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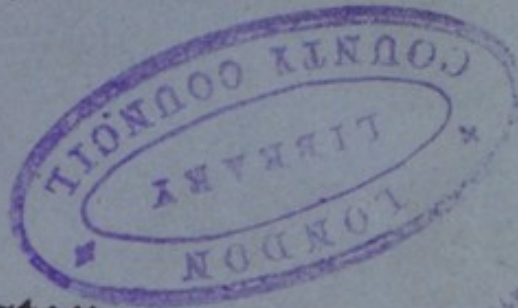
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Paddington.

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SANITARY REPORT

FOR THE YEAR

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Paddington.

SANITARY REPORT

FOR THE YEAR

1856.

BY

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WASHINGTON

OFFICE OF THE SECRETARY OF THE ARMY

ANNUAL REPORT

FOR THE YEAR

1896

BY THE SECRETARY OF THE ARMY

JOHN M. WILSON, SECRETARY

WASHINGTON: GOVERNMENT PRINTING OFFICE, 1896.

REPORT

TO THE VESTRY OF PADDINGTON.

GENTLEMEN,

Having been requested by the Sanitary Committee to prepare a Report on the condition of the Parish during the year 1856, which should exhibit the progress made in the various measures which have been adopted for its improvement, I beg to submit to you the following statements:—

I have arranged my material under three heads. Under the first of these, that of the Vital Statistics of the Population, I have made it my object to lay down a secure basis of comparison for future years,—to determine a starting point from which to measure future increase and improvement. In the second place I have referred to such of the more important causes of insalubrity as appeared to me to demand your future attention. And lastly, I have related the transactions of the year in so far as concerns the duties of my office, and have placed before you in a tabular form the amount of Sanitary work which has been done.

STATE OF THE POPULATION, 1856.

	REGISTRATION SUB-DISTRICT OF ST. MARY.		REGISTRATION SUB-DISTRICT OF ST. JOHN.	
	Births.	Deaths.	Births.	Deaths.
First Quarter	266	148	214	134
Second do.	196	157	202	160
Third do.	250	109	205	126
Fourth do.	242	129	215	123
	<hr/> 954	<hr/> 543	<hr/> 836	<hr/> 543

Total Births Paddington. 1790 Total Deaths Paddington. 1086

	ST. MARY.	ST. JOHN.	PADDINGTON.
Population	25556	29053	54609
Death-rate per cent.*	2·125	1·869	1·988
Birth-rate per cent. .	3·734	2·877	3·277

In the first quarter the numbers given in the Table for both Districts indicate the number of deaths registered during the period, no weekly returns having been furnished. In the case of St. John's, however, the number has been diminished by 26; this being the average number of persons dying in St. Mary's Hospital, belonging to other Parishes. The numbers given for the second, third and fourth quarters indicate the actual numbers of persons dying in these periods, deduction being made of 17 deaths in the second quarter, 28 in the third, and 20 in the fourth, of inhabitants of other Parishes, inmates of St. Mary's Hospital.

The numbers for the last quarter require correction by addition of whatever deaths may be still unregistered.

* This part of the Table may be read thus :—In every 1000 inhabitants of St. Mary's District, about 21 die annually; of St. John's, 18, &c.

PROGRESS OF THE POPULATION.

Year.	Births.			Deaths.			Ratio of Deaths to Births.		Estimated Population.*			Average annual rateable value to each Person.
	ST. MARY.	ST. JOHN.	PADDINGTON.	ST. MARY.	ST. JOHN.	PADDINGTON.	ST. MARY.	ST. JOHN.	ST. MARY.	ST. JOHN.	PADDINGTON.	
1851	621	810	1431	380	467	847	1:1·634	1:1·734	17252	29053	46305	£8 : 4 : 0
1852	668	866	1534	396	528	924	1:1·687	1:1·640	18660	The same.	47857	£8 : 6 : 0
1853	759	810	1569	450	605	1055	1:1·687	1:1·339	20187	....	49463	£8 : 10 : 0
1854	802	830	1632	460	622	1082	1:1·743	1:1·334	21837	....	51122	£8 : 16 : 0
1855	838	817	1655	519	637	1156	1:1·614	1:1·282	23623	....	52836	£9 : 0 : 0
1856	954	836	1790	543	543	1086	1:1·657	1:1·530	25556	....	54609	£9 : 4 : 0

* For the information of those interested in the subject, it may be well to explain in what manner the rate of increase of the population has been estimated. It having been observed that the births in Paddington have increased in a uniform manner since 1851, and the annual rate of that increase having been calculated, it is assumed that the population has itself augmented at the same rate. This assumption is made on the supposition that the relation existing between the population and the number of births is subject to little variation under the same circumstances. I am willing to admit that such a method is open to objection; but the birth-rate is the only datum on which it is possible to depend at all in a limited and fluctuating population.

