a) the minimum of floor space or the maximum of height, in the stated amount of cubic space to be provided for each person ; (b) the minimum of height of any room to be used as a workshop ; and (c) the precise quantity of gas, oil, candle, or other illuminant which shall count as one person in regard of vitiation of air. It has been stated that whilst man exhales from 0.56 to 0.67 cubic feet of carbonic acid per hour, one cubic foot of coal gas burnt will produce two cubic feet of carbonic acid ; that an "*ordinary gas-burner*" burns from three to five cubic feet of gas per hour (producing from six to ten cubic feet of carbonic acid) ; an "*ordinary oil-lamp*" burns 150 grains of oil per hour producing 0.5 cubic feet of carbonic acid ; and a *candle* burning 320 grains per hour produces 0.4 cubic foot of carbonic acid. Therefore the vitiation of the air, by the burning of half a cubic foot of gas (or about one-sixth the amount burnt in "an ordinary gas burner"), or "an ordinary oil-lamp," or a candle of 230 grains, is about equal to that of one person. It has generally been accepted that one "ordinary gas burner" is equivalent to three persons in respect of air pollution—a holding which should be revised forthwith. In workshops it is usual to have *large* gas-burners. In such cases Inspectors not duly put on their guard by the above information, will be likely to underestimate very greatly the vitiation of air by consumed gas. The foregoing observations show the need of an *accurate legal standard for artificial lighting* in Factories and Workshops, and especially the latter, which are often very close and stuffy, and more particularly during cold weather when the opening of windows, even if not objectionable on hygienic grounds, is always objected to by the workers themselves. This standard should be based on actual amount of illuminant burnt and not, as has hitherto been the custom, on rule-of-thumb estimate of size of flame.

Clause 3 makes it "the duty of the Sanitary Authority to inform the Inspector" of Factories "of the proceedings taken" in consequence of neglect or default under section 4 of the Act

of 1878 (as regards effluvia from drains, closets, &c., or other nuisances, and whitewashing or cleansing), reported by the Inspector of Factories. Hitherto, Sanitary Authorities have never been required to make a report of this kind. Doubtless, in most cases, they have approved of their Medical Officers or Health giving information freely to the Government Inspectors as to the sanitary improvements carried out in Factories and Workshops. But that they shall be themselves compelled to report their action to an official is, we believe, an entirely new departure in legislation.

*Clause 5* fixes the penalty for employment of persons in places injurious to health at a maximum of £20. Under *clause 6*, a similar penalty is imposed for permitting the making of wearing apparel in a building any inmate of which is suffering from scarlet fever or smallpox. No reference is made in respect of workshops, &c., infected with diseases other than those named, although, as is well known, they are not the only ones the infection of which is communicable by means of clothing.

*Clause 10* gives power to a court of summary jurisdiction on complaint by the Inspector of Factories to require the occupier of a factory or workshop to provide a sufficiency of moveable fire-escapes for his employés. The Act of 1891 provides for "such means of escape in case of fire . . . as can be reasonably required" to the satisfaction of the Sanitary Authority (whose duty it is made to see to the execution of that portion of the Act). This provision refers only to *factories* of over forty workers. It seems reasonable to expect that in any *workshop* where this number of hands are engaged the same protection should be afforded. This may be secured by amending Section VII. of the Act of 1891 (Provision against Fire) by adding the words "or workshop" after the word "factory," and making the operation of the section retrospective.

*Laundries.*—Under *Clause 19*, the Factory Acts are applied to public laundries, those in which "steam, water, or other

mechanical power" is used being classed as non-textile factories, and the others as workshops. In the former class provision is to be made of fans for regulating temperature and carrying off steam, also for the separation of stoves for heating irons from ironing rooms, and for the good condition and drainage of the flooring. Small laundries worked only by resident members of the same family are exempt from the operation of this section.

*Bakehouses.*—Section 24 (1) extends to every bakehouse the previous provision as to bakehouses in the larger towns (of over 5,000 inhabitants). The definition of "retail bakehouse" in the Act of 1883 (s. 18) is unsatisfactory, inasmuch as it limits the term to the retail shop occupied together with a bakehouse, and consequently precludes its application to other small shops to which it ought properly to apply. A great many bakehouses are owned by persons who sell elsewhere by retail the bread baked in them. If steam power is not used in these they are not "factories" under the Acts. They therefore do not come within the meaning of the Factory Acts at all. It is desirable that this omission should be met. Clause 3 of the same section extends to every bakehouse the operation of the Regulations under the Act of 1883, which dealt only with bakehouses not let or occupied before that year.

*Dangerous or Unhealthy Trades.*—*Special Provisions for Health* are dealt with in clauses 25—31; but as these clauses appear to be placed within the sphere of the Inspector of Factories rather than of the Sanitary Authority, they will be described later.

Under the heading "*Miscellaneous Amendments*" the only clause directly concerning Sanitary Authorities is the 33rd, which secures the due provision of closet accommodation, &c., for factories or workshops in places which have not adopted section 22 of the Public Health Acts Amendment Act, 1890.

The clauses of the Bill not mentioned in the above account come within the sphere of duty of the Inspector of Factories.

