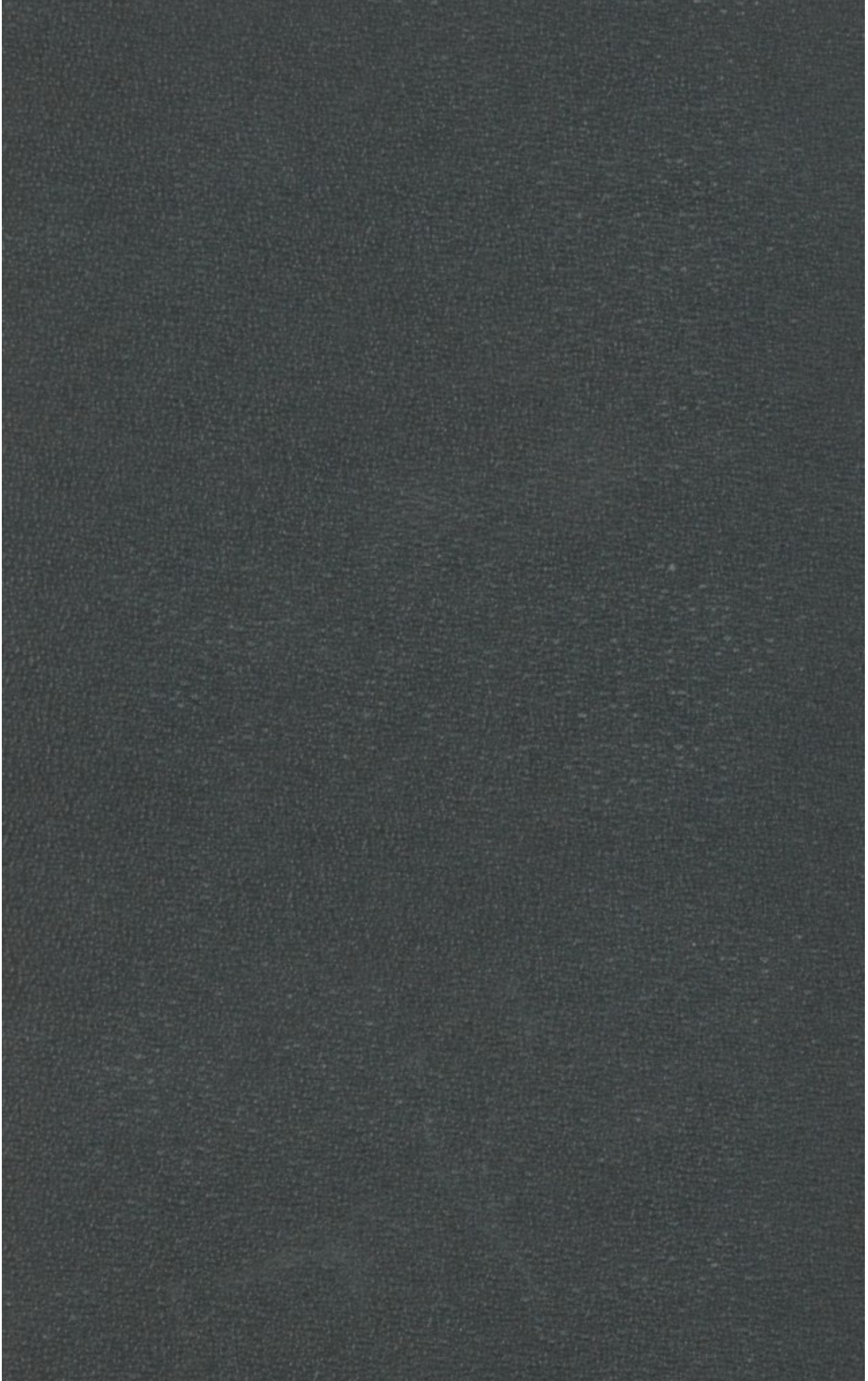
[Report of the Medical Officer of Health for Wandsworth District, The Board of Works (Clapham, Putney, Streatham, Tooting & Wandsworth)].



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SANITARY DEPARTMENT.

BOARD OF WORKS FOR THE WANDSWORTH DISTRICT.

FIRST ANNUAL REPORT

ON THE

SANITARY CONDITION

OF THE SEVERAL PARISHES COMPRISED IN

THE WANDSWORTH DISTRICT,

DURING THE YEAR 1856.

BY THE MEDICAL OFFICERS OF HEALTH.

Presented in conformity with an order of the Board dated Feb. 19, 1857.

LONDON: PRINTED BY DAVID BATTEN, CLAPHAM COMMON. S.

CONTENTS.

To the Board of Works for the Wandsworth District.

GENTLEMEN,

In accordance with your instructions, we have the honour to present our First Annual Report upon the Sanitary condition of the Wandsworth District, during the year 1856.

The report will be found to consist of separate communications from the Medical Officers of Health of the several "Registration" Sub-districts; together with an Appendix of Statistical Tables of general and local information.

This plan of compilation has been adopted in order that while affording ample materials upon which to base measures of general improvement, it may furnish each member of your Board with special information of the parish which he represents, and in which he may be assumed to be most interested.

The statistics of mortality for the year present considerable cause for congratulation for the past, as well as hope for the future. In the first table in the Appendix it is shewn that in the entire Wandsworth District (allowance being made for increase of population) less deaths took place in the year 1856, by the large number of 115, than in the year 1855; and by 116 than would have been registered had the average rate of mortality of the previous ten years continued—a circumstance which will doubtless prove as gratifying to your Board, as it has been to ourselves.

We have the honour to remain,

GENTLEMEN,

Your very obedient Servants,

THE MEDICAL OFFICERS OF HEALTH.

CLAPHAM.

Report on the Sanitary Condition of Clapham, for the year 1856, *by Mr. J. McDonogh.*

TO THE BOARD OF WORKS FOR THE WANDSWORTH DISTRICT.

GENTLEMEN,

The census of 1851 gives to this sub-district 16,290 inhabitants. If this be raised for increase of population, the number would now amount to about 18,200.

In 1851, the rateable value of property in this parish to the poor was estimated at £70,167; at the present time it is calculated to amount to about £82,000. This sub-district, therefore, increases both in population and rateable value, but not, of course, in area. The area of this parish, in statute acres, is 1,233, and there has been of late years, within that area, a considerable increase in the number of houses. Unavoidably, then, we increase in such evils as are incidental to building operations. Houses are erected, and new streets formed, without due regard to sanitary requirements, and in situations where good drainage, that great desideratum in this sub-district, seems impossible.

The health of this sub-district, compared with that of former years, may be pronounced to have been unusually good during the year 1856. Several of the diseases of the zymotic class have prevailed in a malignant form, but by no means extensively, during the past year. By a careful inspection of the returns of the District Registrar, I find that 286 deaths, inclusive of 36 from epidemic diseases, took place in this parish during 1856, and were distributed as follows:—

Small Pox	1	Lung Diseases (except Phthisis)	39
Measles	14	Phthisis	54
Scarlet Fever	9	Atrophy, Hydrocephalus, Convulsions of Children, and Scrofula	46
Hooping Cough	4	All other Diseases	97
Diarrhœa and Dysentery	4	Violence, Privation, and Premature Birth	9
Fever	4		
Erysipelas	1		
Puerperal Fever	4		

These deaths are variously distributed as to age:—

Under 1 year	61	From 20 to 40	45
From 1 to 5	29	„ 40 to 60	37
„ 5 to 10	16	„ 60 to 80	65
„ 10 to 20	14	Upwards of 80	13

There appears to be a great disparity in the numbers of deaths recorded under the head of social position:—

Deaths amongst the	Nobility and Gentry . . .	25
,,	Professional and Merchant Class .	24
,,	Trading Class, Shopmen, Clerks, &c.	57
,,	Industrial or Labouring Class .	180

By reference to a table in the Appendix, relating to the sickness and mortality amongst the pauper population of the entire district, it will be seen that 1,133 cases of illness, and 40 deaths, are recorded as having occurred in Clapham during the past year. The rate of mortality, therefore, amongst this class of persons, is under 4 per cent. upon the cases of sickness.

Inspection of Houses.

During the year 1856, 426 houses were inspected, duly entered in the Inspector's books, and reported to the Board. In almost every case an order was given by the Board to execute the necessary sanitary works, under the provisions of the Metropolis Local Management Act. I am happy to have to state, that the notices served by your Inspector were for the most part attended to; and that large numbers of the poorer classes now enjoy the blessings of a liberal supply of water, and other sanitary requisites heretofore unknown in and about their dwellings.

Ventilation of Public Buildings, Schools, &c.

Accompanied by the Inspector, I examined during the year the ventilation of the following Churches and Chapels:—St. Paul's Church, Matrimony Hill; Mr. Hill's Church, Grafton Square; the Parish Church, Clapham Common; St. John's Church, Clapham Rise; the Crescent Chapel, Crescent Place; the Catholic Church, Park Road; St. James's Church, Park Hill; Christ Church, New Street; the Baptist Chapel, Clapham Common; and the Baptist Chapel, Wirtemberg Street. In my weekly reports will be found the full details of these inspections, with the modes of ventilation adopted, which in many cases I found very defective.

I also, accompanied by your Inspector, examined the ventilation of the following Public Schools:—The British Schools, Wirtemberg Street; the Parochial Schools, Clapham Common; the Bowyer Schools, New Street; the Boys' and Girls' Schools, Park Place; the British Orphan Schools, Clapham Rise; the Infant Schools, Nelson Row; St. James's Schools, Lyham Road; the Infant Schools, Acre Square, Park Road; the St. James's Infant Schools, Park Road; the St. John's Infant Schools, James Street; and Christ Church Infant Schools, Howard Street. In my reports of these schools I gave the number of children in each, the amount of cubic feet of air to each child, and pointed out the defective sanitary arrangements I discovered in these places.

Offensive Trades, Slaughter-Houses, &c.

From offensive trades I am happy to state we are almost free. I examined, on three separate occasions, 21 slaughter-houses. The owners having fulfilled the necessary sanitary requirements in 19 cases,

obtained their licenses; 2 owners not having fulfilled those requirements failed to obtain licenses. I would recommend that the Inspector should continue to pay periodical visits to all licensed slaughter-houses, as well as to those which he may have reason to suspect are being used for the slaughtering of cattle, sheep, or pigs, without license; in order that the law might not be evaded, and that the public may be assured their food is prepared in a wholesome and proper manner.

During the year I have also examined 4 sausage making establishments, where these articles of food are manufactured by machinery. At the time of my visits I found some things to object to. Due notices were served on the owners to thoroughly cleanse the premises, which was accordingly done. These places, however, will require occasional inspection, to keep them in a wholesome condition. In all these investigations I was accompanied and ably assisted by your Inspector, who possesses a thorough knowledge of every department of his office.

Drainage.

I learn, from your Surveyor's able report, that the drainage of the entire Wandsworth District is very defective. I have good reason to know that this is particularly the case in this sub-district. So very defective, in some cases, is the sewerage of this parish, that it prevents other necessary sanitary improvements being carried out. Our sewers, in my opinion, are much too antiquated, without system or design, and appear to be in a very dilapidated condition. In their present state they are worse than useless, and are proving nuisances of the worst kind, and highly injurious to health. A more complete system of tunnel sewerage, more substantially built, and far more capacious than at present, appears to be much needed; as is also a system of tubular pipe drainage, for house purposes. Owing to the elevated site of this parish, drainage becomes an easy matter. On almost every side we have a good fall for surface and underground drainage; and I believe, if these were efficiently carried out, Clapham might be rendered one of the most healthy districts of the metropolis, as by such means we should get rid of that most revolting abomination—the cesspool system.

Water Supply.

In quality our water is better than it has been for years past, but there is still much room for improvement. In some cases the supply is daily, in others every second or third day. In my opinion it should be, in all cases, daily; as a third day's supply is very apt to become loaded with impurities before it is consumed. A constant supply is, however, what is really needed, and the common water-butt everywhere done away with; in the meantime, covered cisterns of slate or stone being substituted for these objectionable receptacles.

Removal of Nuisances.

In the past year 278 complaints were entered in the Inspector's books, and duly reported on to the Board. Most of these were attended to and remedied. In some of these cases, where the orders of your

Board were not complied with, applications were made to the Police Magistrates, who made orders for the prompt abatement of the nuisances complained of. Friendly applications led in several cases to the abatement of nuisances that were not brought to the knowledge of your Board.

Dung and Cow Yards.

During the past summer many dung-yards and cow-sheds were greatly complained of by persons living in contiguity with them. Few however became complainants, from an apprehension of giving offence to the owners, with whom they were living on neighbourly terms. It was generally intimated that, as ratepayers, they considered they ought to have these nuisances abated, through the interference of the officers of the Board, without any complaints on their part.

Offensive Ponds.

During the last summer the following ponds were found to be very offensive, and very greatly complained of:—The Cock Pond, the Building Pond, Harford's Pond, the Island Pond, the Eagle Pond, and the Long Pond. Accompanied by your Inspector, I took the depth and surface measure of each, also the approximate amount of deposit in each, and ascertained the time since they were cleansed. The details of these inspections were furnished in my weekly reports at the time I made them. There were three other ponds reported on, but which have since been cleaned out, and an immense amount of animal and vegetable deposit removed. Another pond, in the vicinity of the Convent School, Clapham Common, I also examined and reported on. Several of the immediate inhabitants have been for a long time very desirous of getting this pond cleansed; but the proprietor, for some unexplained reason, strongly objects to its being done. It was stated to me, by the agent of one lady in the neighbourhood, that she was obliged to leave her residence during a part of last summer, owing to the noxious emanations from this pond and their effects on herself and family. Apprehensive, however, of giving offence to her neighbour, she prefers leaving the nuisance to be dealt with by the Board rather than become herself a complainant.