The annual rate of increase of the Birth-rate is calculated for the six years 1851—56 as follows:—

Assuming that the increase in any three years = $\frac{\text{mean number of births in the three years 1851—53}}{\text{mean number of births in the three years 1854—56}} = R$ —then, if r be the annual rate of increase sought, $r^3 = R$; or $\log. r = \frac{\log. R}{3}$. Whence the value of r may be easily obtained.

From the facts contained in the foregoing Table, the following conclusions are to be deduced :—

The population of Paddington was greater in the middle of the year 1856 than at the time of the Census by at least 8000 souls. The whole of this increase is referable to the Sub-District of St. Mary, the population of which has augmented at the rate of 81·7 per 1000 annually. There have been added to it by birth during the period in question upwards of 36 per 1000 annually ; whereas the average birth-rate of the whole Metropolis during the same period was 33·3 per 1000. It is not, however, to this circumstance that the rapid increase is mainly to be attributed, as the excess of births over deaths would only account for a very small proportion of it. The remainder must therefore be the result of immigration, or, in other words, of the occupation of newly built houses by a population introduced from other places.

The high birth-rate of this District may be assigned to several causes. Its population contains a comparatively large proportion of families belonging to the middle and lower classes, from which it results that married persons are relatively more numerous than in the other division of the Parish. To this it is to be added that the age of an immigrant, or recently settled population (from 20 to 30) may be assumed to be such as to contain a large proportion of newly married couples, and consequently to be more prolific.

A high birth-rate must obviously materially modify the composition of a population in respect to age. Its inevitable result must be to increase the relative number of infants as compared to that of persons of other ages ; and when it is considered that in infants a rate of mortality prevails which is immensely more rapid than at the later periods of life, it may be readily understood that such a constitution of population must necessarily tend to elevate the general rate of mortality. Notwithstanding this disadvantage, the death-rate of St. Mary's District may be favourably compared even with the most healthy districts of the Metropolis. While the average death-rate of St. Marylebone, Hampstead, St. Pancras, Islington, Hackney, is 22·7 per 1000, that of St. Mary's is only 21·2.

The condition of the population of St. John's District contrasts in every respect strongly with that we have been considering. The mean annual per centage of births does not exceed 28·5 per 1000; that of deaths is also considerably lower than in St. Mary's, being somewhat less than 18 per 1000; so that the births exceed the deaths by rather more than one per cent. annually. As however the Table shows that there is no corresponding increase of the population, it is obvious that this proportion of persons per 1000 must annually emigrate from the District.

These facts are to be accounted for as follows:—The relatively small number of births depends in great measure, if not entirely, on the social condition of the inhabitants. The District of St. John's being principally inhabited by the wealthier classes and their servants, it follows that the proportion of unmarried to married persons is greater than in an ordinary town population;—much greater than in a population composed only of families belonging to the middle and lower ranks of society.*

The emigration above alluded to simply results from the fact, that during the whole period from 1851 to 1856, all the available space has been more than occupied; and that consequently the increase of population which would have settled in the District has necessarily migrated elsewhere.

It has been also noticed that the death-rate of St. John's District is considerably lower than that of St. Mary's, (St. John's 17·8, St. Mary's 21·4). This does not imply any superiority of the one over the other as regards the Sanitary condition of the population, but is referable to two circumstances. In the first place a stationary population contains fewer infants, and is therefore more favourably composed as regards probability of life; and secondly, persons belonging to the class of domestic servants do not usually die in service, but more frequently during the later years of their lives become inhabitants of more plebeian neighbourhoods. There can be

* There is another circumstance which may be mentioned as having a bearing on this subject. It may be assumed that as a rule, men grow richer as they grow older; it will follow that the residents of wealthy neighbourhoods are likely to be persons in the advance of life. It need scarcely be pointed out that this result must tend to diminish the number of births.

no doubt that the migrations of servants exercise a material influence on the local rates of mortality of the Metropolis; diminishing those of the richer neighbourhoods, and increasing those of the poorer.

The augmentation of the mortality of St. John's District from 1851 to 1855, is owing to the addition in each year of a progressively increasing number of deaths in St. Mary's Hospital of inhabitants of other parishes.