Thus under the division of "GENERAL LAW" (*Safety*), clauses 2 and 4 provide power to make orders prohibiting the use of dangerous factories or workshops or machines, under a penalty of forty shillings a day during contravention. Clauses 7 and 8 are amendments, and clause 12 is an extension of the Act of 1878 as regards the fencing of machinery, the cleansing of machinery in motion, and penal compensation for death or bodily injury through neglect of fencing. Clause 9 is a regulation for the protection of persons liable to pass near self-acting machinery. Clause 11 provides for the representation of workmen on matters in difference referred to arbitration under the act of 1891. Then follow clauses 13 and 14 (*Employment*), prohibiting the overtime employment of young persons and of persons generally on Saturdays, and restricting the overtime of women and young persons and the employment of children, young persons and women inside and outside of a factory or workshop on the same day.

Clause 15 relates to *Holidays*. Clauses 16 to 18 (the first of these being an amendment of section 31 of the principal Act) treat of Notice as to *Accidents*; the watching of Inquests on Accidents by the Factory Inspector or other representative of the Secretary of State; the registration, under penalty, of Accidents; and the granting of power to the Secretary of State to direct formal investigation into Accidents in factories or workshops.

Under the Division of "SPECIAL RULES AND REQUIREMENTS," clause 20 extends to docks, &c., certain provisions of the Factory Acts relating to the fencing of machinery, notice of register of accidents, and powers of inspectors—as if such dock were a factory, the machinery a manufacturing process, and the occupier the occupier of a factory. Clauses 21 to 23 treat of "Tenement Factories" (*i.e.*, different parts of the same building supplied with mechanical power and sub-let to different persons, all buildings within the same curtilage being treated as one building.) The owner of a tenement factory is made liable instead of the occupier for (*a*) the sanitary condition of the

premises, (b) the fencing of machinery, (c) the affixing of notices, (d) limewashing of premises of tenants in common, (e) the removal of dust by fans, &c. Certain sections of the Act of 1891 *may*, and the power to make orders *shall*, apply as if the owner were the occupier; summonses, &c., to be served on occupiers under the Factory Acts *may*, under clause 21 of the Bill, be served on owners. The owner is made responsible for the observance of regulations as to grinding (fencing, &c.) under Schedule I of the Bill, where this is carried on, and (with or without the occupier) for other provisions in respect of the protection of the workers against accidents. "A certificate of the fitness of any young person or child for employment in a tenement factory shall be valid for his similar employment in any part of the same factory." Under clauses 25 and 26 (*Special Restrictions as to Employment*) (*Dangerous or Unhealthy Trades*) the use of lead and arsenic in tinning or enamelling cooking utensils is prohibited; and by an extension of the Act of 1891 the making of special rules prohibiting or restricting employment in processes certified by the Secretary of State to be dangerous or unhealthy is authorized.

The heading *Special Provisions for Health* (clauses 27 to 31) covers the compulsory notification to the Chief Inspector of Factories by medical practitioners of cases of poisoning in factories and workshops from lead, phosphorus, or arsenic, and of anthrax. Other diseases may be included by the Secretary of State. The fee and penalty for neglect to notify are the same as in the Infectious Diseases (Notification) Act. Written notice of the cases are also to be sent to the Inspector and the factory Surgeon. Provision is to be made for suitable washing conveniences in factories and workshops where poisonous substances, such as those above named, are used. The Cotton Cloth Factories Act, 1889, is made to apply to textile factories with artificially humid atmospheres, with such modification as to maximum limits of humidity as the Secretary of State may direct. The temperature of factories and workshops for the

manufacture of wearing apparel is to be kept up to not less than 60 deg. Fahrenheit. Section 36 of the principal Act, which provides for fans for dust-causing processes, is to be extended to processes by which gas, vapour, or other impurity is generated and inhaled by the workers to an injurious extent.

The remaining clauses (*Miscellaneous Amendments*) deal with returns of persons employed, time of employment, overtime in Turkey red dyeing, employment in shifts, particulars respecting the computation of wages in certain cases, notice to Inspector of occupation of workshops, and lists of workers whether in the factory or workshop or outside of it, evidence as to failure to limewash, powers of the Inspector, re-examination of young persons and children by Certifying Surgeons, service of documents on owners, payment of costs by actual offender in lieu of occupier under Section 87 of the principal Act, right of Inspector to prosecute, &c., the application of the Factory Acts to Ireland, interpretations, the repeal of certain sections of the Acts of 1878 and 1891, etc.

The amendment of greatest interest and importance to Sanitary Authorities and their officers is perhaps that in clause 47, authorising the Factory Inspector to conduct any proceedings under the Factory Acts before the magistrates. This clause goes further than section 1 of the Act of 1891, which gives the Inspector power to prosecute for breach of sanitary provisions in respect of workshops. For such procedure it is proposed that the Inspector need not be a counsel or solicitor. In the section in question and its intended extension we have both a striking example of centralization and a probable cause of friction from duplication of officers under different authorities to do the same duty.

The schedules, three in number, specify the protective regulations proposed for adoption in certain factories, scales of fees for Certifying Surgeons, and certain enactments repealed.

There can be no doubt that many of these provisions are urgently called for in the interests of the health and well-being of our workers and it is to be hoped that the Committee stage will mould it into a workable measure. The weakest point in it is the divided authority; indeed so apparent was this that another measure proposed to take the matter out of the hands of the Local Authorities and to vest the whole control of the subject in the Factory Inspectors, it is, however, not probable that the latter view will prevail.