In conclusion, I beg to observe that, knowing some of my able colleagues intend, in their respective reports, to enter fully into the subject of water supply, ventilation, drainage, &c., I have considered it less necessary to extend my own, by discussing those matters at any greater length than I have done.

I am, Gentlemen,

Yours most obediently,

JOHN McDONOGH,

Medical Officer of Health for Clapham.

BATTERSEA.

Report on the Sanitary Condition of Battersea, for the year 1856, *by Dr. Connor.*

TO THE BOARD OF WORKS FOR THE WANDSWORTH DISTRICT.

GENTLEMEN,

In conformity with your desire, I beg to submit my Annual Report for 1856.

It is a remarkable and gratifying feature in the sickness which prevailed amongst the out-door poor receiving parochial relief during the year, that out of 230 cases of zymotic disease, but four deaths took place in that period. The number of cases of sickness, from all causes, amongst this class of persons, was 977, of which 27 only resulted in death. This low rate of mortality amongst the out-door poor I believe to be mainly attributable to the improved sanitary condition of their dwellings. If such be the case, when comparatively so little has been done, what may we not expect when sanitary measures have been carried out still more completely?

Of the total number of deaths amongst all classes (320) occurring in this sub-district, 95 took place in the workhouse, where very many of the poor, either worn out by age or labouring under chronic diseases, or those but seldom admitting of cure, are sent to die—the majority coming from other sub-districts in the Union.

The 320 deaths, from all causes, which have been registered in this parish during the year may be thus enumerated:—1 from small-pox, 7 from measles, 5 from scarlatina, 4 from hooping-cough, 13 from diarrahœa and dysentery, 8 from fever, 6 from erysipelas, 41 from lung diseases, excluding phthisis, 31 from phthisis, 56 from hydrocephalus, atrophy, scrofula and convulsions of children, 120 from all other diseases not enumerated amongst the foregoing, and 24 from violence, privation, and premature birth.

Of the ages of the deceased persons, the following is a correct statement, in the order of their greatest numbers; 74 under 1 year, 55 from 60 to 80, 53 from 1 to 5, 42 from 20 to 40, 42 from 40 to 60, 20 at 80 and upwards, 19 from 10 to 20, and 15 from 5 to 10. By this it will be seen that the infant mortality under 1 year was by far the highest.

The social positions of the persons who died during the year have been made out as near as could be possibly ascertained, as follows:—2 nobility and gentry, 9 professional and merchant class, 96 middle or trading class, and 213 labouring class. The large amount of mortality recorded

under the latter class may be in some measure accounted for by the number of labourers and their families employed in the manufactories which so abound in this sub-district. The pauper population is also large, and contributes not a little at all times to swell the death rates of the parish.

Within the year 502 houses have been inspected, 150 complaints of nuisances made, and 113 notices served for various sanitary purposes. Of these the inspector informs me 42 have been fully complied with, and the work ordered completed; 7 were in progress of completion at the termination of the year; 17 had been but partially or imperfectly complied with; and 47 had not been commenced. There have also been during the year three cases of magisterial interference, in which convictions have been obtained for non-compliance with the orders of the Board.

Amongst the sanitary improvements effected during the year, water has been laid on to 60 houses, and the open cesspools to these houses filled up. Numerous sinks have also been trapped, and about 20 dust-bins erected in places where they were greatly needed.

I regret to be compelled to remark, that of the numerous complaints I have felt it my duty to prefer against the keeping of pigs in improper places, and against filthy and ill-cleansed pigsties, only 2 of these nuisances have been suppressed. I have also to complain that nothing has yet been done to the ditch at the rear of Foot's Row, with the exception of clearing it out two or three times, which I do not consider by any means a remedy for the evil.

In the Inspector's book, and in my periodical returns, will be found mentioned several other complaints of nuisances and defective sanitary arrangements, which I am of opinion ought to receive prompt attention.

I am, Gentlemen,

Your obedient humble Servant,

WILLIAM CONNOR,

Medical Officer of Health for Battersea.

WANDSWORTH.

Report on the Sanitary condition of the Parish of Wandsworth, during the year 1856, *by Mr. George E. Nicholas.*

TO THE BOARD OF WORKS FOR THE WANDSWORTH DISTRICT.

GENTLEMEN,

In accordance with your instructions, I have the honour to present a report of the sanitary condition of this parish during the past year; and in so doing, I take it to be my duty, while bringing to your notice the measures which have been adopted for the general improvement of the public health, to offer such observations on the principles upon which they have been conducted as may seem advantageous for practical guidance in the further prosecution of similar proceedings.

As it would be impossible, in a report like this, to lay before you all the circumstances directly or indirectly affecting health, I purpose confining my remarks to a consideration of those conditions having reference to the principal sanitary operations of the past year, and which constitute that formidable array of agents inducing tendency to death, whose influence is exerted so powerfully and successfully against the healthfulness of the dwellings of the people. These it will be desirable to examine in detail in order to ensure a clear recognition of their existence, and a just appreciation of the relation which they bear to the population and its mortality and sickness, as well as of the measures which have been adopted or require to be adopted for their removal or alleviation.

POPULATION.—RATE OF INCREASE—BY BIRTHS—BY IMMIGRATION.

The population of this parish, in 1831, was 6,879; in 1841 it was 7,614; and in 1851 it numbered 9,611: so that during the decennial period, 1831—41 it increased 1·068 per cent. yearly; and during the similar period, 1841—51 it increased 2·622 per cent. yearly. This rate of increase exceeds by 1·40 per cent. that for all England, and by 0·65 per cent. that of London during the same period. If an increase has taken place since the year 1851 in the same ratio as during the ten years preceding it, the population at the end of the past year was 10,871. The number of births registered during the past year was 351 (165 males and 186 females.) The excess of births over deaths (correction being made for the Surrey County Lunatic Asylum, the House of Correction, St. Peter's Hospital, and the Wandsworth Union, the reason for which

will be explained shortly), was 138, or 1·54 per cent. on the population, which is 0·26 higher than the rate for all England. Assuming this as the *natural* rate of increase, more than 1 per cent. of the *general* increase was due to immigration, and points markedly to the development of the trading and manufacturing energies of the town.

MORTALITY—RATE OF—COMPARISON WITH OTHER DISTRICTS—WITH FORMER YEARS—OF EARLY LIFE—FROM EPIDEMIC DISEASES—RELATION TO SOCIAL POSITION—TO THE SANITARY CONDITIONS OF HOUSES.

The mean annual mortality of this parish during the eleven years 1846—56, deduced from the registered deaths, and the present estimated population was $2\frac{1}{2}$ per cent. But this mode of deduction is liable to two great sources of error. 1st. From undue increase by the mortality of the Surrey County Lunatic Asylum, whose inmates are derived from the whole County of Surrey, to which a very small proportion is contributed by this parish, which undergo no natural increase, and are subject, as in all such institutions, to a high mortality (which in this instance is 9·06 per cent.), and by the deaths in the House of Correction and St. Peter's Hospital, the population of both of which institutions was not included in the last census: and 2ndly, from a decrease by exclusion of the deaths of the Wandsworth portion of inmates of the workhouse which are registered in Battersea, the workhouse being situated there on the confines of the two parishes. To deduce a correct natural death-rate, therefore, it is necessary to withdraw from the calculation the mortality and population of the Asylum, minus that portion contributed by Wandsworth, together with the mortality in the House of Correction and St. Peter's Hospital, and to add to it the deaths of inmates of the workhouse belonging to Wandsworth. This done shews an annual rate of 2·395 per cent. for the years 1846—55. But this is inclusive of the cholera years, 1849 and 1854; if these be excluded, the rate is 2·179 per cent., which may be taken as the average natural death-rate, and is 22 in 10,000 less than that of London, and 4 in 10,000 less than that of all England during the ten years, 1843—53, exclusive of 1849; it is 49 in 10,000 less than that of the other districts south of the Thames, but about 2 in 1,000 more than the whole Wandsworth district.

A comparison of this average rate with that of last year shews an advantage to the latter. Applying the same calculation as before the death-rate for the past year was 2·137 per cent., which is 0·042 less than the average of ten preceding years.

From the foregoing statistics an important fact is deducible; viz., the existence of a high rate of increase and of a diminished mortality—conditions which it is the especial object of sanitary legislation to produce and maintain.

Of the 314 deaths which occurred last year (181 males and 133 females), 74, or upwards of 23·5 per cent. died under the age of 5 years, and 50, or 15·9 per cent. did not attain the age of 1 year. Nearly $\frac{3}{4}$ths of this mortality of infants, which was not much short of $\frac{1}{4}$th of the whole, was due to diseases intimately associated with the use of an impure atmos-

phere arising from defective sanitary arrangements. Of the deaths from these diseases considerably more than $\frac{1}{3}$rd was due to those of the zymotic class, which are commonly, but erroneously, looked upon as a child's natural heritage. Every child is supposed to go through its allotted share of measles, scarlatina, and hooping-cough, and anxious mothers anticipate them as disagreeable but natural necessities, a fortunate escape from them being considered as a most notable exception to the rule. The feeling is so strongly entertained that the propagation of these diseases is much increased by unguarded and sometimes even intentional exposure. Such popular and highly mischievous error cannot be too soon eradicated and replaced by the fact that the longer a child lives free from disease the longer will be the probable duration of its life, and that all such diseases belong to a class upon which science has stamped the name "*Preventible*." Moreover, the experience of the medical profession furnishes the gratifying fact, that these diseases have of late years, since the entertainment of more rational views of sanitarian agencies, become much modified in character and diminished in fatality: a reasonable hope may therefore be entertained that by a complete fulfilment of the intentions of the Metropolis Local Management Act, these pests may, at no very distant period, be exterminated.

Of the total deaths, 6 occurred amongst the gentry, 4 in the professional, 69 in the trading, and 235 in the labouring class; 47 of these occurred from epidemic disease, or about 1 in 6$\frac{2}{3}$rds of the whole; 40 having taken place in the labouring class and 7 in the trading class, whilst the gentry and professional class enjoyed complete immunity. The significance of these figures is more conveniently expressed in the following tabulated form:—

Relation of Deaths from all Causes, and from Epidemic Diseases to Social Position.

Classes of Persons in which the Deaths occurred.	Gentry	Professional	Trading	Labouring	Total Deaths
Deaths from all Causes	6	4	69	235	314
Deaths from Epidemic Diseases.....	–	–	7	40	47

From these figures it is seen that the labouring class suffered nearly three times as much mortality from all causes, and nearly six times as much from epidemic disease as the other classes collectively. I have no means of accurately ascertaining the relative proportion of the labouring to the other classes, but supposing that the labouring class suffered the same relative amount of mortality from general disease as the other classes it would then be three times as numerous, and have suffered twice as much from epidemic diseases as the other classes combined. But as the same causes which operated to this excess of mortality

from *special* disease, produced also a corresponding increase (although probably not to the same extent) in its mortality from *general* disease, this must be received as a minimum computation, and, at the same time, one which cannot be considered as erring except on the side opposite to exaggeration. Whence the cause of this excessive mortality amongst our poorer brethren? Here is the answer:—

Of the houses in which these 47 deaths from epidemic disease occurred, 14 had bad water and 23 none; 34 had defective drainage and 8 none; 31 were badly ventilated (8 of them having no back-doors or windows); 23 overcrowded; 8 out of repair; and 19 damp and dirty. The houses were situated in localities, 35 of which were badly drained, and 6 were crowded courts, unpaved, without thoroughfare, and consequently damp and ill-ventilated. But some had several and some all of these defects combined, the details of which can only be satisfactorily shewn in a tabulated form, such as I subjoin, an examination of which should, I think, go far towards convincing the greatest of sanitarian infidels of the direct relation which exists between diseases of a contagious nature and certain conditions of houses called, in consequence, sanitary evils.

TABLE I.

Table shewing the Number of Deaths from Epidemic Diseases, during the year 1856, with the Sanitary conditions of the houses in which they occured.

DISEASES.	No. of Deaths	Water Supply			Drainage.			Internal condition of houses.						Nature of Locality				
		Good	Defective in quality	None, or unfit for use	Good	Defective	None	Badly ventilated	Overcrowded	Out of repair	Without Back-doors or Windows	Damp and Dirty	Crowded	Unpaved	Without thoroughfare	Very badly drained	
Diarrhœa & Dysentery	4	..	2	2	..	4	..	3	..	..	..	..	..	..	..	..	3	
Erysipelas.....	3	..	2	1	..	3	..	2	..	1	..	1	..	..	..	..	2	
Fever.....	12*	8	1	3	5	5	2	4	3	..	..	2	..	..	..	..	6	
Hooping Cough	12	1	4	7	5	9	3	8	6	3	4	5	4	4	4	4	10	
Measles.....	2	..	1	1	..	1	1	2	2	1	1	2	1	1	1	1	2	
Puerperal Fever	1	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	1	
Scarlet Fever	4	..	1	3	..	3	1	4	4	1	2	3	1	1	1	1	4	
Small Pox.....	9	..	4	5	..	8	1	7	8	2	1	6	..	..	..	..	7	
Totals	47	9	15	23	5	34	8	31	23	8	8	19	6	6	6	6	35	

* Four of these occurred at the Asylum, and one at the Prison.

Disease—Prevalence of—Fatality of during the past Year.

As disease invariably falls on the poor in greatest amount and in greatest intensity, the amount of disease which has occurred amongst *them* may be always assumed as a fair criterion of the amount of disease which has prevailed generally, especially if it has been of an epidemic nature. The Medical-Relief Book of this parish shews the occurrence of 266 cases of sickness less during the last than during the preceding year, the total number of cases having been 1,593 in 1855, and 1,327 in 1856. The amount of zymotic disease, and its resulting deaths, were also somewhat less than in the previous year, there having been, in 1855, 410 cases and 13 deaths, and in 1856, 392 cases and 12 deaths. Small-pox, measles, scarlet-fever, and hooping-cough had their accustomed run, and were all attended with fatality. Small-pox was the most prevalent, fever and hooping-cough the most fatal of this class: the two latter were equally fatal. The greatest mortality from any single disease was from phthisis, which carried off $\frac{1}{6}$th of the whole.