From the twelfth column of Table II. it appears that the population of the whole Parish has increased annually since 1851 at the rate of 33 per 1000. This increase does not however express the actual amount of improvement which has taken place in the condition of the population. Paddington people are not only more numerous, but more prosperous, than they were in 1851. The rateable annual value of the Parish has increased even more rapidly than the population, viz.: at the rate of 6.1 per cent. per annum; so that in five years the share of each person in the general assessment has increased from £8 : 4 : 0 to £9 : 4 : 0.

The following is a Tabular Summary of the deductions contained in the preceding paragraphs.

	<i>St. Mary.</i>	<i>St. John.</i>	<i>Paddington.</i>
Total Annual Increase of Population per 1000.	8.7	..	0.0 .. 33.5
Increase by Excess of Births over Deaths ditto..	14.7	..	10.7 .. 12.4
Increase by Immigration ditto..	67.0	..	0.0 .. 21.1
Decrease by Emigration ditto..	0.0	..	10.7 .. 0.0
Yearly Increase of Annual Rateable Value ditto..	—	..	— .. 61.1
Yearly Increase of Annual Rateable Value per person per 1000.....	—	..	— .. 2.4

That is, the Annual Rateable Value of the Parish increases yearly 6.1 per cent.; and the share which each individual of the population of all ages would have if it were equally divided, increases at the yearly rate of 2.4 per cent.

PADDINGTON MORTALITY.

Causes of Death and Ages at Death.

During the nine months ending December 27th, 1856, 878 persons died in the Parish of Paddington. Of these deaths 371 occurred in the District of St. Mary,—183 males, 188 females; 357 in the District of St. John,—186 males

and 171 females; 29 in the Workhouse — 10 males and 19 females; 121 in St. Mary's Hospital—73 males and 48 females.

This Mortality is exhibited in the following Tables as classified in respect of the diseases which produced the fatal result, and of the ages of persons dying:—

DISEASES.	2nd quar er.	3rd quarter.	4th quarter.
Premature Birth, Congenital Disease and Debility of new-born Infants	9	23	23
Accident, Violence and Poison.....	13	26	9
Fever	8	3	19
Dysentery and Acute Diarrhœa (not of Infants) and Cholera	2	6	4
Scarlet Fever and Cynanche Maligna	8	3	5
Small Pox	1	1	
Erysipelas, Pyæmia and Puerperal Fever	8	5	10
Diarrhœa, Bronchitis and Pneumonia of Infants under three years	29	40	33
Measles, Hooping Cough and Croup	52	15	18
Hydrocephalus and Convulsions of Infancy	29	22	19
Phthisis and other Tubercular Diseases	43	32	33
Other Diseases, chiefly Chronic.	132	87	107
TOTALS.....	334	263	281

AGES.	2nd quarter.	3rd quarter.	4th quarter.
From 0 to 5 years	147	119	104
„ 5 „ 10 „	15	11	7
„ 10 „ 15 „	7	2	6
„ 15 „ 20 „	8	6	10
„ 20 „ 30 „	24	23	25
„ 30 „ 40 „	28	21	26
„ 40 „ 50 „	28	25	21
„ 50 „ 60 „	18	16	31
„ 60 „ 70 „	22	17	25
„ 70 „ 100 „	37	23	26
TOTALS	334	263	281

The most important column in the Age Table is that which is assigned to the deaths of infants under five years. These have constituted during the nine months to which the Table refers, 42.14 per cent. of the total mortality. In the Metropolis generally the proportion is about 43.2 per cent.; so that notwithstanding the circumstances already referred to as tending to increase the infantile mortality in the north District, the comparison is still favourable. It is upon infancy not only that the vitiated atmosphere of towns exercises its strongest influence, but that the want of proper nourishment and of the necessaries of life, and all that load of suffering which is the consequence of destitution, press most heavily. Hence it may be readily understood that the diseases of early infancy afford the best possible guide in forming an opinion concerning the sanitary condition of a district. The frequency and fatality of the affections of adults are liable to be diminished or increased by a variety of accidental circumstances which it is extremely difficult to appreciate; as for example, the price of provisions, the abundance or scarcity of employment, &c. Infants, on the other hand, are necessarily subject to little variation in the external conditions by which they are surrounded. Being constantly at home, they are influenced to a much greater extent than adults by overcrowding, and other local causes of unhealthiness.

In a Table which will be found on page 13, the infantile mortality during the last nine months has been further analysed. It will there be seen that the principal causes of death among infants under five years are measles, hooping cough, diarrhœa and acute diseases of the chest. Respecting the first two it may be observed that they are complaints which, under favourable circumstances, are rarely fatal; and that it may be consequently inferred if an unusual number of deaths occur from them in any particular locality, that local causes are at work of such a nature as to require our interference. In regard to the acute affections of the chest in infants, I may appeal to such of you as are practitioners of medicine in the support of the

position, that there is no class of disease which is more commonly traceable to overcrowding and insufficient ventilation.