Public  
Health  
(London)  
Act, 1891.

The procedure of the Sanitary Department is almost entirely based upon the provisions of the Public Health (London) Act, 1891, which consolidated and amended the various Acts under which the Sanitation of London had been previously carried out. It contained also many valuable provisions which had hitherto only been extra Metropolitan and contained in the Public Health Act, 1875, under which provincial Sanitary Authorities had effected great improvement in the Sanitation of their districts. A condensed synopsis of its provisions here will be useful for reference.

Sec. 1 provides for house to house inspection by the Sanitary Authority, for which additional Inspectors with separate and smaller districts have been appointed within the last two years.

Sec. 2.—A nuisance must be abated that is *dangerous* or likely to be *dangerous* to health. Under the Metropolis Management and other Acts it was necessary to prove actual *injury* to health.

Sec. 3 provides that information of a nuisance may be made to the Sanitary Authority, who shall serve intimation to parties responsible.

Sec. 4.—The most essential difference between the procedure under the Public Health (London) Act, 1891, and the various other preceding Acts, is that formerly if a notice to abate a

nuisance from the Sanitary Authority was not complied with, proceedings had to be commenced before a justice and evidence produced to satisfy him that a nuisance *injurious* to health existed, when, if satisfied that such nuisance existed and was *injurious* to health an order would be made for the abatement of the same. If this order was disregarded and the necessary works not executed it was necessary to commence fresh proceedings to recover penalties. The Sanitary Authority under this section itself considers the matter and makes orders, if necessary suing for penalties for non-compliance therewith.

Absence of proper water-fittings is constituted a nuisance under section 4, and by Sec. 5 a house may be closed for this reason. The Authority can specify works and insist upon the carrying out of the same under the latter section and now does so in a large proportion of cases.

Secs. 5, 6 and 7 contain provisions for orders, penalties and appeals, and enables the Sanitary Authority itself to carry out necessary works in default of responsible owner, &c. Sec. 11 provides for recovery of expenses and costs consequent thereon, and Sec. 13 enables the Authority to take action in the first instance in the higher Courts should it think fit.

Under Sec. 14 an important proviso is introduced as a Sanitary Authority has power to take proceedings for the abatement of nuisances arising in the district of another authority should the nuisance injuriously affect the inhabitants of their own district.

Sec. 15 renders liable to a penalty of £5 any person wilfully injuring or destroying any closet or sanitary apparatus, and will probably be useful in restraining persons from wantonly damaging fittings.

Bye-laws are to be made by the Authority for the prevention of nuisances or keeping of animals so as to be a nuisance or injurious to health, and as to paving yards.

The London County Council has made Bye-laws under the following sections which are now operative :—

- Sec. 16-1.— Removal of fœcal matter.
- „ Removal and disposal of refuse.
- „ Cleansing and filling up of cesspools and privies.
- Sec. 39-1.— Water closets and soil pipes.
- „ Ashpits.
- „ Receptacles for dung, cesspools, &c.

The Vestry has made Bye-laws under the Act :—

- Sec. 94.— Houses let in lodgings.
- „ 39.— Keeping of water closets.
- „ 50.— Cleansing of cisterns.
- „ 16.— Prevention of nuisances.

These are in active operation, and can be obtained at the office of the Sanitary Department by any ratepayer desiring a copy.

There are other bye-laws which *may* be made by the Sanitary Authority, and which are now under consideration. They are :—

Sec. 66. Removal to hospital of infected persons. This is now effected under the provisions of the various acts and regulations of the Metropolitan Asylums Board.

Sec. 88. Bye-laws for the Mortuary. Regulations are in existence for the control of the Mortuary-keeper under which the Mortuary has hitherto been regulated.

Sec. 95. Tents and vans. Bye-laws were made by the District Board some years since, which have been acted on until the present time.

By Secs. 23 and 24 the control of smoke nuisances other than in private dwellings is placed under the Sanitary Authority

instead of the Police, and will probably considerably increase the work of the Sanitary Department in the near future.

Work-shops, Work-places and Factories are also placed under the supervision of the Sanitary Authority with certain duties as to giving notice to the Factory Inspector when children, young persons, or women are employed. It is also the duty of the Authority to see that proper and separate accommodation is provided for each sex.

Sec. 47 provides that a medical officer of health or sanitary inspector shall examine all articles intended for the food of man if unsound, and shall seize the same and obtain an order from a Justice for its destruction. The fine is raised to a maximum of £50 for every animal or parcel of food condemned, and should a person be so convicted twice in twelve months the Court may order a notice of the facts to be affixed to his premises for a period not exceeding twenty-one days. Should a person find himself in the possession of unsound food he himself may give notice to the Vestry, who must remove the same as trade refuse and this procedure would seem to relieve him of the penalties mentioned.

Sec. 48 contains the important provision that a newly-erected dwelling-house must not be occupied until a certificate has been obtained of the Sanitary Authority to the effect that a proper and sufficient supply of water exists. This section seems to be now more generally understood and imposes much work on the Sanitary Department. The following sections 49, 50, 51, 52, 53 and 54, apply *inter alia* to water supply generally.