It will now be desirable to examine in detail some of the principal causes of the excess of mortality suffered by this parish, together with those conditions which have reference to the principal sanitary operations of the past year.

Here also will be a desirable place to introduce a Table giving a summary of these operations—the number of houses which were examined and reported on, and in which sanitary improvements were made. I have forborne to intrude any account of the examination of gas works, horse slaughter-houses, butchers' shambles, paper mills, piggeries, open ditches, and other public nuisances which were the subjects of special reports, inasmuch as their evils have been, as far as at present practicable, removed.

TABLE II.

Table shewing the Number of Houses examined and reported on, and in which Sanitary improvements were made during the year 1856.

Number of houses examined, with a summary of their condition found on examination.	No.
Number of houses examined (exclusive of 113 which were inspected in consequence of private complaints)	529
Found to have good drainage	0
——————water supply	27
Found to be without drainage	59
——————water supply	196
——————drainage and water supply	56
Found to have defective drainage	470
——————water supply	306
——————drainage and water supply	306
Found to have open and offensive cesspools	488
——————no receptacles for dust and house refuse	503
Found to be badly ventilated from absence of back doors and windows ..	175
——————damp	199
——————out of repair	143
——————unfit for habitation	34
No. of Courts, Alleys, and Yards being close, narrow, and ill-ventilated ..	34
——————————————unpaved	33
——————————————without thoroughfare	28

TABLE II.—*continued.*

No. of Houses in which the following sanitary improvements were made during the year 1856.	No.
Supplied with water	318
Drainage perfected as far as the present system will allow	363
Cesspools emptied and cleansed	531
Cesspools filled up	394
And water closets furnished in their stead	391
Dust bins applied	416
Underwent repair by order of the Board	2
Pulled down on account of their dilapidated condition	2

WATER SUPPLY.

The water supply of this parish is derived from the following sources, viz. :—The Thames, the Wandle, numerous shallow wells, a few deep wells and Artesian borings, the Southwark and Vauxhall and the Lambeth Water Companies. I have made careful examination of the qualities of samples of these different waters, with a view to the determination of their value for dietetic and general domestic use. The results I present in a tabulated form. It will be perhaps desirable, in order to show its import, to preface the examination of this table by some remarks explanatory, 1st, of what the impurities of water consist; and, 2ndly, of the relation which the use of impure water bears to health and disease; and then to offer some observations on the qualities of the waters of this parish, and on the means of obtaining a proper and adequate supply.

1st. The usual impurities of water are inorganic and organic matters, either chemically dissolved or mechanically suspended. The *former* comprise certain salts, principally of soda, potash, lime, and magnesia, derivable from and consequently varying with the nature of the soil through which the water percolates; and of certain gases, chiefly carbonic acid, derived from the atmosphere or resulting from saline decomposition. These salts, when in excess, give to a water a medicinal action (e. g., the Epsom springs); and those of lime and magnesia the quality so well known to housewives as hardness. The *latter* consists of the lowest forms of animal and vegetable organisms, living and dead, and the soluble products of their decay; and very generally, in the shallow wells of populous towns, of a notable amount of animal matter in solution, and of substances indicative of the presence of the soluble contents of cesspools. These substances are ammonia and nitric acid, which represent the first stages of transformation of animal products into their ultimate elements. The slight straw colour which a water often possesses (and which is referred to in the Table) denotes the presence of organic matter almost invariably. When present this is readily seen, if the water be examined in bulk; sometimes it is scarcely noticeable until placed against a white surface, such as a sheet of writing paper.

2ndly. There is abundance of evidence to shew that the use of impure water plays an active part both in the causation and the propagation of

disease. The prevalence of bronchocele (popularly called full-throat or Derbyshire neck), in Derbyshire, Nottinghamshire, and many of the chalk districts of England; of calculous diseases in Norfolk and elsewhere; and of glandular enlargements generally; has been long and justly attributed to the use of water whose impurity consists in an excess of the earthy and calcareous salts. From a consideration of these effects, it has been assumed by some physiologists that rain water, or even distilled water, would be best calculated for dietetic use; but it would appear that a certain proportion of the saline matter is not only unobjectionable, but desirable, in order to furnish the necessary amount of salts of lime to the system, which might be insufficiently supplied from other sources, the chief of which is from the bran of wheaten bread, and which, it may be observed, the refinement of civilization most injudiciously removes. Such view would appear to be confirmed by an appeal to nature, amongst the whole of whose works chemically pure water is not to be found within the reach of man. It is not yet known in what the peculiar nature of the influence which is exerted by the use of polluted water consists—whether it is only a predisposing cause, or whether, under certain conditions, it becomes an exciting cause of disease; but that impure water is a medium of the propagation and intensification of disease has recently been most unequivocally proved by the researches of Dr. Snow, and a laborious collection of statistical facts made by Mr. Simon. The results of the latter gentleman's investigations were briefly these :—

Amongst the inhabitants of 31 sub-districts, numbering about 1-5th of the entire population of London, averaging the same social conditions and subject to the same local influences, that, during the cholera of 1854, the drinkers of water derived from the Thames, at a point where it was excessively contaminated by sewage, suffered 3½ times as much mortality as those who consumed a water derived from a point free from such polluting influences. This was further confirmed by the fact that, during the occurrence of the former epidemic of 1849, the whole population suffered almost equally, the whole water supply being almost equally bad.

TABLE III.

Table shewing the Impurity and Hardness of samples of the several kinds of Water in general use in the Parish of Wandsworth.

Source of Supply.	Date.	Solid Constituents in grains per Imperial Gallon.			Hardness in degrees, each degree equal to 1 grain of Chalk per gal.			Remarks.
		Organic matter.	Inorganic matter.	Total impurity.	Temporary.	Permanent.	Total.	
Artesian boring at Young and Bainbridge's Brewery, High Street.	February	0.955	19.635	20.59	..	7° 31	7° 31	Sparkling, colourless, odorless.
	March	1.015	19.60	20 615	..	..	..	
Artesian boring at Summerstown.	February	1.30	19.45	20.75	7° 04	7° 06	14° 1	Ditto.
Southwark and Vauxhall Co. from a main in High Street.	March	1.35	16.73	18.08	6° 35	6° 40	12° 75	Clear, colourless, odorless.
River Wandle after filtration, at Messrs. McMurray's Paper Mills.	March	2.45	16.52	18.97	3° 34	10° 66	14°	Ditto.
River Wandle near the Bridge.	February	7.21	17.73	24.94	8° 78	5° 80	14° 58	Turbid from the presence of much organic matter, visible to the naked eye; has an unpleasant smell.
	March	3.90	17.54	21.44	..	..	..	
	April	6.45	16.95	23.40	..	..	..	
Well common to Nos. 3 & 4 Church Row.	January	7.70	103.0	110.70	15° 21	33° 15	48° 36	Clear, straw coloured; trace of ammonia; abounds in nitric acid.
Pump at Dunse Hill	February	9.55	111.95	121.50	16° 15	30° 25	46° 4	Ditto.
Do. at Warple Row	April	11.375	110.05	121.425	13° 86	58° 64	72° 5	Odourless, slightly opalescent, slight trace of nitric acid.
Do. at Prince's Place	April	13.50	59.80	73.30	5° 5	26° 0	31° 5	Clear, colourless, odourless, contains nitric acid.
Do. at Point Pleasant	April	13.82	37.20	51.02	7° 2	18° 8	26°	Ditto.
Do. at Spencer's Court	April	*14.69	173.28	187.97	..	..	..	Clear, straw coloured, contains much nitric acid.
		14.90	172.66	187.56	19° 45	47° 20	66° 65	
Do. at Martin's Buildings, Frogmoor.	April	*15.40	187.10	202.50	..	..	..	Straw coloured, clear when first pumped, but soon becoming opalescent; trace of ammonia; contains much nitric acid
		15.31	186.65	201.96	16° 37	44° 75	61° 12	

The results contained in this table are the mean of not less than two analyses, several are of more than two. The hardness was determined by the soap-test process of Dr. Clark, the *permanent* hardness after boiling the water five minutes, the *temporary* hardness being the amount removable by the boiling.

* These two analyses were made at the laboratory of St. Thomas' Hospital by Mr. Oersted, to whom, and to Dr. R. Dundas Thompson, I am much indebted for kind assistance and advice in these investigations.

The sources from which the supply of water of this parish is derived are so dissimilar as to require special notice.

Thames Water.—This has been so often analyzed and condemned that it would receive no notice at my hands, only that it still continues to be largely drank by the inhabitants of the waterside and its immediate vicinity. They collect it at high water, and store it in vessels to settle and get clear. Last autumn I unexpectedly entered the house of a family living at the waterside, in which I knew diarrhœa to have been of frequent occurrence, and enquiring for some of their drinking water, obtained a sample from a large earthen vessel which formed the family store. This sample, a pint in quantity, contained upwards of three grains of fœcal matter evident to the senses. There was no necessity for proceeding farther with the investigation. The fact of human beings using a daily article of food which is impregnated with the excrementitious matter of their own bodies, without reference to the great loss of life which it has been so conclusively proved to occasion, is too revolting to require further comment than that it urgently requires immediate interference.

Surface Wells.—These furnish the principal supply to the parish. The samples were taken from different parts of the parish, as far apart as possible. They are seen to be, without exception, excessively polluted. This is scarcely to be wondered at, when we consider the conditions affecting these falsely-named spring waters.

The great majority of these wells are simply holes in the ground, made for intercepting the surface water in its passage through the soil towards its complete filtration at a much lower level. If no other circumstances were in operation such water would simply be imperfectly filtered surface water; but when we reflect that the soil through which it percolates is of a loose gravelly nature, riddled all over with cesspools, and liable to every impregnation which can affect its surface, derived unceasingly from town life; and that the nature of water is to absorb any soluble substance with which it comes in contact, we can realize some of the enormity of the pollution to which such water is subject. It would be as reasonable to expect to derive wholesome water from the filtering beds of one of the water companies between the strata of which was interposed a layer of town ordure, as from these wells. The conditions, differing only in degree, are parallel in both cases.

The River Wandle.—The supply next in extent is derived from this river. A reference to the table is scarcely required to shew its great impurity by any one who has seen it or smelt it, or who reflects upon the large amount of sewage which enters it in all directions, from Croydon to its confluence with the Thames. Several examinations of it were made at different times, the figures in the table being the mean of their results, from which it is seen that while the saline constituents varied only $\frac{3}{4}$ths of a grain, there was a great variation in the amount of organic matter. To obtain a water corresponding with what is drank, the samples were dipped beneath the surface with the care which housewives may be observed to exercise in obtaining their supplies in order to avoid fœcal and other filth floating on the surface. It is necessary to mention this, because without such precaution it would be found to contain a very much larger amount of organic matter.

After having undergone filtration in the reservoir at Messrs. M'Murray's paper-mills it is seen to contain $\frac{3}{5}$ths less organic matter, but still a considerable amount, shewing that when in solution it is not all removable by the ordinary means of artificial filtration.

Southwark and Vauxhall Company.—The town as yet derives but a limited supply from this source. This water, derived from Hampton, is now one of the best supplied to the metropolis.

Lambeth Company.—A very few houses are supplied with this water which is almost identical with the preceding.

Artesian Borings.—These are true springs, derivable from the chalk strata. The waters obtained from them are the purest which have come under my notice, especially that derived from the well at Messrs. Young and Bainbridge's brewery, which is unexceptionable, and remarkable for its great softness. The boring at Summers Town furnishes a constant flow of about 46,000 gallons daily, half of which runs to waste.

The facts indicated by this table and those which have been adduced in relation to the subject lead to the following conclusions;—

I. That the Thames and Wandle water is so polluted by sewage as to endanger the health and lives of those consuming it.

II. That the water derived from the surface wells of the town possesses an excessive amount of hardness, and is liable to dangerous pollution by percolation from cesspools, drains, and other surface impurities, and that therefore these sources of supply ought to be interdicted.

III. That at a moderate calculation, 2-3rds of the inhabitants of the parish are consuming water which is prejudicial to health.

It would therefore appear highly necessary that this parish (or it might be this district), should furnish itself with a uniform supply of unexceptionable quality. With a view to facilitate that inquiry into the subject which I trust it will receive, perhaps I may be allowed to mention the most essential points for consideration involved in the selection of a water for dietetic and general domestic use. These are twofold, sanitary and economic.

With reference to the first and most important, a constant supply, unexceptionable in quality and unlimited in quantity, should be ensured.

The second is also of great importance and may be said to pertain to the former, for in this respect cheapness and abundance are almost convertible terms: but, independently of its sanitary bearing, few will be disposed to deny that of all God's gifts which admit of equal distribution to the rich and poor—this daily food—this vital necessity—should be the cheapest and the most easily procurable.

The hardness of water has a direct bearing upon this part of the question; a very considerable loss of money is sustained by the use of hard-water for washing and for the making of tea. In washing with hard water a certain amount of soap is destroyed before a lather can be effected, or, in other words, before its cleansing power is established. The amount so lost, varying with the quality of the soap, bears an exact proportion to the quantity of salts of lime and magnesia which the water contains, and is due to a combination of the lime and magnesia with the acids of the soap forming an insoluble compound (popularly called curd). Such effect is experienced by every housewife who knows also that more tea is required to make an infusion of given strength with hard water than soft;

the power possessed by water of dissolving substances being inversely as its hardness.

But how is such a supply to be furnished? There are three sources only deserving of entertainment; viz. — 1. The Water Companies. 2. Artesian Borings. 3. The River Wandle.

1. If economy be admitted to assume its proper place in the selection, then the Water Companies on this ground must be excluded from consideration, for there can be little doubt that this district could supply itself with water at least 1-3rd, possibly 1-4th the expense which is now paid to companies.

2. A consideration of the geological formation of the soil, of the artesian springs in existence, and their good quality; the numerous natural springs, and a river whose origin is near at hand, leads to the conviction that a supply of water, meeting all the foregoing requirements, could be procured by artesian borings in very numerous parts of the parish. Such a supply, in addition to the possession of the greatest purity, would not require filtration, nor if procured at a sufficiently high level (which appears practicable) steam power for the purpose of its distribution—both matters of great economical importance.

3. By a reference to the table it is seen that the great impurity of the Wandle water consists in organic matter; that having undergone filtration this was dimished 3-5ths, and that in other respects it closely corresponded with that of the Southwark and Vauxhall companies. The great amount of organic matter still possessed by it after filtration is that which existed in solution, and doubtless due to the presence of sewage. Looking to its natural qualities, there can be no doubt that on the exclusion of sewage, by perfection of the main drainage, this river would be capable of furnishing a water whose quality would equal, and, if procured near its source, far surpass any now supplied to the metropolis. I have entered rather fully into this subject because of all the sanitary evils which it will be my duty to bring before your notice, this probably is the one which can be most conclusively proved, can be laid before you in the most tangible form, is most susceptible of a general and uniform remedy, and which can consequently be most completely and satisfactorily dealt with.

House-drainage.—Water closets.—Cesspools.

Drainage.—Whatever the plan which may be finally adopted for the general removal of the sewage of the metropolis—whether it be effected by any of the various schemes of deodorization, having economy for their main object, or whether it be simply got rid of by a simple and efficient means, having for its main object the preservation of the public health, even at the loss of the value of the sewage,* one thing is generally admitted; viz., that its immediate removal from houses can be effected by no means so conveniently, economically, and what is most important,

* If 1-10th part of the deaths which occur from epidemic disease in the metropolis, to say nothing of the corresponding amount of sickness, which is at least ten times the amount, could be prevented by a system of drainage necessitating the entire loss of the sewage, or of the sum of £400,000, which is said to represent its value, such preservation of life and health would be paid for at a rate which might be termed literally dirt cheap, and which would bear no proportion to the mere monetary value of such number of lives.

inoffensively, as by a flow of water. To ensure the perfection of this method such flow should be *continuous*. The quantity of water, it may be observed, is not so important as the *continuity* of flow: this is readily understood when we consider the adhesive nature of the substances to be removed, which may be floated away by a small amount of water, but which require repeated flushings of large bodies of water to wash them away.

Waterclosets.—To ensure general habits of cleanliness amongst the mass of the people, it is first necessary to furnish them with convenient appliances to assist them in the formation of such habits. It is, therefore, desirable that waterclosets should be constructed as simple, and demanding the exercise of as little care and trouble, as possible (half the people, of all classes, find it too much trouble to pull a handle!) On this account, also, it would appear desirable that the flow of water should be removed from individual control. If the town possessed an unlimited supply, or rather the adaptation of the unlimited supply which it possesses for such purposes, the means of house drainage could be perfected with the greatest simplicity, economy, and ease.

Ventilation of Houses.—That a supply of air in certain amount is the most immediately urgent necessity of life, is universally known; but it is much to be regretted that it is not generally understood, that the same volume of air which has been once respired is not only unfit for further use, but that it has acquired noxious qualities, and, consequently, that the constant renewal of such supply is as imperatively necessary. The necessity for this renewal of the air we breathe arises in consequence of the chemical changes which are effected in it by the process of respiration, which removes a certain portion of oxygen necessary for carrying on the vital processes, and replaces it by a corresponding amount of carbonic acid gas (estimated at 32 cubic inches in a minute). The effect of this gas on the system is that of a powerful narcotic, destroying life when present in an atmosphere to the extent of 10 per cent., and in smaller quantities depressing to a greater or less extent the brain and nervous system. Air containing 1 per cent. cannot be breathed for any length of time with impunity.*

It is not to be wondered at, therefore, that scrofula, atrophy, and their allied affections, and lung diseases, especially consumption, should so largely attack those whose lungs are supplied with an impure air for at least eight hours out of the twenty-four, or that any lurking contagion should seize upon those whose systems must be so frequently depressed below that point at which the body in health is capable of resisting noxious influences. Nor can there be any doubt of the truth of the observation of an eminent writer, that much drunkenness is attributable to the cerebral exhaustion dependent on imperfect aeration of the blood from this cause, there being an instinctive, and, therefore, urgent craving for alcoholic stimuli, which are found to give temporary relief to the feeling of exhaustion which is experienced. The morning headaches, and the sense of weariness after due allowance of sleep, which are so often felt,

* Hence it requires but little abstraction of mind to realize the fact, that a man confined in a room however large, and all access of air prevented, will in a given time be as surely, although more slowly, suffocated, as if the air were at once entirely removed.

are, I believe, more often associated with imperfect ventilation of sleeping rooms than is generally supposed.

Overcrowding.—The obvious effect of overcrowding of houses is to multiply, in proportion to its amount, all the mischief of insufficient ventilation. The extent to which this occurs would be surprising to any not acquainted with the dwellings of the poor, in which it is not uncommon to find a whole family of six and seven, and occasionally eight, and even ten, of various ages, occupying a room whose cubical capacity, in relation to its imperfect ventilation, could not be more than sufficient for two pair of lungs. Its demoralizing tendency needs only to be mentioned to be understood. Of its relation to disease Table I. is sufficiently eloquent; but, in confirmation of it, I may mention that, in a table inserted in my local report for the week ending May 31, 1856, it was shewn that in the 60 cases of small pox which took place amongst the poor, the occurrence of the disease was associated with overcrowding in every instance, without exception, and in some to a fearful extent. In one instance 5 persons slept in a space of 360 cubic feet, being 72 cubic feet to each pair of lungs; four out of the five suffered from the disease, which is but little matter for surprise, when it is asserted by excellent authority that, in dwelling houses with their present defects of ventilation, 500 cubic feet is the minimum space compatible with the maintenance of health.

The means of remedying this monstrous evil, although obvious, are unfortunately obstructed by a most uncompromising necessity—poverty. The labouring man, with a large family, cannot afford to pay for more than one room. More space—larger rooms—larger houses—mean only to him the payment of more hardly-earned money, and the consumption of less food. The Lodging-house Act has doubtless prevented much social misery; and the clause in the Metropolis Local Management Act relating to this subject may be expected to prevent more; but it must with sorrow be confessed, that the operations of both is too limited to be addressed with any great confidence of success towards the suppression of this evil. For the above economic reasons, it is impossible to extend the principles of the Lodging-house Act to general application, and because the amount of space allowable for each person would depend essentially upon the means of ventilation which it might possess. As overcrowding must without doubt, therefore, occur to a greater or less extent, our endeavours should be directed towards rendering harmless the evils which overcrowding produces. It would appear that, while retaining the use of the law for aggravated cases requiring such interference, it is from a complete system of ventilation that a sufficiently comprehensive remedy for this evil can be alone derived.

The ventilation of rooms and houses should consist simply of a means by which a complete freedom of ingress and egress of air—exit of foul air from within, entrance of fresh air from without—in accordance with natural laws, may be secured. Although it must be confessed the subject is beset with difficulties, it is curious that this great object, depending on so simple a principle, has not yet been attained in the construction of houses. Many artificial means, however, are applied to rooms for this purpose with very considerable benefit; although, in the absence of a solution of the great problem of ventilation by natural means, these must be accepted as temporary though scientific makeshifts. The most

simple and efficient of these is the well-known Arnot's valve, which makes use of the chimney current as a suction power, to withdraw the foul air from the upper part of rooms. A very simple and cheap substitute for this apparatus, and which has been tried with success, is afforded by making an opening in the chimney-flue of the room, near the ceiling, "by removing (says Dr. Arnot) a single brick, and placing there a piece of wire gauze, with a light flap hanging on the inside to prevent the issue of smoke in gusty weather." This would be greatly assisted by a similar but larger opening made over the doorway. This simple remedy, which may be applied for a shilling or two, I would strongly advise the adoption of in the houses of the poor, where, from having frequently no back doors or windows, from the invariable impracticability of the upper sashes of the windows, and other malconstructions, there is the least opportunity but greatest demand for ventilation.

Removal of House Refuse.

Dustbins form very convenient means of immediate removal from houses of the vegetable and other refuse, which, without them, would be thrown out on the ground to be trodden under foot, and, undergoing decomposition, become a great source of atmospheric impurity; but they require to be frequently relieved of their accumulations or they become, as may be often witnessed, a greater source of mischief than that which they are intended to prevent. A more efficient mode of scavengering than that adopted is required, both in reference to these receptacles and to the town generally, especially of its bye-ways. That which good drainage performs in the removal of filth in a liquid form, an efficient system of scavengering should perform for the removal of house refuse, and other solid filth. What is required is a systematic plan of procedure, by which the refuse of every house, great and small, shall be promptly removed by certain regular periodical visitations of the dust cart, without waiting for any special application of the inhabitants for its removal; such applications being seldom made except under the pressure of great inconvenience, or intolerable nuisance. Such a plan of operations would be most materially assisted by the co-operation of the householders generally, in substituting (a matter of trifling expense) for the present immovable, large, and proportionably offensive dust-bin, a portable one of much smaller dimensions, with a view of being more easily, and, consequently, more frequently emptied. Such a receptacle might be made of wood, or perhaps better of iron, fitted with a lid, and with handles at the sides, which in small ones might be seized by the hand, or in larger ones (the size being proportionate to the house) a pole might be put through for conveyance to the dust cart, into which the contents could be capsized and the receptacle at once restored to its proper place. Such means (by which I think 100 houses could be relieved of their refuse in less time than 10 are by the present plan of digging, shovelling, and removal in baskets) could be easily and at once employed, to the saving of much valuable time and labour, the great convenience of householders, and the preservation of the health of the inhabitants generally.

Paving of Courts and Alleys.

The foregoing remarks are particularly applicable to the passages and

yards of courts and alleys, where, in consequence of the obstructions to ventilation and to the admission of sunlight, caused by the very close and improper arrangement of the houses, the ground and basements of the houses are almost constantly damp; where the house refuse, and often worse filth, is trodden under foot and remains to be amalgamated with the slushy soil, undisturbed by the ineffectual, or more frequently untried efforts of the scavenger; and where, as a result of these, the sanitary mischief within the houses is so much aggravated by the damp and unwholesome air without. It is essentially necessary (as I have had frequent occasion to point out in my fortnightly returns) that these places, of which there are upwards of 40 in the town, be paved throughout; a proceeding which, while forming the best and cheapest remedy for these evils, would ensure cleanliness at the smallest possible amount of labour. A bucket of water swilled over a smooth, such as a paved, surface, will effect more cleanliness than any amount of sweeping applied to an unpaved, or what is worse a *pitched* surface, as it is called; and which, it may be observed, forms one of the most ingenious contrivances for the obstruction of scavengering.

Having brought to your consideration some of the most important of the causes acting injuriously upon the health of this town, together with a summary of the proceedings which have been adopted for their removal, it remains only to shew the results of the measures adopted. It is gratifying to be able to report that, since your Board commenced operations, there has been a considerable improvement in the public health, by a diminution of mortality equal to the saving of upwards of 4 lives on an average of 10 preceding years, exclusive of cholera years, and of 25 lives on a similar average, inclusive of cholera years; and by a very considerably less amount of sickness, as evidenced by its diminution amongst the poor to the extent of 1-6th. To some these may not appear to be very great or notable results; had they been greater, however, they would have been open to distrust, inasmuch as the operation of most sanitary measures must of necessity be gradual, and require time for the development of their effects. Indeed a very considerable, perhaps the most considerable portion of the beneficial results to be anticipated from sanitarian agency will only be realized in the course of time, to be experienced by the rising generation. If it be considered how much the removal of sanitary evils is obstructed by prejudice, ignorance, *supposed* private interests, and other obstacles; and that, in most cases, such removal can only be effected by the application of remedies in detail, and often by the exercise of much patience and perseverance: and looking to the shortness of the period over which the operations of your Board have extended, the above results are as great as could have been anticipated by the most sanguine sanitarian.

In reference to the dissatisfaction expressed at the supposed great expense attendant on the carrying out of measures of sanitary reform, it is to be observed that the putting into operation a new system is no doubt attended, *pro tantó*, with additional expense, the returns for the outlay of which, although evident to the sanitarian, are not perhaps sufficiently—because not immediately—obvious to the ratepayer; the results being, as before observed, chiefly prospective, but the ultimate effect must be one of great economy. The results of the sanitary operations of last year are

sufficient to prove that these measures are such as to deserve the cordial co-operation of every one; not only of those who entertain a proper regard for their fellow creatures, but of those (and they may be assumed to constitute a great majority) who have a proper regard for themselves, whether in reference to the state of their body or their pockets. To the rate-payer in general, their economical tendency is shewn by a reference to the poor-rate: 72 per cent. of all paupers are made so by sickness. If to the sum represented by this sickness, and its attendant loss of labour, loss of wages, loss of means of future labour—health, be added the expense of resulting deaths, funeral expenses, and maintenance of orphan families, the amount of poors' rate resulting from sickness cannot be less than 3-4ths of the whole. If the rate-payer, as a practical economist, wishes to diminish the amount of poors' rate (and there can be no doubt of the desirability of that in this parish), he must first become sanitarian, and diminish the mortality and sickness of the poor. There is no other way.

To owners of houses of the labouring classes, from whom so much valuable assistance in furthering the objects of your board could be derived, it is equally a question of economy; for whatever expense they incur towards increasing the healthfulness of the houses of their tenants will be amply paid for, not by *higher* rents, but by rents *better* paid; for, as they are already too well aware, the sickness or death of the labouring man, or of some of his family, is the most frequent cause of the loss of rent which they sustain.

By every principle of humanity it must be admitted to be just to insist upon the preservation of health at the expense of wealth; for life, which possesses a very considerable monetary value, has also a value to which money cannot be entertained in relation. But, fortunately, no such sacrifice is required; for the maintenance of one is the preservation—more—the development of the other. Hence, therefore, the present system of sanitary legislation, whose primary object is the preservation of the health, strength, and energy of the people from which our armies and navies are to be recruited, our land cultivated, our commerce and civilization extended, and the general well-being of society maintained, is based (and this is, perhaps, the greatest means of ensuring its success) upon principles of the strictest economy; and it is well for mankind that it has supplanted a state of things which, admitting of the destruction of life and health by causes within human means of prevention, could only be equally reprobated by the moralist as a most inhuman one, and by the economist as a most extravagant one. It may be well to add, as, in a measure, indicative of the operation of the Metropolis Local Management Act, that I have not met with a single case of obstruction to the performance of my duties.

I have the honour to remain, Gentlemen,
Your obedient servant,

G. E. NICHOLAS,
Medical Officer of Health for Wandsworth.

4, Church Row, Wandsworth.

STREATHAM, TOOTING, & BALHAM.

Report on the Sanitary Condition of Streatham, including Tooting, and Balham, for the year 1856. *By Mr. A. Brown, Mr. W. Chapman, and Mr. F. Ward.*

TO THE BOARD OF WORKS FOR THE WANDSWORTH DISTRICT.

GENTLEMEN,

Streatham, Tooting, and Balham being one registration district, and recognised as such for all statistical purposes, it has been considered that the year's retrospect of the sanitary operations and events of the three localities might, to the saving of considerable space, be very properly included in one report. We have much pleasure, therefore, in placing before the Board the facts we have individually and collectively gathered, having reference to the subject we are called upon to discuss.

First, as to Streatham (under the sanitary superintendence of Mr. Alexander Brown), it is with pleasure stated that the improvements which have been carried out under the direction of your Board, have been attended by a very visible diminution of sickness, and a most marked decline in the rate of mortality during the past year compared with the general average. The effect of these improvements have been more particularly shown in the diminished amount of epidemic disease, such as fever, diarrhæa, scarlatina, and maladies of that class; the few cases that have occurred having been, for the most part, of a mild type and yielding more readily to treatment than formerly.

The amount of sickness and the rate of mortality amongst the union poor during 1856, was also slight in Streatham, affording, it is thought, strong evidence of the operation of very favourable sanitary influences. Of 85 cases of sickness amongst the poor coming under treatment in 1856, 5 only resulted in death, and not one of these deaths arose from zymotic disease.

In Balham and Upper Tooting (Mr. Ward's sub-district), the same favourable state of things has to be recorded. Of 54 cases of pauper sickness, 9 deaths appear to have occurred here during the past year; but, as in Streatham, not a single individual died of any disease coming under the denomination of zymotic.

In Lower Tooting (under Mr. Chapman's sanitary direction), a low rate of mortality amongst the union poor during 1856 has to be mentioned. There were in this sub-district, during the year, 106 cases of sickness amongst this class of patients, of which number 9 resulted in death, and what is a little singular, here also, not one person of the class named succumbed to epidemic disease.

In all three localities, then, the most favourable influences may be considered to have been in operation to produce such satisfactory results as have been here referred to.

The total number of deaths, from all causes and amongst all classes, in the three localities, during 1856, was 112.

In the first of the three tables subjoined is exhibited the number that have died of each class of disease; in the second is given the ages and social position of the deceased persons; and in the third is shewn the number of births that have been registered during 1856 in the three localities.

The most striking circumstance recorded in the second table is the excess of the infant mortality over that of more advanced age.

TABLE I.

Diseases.	Males.	Females.	Total.
1. Small Pox	1	..	1
2. Measles	..	..	..
3. Scarlatina and Malignant Sore Throat	1	..	1
4. Hooping Cough	2	2	4
5. Diarrhœa and Dysentery	3	2	5
6. Cholera	..	..	..
7. Fever	1	5	6
8. Erysipelas	..	..	..
9. Puerperal Fever	..	1	1
10. Lung Diseases, except Phthisis	1	14	15
11. Phthisis	3	5	8
12. Hydrocephalus, Atrophy, Scrofula, and Convulsions of Children	7	5	12
13. Other Diseases	16	31	47
14. Violence, Privation, and Premature Birth	6	6	12
Total	41	71	112

TABLE II.

Age.								Social Position.			
Under 1 Year	From 1 to 5 Years	From 5 to 10 Years	Under 20 Years, but over 10 Years	At 20, and under 40 Years of Age	At 40, and under 60 Years of Age	At 60, and under 80 Years of Age	80 Years and upwards	Nobility and Gentry	Professional Class, Merchants, Bankers, &c.	Middle and Trading Class, Shopmen, Clerks, &c.	Industrial and Labouring Classes
32	10	2	6	14	10	24	10	11	11	30	60

TABLE III.

Births during the Year ending December 31, 1856.

Sub-Districts	Males	Females	Total
Streatham, including Tooting and Balham	113	125	238

The conversion of open cesspools into waterclosets, the laying on of water, the filling up of offensive ditches, the sanitary regulations as to slaughter-houses, the construction of new drains and sewers, and the altering of defective ones, have been amongst the more important improvements which, it is considered, have largely contributed to produce the satisfactory condition of the public health in Streatham; and not only in that parish, but in an equal degree in both Tooting and Balham.

In Balham one great nuisance, that of the common sewer, open and uncovered in the greater part of its course, and called the Falcon Brook, is now, and has been for a long time past, universally complained of by the inhabitants. It is true it has been cleansed out within the twelvemonth, but its size appears to be quite inadequate to what is required of it. In a sanitary point of view it has been rendered infinitely worse of late by the construction of a barrel-drain from Clapham New Park opening into it; but which, it is hoped, will not be continued when the contemplated grand scheme of drainage shall have been completed.

In the parish of Tooting, during the past year, most important measures have been adopted for securing henceforth the general health and comfort of its inhabitants, both rich and poor.

Amongst the sanitary improvements already effected, as well as those in progress, may be enumerated. 1. The external and internal cleansing of the dwellings of the poor by whitewashing, and the periodical removal of noxious accumulations. 2. The conversion of many open cesspools into waterclosets. 3. The laying on water to many houses from the Company's mains, and the placing of large barrels, supplied from the same source, to which the poor have ready access. 4. The removal, in many instances, of swine where kept in close proximity to houses. 5. The improvement of roads and paths, although from unavoidable circumstances these are not yet completed. 6. The purification of slaughter-houses; and (more important perhaps than all these), 7. The formation and completion of the most perfect system of drainage for the whole parish, in the construction of a large oval or egg-shaped brick barrel-sewer. $3\frac{1}{2}$ feet in height by 2 feet in width, from the Broadway, Lower Tooting, to some distance beyond the church on the Mitcham road.

Communicating, as this most important sewer does, with another of a similar character, or rather being a continuation of one in Garrett Lane, and receiving, by a large pipe drain, all the sewage from the Grove on the Merton road to the Broadway; taking in all the intervening houses, and also receiving by another pipe-drain the sewage from that part of Lower Tooting between the Broadway and the commencement of Streatham parish in Upper Tooting—forms for Tooting sub-district the most perfect system of drainage possible, and must prove the most valuable means of preventing disease and of preserving and securing the general health of the inhabitants.

Into this sewer many of the houses are now, and all may be, drained hereafter, thereby removing much that is detrimental to purity of atmosphere and consequently to health. In addition to this the surface water will be carried off to the depth of from 14 to 16 feet below the ground, and thus render the village exceedingly dry. Nothing, it is considered, can be more effectual or more satisfactory than this mode of drainage.

The general health of this locality has been exceedingly good during the year, Tooting well sustaining its usual character for salubrity. There has been no serious epidemic disease, very little diarrhæa, and no typhus fever. There have occurred during the year several cases of hooping-cough, but this disease has been generally of a mild character; no fatal case resulting directly from this cause.

The following explanatory table, furnished by the Inspector of Nuisances, will give the Board much information upon the sanitary inspections of houses in the three localities, and the results of those inspections.

SANITARY INSPECTIONS, &c. in the undermentioned Sub-Districts during the year 1856.

TOOTING.	No of Houses Inspected	28		
	No. of Notices served for various Sanitary purposes		20	
	Results :—			
	No. of Notices fully complied with, and Works completed ..	..	..	12
	No. of Notices partly or imperfectly complied with	..	..	2
	No. of Notices wholly neglected, or work not commenced ..	..	..	6
	No. of Notices that have required Magisterial interference ..	..	..	..
	No. of Convictions obtained	..	..	..
	No. of Dismissals	..	..	..
BALHAM.	No. of Houses Inspected	60		
	No. of Notices served for various Sanitary purposes	..	27	
	Results :—			
	No. of Notices fully complied with, and Works completed ..	..	..	18
	No. of Notices partly or imperfectly complied with	..	..	3
	No. of Notices wholly neglected, or work not commenced ..	..	..	2
	No. of Notices that have required Magisterial interference ..	..	..	1
	No. of Convictions obtained	..	..	1
	No. of Dismissals	..	..	..
	By Board of Works under sec. 216—Met. L. M. Act	..	..	2
STREATHAM.	No. of Houses inspected	59		
	No. of Notices served for various Sanitary Purposes	..	19	
	Results :—			
	No. of Notices fully complied with, and Works completed ..	..	..	16
	No. of Notices partially or imperfectly complied with	..	..	3
	No. of Notices wholly neglected, or work not commenced ..	..	..	..
	No. of Notices that have required Magisterial interference ..	..	..	..
	No. of Convictions obtained	..	..	..
	No. of Dismissals	..	..	..
	Totals	147	66	66

It is conscientiously believed that the efforts made, and the improvements accomplished by your Board throughout our three sub-districts will prove a lasting benefit to the inhabitants, and contribute, not only to vastly promote the preservation of health, but obviate also the tendency to death.

We have the honour to be, Gentlemen,
Your very obedient Servants,

ALEXANDER BROWN,
Medical Officer of Health for Streatham.

FRANCIS WARD,
Medical Officer of Health for Balham.

WALTER CHAPMAN,
Medical Officer of Health for Tooting.

PUTNEY AND ROEHAMPTON.

Report on the Sanitary Condition of Putney and Roehampton, for the year 1856. *By Mr. R. Harland Whiteman.*

TO THE BOARD OF WORKS FOR THE WANDSWORTH DISTRICT.

GENTLEMEN,

The value of any science is usually estimated according to its tendency to promote improvement, and to secure the well-being and happiness of mankind. The science of sanitation is now only beginning to be so estimated. In its application, under the Metropolis Local Management Act, many difficulties have to be encountered, prejudices overcome, vested interests conciliated, and judgment and decision exercised upon matters keenly controverted on all sides. The Health Officer, then, whose duty it is to watch over the sanitary welfare of the locality to which he has been appointed, and to suggest measures of improvement for that locality based upon the science referred to, has need to possess a considerable share of patience, together with no little determination of purpose. The calm approval of his conscience must for a long time stand him in the place of popularity; for the measure with which he is associated cannot at present be said to be of the most popular character, nor will it, perhaps, become so, to any great extent, until a few years of patient exertion on the part of those to whom has been given the office of executing the behests of the Legislature shall have fully demonstrated its utility. Some very unsentimental, but, nevertheless, important truths have yet to be told with respect to the best means of securing the public health on a permanent and satisfactory basis; and it will now become my duty, in this report, to place these truths, so far as they concern my own sub-district, in as clear and comprehensive a manner before the Board as the space I can command will admit of.

I. NATURAL AND ACQUIRED FEATURES OF THE SUB-DISTRICT—ITS EXTENT—SOIL—DENSITY OF POPULATION—PAST AND PRESENT STATE OF HEALTH—LONGEVITY OF ITS INHABITANTS—PROGRESS OF IMPROVEMENT, &c.

In some very ancient records of the manor of Wimbledon the parish of Putney is stated to contain 94 yard-lands, or 1,410 acres, but it is described, in a survey made in the reign of Henry VII., to consist of 1,239 acres, and at a still later date (1612) of 1,630 acres. The present area, in modern statute acres, is 2,176. Although there is considerable waste land in the parish, there is much that has been brought under excellent cultivation by the market gardeners of the district. The soil is

principally sand and gravel, with here and there traces of clay. The mean elevation of the sub-district, in feet, is 12 above Trinity high water mark; and within the area above stated is comprised a portion of the River Thames.

In this sub-district the density of the population was never very great, but there is at the present day a growing desire on the part of capitalists to extend the inhabited area of the parish by building on every available space It appears that the population of the parish increased very slowly during the 17th and 18th centuries ; and, what is somewhat remarkable, that the burials from 1620 (the period at which the parish register commences) to 1789, exceeded the baptisms in almost every decennial period of which any correct records have been preserved.

The subjoined Table may not be without interest, as showing the excess of deaths over births at three of the periods to which I have referred :—

Decennial periods.	Average of Baptisms.	Average of Burials.
1620 .. 1629	23	36
1730 .. 1739	56	65
1780 .. 1789	56	69

It should be observed that there is a considerable break in the parish register, both as to the entries of baptisms and burials, between the years 1686 and 1700 ; so that it was impossible to make any accurate calculation upon the comparative state of the population at any other periods, prior to the commencement of the present century, than those referred to in the above table. As the locality was always looked upon to hold a high place among the neighbouring townships, in point of health and freedom from morbific influences, and as the plague raged here principally in 1665-6 (a year excluded from the above table), this general excess of burials over baptisms is the more extraordinary, and cannot be very satisfactorily accounted for.

The population of Putney, as ascertained in 1791, was 2,294 ; but at the last census (1851) it amounted to 5,280. For an interval of 60 years a much larger increase than this might have been reasonably looked for. During the last 10 years a very visible increase, both in the population and in the number of houses, has taken place; and the growing importance of the town, and the consequent necessity for improved sanitary regulations is now very generally admitted. At the close of the last century there were about 450 houses in Putney; but at the present time the number of dwellings is computed at above 1,000. At the last census, in 1851, the inhabited houses were ascertained to be 918 ; so that, with a population at that period of 5,280, the number of persons to each house must have been 5.75 or $5\frac{3}{4}$. In the neighbouring parish of Wandsworth it was 6.3 to each house at the same period. There appears to be a considerable preponderance of the better class of dwellings, the average annual value of houses in the parish being at the present time about £36. In several streets in the by-ways of this town, as well as in most of the courts, alleys, and *cul de sacs* leading out of the principal thoroughfare, the houses are for the most part small, closely packed, ill-ventilated, and over-tenanted, and, up to a very recent period, were most inefficiently drained, and in too many instances not drained at all. The result of this condition of the dwelling places of the poor may be readily conceived ; a

much higher rate of mortality amongst the inhabitants of these places, compared with that amongst the dwellers in the better description of streets and in the open spaces with which Putney abounds, has always appeared in the Registrar's returns, and doubtless will continue to appear so long as the class of small landlords persist in shutting their eyes to their real interests, and in refusing, when they have it in their power, to increase the pecuniary value of their property along with the moral and physical value of their tenants. I will not say that, in times gone by, we have been worse off than our neighbours as to the care of our poor; indeed I rather incline to the belief that, generally, and with few exceptions, there must have been every disposition shown by the more wealthy inhabitants to supply the indigent of this parish with home comforts. Had it been otherwise, I much question whether so many of those remarkable instances of longevity would have obtained a place amongst the ancient records of the town that are to be found there. These truly interesting documents abound in such entries as the following:—

"Elizabeth Fisher, aged 100 years, buried June 16, 1667."

"Catherine Farmer, aged 101, buried Nov. 8th, 1747."

"Sarah Watts, from the workhouse, said to be 104, buried June 18, 1766."

"Ann Williams, from the workhouse, aged 109, buried May 7, 1772."

It is true Putney does not now possess a workhouse of its own, nor any other charitable institution in which compulsory cleanliness, a well regulated diet, efficient ventilation, and other equally favourable influences are operating to promote the health and longevity of its inmates; but there are, nevertheless, a great many persons residing in the parish who give fair promise to rival in years some of those I have just named.*

But the longevity of so many of the poorer inhabitants of this district does not by any means afford the only test of its healthy character. In times of plague and pestilence the locality appears to have escaped in a remarkable manner the fatality which fell somewhat heavily on neighbouring parishes—Wandsworth on the one side, and Mortlake on the other. The burial register of Putney, as I have before stated, was not commenced until 1620, so that we possess no record of the number of

* A few months since three poor women, natives of the town, were at one time assigned to my professional care, suffering from severe personal injuries (two from dislocations, and one from fracture), whose united ages amounted to no less than 273 years, being respectively 96, 93, and 84. It is a circumstance for some congratulation that all three have now recovered from their severe injuries, and bid fair to become still more striking examples of 'Time's envious furrowings.' I have also, within the last month, been called upon in my official capacity of a District Medical Officer of the Union to visit a considerable number of the aged poor of this parish, in order to certify to their inability to attend the Board of Guardians to obtain a renewal of their relief, and being curious about the length of days of these venerable persons, I correctly ascertained and added together the ages of the first ten on my list, and found the amount to be 880 years! This number being divided by 10, will of course give an average of 88 years to each. The youngest of the ten, I may observe, is now 79 years of age, and the oldest 99. The majority of these persons are 'hale and hearty,' considering that, with one exception, they have 'fallen into the sear and yellow leaf' of more than octogenarian decrepitude. Of their age or their poverty I heard but few complaints; but many were the lamentations over their abridged powers of locomotion which had necessitated my visits, since there were but few amongst them who did not pride themselves upon being in a condition of health far too robust to need the aid of medicine.

deaths from plague prior to that year; but if a comparison were made of the burials recorded in this parish with those registered in the parishes of Mortlake and Wandsworth, of persons who are said to have died of the pestilence in the year of its greatest intensity, viz., 1665, it would be seen that the disease was much less fatal in Putney than in either of the last-named parishes. Upon the authority of a local historian of the last century, who appears to have well analysed the parochial records of most of the suburban districts south of the Thames, it has been recorded that, in the year 1665, the ravages of the plague were 'very great' at Mortlake, greater even than at Wandsworth, relatively to the population of the two parishes. In the above year there are entries of 197 burials in the Mortlake register, or about 170 more than the average of that period. In the months of September and October alone there were 122 burials in this small parish, sometimes seven in one day! In the same year, the number of registered burials of persons dying of the plague in Putney, was only 74 during the entire twelve months.

Of the two parishes, Putney and Mortlake, it is pretty certain that the former always possessed the largest population, and it must be presumed that the intercommunication between London and Putney, at the period to which I have referred, was much more frequent than between London and Mortlake, since the road between the former places was always looked upon as a very considerable thoroughfare. This being the case, the *a priori* inference is, that the pestilence, but for the more healthy influences prevailing in Putney, would have spread much more rapidly in this parish than in Mortlake; or that, at all events, there would have been concurrent circumstances favouring the evolution and propagation of the disease in an equal degree in both parishes, seeing that they both border the river Thames. At each outbreak of the modern pestilence, cholera, within the present century, the intimate relation existing between the activity of the disease and the proximity of cities and towns to rivers has been most marked. Hamburgh and the river Elbe, Berlin and the river Spree, and in this country, Hull and the river Humber, are familiar instances of this fact. Hamburgh is intersected by numerous canals, and where these canals concentrate and pour into the Elbe the excreta of 175,000 people, the cholera is said to have raged so violently in 1832 as to destroy, on the authority of Mr. Grainger, 3·01 per cent. of the inhabitants. Whether the closer proximity of Mortlake to the river than the greater part of Putney, and the difference in the elevation of the two parishes, can have had any influence in producing this disparity in the death-rates from plague, I am unable to determine, but certain it is the latter did escape in a remarkable manner the fatality which fell so heavily on the former; and it is not a little singular that the number of victims carried off by the pestilence in the contiguous parishes of Putney and Barnes should have been so few, whilst at the same period the population of the water-side districts, on both sides of them, was being literally decimated by the disease.*

* Notwithstanding the comparatively small fatality from plague in Putney, it would seem, if we are to believe the following very curious item in the parish accounts, that but few, if any, of its inhabitants escaped attacks of the disease of greater or less severity.

"1625.—Paid to Commynge, for his charges going to London to get two women to come up to keep the sicke, the people being *all* sicke, 2*s*. 6*d*."

It was a lamentable state of things, assuredly, to have *all* the people sick, and if this

The plague, like some few other diseases which formerly ravaged this country and decimated the population, apparently unchecked by the intervention of man, is now, happily, only known historically; but cholera, that strange product of still stranger oriental influences, has fallen upon us on two or three occasions within the last century with a suddenness and force that has severely tested the victory which it had been fondly hoped advancing civilization had obtained over all such deplorable visitations. From our resolution to combat the very approach of this new foe; from our determination to present as many barriers as science could possibly devise against its repeated invasions—limited as were sometimes the means placed at the disposal of those who were appointed to do actual battle with the enemy—the best results were often known to spring; and one can hardly conceive any but the most prejudiced or the most ignorant clinging, in this enlightened age, to the notion that the calamitous results of human error and social ignorance in superstitious times, had been the inevitable inflictions of Providence, aud that therefore in all future epidemics it would be wiser and better to suffer every baneful influence to exert itself upon the population unheeded and unopposed.

Severe as was the infliction of cholera upon its invasion of the Wandsworth District in 1848-9, it progressively underwent a remarkable decrease, as well in the number of persons affected as in the intensity of the affection itself, and upon its subsequent visitation in 1854, nothing could be more manifest than that the experience gained in both the medical and hygienic treatment of the disease had placed a barrier to its progress beyond certain limits, which, there is every reason to believe it would have transgressed but for the promulgation of better sanitary regulations, the regard paid to the removal of nuisances, and the adoption of more effective preventive measures in the interval.

were literally true, and not a mere figure of speech, we can scarcely wonder at the unceremonious manner in which the survivors disposed of their deceased fellow-townsfolk.

"1625.—Paid the carpenters for a *barrow* to carry the people who died of the sicknesse to church to bury them, 5*s*. 0*d*."

The sanitary regulations of these periods were often, however, of a very stringent character, and certainly were somewhat in advance of the age as measures of precaution against the spread of disease. Amongst some MS. papers in the Palace Library at Lambeth, is the copy of an order which would not have disgraced a modern sanitary board. Divesting this document of its quaint verbiage, it orders, "That the houses of such persons as could not be conveniently sent to the pest-houses should be shut up and guarded by a warden, a red cross being affixed to the door; that if any person was required to keep within an infected house should go abroad, he or she should be immediately apprehended and sent to the pest-house, not being suffered to return to his own dwelling; that when a visited house was opened a white cross should be affixed to the door, with a bill in writing signifying how long it was since the last person died there, which writing should remain 40 days, during which time the goods and rooms should be aired and fumed with brimstone and other wholesome fumes; that the churchwardens of each parish should take care to cover their churchyards with unslaked lime 12 inches thick, and the like quantity of gravel to prevent noxious vapours from exhaling; and that the wardens attending visited houses should warn passengers not to approach too near."

In addition to these measures, there were very great restrictions placed on the diet of the sick, and severe punishment awarded to drunkards. We must do our ancestors the justice then to believe that they were fully alive to the necessity of adopting very stringent measures against this dreaded pestilence. If some of these measures were not over scientific, they were, at least, singularly practical, and as such, claim our admiration, seeing that they were put in force in an age noted rather for its superstition than its philpsophy.

Like the plague of the 17th century, the cholera of the present was happily (more especially in 1848-9), much less fatal in Putney than it was in any other sub-district within the Union. Nor is this difference to be entirely accounted for by the difference in the amount of population, as will be readily seen by a reference to the subjoined table.

Sub-districts.	Population, 1841.	Deaths from Cholera in 60 Weeks, ending Nov. 24th. 1849.	Ratio of Deaths in 10,000 Inhabitants.
Clapham	12,106	120	99
Streatham, including Tooting and Balham	8,834	160	182
Wandsworth	7,614	105	137
Battersea	6,617	117	175
Putney	4,684	8	17

The insertion of this table, constructed from authentic data, furnished by Mr. Grainger, to the Board of Health, gives me a very fair opportunity of congratulating the inhabitants of Putney upon the high sanitary position which their sub-district maintained during a period of one of the most serious epidemic invasions of modern times. Had, however, the result of this calculation been the reverse of what it is, it would have been equally my duty to have stated the circumstance, and it is therefore I desire to be understood as not by any means straining my statistics in order to elevate my own locality at the expense of others. I state facts as I find them, and I am of course better pleased when those facts are favourable rather than unfavourable to the sub-district in which I must necessarily take an especial interest.

II. Statistics of Sickness and Mortality, bearing upon the Sanitary Condition of the Sub-district.

The duties devolving upon Medical Officers of Health may be said to supply a continued stream of statistical information—information, the utility of which rests chiefly upon the facilities it affords for practical deductions. That the passage from facts to deductions is generally a very perilous one I am fully aware, and I am equally sensible of the danger of regarding inferences or assumptions from facts as part of the facts themselves; but, inasmuch as facts without deductions would, in sanitary matters especially, be comparatively worthless, it is well that this path should be occasionally traversed, if it be only to mark the progress of the science of preventive medicine, and to make manifest the improvements actually realised through the application of that science.

First then, as to the mortality of the sub-district. During the year 1856, 92 persons, equally divided as to sex, died from all causes in Putney; 13 from zymotic diseases, 18 from lung diseases, exclusive of phthisis, 9 of phthisis, 11 of hydrocephalus, atrophy, scrofula, and convulsions of children, 35 from all other diseases, and 6 of violence, privation, and premature birth.

5 of the persons who died were of the age of 80 years and upwards, 18 between 60 and 80, 15 between 40 and 60, 9 between 20 and 40, and 45 under 20 years, of which latter 28 were infants under 1 year.

The social position of the deceased persons may be thus stated:—
Of the families of the nobility or gentry, 7; of the professional and merchant classes, 4; of the middle or trading classes, including shopmen, clerks, &c., 25; of the industrial and labouring classes, 56.

In the 10 years preceding 1856, the average number of registered deaths in this parish was 89, which, if raised for increase of population, becomes 97. The number of persons then who died during the past year being 92, it follows that there were less deaths by 5 than would have taken place had the average rate of mortality still prevailed. This statistical result indicates a slight improvement in the public health of the sub-district. According to the report of the Registrar General for 1850 (a year I have fixed upon for the purposes of comparison, by reason of its having been one highly favourable to health), 93 deaths took place in Putney, or one more than occurred in 1856, notwithstanding the increase of population of a five year's interval. In 1850 the births numbered 163, giving an excess over deaths of 70. In 1856 the excess of births over deaths was 82, the former numbering 174.

A result very favourable to this sub-district will also be shewn by comparing the mortality of Putney during 1856 with that of the entire Wandsworth District in the same period. The population of the entire district at the census of 1851, was 50,764; that of Putney, including Roehampton, at the same census, was 5,280. The deaths registered in 1856, in the entire district, numbered 1,125, but in Putney, as I before stated, the mortality of the year was 92. It is clear, therefore, that if the ratio of mortality of the two be compared, a considerable difference will be shewn in favour of the latter, the proportion being in the one case (in round numbers), 22 in 1,000 persons living at the time of the census of 1851, and in the other only 17 in 1,000. A similar comparison made between the whole of the metropolis within the bills of mortality and the parish of Putney, gives the still greater difference in the ratio per 1,000 as indicated by the difference between 24 and 17.*

On referring back to the brief summary of mortality given at the commencement of this section of my report, it will be seen that the diseases termed zymotic proved fatal in this parish in comparatively few instances in 1856, 13 deaths being the number registered from six of the principal maladies of this class during the year (*vide* Table 2 Appendix). It should be remarked that the majority of these deaths, or 7 out of the 13, resulted from hooping-cough alone, that disease having been epidemic for several months in almost all the sub-districts. In reviewing the mortality returns of the Registrar-General, having especial reference to zymotic diseases, I am enabled to place on record the very gratifying fact that this sub-district has of late enjoyed a singular freedom from epidemic influences, and that not one fatal case of small-pox, measles, or scarlatina was registered during

* The results of this calculation would be somewhat different if the numbers of deaths in each instance were raised in proportion to the assumed increase of population since the census of 1851. In the first comparison, for example, the ratio of deaths would be about 19 in 1,000 upon the present assumed population of the entire Wandsworth District, and 16 in 1,000 upon the present assumed population of Putney, making a difference of 3 in 1,000 in favour of the latter. Upon a similar correction being made in the other comparison, there would, I calculate, be still about the same difference of 7 in 1,000 in favour of Putney.

1856. There is one other fact which I feel bound to mention in connection with the subject now under notice, quite as gratifying as any to which I have yet alluded, and that is the decreasing proportion of industrial and labouring persons who yearly succumb to disease in this sub-district. Some few years ago, with a view to the completion of a popular lecture on the subject of Sanitary Reform, which I have since published and presented to the Board of Works, I carefully analysed the register of mortality of this parish for 1844, at which time I found the number of deaths to be 89. In the subjoined table is shown the relative proportions of the three classes of deceased persons in the year referred to, contrasted with those who died in 1856.

Classes.	Deaths in 1844.	Deaths in 1856.
Amongst the families of the Gentry and Professional Men	11	11
Amongst Tradespeople	12	25
Amongst the Labouring Classes ..	66	56
	89	92

It will be perceived by the foregoing table that, although the majority of deaths in 1856 is still on the side of the poor, it is not by any means so great a one as it was in 1844. In making allowances for the increase of population in the interval between 1844 and 1856, we may, I think, with safety assume that the industrious poor and the pauper classes have increased to a much greater extent than have the classes above them. If this be the case, the decrease of deaths amongst the poor, from 66 to 56, as shown in the above table, must be looked upon as being much more favourable to that class than at first sight appears.

If we duly estimate the amount of sickness and the rate of mortality for 1856, amongst our pauper population exclusively, a state of things very favourable to this parish will be made manifest. Out of 520 cases of sickness amongst the Union poor which came under my treatment in this parish during the year, only 22, or slightly above 4 per cent., terminated fatally.

These statistical calculations and comments could of course be greatly extended did space permit; but since I have in my preliminary report and accompanying printed address, "On the Moral and Physical Evils resulting from a Neglect of Sanitary Measures," entered at some length into the discussion of similar topics, it will, I trust, be considered that I have here advanced sufficient to give an affirmative to the question—Has the health of this sub-district been improved, and its mortality in any degree lessened, by the measures which have been carried out during the past year, under the authority of your honourable Board? That some good influences have been at work to produce the state of things to which I have here referred, apart from the accidental ones of genial seasons and seasons of general prosperity, I cannot entertain the slightest doubt. What those influences have really been will perhaps become more apparent as I proceed in my review of the sanitary operations and events of the past year.

III. Sanitary Inspections, &c., during the Year—Remedies Suggested and Applied to Remove the Evils Disclosed—Importance of Drainage, the Abolition of Cesspools, and an Abundant Supply of Pure Water.

It would far exceed the limits of my report to discuss in detail every known or supposed cause of the deterioration of the public health in this sub-district; nor is there, perhaps, so great a necessity for me to do so as in the cases of some of my colleagues, seeing that I have already, in the published pamphlet before alluded to, fully expressed my views upon over-crowding, defective ventilation, and other kindred topics.* The mere enumeration of many of the evils disclosed by the sanitary inspections, the details of which have from time to time been laid before the Board in my fortnightly reports, and by the Inspector of Nuisances, has alone, I have reason to believe, served to suggest the appropriate remedies.

Excluding the details of the examination of slaughter-houses, which have already formed the subject of a special report from each of the Health Officers, the subjoined table will show at one view what has been accomplished towards improving the general sanitary condition of the parish during the past year:—

Sanitary Inspections and Improvements effected during the year 1856.

Number of Houses inspected.	Number of Notices served.		Cesspools emptied.	Cesspools filled up.	Cesspools connected with Sewer.	Closets panned and trapped.	Water supplied.	Dustbins provided.
	1st.	2nd.						
201	56	8	94	45	30	83	40	50
	64							

Besides the above, many minor nuisances have been removed by the vigilance of the Inspector, and some considerable pains have been taken by myself, by friendly admonitions, to secure the cordial co-operation of the parties most concerned in the success of the measures which it has been found necessary to adopt. In many instances I have succeeded beyond my expectations; and in the matter of ventilation, in the lower class of dwellings, it is not a little gratifying to find that many of the poor, to whom I had endeavoured to explain the principles upon which a due supply of air ought to be secured to their close rooms and confined dormitories, have, as far as seemed within their power, attended to my recommendations; and perforated plates, judiciously inserted as ventilators, are now to be seen in cottages where before every possible contrivance had been resorted to to exclude rather than admit that essential element

* Overcrowding, though not observed to so great an extent as formerly, still goes on in this sub-district to a degree far beyond what ought to be allowed. I had, a short time since, a patient in a cottage, or rather hovel on the Lower Common, containing one room about 12 feet by 8, in which a dozen persons were in the habit of sleeping and eating, though that they should be able to eat under such circumstances was to me a marvel. The stench on entering was sometimes most sickening. I had prepared a lengthened table relating to the subject of overcrowding, but find my space will not admit of its insertion.

of health, to the deficiency or want of which many a patient, with a strumous, consumptive, or cachectic taint has prematurely succumbed. No one can better comprehend the deteriorating influences at work about the dwelling places of the poor than he who, in his official capacity, has to treat the diseases to which those influences but too frequently give rise; and no one, therefore, can be placed in a better position than he to remedy, by his teachings, many of those evils which, but for a little pains-taking in that direction, it would, there is no doubt, become the work of years to remove by the ordinary modes of proceeding. With a strong sense of the responsibility attaching to the office I have undertaken, I could have desired the opportunity of placing before the Board the results of some inquiries and experiments I have instituted into the best means of ventilating dwellings; but my space admonishes me to be brief, and I must, therefore, reserving this and some other topics for discussion in future reports, turn to the next subject of importance upon which it behoves me to express my views.

The adoption of complete and effective drainage and sewerage, and the total abolition of cesspools, which there is now so fair a prospect of seeing realized in this sub-district, are measures the necessity for which nothing can better or more clearly demonstrate than a consideration of the effects which the defective system hitherto in force has had upon many of the drinking waters in the neighbourhood. Next to pure air, pure water, and an abundance of it, is the great desideratum; the want of it, and the impurity of it, the too evident cause of much disease and great demoralization. To detail one half of the evils consequent upon a defective or an impure supply of this indispensable element, would necessitate a special report. Without water, apart from its value as a beverage and for cooking purposes, we can have neither drainage nor sewerage properly or efficiently carried out, and without both of these it is next to impossible to secure to the labouring poor, who are always the greatest sufferers from these social evils, either decent homes or the means of rendering them so. Nine years ago, when my attention was first directed to the sanitary condition and requirements of this parish, I publicly expressed an opinion, and I here repeat it, that "from the liability of the water, in many of the localities in which the poor reside, to become contaminated by the percolation of the contents of the numerous cesspools in the vicinity of the wells, that the use of such fluid filth for drinking and for cooking purposes is a fruitful source of disease; and it is a very great question with me whether it will not one day or other be demonstrated, that the drinking of such impure water gives rise to cholera in too many instances, and possibly to many other diseases of which we at present know not the origin." Since these remarks were made, Dr. Snow has most minutely investigated the supposed influence of polluted water in the production of cholera; and, resting his conclusions upon a very large basis of facts, has avowed his opinion to be, that much of the mortality from cholera everywhere resulted from the drinking of water contaminated by the percolation into it of the contents of approximating cesspools. He instances, more particularly, the outbreak in Soho, in 1854, and its too evident connection with the consumption of impure water from a pump in Broad Street; and states it as his belief, that "every case is caused by swallowing the peculiar poison or morbid matter of cholera, which has proceeded from a

previous patient sick of the same malady," water being the principal, but not the only medium through which that morbid matter is conveyed into the system. Mr. Simon has still more recently published some extraordinary facts bearing upon this interesting subject. He states, as the result of some investigations made in 1853-4, that "in 24,854 houses supplied by the Lambeth Company, comprising a population of about 166,906 persons, there occurred 611 cholera deaths, being at the rate of 37 to every 10,000 living. In 39,726 houses, supplied by the Southwark and Vauxhall Company, comprising a population of about 268,171 persons, there occurred 3,476 deaths, being at the rate of 130 to every 10,000 living. The population drinking dirty water accordingly appears to have suffered $3\frac{1}{2}$ times as much mortality as the population drinking other water." It is necessary to state that, at the time to which Mr. Simon alludes, the Lambeth Company drew its supply, as now, from Thames Ditton, whilst the Southwark and Vauxhall supplied its customers with water from the river at Chelsea—a most impure source compared with that of Thames Ditton, because, to use the expressive words of Mr. Simon, "the larger population and more extended drainage of London had given it a denser *infusion of sewage*, and a more revolting unfitness for drink." What better confirmation of my long entertained suspicions could I obtain than the above facts?

Although much of the well water in this sub-district is pure and wholesome, compared with that which several of my colleagues have given me to understand is obtainable by the inhabitants of some of the neighbouring parishes, there is a good deal that is most decidedly bad, and some that is quite unfit for drink or to be used for culinary purposes. In 1854 Dr. Hassall kindly examined with me many of the well and other waters of this parish, and the results of both the microscopical and chemical investigations then made have since been published in the general report on the cholera epidemic of 1854, laid before Parliament by the Board of Health."

I have lately resumed my inquiries into this most important subject, and have been led to the conclusion that but a very slight improvement has taken place in the waters of those wells which were in 1854 found to be so largely contaminated with both organic and inorganic impurities, and to be literally teeming with infusorial life. My recent examination by the microscope of several specimens obtained from the same pumps as in 1854 disclosed (though in a less degree in some instances), the same disgusting traces of living and dead organic matter which have been so graphically described in the report alluded to. It should be observed, however, that my late examinations were not made at the same period of the year as were the former ones, and this sufficiently accounts for my not having observed some of the infusorial developments so abundant in the waters examined in 1854. I am still pursuing these investigations, and hope to have opportunities of placing the results before the Board.

The following extracts from the report referred to relate to three specimens of water procured from different parts of the parish at the time of the last outbreak of cholera.

"No. 6.—From Pump in *Cock's Buildings, Putney*—Collected 8th October, 1854, by Dr. Hassall and Mr. Whiteman.

"This water, during the prevalence of cholera in Putney, was of a decided green colour, as was observed by the inhabitants of the many houses supplied by it; this appearance had gone off somewhat at the period when the specimen was obtained, at which time cholera was also on the decline, but still it was of a greenish hue, as was clearly seen when the water was poured out into a glass tumbler; scarcely any sediment was deposited, and there was discovered, in the little that was thrown down, four or five oxytrichæ, one or two paramecia, masses and threads of the spiral vibrio, which exhibits a dotted appearance at each turn of the spire, and rather many monads. This water, from its appearance and from the account given of it, was evidently contaminated by percolation from a neighbouring cesspool, and the principal part of the organic matter present was in the fluid state, and in the form of nitrates. See Dr. Thomson's analysis."

"No. 7.—From Pump in *Price's Folly, Putney*.—Collected 8th October, 1854, by Dr. Hassall and Mr. Whiteman.

This water resembled the preceding in colour and appearance, but was still deeper; the source of contamination was also the same, namely, a neighbouring cesspool. Very little sediment was deposited, enough only to be just visible to the naked eye, in a thin glass cell; it contained a considerable number of actinophrydes, some of the spiral vibriones before referred to, a few euglenæ, one or two small paramecia, a few small sporules and threads of fungus, and eight or ten frustules of different diatomaceæ, including navicula and gomphonema; lastly, there were a few green circular sporules aggregated into little masses, and motionless. See Dr. Thomson's analysis."

"No. 8.—From Pump at 19, *Stratford Grove, Putney*.—Collected 8th October, 1854, by Dr. Hassall and Mr. Whiteman.

"This water was coloured like the others, but the people of the house from which it was procured fancied that it was contaminated by leakage from a gas-pipe, which, however is some distance away from it, nevertheless there is much reason to believe that the explanation given is correct, as there is no cesspool near, and as the water was always good until the gas-pipe was laid down. The sediment deposited was scarcely perceptible, and in it a few monads, vibriones, and sporules of fungus only were discovered."

A subsequent examination of the last-named water from Stratford Grove, presented to my view under the microscope no trace of vibriones, but rather many monads, and some few paramecia. Upon the whole this water appeared to have undergone considerable improvement.

The specimens I obtained from Cock's Buildings and Price's Folly exhibited none of the threads of the spiral vibrio referred to by Dr. Hassall, but there were a great many infusoria, and much decaying animal and vegetable tissue in both. The green tint was not so great in the former water, and in the latter it was observable only to a very trifling extent.

I have lately examined some water obtained from another well in Cock's Buildings, situated a short distance from that from which the former specimen (No. 6), was pumped in 1854. When brought to me by the inspector it was dull and opalescent, and of a decided yellowish green tinge. The deposit after standing 24 hours was considerable, and upon submitting some of this to the microscope, I discovered several paramecia, a few euglenæ, and many monads. There were also seen a number of fragments of decaying vegetable tissue, and of dead organic matter. This water was evidently contaminated by percolation from a neighbouring cesspool. The people living in the neighbourhood have assured me that until a large cesspool was dug in the garden of the last house in Cock's Buildings to receive the contents of all the closets in the row, the water of this pump was very good, but that now they are obliged to give up

drinking it on account of its bad smell and very visible impurity. There has not been time for a chemical analysis of this specimen, but there is little doubt its total amount of impurity will be found nearly as high as that of the specimen before referred to. The drainage now in progress here will be a very great boon to the inhabitants.

The results obtainable from a chemical examination of these same waters, supplied by me in 1854, to Dr. R. D. Thompson, who kindly undertook the analysis, will be best understood by a table contrasting their impurities with those of other waters of the metropolis examined in the same year.

Table exhibiting the Degrees or Grains per Gallon of Impurity of certain Metropolitan Well Waters—Distilled water being taken as 0.

Date.	Situation of Wells.	Total Impurity in Degrees or Total Residue in Grains.	Organic Matter and Nitric Acid.
January 18, 1854 ..	Aldgate pump	49°10	13°94
February, 1854	Ditto	44·64	6·30
March, 1854	St. Thomas's pump.....	89·70	10·40
May 15, 1854.....	Camberwell	62·67	10·69
November 25, 1854..	Ditto	48·72	7·26
July 20, 1854	Blackheath	28·00	
September, 1854....	Broad Street, Soho.....	92·06	7·80
,, ,,	Buckingham Palace.....	59·00	8·08
,, ,,	Charing Cross Artesian well, supplied at Buckingham Palace	56·04	2·12
November, 1854....	Putney, Cock's Buildings	180·40	16·00
,, ,,	,, Price's Folly	101·30	14·00
,, ,,	,, Stratford Grove.....	67·20	14·80

By a mere glance at this table it will be readily conceded that I had no slight grounds for adhering to the opinion I formed several years ago, that the exceedingly impure water of Cock's Buildings, Price's Folly, and other places, had much to do, if not with the production, certainly with the aggravation of many of the cases of cholera which fell under my notice at that period amongst the inhabitants of these cesspool-polluted neighbourhoods.

Several cases of cholera of the severest character occurred in both the above named localities, as well in 1848-9 as in 1854.

It has been stated on good authority that from a calculation made on the basis of the last census, there are in London 300,000 cesspools, whose contents form an exhaling surface of 2,700,000 feet, nearly 62 acres, or 17,550,000 cubic feet." This, in the words of my authority, "is equal to one enormous elongated stagnant cesspool 10 miles in length, 50 feet in width, and 6 feet 6 inches in depth, which would extend through London, from the Broadway at Hammersmith to Bow Bridge, over the river Lea—a distance of 10 miles. If such a gigantic cesspool of filth were to be seen it would fill the mind with horror; but as it is shown above, a vast number of small ones, which added together equal it in extent, is dotted all over the town ; in fact, it may be said that the ground, in old districts more particularly, is literally honeycombed with these barbarous things."

In the grounds attached to some large mansions in this town cesspools

have been discovered in considerable numbers, but these disgusting make-shifts for effective sewerage do literally "honeycombe" some of the poorer localities—not alone in this parish, but throughout the entire district. No one can feel surprised then, at the wells of such neighbourhoods becoming contaminated by percolation; the wonder is that many of these wells have so long escaped becoming cesspools themselves in every sense of the term. When pumps are known to abut on the very walls of constantly overflowing privies, and one cesspool after another to be dug around to receive the contents of these places, for any one to contend that it is not expedient to provide drainage and sewerage for such neighbourhoods is something inconceivable. It has already been shown that this sub-district has generally escaped in a remarkable manner the high rate of mortality usually attendant upon the presence of cholera, fever, and other diseases of the zymotic character. But maladies of this class do nevertheless occur here, and that with a frequency and intensity which ought by no means to furnish us with an excuse for shutting our eyes to the causes of their invasion. It is not so much a question as to how frequently these maladies make their appearance, as upon what localities and upon what description of people they fall the heaviest when they do invade us. The subjoined table may, perhaps, furnish some little information upon the point, worthy the contemplation of those who may be sceptical in the matter of influences arising from defective or absent drainage.

Comparative Mortality from Six of the principal Diseases of the Zymotic Class, in the well drained, partially drained, and undrained localities of Putney, during 1856.

Localities.	Small Pox.	Measles.	Scarlet Fever.	Hooping Cough.	Diarrhœa.	Fever, Typhus, and Typhoid.	Totals.
Well drained	—	—	—	1	—	—	1
Partially drained..	—	—	—	2	—	—	2
Undrained	—	—	—	4	3	3	10
Totals ...	—	—	—	7	3	3	13

The figurative language applied by the eccentric Carlyle to another and a very different social evil, might, I think, with some justice be literally applied to the one we are now considering. "In all thoroughfares," says this vigorous writer, "and in all arenas and physical departments of existence, *running water and Herculean scavengerism* have become indispensable, unless the poor man is to choke in his own exuviæ, and die the sorrowfulest of deaths." And yet has it not been fully proved, upon most unquestionable authority, that not only the poor man, but frequently the rich one, swallows in his daily beverage literally the outscourings of the locality in which he resides?—a fluid which, to use the words of Mr. Simon, is to be found "swarming with infusorial life, and containing unmistakable molecules of excrement?"

There is, unfortunately, no disputing the fact, that most of the water now supplied by the companies, though obtained from much purer sources than formerly, is still contaminated with both organic and inorganic

matter to an extent highly injurious to the public health.* If we add to this its liability to become still further impregnated with deleterious substances, by being made to traverse leaden pipes, and by being received into cisterns of the same metal, where it is generally mixed with all kinds of other impurities, "the case," says Dr. Hassall, "is proved against the whole of the present supplies of the metropolis." This is an unfortunate state of things; and the difficulties which beset the question of a thoroughly good supply of drinking water to the inhabitants are exceedingly great--so great, indeed, as to lead one almost to despair of ever witnessing a satisfactory solution of it. By good and very general drainage, however, the evil may be considerably lessened, so far, at least, as the the well waters of the district are concerned; since the great mass of cesspools would be ultimately got rid of, and there would then be all the less danger of contamination by percolation from these filthy and disgusting receptacles. Drainage, indeed, may be said, and most truly said, to be the *summum bonum* of all efforts of sanitary legislation—the basis upon which every other measure of social improvement must necessarily be built; and the earnest hope of your Medical Officers of Health is, that the far-reaching views of those members of your Board (and there are several such upon it), whose profession it is to devise means to overcome engineering difficulties, will shortly be brought to bear upon the realization of this great sanitary desideratum.

I have now closed my remarks upon the general topics which I had set myself to discuss in this report; but there occur to me several others upon which I could have wished to have said a few words had my space permitted me, and amongst the rest upon the adulteration of food. But here, as it seems to me, we are beset with difficulties, the greatest of them being the want of sufficient legal powers to deal with these frauds as they ought to be dealt with when detected. I am deputed to say that your Medical Officers of Health are prepared to give their best attention to this matter, and that they will, in compliance with the expressed wish of the Board, ere long report on one branch of the subject, viz., the sophistications practised in the making of bread.

Conclusion.

In speaking of the creation by the Legislature of the new order of medical men (the Health Officers of the Metropolis), a high sanitary authority remarks, "There is abundant work before them, and such work as must show results if it is well done. The mortality tables of the Registrar General will be a certain tell-tale of their exertions."

It is not presumed that the deductions which your sanitary staff have ventured to draw from the statistical data supplied by the Registrar General, and embodied in the Tables inserted in the subjoined Appendix, are the soundest that could be derived from such data; nor is it thought that other and more just conclusions may not be arrived at by those who may be disposed to apply the test or "tell-tale" indicated above; but there will, it is considered, be this advantage in the publication and circu-

* The mean permanent hardness of the Southwark and Vauxhall Company's water, at the works at Hampton, is 7.07; its total solid residue, 0.313; its saline constituents, 0 293. In passing through the pipes to long distances it appears to gain somewhat in hardness, but lose in solid and saline constituents.

lation of the reports and accompanying statistics amongst those more immediately interested in the matters to which they relate, viz., that every member of the Board, as well as every individual contributor to the expenses of carrying out the provisions of the Act of Parliament, will have an opportunity of forming his own conclusions from the same facts, and hence be in a better position to promote inquiry, to eliminate truth, and to assist in the accomplishment of such practical measures as may be really needed for the advancement of the public health of this important and extensive district.

Gentlemen, judging from the large decrease in the number of deaths in the entire district during 1856, as shown upon a comparison with the corrected average of the ten previous years (see Table I., Appendix), the progress we are making in sanitary improvements cannot be trifling. The question still to be solved is, can we further reduce our death-rate by continuing in the course so auspiciously commenced? The zero of the death scale of that able statician, Dr. Farr, is, I believe, 1 in 1.000. In my own sub-district this is nearly the position now attained. If we relax not in our exertions, who shall say how soon we may be able to exhibit an equally favourable register in respect to the entire district? May the report conveying the realization of so desirable a result of our labours be ere long written and presented!

I have the honour to be, Gentlemen,
Your very obedient servant,

R. HARLAND WHITEMAN,
Medical Officer of Health for Putney, and Chairman, &c., of the Associated Health Officers of the Wandsworth District.

High Street, Putney, March, 1857.

APPENDIX

OF

STATISTICAL TABLES.

TABLE I.

Showing the Number of Births and Deaths in the entire Wandsworth District, in the corresponding quarters of the two years 1855 and 1856: also the average mortality of the previous ten years, compared with that of 1856.

	Births.		Deaths.		Death rate of 1855. Raised for increase of Population.	Decrease of Deaths in 1856, compared with 1855.
	1855	1856	1855	1856		
1st Quarter ending last day of March	498	497	384	289		
2nd Quarter ending last day of June..	456	439	291	296		
3rd Quarter ending last day of Sept...	424	445	223	246		
4th Quarter ending last day of Dec. ..	426	426	246	312		
Total.....	1804	1807	1144	1143	1258	115

Deaths registered in the ten years, viz.:

1846	1847	1848	1849	1850	1851	1852	1853	1854	1855
939	873	999	1526	963	1016	1114	1148	1732	1144

Average of the above ten years	1145
Average of the above ten years, raised for increase of Population ..	1259
Deaths in 1856	1143
Decrease of Deaths in favour of 1856	116

TABLE II.

Showing the Deaths from six of the principal Zymotic Diseases in each of the Sub-districts during the year 1856.

	Small Pox.	Measles.	Scarlatina.	Hooping Cough.	Diarrhœa.	Typhus.	Total.
Clapham	1	15	8	4	5	6	39
Battersea	1	9	7	8	12	8	45
Wandsworth.....	9	3	3	13	4	12	44
Putney and Roehampton....	..	..	..	7	3	3	13
Streatham, including Tooting, and Balham	2	..	1	4	4	4	15
Total	13	27	19	36	28	33	156

TABLE 3.

CASES OF SICKNESS amongst the POOR under the Treatment of the Union Medical Officers, with the DEATHS from each Class of Disease, during the year ending December 31st, 1856. Compiled from the District Medical Relief Books.

SUB-DISTRICTS.	Total Cases of Sickness treated in each Sub-District.	1 Small Pox.		2 Measles.		3 Scarlatina and Malignant Sore Throat.		4 Hooping Cough.		5 Diarrhœa and Dysentery.		6 Cholera.		7 Fever.		8 Erysipelas.		9 Puerperal Fever.		10 Lung Diseases except Phthisis.		11 Phthisis.		12 Hydrocephalus, Atrophy, Scrofula and Convulsions of Children.		13 Other Diseases.		14 Violence, Privation, and Premature Birth.		Total Deaths in each Sub-District.
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Clapham....	1133	6	2	85	2	10	1	..	..	112	2	..	..	53	4	6	..	..	..	161	4	19	9	8	3	614	13	59	..	40
Wandsworth	1327	61	2	38	3	23	..	32	4	156	..	..	..	62	1	19	1	1	1	81	..	18	9	22	5	814	17	..	..	43
Battersea ..	977	17	..	61	1	36	1	33	1	70	..	2	..	2	1	8	..	..	..	121	2	7	1	7	1	573	19	40	..	27
Putney	520	..	..	..	..	4	..	30	3	88	2	..	..	27	2	1	..	..	..	28	2	4	4	13	2	289	5	36	2	22
Streatham ..	85	2	..	5	..	1	..	6	..	8	..	..	..	7	..	..	..	..	..	3	..	1	..	7	1	35	4	10	..	5
Tooting	106	..	..	1	..	1	..	..	..	13	..	..	..	4	..	..	..	..	..	23	1	5	..	..	..	53	7	6	1	9
Balham	54	..	..	..	..	..	..	..	..	7	..	..	..	1	.	2	..	..	..	7	..	3	3	..	..	33	5	1	1	9
Totals ..	4202	86	4	190	6	75	2	101	8	454	4	2	..	156	8	36	1	1	1	424	9	57	26	57	12	2411	70	152	4	155

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