THE CANAL BASIN.

From the preceding pages you will observe that the Parish of Paddington is not inferior in respect of salubrity to any similarly situated district in the Metropolis. But there can be no doubt that if it were not for one great cause of unhealthiness, the comparison would be much more favourable. The fact that the Canal itself, and the various noxious trades which are carried on on its banks, have for many years exercised an injurious influence on the surrounding population, has long been familiar to all who take an interest in the sanitary improvement of the Parish. During the present year the Sanitary Committee has given its most careful attention to the subject, and has arrived at the conclusion not only that the Canal and its accompaniments are a public nuisance, but that in an unmistakeable manner, they shorten the lives, and multiply the diseases, of the inhabitants.

The Canal Basin may be described as a stagnant and fetid pool; its water contains a large quantity of animal and other organic impurities, and from its surface every breeze carries noxious emanations.* It receives the offensive drainage from the slop yards, lay stalls, and dust wharves on the banks, and serves as a common cesspool to the numerous inhabitants of the barges. In the dust wharves just mentioned the refuse of a large proportion of the Metropolis is collected. Almost all the constituents of this material are of value, and are convertible into marketable products, which are used either in the

* The water of the Canal Basin contains a large quantity of animal matter, partly suspended, partly dissolved; this consisting either of living animalculæ or semi-putrescent débris. It contains in one gallon upwards of eighteen grains of organic impurities of various kinds, of which six grains are separable by filtration, and twelve exist in a state of solution. The mud from the bottom of the channel gives off when agitated the odour of rotten eggs. This is owing to the presence of sulphurets, which, when acted on by the carbonic acid of the atmosphere, evolve volumes of that highly offensive and extremely poisonous gas, called sulphuretted hydrogen.

manufacture of bricks,—as manure, or for other important purposes. In order to separate these products from each other, the contents of the dust-bins are sifted on the dust wharf by women employed for the purpose. This process, even when carried on in the most unexceptionable manner, is of so offensive a nature, that it ought not to be tolerated in a neighbourhood so closely inhabited as that which surrounds the Canal Basin.

In the wharves above alluded to as slop yards, the semi-fluid material swept from the roads by the scavengers is deposited in troughs or pits constructed for the purpose. In these it undergoes a gradual process of evaporation, the results of which are unquestionably of such a nature as to be injurious to health. Road sweepings contain a large proportion of putrescible material, which, in a half dry condition, give rise to the evolution of noxious emanations in considerable quantities.

The following statistical results derived from the public Records of Mortality, and capable of being at any time verified by comparison with them, show that the opinion I have expressed, strong as it may seem, is something more than mere opinion,—that it is an established and attested fact.

In order to compare the mortality prevalent in the neighbourhood of the Canal with that of the whole Parish, I have enumerated separately the deaths occurring in the area immediately surrounding it, which I have distinguished as the Canal District. This District is about 239 acres in extent, while the whole Parish has an area of 1280. It may be estimated to contain at most, 1700 habitable houses; while the whole Parish contains considerably more than 7000. It is bounded by a line running parallel to the margin of the Canal on either side at 200 yards distance.

During the six months ending September 27th, 1856, there occurred in the whole Parish 252 deaths of infants under five years; of these 141 occurred in the Canal District, 101 in the rest of the Parish.

Of 24 fatal cases of measles	18	were in the Canal District;
Of 39 ditto hooping cough	26	ditto ditto
Of 36 ditto infantile pneumonia & other diseases of the chest	25	ditto ditto
Of 34 ditto infantile diarrhoea	15	ditto ditto

So that in every 100 houses situated within 200 yards of the Canal there occurred, during the last summer months, at least four times as many deaths among children under five, as in the same number of houses in the rest of the Parish.*

In order to compare in a still more accurate manner the sanitary condition of the population in the neighbourhood of the Canal with that of the rest of the Parish, I have estimated the rate of mortality of 13 of the principal streets in the District in question. To arrive at this result, which is exhibited in the following Table, it has been necessary to institute a Census of the population of each of these streets, in respect of which my wishes have been carried out with much care and diligence by your Inspector.

TABLE exhibiting the sanitary condition and mortality of the inhabitants of the following 13 Streets and Places situate in the neighbourhood of the Grand Junction Canal, viz:—Dudley, Brindley, Hampden, Green, Albert, Victoria and Hermitage Streets; Alfred and Waverley and North Wharf Roads; Church, Kent's and Welling's Places.