Secs. 55, 56 and 57 re-enact, as elsewhere stated, the provisions of the Infectious Disease (Notification) Act.

Secs. 59, 60 and 61 require the authority to make provisions for the disinfection of clothing, &c., which provision has been duly made by the Vestry. The subsequent sections provide

that infectious refuse shall not be treated so as to be dangerous to the public health, and prescribes penalties on persons letting houses or apartments in which infectious disease has occurred without having the same properly disinfected and obtaining a certificate thereof, which certificate is given to applicants free of charge on application to the Sanitary Department. Other important provisions for the prevention of the spread of infectious disease follow in subsequent sections ; but they have long been in operation in this parish.

Provision is made for Mortuaries and post-mortem examinations, such has existed in Battersea for many years. In fact, it may be said generally that the methods of Sanitary procedure which may have gradually evolved in this parish during the last twenty years, have been adopted by the framers of the Act as its basis.

Customs  
and Inland  
Revenue  
Acts, 1891.

This Act, which is simply an extension of the provisions of the Customs and Inland Revenue Act, 1890, exempting houses structurally fitted in the opinion of the Medical Officer of Health for occupation as separate tenements at an annual rental not exceeding £20 from the liability to house duty. The 1891 Act raises the amount to £40 annual rental. These Acts have added much to the duties of the Medical Officer, as personal inspection is imperative and certain forms of certificate have to be sent by him to the Surveyor of Taxes. Some hundreds of tenements have been inspected and certified since the Act came into force in January, 1891, and many flats are now being built and converted in the parish in order to obtain exemption or abatement of the house duty.

Table XIV is a Return of sickness and causes of death among the Parish poor during the year 1894 under the treatment of the District Medical Officers, compiled from the Medical Relief books.

TABLE XIV.

ZYMOTIC OR EPIDEMIC DISEASES.												
BATTERSEA. — Poor Law Medical Districts.		Small-Pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Enteric & other Fevers.	Erysipelas.	Puerperal Fever or Metritis.	Diarrhoea, Dysentery, or Cholera.	Influenza.	Other Zymotic Diseases.
CASES	No. 1	—	7	9	4	4	—	2	1	31	37	5
	No. 2	—	103	9	18	17	2	13	—	49	28	4
	No. 3	—	54	14	5	6	—	10	1	27	3	2
Whole Parish ...		—	164	32	27	27	2	25	2	107	68	11
DEATHS	No. 1	—	—	—	—	—	—	—	—	1	1	—
	No. 2	—	1	—	—	1	1	—	—	—	—	—
	No. 3	—	3	—	—	—	—	1	—	1	—	—
Whole Parish ...		—	4	—	—	1	1	1	—	2	1	—
OTHER DISEASES.												
BATTERSEA. — Poor Law Medical Districts.		Diseases of the Tubercular Class.	Of Brain, Nerves, &c.	Of Heart.	Of Respiratory Organs.	Of Digestive Organs.	Of Kidneys.	Premature Birth, Low Vitality, Malformation, &c.	Age.	Violence.	All other Diseases.	TOTAL.
CASES	No. 1	48	59	18	397	41	7	1	201	49	1005	1,826
	No. 2	110	64	28	480	116	1	—	249	51	1272	2,371
	No. 3	30	37	5	242	39	1	5	134	42	778	1,313
Whole Parish ...		188	160	51	1119	196	9	6	584	142	3055	5,510
DEATHS	No. 1	1	—	—	2	1	—	1	2	—	6	13
	No. 2	3	1	3	10	1	1	—	—	1	4	24
	No. 3	3	2	1	4	—	—	4	2	1	4	21
Whole Parish ...		7	3	4	16	2	1	5	4	2	14	58
												GRAND TOTALS OF CASES AND DEATHS FROM ALL DISEASES.

The proportion of deaths to cases treated is 1·2 per cent., which is very small and perhaps due to a certain extent to the fact that the most severe cases are removed to the Union Infirmary where one hundred and fifty-three Battersea parishioners died during 1894, in addition to eight in the Work-house as shewn on pages 4 and 5.

TABLE XV.

*Supplemental Return, 1895.]* VACCINATION.

Registration Sub-District.	Number of Births returned in the Birth List Sheets—1893.	Nos. of those births duly entered by the 31st January, 1894, in Cols 10, 11, and 13, of the Vaccination Register, (Birth List Sheets), viz :—					No. of Births which on the 31st Jan. 1895, remained unentered in the Vaccination Register on account.			Number of those Births remaining on 31st January neither duly entered in Vaccination Register (Col. 3, 4, 5, and 6 of this Return) nor ——— accounted in the Report Bk.
		Col. 10, successfully vaccinated.	Col. Insusceptible of vaccination.	Had small-pox.	Col. 13, Dead un- vaccinated.		Postponement by Medical Certificate.	Removed to Districts their vaccination officers of which have been apprised.	Removed to places unknown.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
EAST BATTERSEA	2839	2187	25	...	313	...	58	32	209	15
WEST BATTERSEA	2399	1847	11	...	270	...	46	33	187	5
TOTALS ...	5238	4034	36	...	583	...	104	65	396	20

This is the return made by the Vaccination Officer yearly to the Guardians and under the various headings. All the information necessary can be readily found therein.

Summary  
of Sanitary  
Operations  
during 1894

The great amount of work done by the Sanitary staff is shewn in Table XVI. The work done was of a very thorough character and reflects great credit on the Chief and District Sanitary Inspectors.

The house to house inspections, the means by which most sanitary defects are detected were up to the average number and would if other duties did not make more urgent calls upon the staff, enable them to inspect every house in the parish during the year, a result which it has been aimed at for some years. The great number of complaints received from the public, intimations of the existence of infectious disease, with removal to hospital in many cases and inspection and disinfection in all, together with the more systematic testing and reorganisation of defective drains and other urgent matters render the inspectors unable to give more than a comparatively small portion of their time to this important work. Some premises require and obtain several inspections during the year from the constantly recurring defects found therein. It will be seen that the total number of houses inspected is almost as great as in former years, the difference being that such inspections formerly were in the majority of cases from house to house, when of course a much larger number can be inspected than when from the prevalence of infectious disease or other causes each sanitary inspector has to traverse the whole area of his district daily.

On the opposite Table is given in detail the sanitary operations for the years 1888 to 1894.

TABLE XVI. SUMMARY OF SANITARY OPERATIONS, 1894, IN THE WHOLE PARISH.

	1888	1889	1890	1891	1892	1893	1894
Total Sanitary operations ...	...	...	...	...	38,779	54,577	53,791
Number of House Inspections ...	25,115	25,386	25,100	23,213	23,587	25,091	24,747
Bakehouses Inspections ...	...	...	...	...	215	296	313
Bakehouses Nuisances abated ...	...	...	...	...	...	18	19
Urinals—Inspections ...	...	7	...	46	251	260	318
Do. altered, repaired, or water laid on ...	11	...	...	...	...	120	119
Intimations Served, 54 & 55 Vic. cap. 76 (Sec. 3) ...	1,994	3,083	2,564	2,774	3,691	4,420	4,289
Notices Served under Sec. 4 ...	324	298	323	119	921	1,211	1,076
Notices Served under Sec. 62 and 65 ...	...	...	...	...	1,588	2,572	1,605
Complaints Received and attended to ...	...	...	...	...	...	4,089	3,253
Number of Houses Disinfected ...	361	227	594	940	1,227	2,069	1,449
Houses Supplied with Disinfectants ...	2,338	1,011	2,354	2,423	3,026	5,275	3,175
Overcrowding Abated ...	20	35	30	20	34	38	56
Premises Cleansed and Repaired... ..	265	210	188	174	189	280	328
Drains Tested ... ..	...	...	...	...	700	1,491	1,272
By Smoke ... ..	...	...	...	...	178	491	794
By Water ... ..	820	1,061	1,493	1,048	1,107	1,564	1,106
Drains Cleansed and Repaired ... ..	...	...	...	...	220	917	742
Drains Relaid ... ..	...	...	...	...	...	...	135
Soil Pipes ventilated ... ..	...	...	...	...	...	...	562
Sink & Rain Water Pipes disconnected ...	1,021	2,017	1,764	972	1,360	...	1,012
Water Closets Cleansed and Repaired ...	91	179	113	246	237	314	426
Cesspools Abolished ... ..	17	4	...	...	1	4	6
Mews and Stables Drained and Paved ...	25	7	...	26	86	30	11
Yards Drained and Paved ... ..	7	272	344	139	161	253	938
Accumulations of Manure Removed or proper receptacles provided	24	33	58	43	41	70	56
Dust Receptacles Provided ... ..	329	554	517	452	738	772	1,221
Dust Complaints forwarded to the Surveyor ...	...	...	...	...	...	271	214
Leaky House-roofs and Gutters Repaired ...	72	164	198	198	185	84	240
Houses Supplied with Water ... ..	28	15	40	138	151	130	93
Water Closets Supplied with Water, or supply disconnected from drinking water cistern ...	920	1,749	884	1,106	860	731	1,113
Cisterns Covered, Cleansed and Repaired ...	402	452	299	308	409	469	624
Keeping of Animals in unfit state ... ..	...	...	5	2	5	16	11
Smoke Nuisances dealt with ... ..	...	...	...	...	10	26	21
Certificates of Disinfection Granted ... ..	...	...	...	...	1,044	1,659	1,551
Water Supply Certificate Granted (Sec. 48) ...	...	...	...	...	16	118	141
Proceedings Ordered by Vestry and Sanitary Committee ...	97	374	413	345	444	1,211	1,100
Summonses Issued ... ..	23	36	29	12	14	73	52
Magisterial Orders Obtained and Enforced ...	23	36	29	12	14	70	42
Sanitary Conveniences provided to Factories and Workshop, Sec. 38 ...	...	...	...	...	4	8	19

As the result of the inspections made by the Sanitary staff 4,289 intimations under Sec. 3 of the Public Health Act (London) 1891 were served for the purpose of warning those liable of the existence of Sanitary defects. Under Sec. 4 1,076 notices were served under order of the Sanitary Committee as well as 1,608 under Secs. 62 and 65. Three thousand two hundred and fifty-three complaints were received and attended to. The other sanitary operations will be found in the table.

As the result of neglect to comply with notices proceedings were ordered to be taken by the Sanitary Committee in eleven hundred instances. The actual number of summonses issued were fifty-two, magisterial orders were obtained and enforced in forty-two of these cases.