Number of		Population	Number of Inhabitants in each House.	Number of Inhabitants in each Tenement.	Total Mortality per Cent.
Houses:	Tenements				
470	1274	4750	10·1	2·71	2·84 of which under 5y. 1·73 | above 5y. 1·11

* It is to be remembered that the Inhabitants of the Canal District are, on the whole, less favourably situated, as regards their general sanitary condition, than the rest of the population. This difference is however quite out of relation with the enormous disparity in the mortality.

Thus in these 13 streets there has prevailed during the last nine months a mortality more than 44 per cent. greater than that of the Parish in general: and out every hundred deaths which have occurred, the frightful proportion of 60 have happened to children under five years old; so that in the neighbourhood of Paddington Canal it would appear that the duration of human existence is reduced to less than half its natural limits—a fact which I cannot better illustrate than by supposing a child were this day born in Brindley Street with a claim to succeed to property of £1000 on its arriving at its fifth birthday, the present value of that claim would not exceed £274, or 43 per cent. of what its value would be, under the average circumstances of salubrity, contemplated by the English Life Table.

COW SHEDS.

The Inspector of Nuisances has examined during the last month all the cow sheds in the Parish. He has ascertained that 314 cows are at present kept in Paddington. These are distributed among 27 cow-keepers. Many of the sheds are in close proximity to inhabited dwellings. In a large proportion, the drainage and ventilation are deficient, and fatal disease has prevailed to a frightful extent among the animals kept. No less than 19 per cent. of the whole number of cows have died in the last three months. In one case all the cows have died.

The keeping of cows in towns is open to serious objection on three grounds. In the first place because it leads to the slaughtering of diseased cows, and the consequent introduction of diseased meat into the market. No sooner does a cow become attacked with the invariably fatal pulmonary affection which is at present so prevalent in the Metropolitan cow sheds, than it becomes the object of the keeper without delay to dispose of it, before the disease has made sufficient progress to render the animal unmarketable. It is then conveyed to one of the slaughter houses, of which there are several in various parts of London devoted to the carrying on of this disreputa-

ble trade. From thence the meat either finds its way into the market as such, being retailed for the most part to the indigent classes and in the lowest neighbourhoods, or passes into the hands of the manufacturers of saveloys and certain descriptions of sausages, much employed as articles of food by the same description of consumers.

In the second place, few will be bold enough to deny, that the milk derived from cows in a state of unhealthiness or absolute disease, is likely to act prejudicially when used as an article of food. The extent to which this is the case is still matter for investigation.

To these two grounds of objection it is lastly to be added, that the keeping of cows in close proximity to human dwellings is in a variety of ways directly prejudicial to the public health. A cow shed, unless its drainage and ventilation be of the most perfect description, and the arrangements for cleansing effective, must of necessity be a greater nuisance even than a slaughter house. Besides the obvious sources of contamination which are commonly associated with cow sheds, such as decomposing excrements and remains of food, and particularly the distillers' grains which are so largely employed, the air is rendered unwholesome by the products of respiration. When it is considered that a cow vitiates more than five times as much air by its breathing than a man in the same time, it may be well understood that for human beings to inhabit, as frequently happens, tenements which are under the same roof as cow sheds, must be attended with the worst consequences.

ADULTERATION OF MILK.

Of all the varieties of adulteration to which the attention of the public has been of late so prominently directed, there are none which bear comparison in their importance, in relation to public health, with those of milk and of bread. If the latter may be said to be the staff of life to the adult, the former is no less so to the child; and it is further to be considered that the adulteration of milk acquires an importance superior even to that of bread, from the fact that it occurs more frequently, and exercises an influence more distinctly injurious.

The specimens of milk, of which the following Table exhibits the composition, were analysed during last summer in the laboratory of St. Mary's Hospital by Dr. Albert Bernays and myself. It will be observed that a large proportion of the analyses afford evidence of culpable adulteration, although we did not obtain proof of the introduction of any deleterious ingredient.

TABLE showing the Composition of various Specimens of Paddington Milk as compared with Pure Milk.