Of the fifty-two Summonses issued twenty-five were under the Sale of Food and Drugs Act, twenty-six under the Public Health Act and one under the Corrupt Practices Act.

The ten cases in which Magisterial orders were not obtained are as follows :—

#### SALE OF FOOD & DRUGS ACT.

- 1 case Warranty proved (Milk).'
- 1 „ Summons withdrawn (Milk) conviction being obtained against proprietor.
- 1 „ Dismissed (Olive Oil) not shown to have been purchased as an article of food.
- 1 „ Dismissed (Olive Oil) want of corroborative evidence.
- 3 cases Milk. Summons not issued, defendants having removed from the locality, and their present address being unknown to the police officers.

#### PUBLIC HEALTH (LONDON) ACT, 1891.

- 1 case Summons adjourned *sine die*, defendant in liquidation.
- 1 „ Soil Pipe, open head, nuisance not proved.

#### CORRUPT PRACTICES ACT.

- 1 case Dismissed. It being the Magistrate's opinion that the defendant had no intention to bribe the Inspector by offering him 5/-.

Public  
Schools  
and their  
Sanitary  
condition.

The attention of the Sanitary Committee was directed early in the year to the alleged insanitary condition of many of the public elementary schools in the parish, more especially where zymotic diseases had been reported to be unusually prevalent in the houses and families of children attending such schools.

A general inspection of these schools was ordered and the results of such inspection of some of the largest elementary schools are here given.

In January the Chief Sanitary Inspector upon instructions submitted a report relative to flooding of the drains of Gideon Road Board School, owing to surcharge of Heathwall sewer, which passes through the grounds of this school. He subsequently reported upon the same matter upon the occurrence of several cases of scarlet fever in children attending this school and found that the offensive smells experienced from the drains during heavy rains were due to the fact that the pressure of sewer gas was so great as to force the water seals of the traps in connection with the sanitary appliances. The necessary works were executed to prevent repetition of the nuisance.

The Holden Street Board School was also specially reported upon in January as being in a bad sanitary condition, the attention of the School Board for London was drawn to the fact and the drains and sanitary fittings have since been entirely reconstructed upon plans approved by the Sanitary Committee.

The St. John's Training College, Vicarage Road.—These drains were found to be in a most defective and insanitary condition. The Governors of the College have reconstructed the entire system, except the latrines, these they have decided to do a little later on.

The drains and sanitary conveniences at the Grammar School, St. John's Hill, were found upon inspection to be in a

very bad condition. The attention of the Governors was directed to the matter, the result being entire reconstruction of soil drains and new w.c.'s and urinals provided.

Factories  
and Work-  
shops.

A very general inspection of the Factories and Workshops in the parish has been made during the year.

Special inspections were made by the Chief Sanitary Inspector in addition to the ordinary inspections and the following reported upon and the necessary works ordered to be done.

At Prices' Factory, York Road, inspection shewed that the sanitary offices were in a cleanly and efficient condition with the exception of a few minor defects which were subsequently remedied.

The London Chatham and Dover Railway Works, Queen's Road were inspected and reported to the Sanitary Committee in May as to the defective and insanitary condition of the w.c.'s, &c. The Company subsequently reconstructed the arrangements and buildings thereby providing good and sufficient conveniences for the employes, some 650 in number.

The London County Council drew the Vestry's attention to the want of proper water closet accommodation at the Dust Yard and Coal Depôts of the London Brighton and South Coast Railway Company at Wandsworth Common Goods Yard. A Sub-Committee of the Sanitary Committee and the Chief Inspector visited the wharf with the result that new drains were provided into Chivalry Road sewer and proper w.c. accommodation for the workmen, the old cesspool and privy arrangement to the cottage were abolished, and an earth-closet substituted at some distance from the cottage.

In accordance with the Sanitary Committee's instructions the sanitary conveniences for the workmen at the Dust Depôt were inspected and found to be in an unsatisfactory condition, they have since been re-constructed upon improved principles.

At 40A, Northcote Road, the London County Council drew attention to inadequate w.c. accommodation at this yard which is used as Stabling and Carpenter's Shops. It was found that about 20 men were engaged here for whom one w.c. was provided. This, however, being defective, notice was served upon the owner and the w.c. re-constructed.

The sorting and sifting of house refuse being carried on at Hudson's Dust Yard (Wandsworth Common Goods Yard, London, Brighton and South Coast Railway Company), was reported upon on several occasions. The Sanitary Committee directed that Mr. Hudson's attention should be called to the fact that he was liable to heavy penalties for carrying on the sorting and sifting, and that unless it was discontinued the Vestry would have no alternative but to press for penalties. Since this communication was sent no recurrence of the nuisance has been detected.

Effluvium  
Nuisances.

Complaints were made of nuisance from Beaufoy's works where the manufacture is chiefly Acetic Acid and Glaubers Salts, the processes being by distillation of the Acetic Acid from Oil of Vitriol and Acetate of Soda, also from Muriatic Acid and Acetate of Lime. Most of the stills were found to be steam jacketed from which very little effluvium is given off. One still was not steam jacketed this had been seldom used but would appear to have been the cause of complaint. The use of this still has now been discontinued and the tanks of Acetic Acid covered, since which no nuisance has been detected. The sanitary conveniences of these Works were also inspected at the same time and found defective, and as a consequence the same have been re-constructed.

At the following premises, as the result of inspection, great improvement has been effected in the provision of proper and separate sanitary conveniences for the different sexes employed, and also in the cleanliness of the buildings, &c., which are now in good sanitary condition :—

Auborn & Heavyside, Manufacturing Confectioners,  
Falcon Terrace.

Draper's Wood Chopping Yard Shops, Este Road.

Woolf & Sons, Pencil Factory, York Road.

Garton Hill & Co., Saccharine Works, York Road.

The Midland Railway Co's. Goods Yard, Wandsworth  
Road Station.

The Projectile Works, New Road.

The London Steam Stone Saw Mills, Stewart's Road.

Messrs. Sears, Stone Works, 26, Stewart's Road.

Messrs. Featherstonhaugh, Brewery, Battersea Park  
Road.

In many of these premises the sanitary conveniences were entirely re-constructed.

Complaints were made respecting effluvium nuisances from factories in the York Road, in July. The factories were kept under constant observation by day and night but no nuisance was discovered.

#### COMMON LODGING HOUSE, 142 & 144, HIGH STREET.

Upon the premises being visited insufficient water closet accommodation for the lodgers was found to exist, the registered number of the latter being 50, in addition to which the premises in question were occupied for business purposes. The Sanitary Committee in February, directed notices to be served for the provision of extra sanitary conveniences, the consequence being the premises have been closed for the purpose of a common lodging house, a very beneficial result.

#### PUBLIC HOUSE URINALS.

The Chief Sanitary Inspector reports to the Sanitary Committee in January of each year, as to the condition and sufficiency of the urinal accommodation at every public-house in the parish. These were inspected as usual, there being some 159 attached to licensed premises throughout the parish, by a

Sub-Committee of the Sanitary Committee and the Chief Sanitary Inspector, who subsequently reported to the Sanitary Committee the result of their inspection, and recommended that in no less than 119 cases did they consider it necessary to make improvement in the existing accommodation. The Sanitary Committee therefore directed the necessary notices to be served, and that in the event of the same not being complied with, the Vestry decided to bring the matter before the Licensing Justices and oppose the renewal of the licenses upon the ground that the Licensee had failed to comply with the Vestry's requirements. These notices were all complied with, with but eight exceptions. The Chief Inspector therefore attended before the Licensing Justices on the 28th February, 1894, in respect to the following premises, and stated the ground of the Vestry's opposition :—

- |   |   |
|---|---|
| 1. Black Swan, York Road.                 | No accommodation.   |
| 2. Britannia Arms, Plough Road.           | Want of water supply to urinal.   |
| 3. General Havelock, Battersea Park Road. | Insufficient accommodation and not accessible from all the bars of the house. |
| 4. The Northcote Hotel, Northcote Road.   | Urinal required to be properly screened off.                                  |
| 5. The Original Woodman, High Street.     | No water supply to urinal.  |
| 6. The Collingwood, Plough Road.          | Insufficient water supply and dirty condition.                                |
| 7. The Unity, York Road.                  | Insufficient urinal accommodation.  |
| 8. Nine Elms Tavern, Nine Elms Lane.      | Ditto.  |

The Bench after hearing the evidence decided to adjourn cases 1, 4, and 5, for the purpose of viewing the premises.

In case No. 2, Licensee not appearing, the case was adjourned until 30th March, 1894.

In case No. 3, Counsel appeared for the Licensee, and pointed out that this house was licensed prior to 1866. The

Chairman of the Licensing Justices stated under such circumstances the Bench had not the same control over the house as they had over those licensed since that date, they therefore renewed the license.

In No. 6 case there was an application to transfer the license, Counsel appearing for the new Licensee gave an undertaking to the Bench to carry out the Vestry's requirements.

In No. 7 case Counsel appeared for Licensee and pleaded there was sufficient accommodation. The Bench renewed the license having expressed themselves satisfied with the accommodation already provided.

In No. 8 case Counsel appeared for Licensee, and drew the attention of the Bench to the fact that some two years previously the Vestry had called upon the then Licensee to make certain alterations to the sanitary conveniences, at which time the Vestry's requirements were satisfactorily carried out, and moreover, that good public urinal accommodation existed immediately opposite the premises in question. The Bench therefore decided to renew the license.

On the 30th March, 1894, the adjourned sessions of the Licensing Justices was attended with respect to cases Nos. 1, 2, 4, 5 and 6. In cases Nos. 2 and 6 the opposition of the Vestry was withdrawn as the necessary works had been carried out.

With reference to case No. 1 the Justices expressed the opinion that the house ought never to have been licensed, but they considered that to construct an urinal upon the premises would create a nuisance, they therefore decided to renew the license.

With respect to No. 4 they decided to renew the license, being of opinion that sufficient urinal accommodation existed for the use of the customers of the house.

With regard to No. 5, the Bench renewed the license subject to the Vestry's requirements to provide water supply to the urinal being complied with.

The Bench expressed themselves anxious to afford every assistance to the Vestry in enforcing reasonable urinal accommodation, but at the same time did not see how to withhold the licenses in respect to premises where alterations had been previously carried out to the Vestry's satisfaction and further pointed out that a Licensed Victualler is not governed by the same laws as the keeper of a Wayside Inn.