	Solids.	Water.		Solids.	Water.
Pure Milk..	12·98	87·02	17....	8·1	91·9
1...	13·2	86·8	18....	8·02	91·98
2..	12·5	87·5	19....	7·9	92·1
3....	12·0	88·0	20....	6·5	93·5
4....	11·9	88·1	21....	6·2	93·8
5....	11·6	88·4	22....	6·2	93·8
6....	11·5	88·5	23....	6·2	93·8
7....	11·3	88·7	24....	5·8	94·2
8....	11·0	89·0	25....	5·8	94·2
9....	10·4	89·6	26....	5·4	94·6
10....	10·4	89·6	27....	5·3	94·7
11....	10·4	89·6	28....	5·0	95·0
12....	10·2	89·8	29....	4·5	95·5
13....	10·0	90·0	30....	3·77	96·23
14...	10·0	90·0	31....	3·75	96·25
15....	9·8	90·2	32....	3·5	96·5
16....	9·0	91·0			

It will be observed from the Table that the most faulty specimen which was examined, contained scarcely more than a quarter of the natural proportion of solid ingredients. All the specimens numbered from 20 to 32 contained less than half the natural proportion of solids. From the careful consideration of the results which were obtained, we concluded, that in by far the greater number of instances, the only adulteration practised was the addition either of water, or more commonly of skim milk, or of both together.*

* In each of the specimens of milk the quantities of butter and cheese, as well as of inorganic constituents, were determined. We decline including these results in the Table, as we are not yet in a position to draw positive inferences from them.

This kind of adulteration is not the less important in its relations to public health, because it does not consist in the addition of any deleterious substance foreign to the composition of pure milk. It cannot be too frequently repeated, that if we are to lengthen the lives of the people generally, it must be done for the most part by obviating those causes of disease which press so heavily upon infancy. The chief of these causes, as I have already endeavoured to point out, is deficient nourishment. If this be admitted, it must follow that *the man who sells as pure milk a liquid which contains only a quarter of the proper proportion of solid nutriment, is not only guilty of robbing the poor, but is engaged in a practice which is much more hurtful to the community than the addition even of poisonous ingredients to articles of food which are mere luxuries, e. g. pickles, confectionery, &c.*

BREAD.

In pursuance of the same investigation, 17 specimens of bread and flour, supplied by various bakers in the Parish, were analysed. The results were on the whole favourable, being such as to acquit most of the bakers whose bread was tested of the charge of culpable adulteration.

TABLE showing the Composition of various Specimens of Bread purchased in Paddington.

	Quantity analysed.	Water.	Organic Matter.	Ash.	Alum:
1	1 oz.=480gr.	197·2	277·8	5·0	A trace.
2	185·6	288·4	6·0	None.
3	192·0	282·0	6·0	A trace.
4	196·4	278·0	5·6	A considerable quantity.
5	197·2	276·8	6·0	Barely a trace.
6	194·8	277·6	7·6	None.
7	196·0	277·6	6·4	A trace.
8	211·2	264·4	4·4	2·16 grains.
9	208·0	265·6	6·4	3·29 ditto
10	184·0	291·2	4·8	2·20 ditto
11	187·2	287·6	5·2	2·16 ditto
12	206·8	267·6	5·6	2·92 ditto

In order to ascertain whether the alum found to exist in considerable quantity was introduced during the process of baking or not, the following specimens of *flour* were examined in a similar manner.

TABLE showing the Composition of various Specimens of Flour.

	Quantity analysed.	Water.	Organic Matter.	Ash.	Alum.
1	$\frac{1}{4}$ oz. = 120 gr.	12·0	106·9	1·1	A trace.
2	13·2	105·9	0·9	Ditto.
3	12·0	107·05	0·95	Ditto.
4	13·4	105·5	1·1	An appreciable quantity.
5	12·8	106·55	0·65	A trace.

From the above analyses I conclude that, *with one or two notable exceptions*, the quantity of alum introduced was so small as not to be detrimental to health. It is to be noticed that all the specimens of *flour* contained alum, from which the important conclusion is to be drawn that this material, as it comes into the bakers' hands, is frequently already adulterated ; so that the fact of bread containing alum is not in itself a proof that the baker is the guilty party.*

WATER SUPPLY.

During the year 1856, an inquiry has been made under the authority of the General Board of Health by Mr. Simon, the Medical Officer to that Board, the results of which have determined in the most satisfactory manner the question of the influence on the health of the population, of water containing a large proportion of organic impurity. It so happens that certain registration districts on the South side of the Thames,

* The alumina was determined by Dr. Bernays and myself in the following manner:—A weighed quantity was digested in water, and to the clear filtrate, solution of caustic potash was added in excess. The precipitate remaining after the application of gentle heat was removed by filtration. To the filtrate, after careful neutralization by hydrochloric acid, was added ammonia containing carbonate of ammonia. The gelatinous precipitate (of alumina) was washed and again tested, in order to prove beyond possibility of doubt the presence of alumina.