#### FISH CURING.

Improvements have been effected in several of the fishmongers premises who carry on the smoking of fish. In one instance the smoking of fish was carried on in an undrained and unpaved stable, notice was served and the practice discontinued. Legislation is, however, desirable to restrict the manufacture, storing and preparation of food for human consumption to premises properly constructed for the purpose.

#### WATER SUPPLY CERTIFICATES, SEC. 48.

One hundred and forty-one Certificates of Water Supply for new houses have been issued during the year. In spite of the warning printed on the building notices obtained by builders from the Vestry, many permit houses to be occupied before obtaining such certificate. The owner of nine houses in Fontarabia Road for allowing certain houses to be occupied without first obtaining a certificate as to the water supply was fined £10 and 2/- costs, and in eight other cases the summonses were withdrawn on payment of 2/- costs respectively.

Another person permitting Overstrand Mansions, Battersea Park, to be occupied without such certificate of water supply was also fined 40/- and costs in one case and 20/- and costs on two other summonses taken out.

Bakehouses were regularly inspected and improvements are gradually being made with regard to ventilation, cleanliness, &c.

Several persons were cautioned during the year against conveying offensive matter through the streets of the Parish during the hours prohibited by the Bye-laws of the London County Council under Section 16 (2) of the Public Health (London) Act with good effect.

#### WELL WATER.

A private dwelling-house at 20, St. John's Hill, for which water for drinking purposes was derived from a well at the rear of the premises was inspected and a sample taken, the same upon analysis was found to be unfit for the purpose, notice was served and a supply from the Water Company's mains provided.

#### LONG'S YARD, STEWART'S ROAD.

This yard has been the subject of complaint and consideration by the Sanitary Committee upon several occasions a Mr. Hiller using it for the purpose of temporarily depositing road slop, manure, &c. A Contractor of the London County Council was also discovered depositing sewage sludge upon these premises, and the attention of the Council and the Lambeth Vestry has twice been directed to the fact that road slop and sweepings from the latter parish are deposited there. The condition of the premises has greatly improved and the Bye-laws of the London County Council under section 16 (2) Public Health (London) Act fairly complied with in so far that the matter is generally removed within 24 hours of its deposit.

Quarterly Samples of Water were taken regularly and submitted to the Public Analyst in accordance with the Standing Orders.

On Sunday, 11th February, a quantity of veal and mutton was exposed for sale upon a stall in Battersea Park Road belonging to C. L., 6, Beaufort Mews, North End,

Fulham, the meat being unfit for human food and probably derived from animals slaughtered whilst in a dying condition. It was taken before the Magistrate on the following morning and he gave an order to destroy the same. The Sanitary Committee directed proceedings to be taken, the Magistrate at the hearing of the case inflicted a nominal penalty of £5 and 6/- costs.

G. C., of 26, Atherton Street, was detected selling cheese unfit for human consumption, the Magistrate condemned the cheese and ordered its destruction. The Sanitary Committee directed proceedings to be taken. Defendant was ordered to pay the costs of the summons, viz., 2/- only, the Magistrate observing there was a degree of decomposition allowable in cheese. In this case the cheese was as rotten as it possibly could be and could be smelt some 200 yards away. The price it was being sold at was 2d. and 2½d. per lb. He afterwards brought a large quantity to the office to be condemned, similar to that seized and acknowledged that it had been frequently flooded with Thames water in the cellars of an wholesale house in the city, which accounted for its highly decomposed condition. It was all conveyed to the Destructor and there cremated.

The following articles of food were condemned and destroyed as being unfit for human consumption by decomposition at various times during the year :—

Haddocks	...	4 cwts.
Kippers	...	8 boxes.
Herrings	...	12 cwts.
Mackerel	...	10 „
Ling	...	4 „
Mixed Fish	...	1½ „
Sprats	...	3 bushels.
Cockles	...	19 lbs.
Mussels	...	2½ bushels.
Rabbits	...	58.
Cheese	...	5½ cwts.
Tomatoes	...	32 boxes.
Cherries	...	5½ cwts.

I have before expressed approval of the manner in which the Sanitary Staff have carried out their duties during the year, the Chief Sanitary Inspector, Mr. Isaac Young, by his zeal and energy, keeping the work up to the high standard which has always characterised the department. The District Inspectors have, as was reported last year, got through their numerous and sometimes disagreeable duties with great efficiency and with creditable regard for the feelings of those amongst whom it is their duty to act.

The Vestry Clerk, Mr. Wilkins, has upon every occasion given me all the assistance possible, assistance which from his great experience, I have found invaluable, and for which I beg to tender my sincere thanks as well as to my colleagues, Mr. J. T. Pilditch, the Surveyor ; Mr. C. E. Cassal, the Public Analyst ; Mr. W. W. Young, the Solicitor ; and the whole staff of the Vestry.

The support which has always been extended to me by the Sanitary Committee and the whole of the members of the Vestry I hope to still obtain, as such support can alone render a Medical Officer able to carry out his responsible duties in so large and important a Parish as Battersea, and place him in a position to be able to present a report upon the public health of so favourable a character as that given above.

W. H. KEMPSTER, M.D.,

*Medical Officer of Health for Battersea.*