in which Cholera has prevailed in each epidemic with singular severity, are supplied by two rival Water Companies, the mains of which branch within the same area, often running parallel in the same streets. During the late invasion of Cholera these two systems of pipes contained water of very different character;—that supplied by the Southwark and Vauxhall Company was incredibly foul, while that of the Lambeth Company was as pure as that now delivered in this Parish. The tenants of the two Companies live side by side, and are placed under circumstances precisely similar as regards occupation and social position; so that all the exterior influences, except that of water supply, to which they were exposed at the time of the epidemic were the same. Here, then, says Mr. Simon, “was to be gathered conclusive evidence for a verdict on the matter at issue,—a verdict which should acquit or inculcate certain qualities of water-supply as bearing on the local prevalence of Cholera.” What then were the results? While in every 10,000 persons drinking the water supplied by the Lambeth Company, there were only 37 deaths from Cholera, there died, in the same number among the tenants of the Southwark and Vauxhall Company, 130; so that the consumers of the purer water did not suffer one-third so much as their neighbours. In the epidemic of 1849 the case was strikingly different. At that period the water supplied by the Lambeth Company was even more filthy than that of the other, and it was then found that the mortality by Cholera among its tenantry was three times as great as in 1854. The general result of the comparison of the two epidemics was, that while “in the one population the Cholera death-rate rose from 118 to 130, in the other it fell from 125 to 37;” “the one had improved its water supply to comparative excellence; the other drank from even a filthier source than before.”

The hurtful influence of bad water has been so often and so boldly denied, that I have thought it desirable to bring these facts under your notice. The inferences which they suggest are applicable to all diseases of the same class as

Cholera, and are not the less worthy of our attention because we are not now under the apprehension of another visitation of that malignant epidemic.

Both of the Companies whose mains are now distributed to this Parish have, since August 1855, drawn their supply of water from a point on the Thames a quarter of a mile above the village of Hampton. The water of both Companies is now filtered on an efficient plan, besides considerable improvements which have taken place in the mode of collection and the general management of the supply. Since these have been carried out, the chemical character of the water itself has undergone a change for the better of the most marked description. Thus, while the Grand Junction Company's water contained in 1851 three grains in the gallon of organic impurity, it now contains from one to one and a-half grains; and in the quality supplied by the other Company, improvement has been no less decisive.

It thus appears that in so far as concerns the quality of the water distributed, there is at present little ground of complaint. There are, however, serious evils connected with its collection for household purposes in receptacles of various kinds, which merit your attention. I have entered upon chemical investigations relating to the alterations which water undergoes when long retained in cisterns, the results of which I shall be able, in the present year, to lay before the Sanitary Committee. I may, however, here allude to one point, namely, to the contamination of water by the escape of hurtful gaseous exhalations, consequent on the proximity of the cistern in which it is kept, to the water-closet. This is an evil which relates almost entirely to the houses of the more wealthy classes. The cisterns of large houses have often a capacity which is out of proportion to the quantity of water required for domestic purposes; consequently, their contents are only partially renewed each time the cistern is filled; so that the effect of any contamination, such as the one above referred to, even if it be inconsiderable in the first instance, increases by accumulation.

PROGRESS OF SANITARY IMPROVEMENTS.

It remains for me to lay before you a statement of the measures which are at present in operation for the sanitary improvement of the population in this Parish, and of the progress which has been made in their administration.

Under the Act for the removal of Nuisances, proceedings have been taken in two cases only, *viz.*: under the 29th Section, in relation to the over-crowding of a house; and under the 8th, in relation to a "nuisance injurious to health." In all other instances it has been found possible, without the employment of the summary powers of compulsion which are conferred on you by that Act, to carry on a large number of important sanitary improvements.* From the following Summary of the results of proceedings which have been taken by the Sanitary Committee, under the authority of the Act for the Local Management of the Metropolis, you will have reason to conclude that the operation of the sanitary clauses of that Act has been, if we may judge from the experience of the past year, most satisfactory.

TABULAR SUMMARY of Inspections and of Works executed in compliance with Orders issued by the Sanitary Committee, 1856.

No. of Houses inspected	2201
No. of Houses in which Works have been executed in compliance with Orders	750
„ Works ordered are incomplete	54
„ New Drains have been constructed	94
„ Drains have been amended	153
„ Cesspools have been filled	193
„ Miscellaneous Works have been executed,	422

Of the fifty-four cases in the above Table in which works

* In many other districts of the Metropolis all sanitary improvements have been enforced under the authority of the Act for the Removal of Nuisances. The adoption of this plan of procedure inflicts on the owners of property concerned, an amount of additional expense and inconvenience, which is wholly avoided in following the more simple course prescribed by the Local Management Act.

are recorded as incomplete, forty-two are in progress ; in ten cases orders have been suspended for various reasons by the Sanitary Committee ; in two cases the works have been executed by the Vestry at the expense of the parties concerned.

One hundred and sixty complaints of nuisances, made by inhabitants of the Parish, have been registered in the book which is kept for the purpose by the Inspector of Nuisances. In consequence of these, thirty-five Orders have been made, in compliance with which the following works have been executed :—

New Drains have been constructed in	19 cases ;
A Drain has been amended in	1 case ;
Cesspools have been filled in	8 cases ;
Other Works of improvement have	
executed in	11 cases.

In all, 31 Orders have been completed, and four remain in progress.

In numerous instances the owners of property have given the most praiseworthy proofs of their public spirit, in at once following out my suggestions, without waiting for a compulsory requisition from the Sanitary Committee ; and this even in cases in which the works required to be done have been of considerable magnitude, and have, consequently, involved considerable expense.

It is to be observed, that all the works of sanitary improvement which are referred to in this statement have been carried out in the dwellings of the poor, and the greater part of them in consequence of systematic house to house inspection. The visits of the Inspector to the dwellings of the higher classes have been confined to those cases in which, either there has been special ground for supposing the infraction of the sanitary Acts, or a written statement in the form of a complaint has been made. At the same time it cannot be doubted, that in many of the better streets of the Parish, the drainage of the houses is extremely defective. I have myself met with instances in which disease of a serious description

has been manifestly dependent upon obstructed drains, and in which health was immediately restored on the removal of that cause.

It is obviously impossible for me to become aware of the existence of this kind of evil by the ordinary means of systematic inspection; and it appears to me extremely important that the more wealthy inhabitants should be aware that the sanitary Acts place the remedy in their own hands; and that it is their duty, by supplying to the local authority that kind of information, which, as regards the dwellings of the poor, is obtained by domiciliary inspection, to contribute their share to the general improvement.

The usual mode of procedure has been as follows:—

First.—A preliminary requisition, signed by me, is sent, stating the nature of the improvements required, and requesting that they may be executed.

Secondly.—In case this request is disregarded, a recommendation is made to the Sanitary Committee to issue an Order to the same effect, requiring compliance within a stated period.

Thirdly.—This Order having been sanctioned and served, and the period stated having expired, the party on whom the Order is made is summoned to appear before the Committee, and to show cause why he has not complied with the requirements therein contained.

Fourthly.—In default of his appearing, or in case of his appearing and failing to show cause to the satisfaction of the Committee, an Order is made for the immediate execution of the works at his expense.

Fifthly.—The expenses are recovered in the manner provided by the Act.

LICENSING OF SLAUGHTER HOUSES.

The provisions of the Metropolitan Markets Act relating to the Licensing of Slaughter Houses having come into operation during the past year, 39 Slaughter Houses were inspected during the month of September last, and detailed

reports on their condition as regards drainage, water supply, ventilation and other particulars, were presented to a special Vestry, held for the purpose of determining in what cases the granting of the License should be opposed. It having appeared that in eight cases the Slaughter Houses were in satisfactory condition, and that in 26 others, works of improvement had been executed by the occupiers, in compliance with the instructions of the Sanitary Committee, it was resolved in the remaining seven cases to show cause against the grant of the License. In six of these cases the grounds of complaint having been removed, or new Slaughter Houses provided, the opposition was withdrawn. In the single case opposed, the License was refused by the Court of Quarter Sessions.

In laying before you this Report, I am fully sensible that in the discussion of many of the subjects to which I have called your attention, I have not only left much to be filled up or supplied at future opportunities, but many questions of great importance have been entirely omitted. Such for example, as the improvements desirable in the ventilation of Churches and other Public Buildings, the expedients to be adopted for the diminution of the nuisance arising from untrapped gullies, the amended arrangements required in certain cases, for the prompt removal of corpses, and many other similar topics. These have been passed over in the present Report, partly because it was impossible to render it more comprehensive, without at the same time extending it beyond due limits, and partly because I felt that many of these questions involve difficulties with which the experience of another year will I trust render me more capable of grappling.

J. BURDON SANDERSON.

9, Gloucester Place ;

February 3, 1857.

The following is a list of the names of the persons who have been elected to the office of the President of the United States since the year 1789.

The names of the persons who have been elected to the office of the President of the United States since the year 1789 are as follows: