[Report 1896] / Medical Officer of Health, Plymouth Borough and Port.

Contributors

Plymouth (England). Borough Council.

Publication/Creation

1896

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HEALTH OF PLYMOUTH

DURING THE YEAR 1896.

BY

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PLYMOUTH:

EDWIN CHAPPLE, PRINTER, GEORGE STREET, 271-97.

Plymonth:

EDWIN CHAPPLE, PRINTER, GEORGE STREKT.

1897.

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Report for the Year 1896.



MEDICAL OFFICER OF HEALTH'S DEPARTMENT,

MUNICIPAL OFFICES, PLYMOUTH.

January, 1897.

MR. CHAIRMAN AND GENTLEMEN,

I have the honour of submitting to you my SIXTH ANNUAL REPORT on the health of the Borough for the year 1896, and upon the work of the department during the same period.

As is customary, the annual report on the health of the floating population and the sanitary administration of the Plymouth Port Sanitary Authority, has been included, the interests and welfare of Borough and Port being identical.

As in former years, areas of known extent and population have been dealt with as separate districts; I refer to the ecclesiastical parishes of which there are thirteen in the Old Borough.

As the added areas forming Greater Plymouth did not come within the jurisdiction of the Borough until November, I have not included them in the statistics for the year 1896.

Housing of the Working Classes.—During the year, the scheme inaugurated by the Council under the Act of 1890, is, I am happy to state, practically completed. As far as the

Prince Rock estate is concerned 37 houses have been completed, of these, some 25 are occupied. The houses themselves are excellently built and fitted, the sanitary arrangements are also very good. The arrangement of the houses permits of thorough perflation of air, of ample light and sunshine, absolutely necessary factors in healthy dwellings.

Facilities for conveyance to the business centres of the Borough have been completed, so that workmen are enabled, at a very slight cost, to ride to and from their work. I refer to the extension of the Corporation Tramway system to the Prince Rock estate, its completion removing any objection that there might have been as to the distance from the centres of employment.

The completion of the buildings at Prince Rock for the reception of persons about to be displaced from Looe Street and How Street will enable the Council to at once take in hand the demolition and rebuilding of this insanitary area, the rebuilding of which is most essential for the convenience of those of the inhabitants employed upon the quays and in the fishing industry, whose duties require them at all hours of the night or day.

The distribution of the dense centres of population to the added areas will, I feel sure, be a work of time and some difficulty. Inducements of low rents, cheap and ample facilities for transit to and from their daily occupation will have to be considered by your Council. Provision should also be made for a certain residuum of the population, the exigencies of whose occupation are such that it is absolutely necessary that their homes should be in close proximity to the waterside.

The present density of population of the Borough, excluding the added areas, is 60.5 per acre. The theoretical density, including the added areas, will be 40.9 per acre. But practically until our population is spread over the whole area of the enlarged Borough the overcrowding will remain, with its attendant evils and high death-rate. The energies of the Sanitary and Housing of the Working Classes Committees will have to be directed to distributing the population from the centre towards the periphery.

PUBLIC BATHS AND WASH-HOUSES. - I am still unable to report favourably upon the condition of the Corporation Baths and Wash-houses which remain in the same state of dilapidation and inefficiency; public attention has been, during the past year, directed to the requirements in this direction; the necessity for the provision of bathing and washing accommodation must be obvious, especially in a thickly populated town having a tenement dwelling population, where very few houses are provided with efficient means of washing and drying clothes, or bathing accommodation. A very essential adjunct to such an institution is a swimming bath that may be used throughout the year; a swimming instructor should be one of the permanent staff of the baths. The small percentage of those of our population that are able to swim is astonishing, especially in a sea port town. I am strongly of opinion that swimming should be a compulsory subject included in the curriculum of Elementary Schools, and before leaving school a certificate of ability to swim should be obtained by each child. As illustrating my remarks, I have, through the courtesy of Mr. Powe, the Hon. Secretary of the Amateur Swimming and Life Saving Society, obtained the following information in reference to the children of our Elementary Schools. Of 4,000 boys between the ages of 7 and 14, only 300 were able to swim, being at the rate of rather less than 8 per cent. No statistics were obtained in reference to girls.

Public Mortuary.—This necessary adjunct to the Municipal Sanitary equipment of a town has, I am pleased to be able to report, been completed. The buildings include a Coroner's Court, two Mortuary Chambers, with ample accommodation for 8 bodies, also a fully equipped room for the performance of

Necroscopic examination. There are also provided the usual offices and sanitary conveniences.

The walls of the Mortuary Chambers are lined with white tiles on three sides, on the fourth side is a plate-glass screen, through which bodies may be viewed by the jury, or identified by friends, the floors are of concrete rendered with cement, and laid so that the fall of the surface is to a stoneware gully trap in one corner of each chamber. The slabs for resting the bodies are of slate upon white glazed brick supports.

The Necropsy Chamber is similarly fitted, with other and necessary additions, and lit by incandescent gas burners.

The completion of this building will be of great service to those of our inhabitants occupying tenement houses in our crowded centres, who may lose members of their families, by infectious, or other diseases, as it will enable them to remove the body from their midst to a suitable temporary resting place, until interment, which according to the usual custom in this country, takes place a week after death. It will also enable members of juries to view bodies under less objectionable conditions than those which at present obtain.

Steam Disinfector and Disinfecting Station.—This is the second year during which the disinfector has been continuously at work without breakdown or damage of any kind. I have recently had occasion to put the machine to a somewhat severe test, having, at the same time, caused careful thermometric observations to be taken during the progress of disinfection. During the year no compensation has been paid for damage to any article disinfected. The work has nearly doubled during the year, the actual number of articles disinfected during 1895 being 3568, during 1896, 6780.

It is difficult to over estimate the value of a thoroughly efficient disinfecting apparatus as a factor in dealing with outbreaks of infectious disease.

Isolation Hospital.—The erection of the administrative block has been commenced, and the work is proceeding favourably. I trust that the building, which is much needed, will be completed during the coming summer, its completion will enable your Committee to utilize for Hospital purposes the space at present occupied by the staff.

During the year 145 cases of infectious disease were admitted for isolation, of these 22 remain under treatment. Only one death has occurred in the institution during the year, that being a patient suffering from diphtheria.

The mortality rate is a very low one, and, comparing it with the rate amongst cases nursed at home, proves indisputably the great advantage to the patient of removal and treatment in hospital. The number of cases reported during the year was 343. Of these 89 were removed to hospital, leaving 254 to be nursed at their homes. The mortality amongst these cases amounted to 32 = to a mortality rate of 12\frac{3}{5} per cent., as against \frac{2}{3} per cent. of cases nursed in hospital; or, to put it more forcibly, during the year, of 100 persons suffering from infectious diseases and removed to hospital, one only died; whilst out of a hundred cases that refused hospital and were nursed at home 13 died. So, arguing from these premises, had all these cases been removed to hospital 12 lives would have been saved.

The public appreciation of isolation is growing year by year, and I trust that the time will come when every case notified will be removed to hospital, as in the majority of houses efficient isolation of the sick is impossible. I am of opinion that legislative enactment compelling the removal for isolation and treatment of all cases of notifiable infectious diseases would lead to an annual saving of a very large number of valuable lives.

Perhaps to no disease more than typhoid do these remarks apply. During the year 28 cases of that disease were notified, 12 of which were removed to hospital and all recovered; 16

were nursed at home, refusing hospital, 5 (or nearly $\frac{1}{3}$) of these cases terminated fatally.

No cases of infectious sickness have occurred amongst the members of the nursing staff during the year.

Refuse Removal and Disposal.—I am not able to report any alteration or improvement in collecting or disposing of the town refuse, complaints are constant, and accumulations to the extent of thousands of loads have occurred at the soil depôt, to the danger of public health. I am strongly of opinion that the system of contracting for removal and disposal of town refuse, will under no circumstances be satisfactory. I trust now that the uncertainty of the extent of the areas to be added has become a certainty, that the Council will at once prepare to take in hand the work of collection and disposal, for, I feel sure, that until this important work is carried out by the Corporation themselves, no improvement will take place.

GENERAL AND SYSTEMATIC INSPECTION.—During the year this work has been continuously carried on by the staff, two days in each week being set aside for the inspection of tenement houses under the Bye-Laws. I find from experience that this class of property requires constant supervision.

The total number of visits made during this period amounted to 22,000. Upwards of 1,000 notices were served requiring owners to remedy defective sanitary conditions or abate nuisances from various causes. In upwards of 900 cases the notices were complied with. The remainder are in progress or standing over. Some 1,500 tests were applied to house drains during the year. The details of this work are appended in another portion of this report. During the year upwards of 3,000 visits have been made to vessels by the officials of the Port Sanitary Authority.

As in former years, the continuous inspection of food supplies has been carried on by the appointed inspectors. The principal items seized and destroyed as unfit for food have been 17 tons of fish, and $5\frac{1}{2}$ tons of meat.

Under the Act regulating the sale of Food and Drugs, 103 samples have been submitted for analysis to the Public Analyst, proceedings have been taken in six cases, a conviction being obtained in each case. Of the 103 samples examined 11 were found adulterated.

Cowsheds, Dairies, Milkshops, and Bakehouses.—The very necessary periodical inspections of the above class of premises have during the year been carried on, 4661 visits have been made during this period. The general condition of these premises is steadily improving, this is especially marked in the condition of the bakehouses, recent legislation has assisted this improvement considerably. There is still room for great improvement in the condition of milkshops and dairies, further legislation controlling the supply and conditions under which milk is distributed is required, especially taking into consideration the large proportion of the infant population, whose food consists solely of milk.

There is also room for considerable improvement in the construction and sanitary arrangements of "shippens," a local term for cattle sheds; there is a general tendency to overcrowding and insufficient ventilation of these buildings. The arrangements for water supply and drainage are very primitive in many instances. In the general system of working our dairies and managing the dairy cattle we are far behind our continental neighbours. I intend referring to this matter in another portion of this report.

WATER SUPPLY.—In my last annual report in reference to the carrying out of the scheme for the construction of a storage reservoir, I noted that in November the actual construction of the main and subsidiary dams had commenced; during the present year very considerable progress has been made towards their completion.

The main dam has reached a height of 60 feet above the lowest point of the foundation, whilst the smaller dam (at Sheepstor) has reached 100 feet above the foundation.

The Water Engineer computes that in the larger dam $\frac{1}{3}$ of the masonry has been completed, and in the smaller one $\frac{2}{3}$ of the work has been done.

I am unable to report the complete disuse of the leat for the purpose of conducting the water to the Roborough reservoir, there has been, I am aware, many difficulties of a legal nature to overcome, and there are others yet remaining which I trust will be removed in the near future. As long as the leat is used, so long is our water supply liable to pollution, and so long are the inhabitants exposed to danger from this source.

The most important event during the year affecting the Municipality has been the increase to the Borough by the addition of portions of the Plympton Rural Authority and district of Compton Gifford; the added area amounts to 912 acres, portions of which were in a deplorable sanitary condition, as the added area, the population of which is 6187, only became a portion of the Borough in November, I have not included the district in this Report, but have added a Report of sanitary conditions existing at the time of our taking it over, which Report has already been submitted to the Council.

I again take this opportunity of expressing my appreciation of the work of the Sanitary Staff.

To the medical profession of the Borough I offer my hearty thanks for assistance and co operation.

To the Chairman and Members of the Sanitary Committee I express my sincere thanks for their continued support.

I have the honour to remain, Gentlemen,

Your obedient servant,

J. M. Williams

General Sanitary Condition of the County Borough of Plymouth at the end of the year 1896.

Borough of Plymouth—Area—Population—Boundaries— Rateable Value—Inhabited Houses.

The area of the Borough is 1,491 acres, which includes the island of St. Nicholas, in the parish of St. Andrew. Population calculated to the middle of 1896, 90,276. The Borough consists of two parishes, St. Andrew and Charles; which are again sub-divided into thirteen ecclesiastical districts, namely, St. Andrew, St. Peter, St. Saviour, St. James, All Saints, Christ Church, St. Matthias, Holy Trinity, Charles, St. Jude, St. John, St. Luke, and Emmanuel.

The limits of the Urban Sanitary District are co-terminus with those of the County Borough of Plymouth.

The district is bounded on the north by the parishes of Egg Buckland and Stoke Damerel, on the west by the township of Stonehouse, on the south by the waters of the Sound, on the east by the parish of Egg Buckland.

The rateable value of the Borough is £348,932.

The number of houses in the Borough is 11,080, of which 242 have been built during the year.

Site and Soil.

The town of Plymouth is situate in Lat. 50-22 N., Long. 4-10 W. The site of the town is on the southern slope of the foot hills of Dartmoor. The town with its environs stands upon the slate and limestone of the middle Devonian series. The limestone forms a broad band next the sea, broken through at the entrance of Stonehouse Pool, Millbay, Sutton Pool, and by the Plym. It rises to an average height of 100 feet; the slate hills to the north reaching that height within the area of the Borough at Headlands, the highest point of the North Hill The junction of the limestone with the slate runs ridge. roughly parallel on the line of the Millbay Road and George Street, crossing that line to the northward on the west, and to the southward on the east; along this junction are the most productive wells in the district, though there are many good ones also in the slate.

At the north-western corner of St. Andrew's Churchyard there rises a boss of volcanic rock---and interbedded lava---known as dunstone, which occurs in considerable quantity immediately beyond the outskirts of the Borough at Mannamead. There is also a considerable area of low lying alluvial ground in the vicinity of the Octagon, extending thence to all sides. This formed part of the ancient bed of Surpool, and retained a marshy character in part until recently. Much of it is below the level of high water spring tides, and where the alluvium lies deepest, its depth has not been ascertained.

There is also a belt of low reclaimed land around Sutton Pool but of less practical importance from a geographical point of view. The limestone rocks are compact in themselves, and broken by frequent joints and fissures, and contain numerous caverns which provide a system of underground drainage.

The slate rocks vary considerably in character, from the loose broken material locally known as "shillet" to the compact red and purple slates, which is locally distinguished by

the absence of water bearing qualities. As a rule, however, the slate rocks admit freely of percolation of rain and sewage, and the shallower wells sunk in them used to be carefully examined if intended for potable purposes. Some of the deeper wells, however, yield both an abundant and an excellent supply.

The alluvial area excepted, the geological condition of Plymouth, and the contours are singularly favourable for the site of a large town; the subsoil as a rule is shallow, particularly on the limestone.

Water Supply.

The Waterworks of Plymouth belong to the Corporation. The supply of water is entirely by gravitation, and is obtained from the upper reaches of the watershed of the River Meavy on Dartmoor. The gathering ground is about 4,885 acres, or 7½ square miles, in extent, and lies between 700 and 1,700 feet above the sea level. The rocks composing it are of igneous origin, mostly granitic, but a small area is of the altered Devonian.

The water is very soft—1½ degrees of hardness—and is eminently suitable for domestic and trade supplies. The quantity supplied per head, including that for trade purposes, is 42½ gallons per day.

The storage capacity of the new Burrator Reservoir when completed will be five hundred million gallons, sufficient for the supply of a population of 130,000 persons (present population supplied, 91,000) for 130 days at the rate of six million gallons per day (present daily supply 4,000,000 gallons).

Sewage Disposal and Drainage.

The sewage of the town (with the exception of that of a small district on the west of Mutley Plain) is discharged into the harbour by four outfalls at different points. The sewage receives no chemical or other treatment before its discharge.

The Borough for drainage purposes is divided into five districts or drainage areas, each having its own outfall.

The largest area includes the western half of the town, taking the Tavistock Road as the dividing line. The sewage from this district is discharged by an outfall at Millbay, close under the western end of West Hoe Terrace. It is discharged only on the ebb tide, the sewage accumulating during the flood tide in a large impounding sewer recently constructed. The sewage from the area to the east of Tavistock Road is discharged into Cattewater at Deadman's Bay during the ebb tide, the sewage accumulating during the flood tide in an impounding reservoir. The greater part of the parish of St. Saviour, about eight acres, forms another small area, draining into the Harbour at Fisher's Nose.

The area formed by the portion of the north-east part of the Borough to the east of Mutley Plain, drains into the sewer of the Compton Gifford Local Board, by arrangement, and is treated chemically in the settling tanks owned by that Board, the sludge being removed, the remaining liquid is discharged into the Laira.

The remaining area is that portion of the Borough north of the North Road as far as Mutley Station. The sewage from this district is received into the Stonehouse and Compton joint sewer, discharging into the Harbour at the eastern point of Firestone Bay during the ebb. During the flood tide the sewage is retained in the low level sewer.

The present scheme provides outfalls in deeper water than those of existing sewers. The outfalls of Rusty Anchor and Fisher's Nose will be in five and three fathoms of water respectively, and well in the tide way.

I am pleased to be able to report that the scheme of intercepting sewers, designed by Mr. Mansergh, (the particulars of which have already been issued to Members of the Council in report form in 1894), has been approved of by the Council. Application has been made to the Local Government Board for borrowing powers, the inquiry has not however been held, no doubt owing to the great pressure of work at the Local Government Board.

Mr. Mansergh has also been instructed to prepare a scheme for the prevention of the periodical flooding that occurs in the low-lying district of the western portion of the Borough, lying south of King Street and west of Courtenay Street, the prevention of these periodical floodings by diluted sewage, is of the utmost importance, in the interests of the health of the inhabiants of the affected district. The scheme, I am informed, will include a pumping station, capable of controlling the amount of sewage in the impounding sewers at Millbay, during times of maximum storm inflow—synchronous with high tides. I hear that the work will be commenced very shortly. I trust that in the near future the sewering of those parts of the added areas that so urgently require it will be carried out.

The work of re-constructing the subsidiary wall sewers is being continuously carried on throughout the Borough.

Report on the Sanitary Conditions of Recently added Areas.

In this report on the existing sanitary conditions of the districts of Laira, Compton Gifford, and Pennycross, I propose dealing in them in the order named. The village of Laira, which consists of some 264 houses irregularly scattered on the south east slope of the hill, terminating practically upon the foreshore of the estuary of the river Plym, a narrow strip of alluvial deposit (upon which a few houses are built) only separating the foot of the hill from the foreshore. The majority of the houses are badly built and badly designed.

Geological Formation of Site. Soil.—The village of Laira, as with Lower Compton, Higher Compton, and the recently-included portion of Pennycross, stands upon the slate of the middle Devonian series, the loose, soft slate known as "shillet." It is porous, freely allowing the percolation of water and sewage. The subsoil is shallow. The site, with the exception of the alluvial strip, is especially well suited for building purposes, and should be a very healthy position.

Water Supply.—The water supply is derived from 145 surface wells scattered throughout the village, situated as a rule in the rear of the houses. The nature of the soil and the system of drainage into cesspits, which generally obtains, obviously renders the water in the wells liable to pollution.

During dry summers the water supply fails, as would be expected. With a view to substantiate my opinion I have had samples of water from 27 wells in different parts of the village submitted for examination by the Public Analyst, who reports that of the 27 samples 18 are polluted. This is equal to a ratio of 66.6 per Of the remaining 9 samples, two are as fair; the others are from wells in the higher part of the village, having no buildings or As doubtless in the immediate future the above them. unoccupied land will be built over, the water from these wells should not be used for drinking purposes. From the result of analysis and from a knowledge of the physical characteristics of the district, I have no hesitation in describing the water supply which as heretofore existed as a highly dangerous one. I am gratified to find that the Council has approved of the proposals of the Water Committee to furnish a pure and abundant supply, and that works are now in progress which will remove the serious inconvenience and danger from which Laira suffered till placed under the jurisdiction of the Council.

Drainage and Sewage Disposal.—The drainage system is practically one of cesspits, and may be described as of the worst kind. There are six houses which have earth closets; the remainder are drained into cesspits, either in the gardens, or into a common cesspit known as the "Mullet Pond." The majority of the cesspits in the gardens are full, and after heavy rain overflow, most probably, into the wells situated directly below them.

Some 144 houses drain into the sewage tanks situated in the marshy ground to the south of the village; these tanks cannot be described but as shallow cesspit, causing considerable annoyance to the houses in the immediate neighbourhood.

Forty-four houses drain into a brook running along the meadows to the south of the village, which brook flows into the "Mullet Pond." The condition of this brook at each of my visits was filthy and offensive, the water being black with sewage.

Thirty-six of these houses are supposed to drain directly into this "Mullet Pond" by a pipe sewer, which at present is blocked completely, the sewage flowing over the roadway. Along the course of this sewer, and in the immediate vicinity, I was informed there had been several cases of enteric fever, probably due to specific pollution of the water, obtained from the shallow wells in the immediate vicinity of this sewer, and at a lower level than that of the sewer and surrounding cesspits.

The village should be efficiently sewered, all cesspits should be filled in, and in the future their construction or use should be prohibited.

There are doubtless difficulties in dealing with the sewage of the village, owing to the low level at which it is received. the difficulties are, however, not of such a nature that they cannot be overcome by modern engineering skill,

Refuse Disposal:— The majority of the houses have a fair amount of garden ground, and utilize the house refuse as a fertilizer. Within the last few months, a scavenger's cart employed by the Plymouth Rural Sanitary Authority, has collected once a week the refuse from those houses in which it was not disposed of in the gardens. Many of the houses are unprovided with refuse receptacles.

General Sanitary Conditions:—These may be described as deplorable, especially taking into consideration the naturally healthy situation of the village and the amount of space utilized.

The majority of the houses are badly built. Many are damp, the courtyards are in the majority of the houses unpaved, in many there is no air space beneath the floors of the lower rooms. The water supply is dangerous. The closet accommodation is fair. The provision for surface drainage is inefficient.

There is no overcrowding, most of the houses being occupied by one family only. The actual numbers are as follows:—204 houses of a total of 264 are each occupied by one family only, each of the remaining 60 houses being occupied by two families. The maximum number of inmates in any house being 11=5 rooms.

The roads and footpaths, with the exception of the high road, are in very bad condition. especially the Avenue. There is no system of Public Lighting.

There are 71 houses in the parish of Laira which are situated between the Embankment Road and the London and South Western Railway to the east of the Truant School. These are supplied with town water. Each house is drained into a common drain, and so on into the main sewer. The outlet of the main sewer is an undesirable situation and offensive.

Very few of the houses are provided with refuse receptacles or flushing cisterns for the closets.

Many of the curtilages are not efficiently paved. Those of the more recently-built houses are cemented. No overcrowding exists.

COMPTON GIFFORD

is practically a suburb of Plymouth, the houses being continuous; no line of demarcation exists that would to the eye of the stranger differentiate between Plymouth and Compton. Compton consists of Higher and Lower Compton, which is a small village, and practically isolated from Higher Compton. With the exception of the village of Lower Compton the district is composed of residential property, occupied principally by persons having business in Plymouth, and is well situated on high ground from 200 to 250 feet above sea level.

Water Supply is from the Corporation Water Works, with the exception of 40 houses at Lower Compton, which I have dealt with separately. Drainage.—With 13 exceptions, which are appended, the sewage drains into the general system of sewers. The method of sewage disposal in the 13 instances cited above is as follows:—In 6 houses sewage passes into cesspits, one into an open drain, and 6 houses are provided with earth closets. The general sanitary condition of Higher Compton, with those exceptions before mentioned, are good.

Lower Compton consists of a practically isolated group of 96 houses, situated in a sheltered valley, some three-quarters of a mile to the east of Emmanuel Church. The majority of the houses are old, and of the usual type found in rural localities.

Water Supply.—The water supply is partly obtained from wells or springs, and part from the Corporation mains. Some 50 houses obtain their drinking water from springs or wells, whilst 46 obtain it from the main. The wells are surface wells, and liable to pollution. The principal supply is from a public standpipe, to which the water flows by gravitation, its source being a spring on the high ground to the north of the village. The supply is abundant and constant, and its quality is described by those who use it as good. I have not yet had a sample submitted for analysis.

Drainage.—83 of the 96 houses drain into the main sewer, which passes through the village, and eventually discharges into the sewage tanks at Laira. Four houses drain into cesspits, seven use earth closets; in two instances the method of drainage is uncertain.

Refuse Disposal.—This is satisfactorily carried out by a Contractor, the refuse being used as a fertilizer, and removed once a week. A certain number of houses dispose of their refuse in their gardens.

General Sanitary Conditions may be classed as fair.

PENNYCROSS.

The portion of Pennycross included in the Borough is to the north and north-west of Compton. It consists practically of agricultural land, a portion being occupied by residental property, the total area of that portion included by the recent Act being 193'42 acres, upon which are situated 161 houses, those in the northern portion being principally isolated residences, those in the western portion of the district being in terraces of varying numbers, the majority containing six rooms, and a fair garden space.

Water Supply.—The water supply is derived from four sources, viz.: (1) From the Corporation water works; (2) from the Devonport water works; (3) from spring in meadow; and (4) from wells.

The wells are the usual surface wells, liable to pollution.

Drainage,—Of the 161 houses included in the added portion of the parish, 112 drain into the general sewer system of the Borough, 42 into cesspits, and 7 have earth closets.

Refuse Disposal.—This is carried out by a Contractor at present, and, as far as one can learn, appears to be satisfactory. The refuse is used for manurial purposes.

General Sanitary Condition.—Before the sanitary condition of this district can be pronounced satisfactory all cesspits should be abolished and all water supplies should be obtained from the public supply, and the bye-laws in reference to new buildings should be most rigorously enforced.

Vital and Mortal Statistics.

THE AREA OF THE BOROUGH.-1,491 acres.

POPULATION.—At the census taken in April, 1891, the population was 84,248, and it is estimated that at the middle of 1896 the population of the Borough was 90,276.

DENSITY.—The mean density of population is 60.5 persons per acre. The average of 60.5 is greatly exceeded in different parts of the Borough, as will be seen by reference to the localized mortality rates.

INHABITED HOUSES.—11,080 estimated number. 242 have been built during the year.

Distribution of Population.—The population is unevenly distributed over an area of 1,491 acres, the mean density being 60.5 persons per acre. The population density of the thirteen districts into which the Borough is divided varies from 21 persons in St. Jude's, to 207 in Trinity.

The average number of persons per house is 8.5, whilst Liverpool (the most densely populated town in the country) averages 6 persons per house; Derby 5 persons; Portsmouth 5.6 persons per house.

The proportion of the inhabitants occupying tenements is considerably in excess of any of the large towns. Of a population of 87,931 some 50,942 persons occupy tenements

of 1, 2, 3, or 4 rooms. This ratio is enormously increased as compared with other towns when we take the proportionate number of persons occupying one and two rooms; as will be seen from the appended table.

Towns.		Ratio of Population occupying tenements of 1. 2, 3, and 4 rooms.	Ratio of Population occupying I room tenements.	Ratio of Population occupying 2 room tenements.	Ratio of Population occupying 3 and 4 room tenements.
Manchester		0.497	0.002	0.068	0.421
Liverpool		0.406	0.036	0.078	0.591
Birmingham		0.534	0.002	0.028	0.200
Bristol		0.372	0.032	0.092	0'241
Leicester		0.192	0.001	0.038	0.124
Portsmouth		0.180	0.013	0.034	0.131
Cardiff		0.260	0.002	0.077	0.126
Bolton		0.650	0.001	0.064	0.282
Preston		0.403	0.003	0.019	0.382
Derby		0.306	0.003	0.031	0.184
Plymouth		0.605	0.134	0.235	0 235
Wolverhampt	on	0.472	0.012	0.062	0.409
Averages		0.390	0.0314	0'0682	0.3096

Table showing the Total Tenements and Number of Persons occupying Tenements with less than Five Rooms, in 12 large Towns.

	Total.	251,381	210,117	255,169	82,402	34,150	28,767	33,594	74,831	43,268	19,402	50.942	39,077	
	room tenements.	189,614	89,410	73,940	28,640	23,058	14,066	14,695	63,007	36,281	14.244	7.693	27,436	
s occupying	3 room tenements.	23,423	61,620	165,264	24,863	4,266	6,792	7,997	4,279	5,099	3,077	12,113	6,362	
No. of Persons occupying	room tenements.	34.650	40,460	13,658	21,190	6,617	5,918	9,933	7,430	1,711	1,927	19,835	5,152	
	room tenements.	3,694	18,627	2,307	7,799	209	1,991	696	115	1771		11,301	127	
	No. of tenements with less than five rooms.	57,463	51,135	57,147	23,826	9,042	9,435	6,117	16,364	10,439	4,882	14,385	8,454	
	Total Tenements.	103,720	104,890	98,219	48,140	36,147	33,980	25,353	23,663	22,679		19,647	16,262	
		:	:	:	:	:	:	:	:	:	:	:	:	
	ROUGHS.	CITIES AND BOROUGHS.	:	:		:	:	:	::	:		::	:	:
	AND BC	:	:	:	:	:	:	:	:	:	:	:	по	
	CITIES	Manchester	Liverpool	Birmingham	Bristol	Leicester	Fortsmouth	Cardin	Bolton	Freston	Derby	Plymouth	Wolverhampton	

Marriages.---The number of marriages recorded in the Borough during 1896 was 906, equal to a marriage of 10.1 per 1,000 persons living, as against 909 for the previous year.

Births.---The Births registered during 1896 numbered 2643, and comprised those of 1322 males and 1321 females. The Birth rate for the past year was 29'3 per 1,000. The Births and Birth-rates for the past ten years are as follows:--

	Number of Births.	Birth-rate per 1,000.
1887	 2,433	 30.3
1888	 2,454	 30.5
1889	 2,505	 30.4
1890	 2,405	 29.3
1891	 2,508	 29.6
1892	 2,483	 29.0
1893	 2,590	 29.8
1894	 2,528	 28.8
1895	 2,551	 28.7
1896	 2,643	 29.3

During the past year there has been a slight increase in the birth rate amounting to 0.6 per thousand, and which may I think be regarded as temporary, as the general tendency in the Borough and throughout the country is to a decrease in the number of births per annum. The birth rate of the Borough is as in former years below the average of the 33 great towns, and below the general rate for England and Wales.

The natural increase of the population, or the excess of births over deaths during the year was 874. The estimated increase in the population was 1,180.

Deaths.—1769 deaths were registered as having occurred in the Borough and at Blackadon Asylum during the year, as against 1800 during the previous year. The gross annual death rate for 1896 is 19.6, as against 20.2 for 1895. The corrected rate for age and sex distribution is 19.4. The incidence of Measles in epidemic form during the last quarter of the year is responsible for 63 deaths, equal to a rate of 0.7 per 1,000 per annum. The summer was characterized by a long period of drought, with a temperature somewhat above the average conditions, favourable to the development of Zymotic infantile diarrhæa, which during July and August caused 49 deaths. The winter was a mild one followed by a dry, bright spring, especially favourable to the old and debilitated.

I have appended the Mortality Rates for the past 10 years, giving the gross and corrected death rate.

I must again refer to the population density of the Borough, which has this year reached its theoretical maximum, as in future the added areas will be of course included in the calculation.

		No. of Deaths.	Un	corrected De	ath	Corrected
			r	ate per 1,000.		rate.
1887	-	1,764	-	21.0	-	21.4
1888	-	1,734	-	21.3	-	20.8
1889	-	1,982		24.0		23.2
1890	-	1,759	-	51.1		20.6
1891	-	1,900	-	22.4		
1892	-	1,616	-	18.8		21.9
1893	-	1,860	_	21.4		18.3
1894	-	1,596	_	18.5	-	20.5.
1895	-	1,800		20.5		17.8
1896		1,769			-	20.0
/-		1,709	-	19.6	-	19.4

As is usual the Public Institutions have been considered for statistical purposes as separate localities.

The deaths of persons from other districts occurring in these institutions (which are registered here and tend to increase our rate), are eliminated in calculating the corrected annual rate, which is 19.4, as against 19.6 the recorded rate. The gross rate is also corrected for age, and sex distribution.

The average mortality rate in Plymouth, in the ten years 1886-95 is 21'2, as against the general urban rate of 19'7.

The death-rate in England and Wales in 1896 was 17'1 per 1000, this being lower than the rate in any previous year, excepting 1894; compared with the rate in the ten years 1886-95, the death-rate in 1896 shows a decrease of 1'7 per 1000.

The population density has now reached 60.5 per acre, the greatest in England and Wales.

I must again take this opportunity of pointing out the fact that half our population is a tenement population, a proportion exceeding that of any of our large towns, and further that the death rate from all causes is greatly influenced by the density of population in any given area. The deaths from diseases of the respiratory organs are also very considerably increased amongst the inhabitants of tenement houses.

Having in view these facts, which I have in former reports already called your attention to, it is a matter of the most vital importance that the efforts of the Council during the past shall in the future be in no way relaxed in the urgent and beneficial work of reducing the crowding, of rebuilding unsanitary areas, of lessening the density of the population in our most crowded wards, and by taking the necessary steps to distribute their population over the added areas. I am strongly of opinion that the work and policy I have referred to is the most important factor in the lowering of the mortality and sickness rates. The work is one requiring the unceasing thoughtful application of the committees entrusted by the Corporation to carry it out, a work that must result in the greatly improved physical and social conditions of our dense population.

Appended will be found a comparative mortality, density and birth rate table for twenty of the large towns:—

Comparative Mortality Table.

Shewing the Estimated Population, Density, Birth-rate, Death-rate, Zymotic-rate, and Infantile Death-rate of 20 large towns of England and Wales for the year 1896.

A11	(
Cities and Boroughs.	Estimated Population in the middle of 1896.	Persons to an acre, 1896.	Birth- rate.	Death rate.	Zymotic Rate.	Deaths under 1 year to 1000 Births.
33 Large Towns	10,846,971	35.1	30.7	18.9	2.88	168
London	4,421,955	59.2	30.5	18.6	3.16	162
Liverpool	632,512	47.8	34.8	22.7	3.03	173
Manchester	529,561	41.0	33.0	22.7	3.43	177
Birmingham	501,241	39.5	32.6	20.8	3.62	198
Leeds	402,449	18.7	30.4	18.7	2.31	169
Sheffield	347,278	17.7	34.0	19'2	2.92	174
Bristol	230,623	49'3	27.6	16.9	1.90	143
Nottingham *	229,775	21.0	28.9	17.4	2.44	169
Hull	220,844	26.8	32.0	18.9	3.33	174
Newcastle	212,223	39.5	31.1	18.4	2.09	165
Leicester	198,659	23'I	30.4	16.7	2.99	189
Portsmouth	178,639	38.3	27.5	16.6	2.13	157
Cardiff	162,690	26.8	33.8	16.8	2.58	165
Sunderland	140,386	42.6	34.1	19.8	3.04	158
Blackburn	129,459	18.6	27.7	17.8	1.81	170
Bolton	120,380	21.1	31.3	20.7	2.84	169
Preston	113,864	27.8	32.6	20.7	1.89	204
Derby	101,770	29.5	28.0	15.7	1.92	151
PLYMOUTH	90,276	60.2	29.3	19.6	2.29	. 174
Wolverhampton	86,530	24.2	34.3	19.9	3.14	184

Mortality at Different Seasons.

The year 1896 was not characterized by any considerable meteorological extremes; the first quarter of the year, that most fatal to the old, the debilitated, and those suffering from diseases of the respiratory organs, was mild and dry.

The spring and summer months were bright and dry, exceptionally dry, although the heat was not extreme; the prevailing winds being N,W. and W.

The effect of the dry summer season upon the incidence of Zymotic Diarrhœa was most marked during the months of July and August, during which time 49 deaths of infants were registered from this cause; a considerable increase on the mortality from the same disease during the whole of the previous year.

During the last quarter of the year, which was stormy with almost continuous rain, measles assumed epidemic character in the Borough, resulting in a somewhat heavy mortality, partly due to seasonal influence, and, partly owing to the usual indifference with which the disease is looked upon by the public generally, who consider it one of those ills indispensable to childhood. The incidence of measles, with its attendant risk of involvment of the respiratory organs, amongst a tenement-dwelling population such as we have, is of the gravest import to those responsible for the administration of the Public Health Acts relating to infectious diseases generally.

In the above paragraph the references to the meteorological conditions have only been of a general character, as the observations recorded at our Meteorological Station are given in the report of the Meteorologist in another portion of this Report.

During the first quarter of 1896, 407 deaths were registered, as compared with 576 for the corresponding quarter of 1895

During the second quarter 398 deaths were registered, as against 435 for the corresponding period of 1895.

During the third quarter 429 deaths were registered, as against 383 for the corresponding quarter of 1895.

During the fourth quarter 535 deaths were registered, as against 406 for the corresponding period of 1895.

The number of deaths registered during each quarter of the year are as follows:—

Total deaths Male	Quarter.	Quarter. 398	3rd Quarter. 429	Quarter, 535	Year. 1769
	197	201	213	252	863
Female	210	197	216	283	906
Death-rate	18.0	17.6	19,0	23.7	19.6

The mean age at death during each quarter of the year is shewn below:—

First qua	arte	r	38	years	and 3	months.
Second			34		2	,,
Third			29	,,	11	,,
				,,	1	,,
Whole y	ear		33	,.	5	,,

Mean age at death, 1892-36 years and 8 months.

"	,,	1893-32	,,	9	,,
,,	"	1894-33	,,		
"	,,	1895-35	,,	2	,,
"	,,	1896-33	,,	5	,,

CHART SHEWING MORTALITY FROM ALL CAUSES, 1896.

1	Jan.	Feb.	Mar.	April	May.	June,	July.	Aug.	Sept.	Oct.	Nov.	Dec.
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The lowest Number of Deaths in one month was in September, viz:—99. The highest in December, viz:—207.

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TABLE I.

Shewing the Estimated Population, Marriages, Births, and Deaths for the year 1896, and 10 years preceding.

	Estimated		Registered	Numb	er of Death	ıs.
Year,*	population.	Marriages.	births.	All Ages.	Under 1 year.	Principal Zymotic Diseases,
1896	90,276	909	2643	1769	460	206
1895	89,096	906	2551	1800	456	169
1894	87,931	864	2528	1596	426	138
1893	86,781	872	2590	1860	443	236
1892	85,646	920	2483	1616	342	150
1891	84,526	899	2508	1900	452	202
1890	83,421	857	2445	1759	392	214
1889	82,330	844	2505	1982	419	454
1888	81,254	829	2454	1734	400	139
1887	80,191	859	2433	1764	479	177
1886	79,142	796	2416	1805	375	234
Totals						
of 10 years 1886-95.		8649	24,913	17,816	4184	2113

^{*} For statistical purposes the Registrar-General estimates the population to the middle of the year, on the basis of the rate of increase ruling between the two preceding census periods.

TABLE II.

Shewing the Density, Birth-rate, Death-rate, Zymotic-rate, and Infantile Death-rate for the year 1896, and 10 years preceding.

Year.	Persons to an acre.	Birth-rate	. Death-rate.	Zymotic-rate	Deaths under 1 year to 1,000 Births.
1896	60.5	29.3	19.6	2.29	174
1895	59.7	28.7	20.5	1.90	179
1894	58.9	28.8	18.3	1.28	168
1893	58.2	29.8	21.4	2.71	171
1892	57.4	29.0	18.8	1.75	137
1891	56.7	29.6	22'4	2'39	181
1890	55.9	29.3	21.1	2.26	160
1889	55.2	30.4	240	5.21	
1888	54.5	30.5	21.3		167
1887	53.8	30.3	21.9	2.50	163
1886	53.0	30.2	22.8	2.96	196
Average of 10 years.			-20	2 90	155
1886-95	-	29.66	21.51	2.23	167

TABLE III.

Shewing the number of Deaths from the Principal Zymotic Diseases for the year 1896, and 10 year preceding.

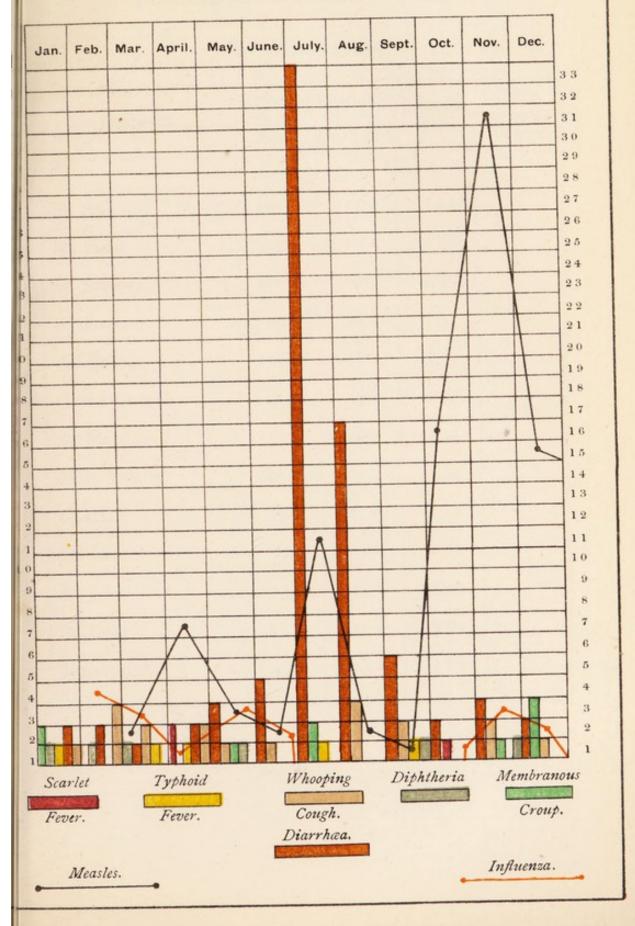
Year.	Small- pox	Measles	Scarlet Fever	Diph- theria.	Whooping Cough	Fever	Diarrhœa	Totals.
1896		90	3	15	18	5	75	206
1895		76	3	10	29	6	45	169
1894	5	4	8	4	75	I 2	30	138
1893		83	21	10	46	I 2	64	236
1892	I	18	44	9	4	20	54	150
1891		28	17	5	68	15	69	202
1890	I	56	26	14	28	27	62	214
1889	I	16	267	44	53	16	57	454
1888		69	7	11	4	16	32	139
1887	٠.	6	15	6	50	17	83	177
1886		83	18	10	17	43	63	234
Cotals of o years 1886-95.	8	4 39	426	123	374	184	559	2113

TABLE IV.

Shewing the relative Mortality Rates from the Principal Zymotic Diseases for the year 1896, and 10 years preceding.

Yea	r Smallp	ox Measle	Scarl Feve		ia in	oop- g Fev	er Diarrh	Tota Zymot Rate
189	6	1.00	0.0	3 0.1,	7 0.3	0.00	0.83	2.29
1895	5	0.85	0.04	0,11	0.3	3 0.07	0.20	1.90
1894		0.02	0.00	0.02	0.8	5 0.14	0.34	1.28
1893		0.95	0.54	0.11	0.23	0.14	0.74	2.71
1892	0.01	0.51	0.21	0.10	0.02	0.23	0.63	1.75
1891		0.33	0.50	0.06	0.80	0.18	0.81	2.39
1890	0.01	0.67	0,31	0.12	0.33	0.35	0.4	2.56
1889	0.01	0.19	3.24	0.23	0.64	0.19	0.70	5.21
1888		0.85	0.08	0.13	0.02	0.50	0.40	1.71
1887		0.04	0,18	0.07	0.62	0.51	1.04	2.30
1886		1.05	0.55	0,13	0'21	0.24	0.80	2.96
verage 10 years 886-95.	0.000	0.25	0.21	0.14	0.44	0,52	0.67	2.23

CHART SHEWING MORTALITY FROM ZYMOTIC DISEASES, 1896.



Localized Mortality Rates

For the year 1896.

DISTRICT.	Persons to an Acre.	Mortality Rate per 1,000	Zymotic Rate.	Ditto 33 large Towns.
				A 17 10
St. Andrew	 104.0	15.2	2.14	
St. Peter	 159.2	20.2	2.38	
St. Saviour	 188.4	20.2	4.49	
St. James	 66.6	16.5	1.37	
All Saints	 178.4	18.3	3.24	
Christ Church	 81.1	19.6	1.92	2.88
St. Matthias	 59.8	20.3	1.34	2 00
Holy Trinity	 207.2	22.2	4.14	
Charles	 65.7	17.8	2.15	
St. Jude	 20.9	23.6	1.42	
St. John	 23.6	23.6	3.29	
St. Luke	 104.4	21.0	3.29	
Emmanuel	 43.4	18.1	2.16	

During the year the districts characterized by the heaviest mortality rates are St. Jude, St. John, Holy Trinity, and St. Luke, the two former are practically new districts not densely populated —having a population density of 21 and 24 persons per acre respectively, whilst Trinity has a density of 207 persons per acre.

The age distribution of the population of St. Jude, St. John, and Trinity, considerably affects their respective mortality rates; that of Trinity being also influenced by the population density which is 207 per acre. The child population of these districts is very considerable, and especially liable to the incidence of those diseases common to child life, I refer especially to Measles and Whooping Cough.

In the parish of St. Saviour during the year there were recorded 50 deaths, 33 of which were of children under the age of five years. In St. John 164 deaths occurred, 90 of which were under five years of age, whilst in Trinity where we have the factors of overcrowding and high proportionate child population, influencing the mortality rate, the number of deaths were 98, of which 51 were those of children under five years of age. Taking these three districts we find that the percentage of deaths under five years is 57.6, whilst taking Emmanuel, St. Matthias, and Charles districts, which are practically residential, we find the percentage of deaths under five years to be 31.5. We have amongst the inhabitants in the parishes of St. Jude and St. John a considerable proportion of pensioners and persons retired from active life, this is another factor influencing the mortality rates.

St. Saviour with its dense population has suffered somewhat severely from Measles, more than half the deaths that have occurred during the year have been those of children under 5 years of age—the actual percentage of deaths of children as compared to the total number being equal to 66 %.

St. Peter's district exhibits a reduced mortality rate as compared with last year, but the present rate is by no means satisfactory, the factors determining the abnormal rate are over-crowding—age distribution of inhabitants and physical position. It is one of those districts in which the efforts of the Corporation should be directed to lessening the population density and providing better accommodation for the working classes.

Trinity Parish is again characterized by its high Zymotic rate the highest in the Borough. From the foregoing paragraphs it will be seen that in those districts having heavy mortality rates we have several potential factors as a cause, the effect of which is an abnormal death rate.

Ist we have general over-crowding; 2nd, abnormal age distribution in certain districts, in other districts both these causes combined, whilst in another district we have its physical position added to the other factors in determining its abnormal mortality.

It is obvious that so long as the general crowding together of persons in tenement houses having insufficient light and air space, so long will abnormal mortality rates obtain, varying with the incidence of epidemic disease, especially those diseases in which there is a tendency to involvment of the organs of respiration.

Every effort should be directed to distributing the population of these congested areas to those districts recently added to the Borough which are practically unoccupied. In laying out the various estates for building, it is unfortunate that the Corporation have not the power to insist on the class of house to be erected. In all future buildings for the accommodation of those of the inhabitants displaced from the dense centres, the building bye laws should be most vigorously enforced in every point, especially the law relating to the open space in rear of houses. The specified area adopted should be looked upon rather as the

minimum amount of space permissable, than the maximum required. The direction of the new roads should also be considered, having in view the prevailing winds, and the amount of sunshine it is possible, so to speak, to utilize.

Infantile Mortaltiy.

The mortality of infants under one year of age was in the proportion of 174 deaths to 1,000 births registered, being 50 per 1,000 below the rate for 1895. The total number of deaths of infants under one year was 460.

The following table gives the number of births, and of infant deaths, with the infant mortality rate, for the past ten years:—

	No. of Births.	No, of Infant Deaths.	Infant Mortality Rate per 1,000 Births.
1887	 2,433	 479	 196
1888	 2,454	 400	 163
1889	 2,505	 419	 167
1890	 2,445	 392	 160
1891	 2,508	 452	 181
1892	 2,483	 342	 137
1893	 2,590	 443	 171
1894	 2,528	 426	 168
1895	 2,551	 456	 179
1896	 2,643	 460	 174

I have appended a table giving the causes of the deaths of infants that occurred during the past four years, from which it will be at once seen that the diseases responsible for the heaviest mortality are those of the respiratory and digestive organs.

Infant Mortality in Plymouth in 1893, 1894, 1895, and 1896, from different Diseases.

Measles			18	I	17	26
Whooping Cough			23	32	14	8
Diarrhœa			48	28	38	58
Tabes Mesenterica			11	12	2 I	Io
Premature Births			32	54	50	55
Convulsions	=		25	35	28	26
Bronchitis			57	63	65	61
Pneumonia			24	20	16	28
Diseases of Stomac	h		19	ΙI	2	17
Enteritis			33	18	34	31
Debility, Atrophy,	Inanition		31	29	30	19
Other causes			122	123	141	121
					_	
	To	otal	443	426	456	460

Illegitimacy, 1896.

During the past year 104 births of illegitimate children have been recorded, being 3.9 per cent. of the whole. The number of deaths of illegitimate children under one year was 28, equal to a rate of 269.2 per 1,000 births, the rate for legitmate children being equal to 170.1 per 1,000 births.

Certification of Death.—During the year 1769 deaths were registered in the Borough, 1,643, (or 92.88 per cent.,) of which the causes were duly certified by registered medical practitioners, and 118, (or 6.67 per cent.,) by coroner after inquiry, leaving the causes of eight deaths uncertified, an increase of three as compared with the previous year.

The increase is a slight one, but it should not have to be recorded; the cause of every death should be certified either by medical man or coroner. It should not be permissible, but

rather penal, to permit the burial of a body the cause of death of which has not been certified by either of the appointed persons. During the past year the percentage of uncertified deaths registered in England and Wales was equal to a percentage of 2.2 as against 0.45 in the Borough.

I had hoped that ere this seeing the time that has elapsed since the issue of the report of the Select Committee appointed to enquire into the present system of death registration, that the Legislature would have by enactment improved the present lax system that permits of some 12,000 to 13,000 bodies being buried each year, the causes of death in each case being uncertified.

The Borough Coroner has during the year made inquiry into the cause of 118 deaths, the causes of which as certified by him are as follows:—

Violent Deaths—Accid	lent or 1	Vegligence	:-		
Burns and Scale	ls			6	
Poison				I	
Drowning				7	
Suffocation				4	
Other Injuries				28	
W. l				-	46
Violence other than Ac	ccidenta.	1:-			
Homicide				2	
Suicide				12	
				-	14
Natural Causes				58	
					58
					118

1896.	Total.	101			6941	-	76	256	7	I	308	196	116	9	35
ber,	75 nd up- wards	F			81 133			4	:	:	9	59	59	4	H
em	75 and up wards	M						6	, :		7	36	36	:	- :
)ec	or er or	H			115				. :	. :	16	20	72	4	:
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MORTALITY TABLES Deaths in the County Borough of Plymouth, for 12 months ending 31st December, 1896.	CAUSES OF DEATH.				ALL CAUSES			I.—Specific Febrile of Zymotic Dis-	. II.—Parasitic Diseases	IIIDIETETIC DISEASES	IV.—CONSTITUTIONAL DISEASES	V.—Developmental Diseases	VI.—Local Diseases	VII DRATHS FROM VIOLENCE	VIIIILL-DEFINED AND NOT SPECIFIED CAUSES

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MORTALITY TABLES. Deaths in the County Borough of Plymouth, for 12 months ending 31st December, 1896.	CAUSES OF DEATH.		vi.	Diseases of I	,,	5. ,, Digestive System 6. ,, Lymphatic System and	Ductless Glands Urinary System Reproductive System—		9. ,, Organs of Locomotion	10. ,, Integumentary System	VII.	1. Accident, or Negligence 3. Sucide 4. Execution		Ill-defined and not Specified Causes

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MORTALITY TABLES Deaths in the County Borough of Plymouth for 12 months ending 31st December,	CAUSES OF DEATH.		MIASMATIC DISEASES.	Small Pox	Chicken Pox	ic Rose Rash		Relapsing Fever	Cough	us Croup	Cerebro-spinal Fever	Simple and Ill-defined Fever	Typhoid or Enteric Fever Other Miasmatic Diseases	DIARRHŒAL DISEASES.	Cholera Diarrhœa, Dysentery	MALARIAL DISEASES.	Remittent Fever Ague

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MORTALITY TABLES.—Deaths in the County Borough of Plymouth, for 12 months ending 31st December, 1896.	CAUSES OF DEATH.		TOOGENOUS DISEASES. Hydrophobia Glanders Splenic Fever Cox-pox and other effects of Vaccination	Syphilis Gonorrhœa, Stricture of Urethra	Phagedæna Erysipelas Pyæmia, Septicæmia Puerperal Fever	Thrush Other Diseases from Vegetable Parasites Hydatid Disease Other Disease from Animal Parasites	Starvation Scurvy

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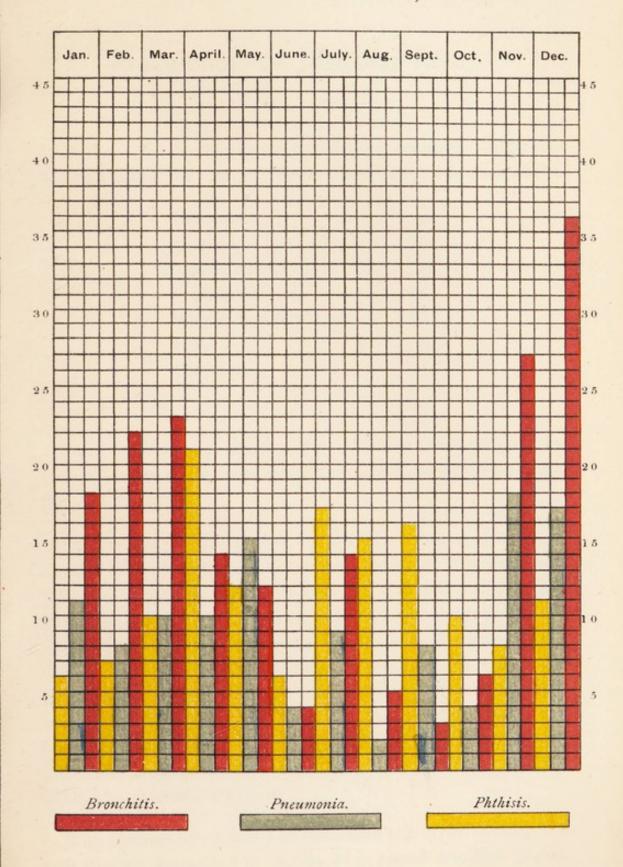
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MORTALITY TABLES Deaths in the County Borough of Plymouth for 12 months ending 31st December, 1896.	CAUSES OF DEATH.	Diseases of Lymphatic System	Diseases of Lymphatic System Diseases of Spleen Bronchocele Addison's Disease	DISEASES OF URINARY SYSTEM.	Acute Nephritis Bright's Disease Suppression of Urine	Ovarian Disease Diseases of Uterus and Vagina Disorders of Menstruation Pelvic Abscess Perineal Abscess Diseases of Testes, Penis, Scrotum, etc

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MORTALITY TABLES.—Deaths in the County Borough of Plymouth, for 12 months ending 31st December, 1896.	CAUSES OF DEATH.		Abortion, Miscarriage Puerperal Mania Puerperal Convulsions Placenta Prævia, Flooding Phlegmasia Dolens Other and undefined Accidents of Childbirth	Caries, Necrosis Arthritis, Ostitis, Periostitis Other and undefined Diseases of Organs of Locomotion	DISEASES OF THE INTEGUMENTARY SYSTEM. Carbuncle Phlegmon, Cellulitis Ulcer, Bedsore Eczema Pemphigus Pemphigus Other and undefined Diseases of Integumentary System
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MORTALITY TABLES.—Deaths in the County Borough of Plymouth for 12 months ending 31st December, 1896	CAUSES OF DEATH.		Ill-defined and not Specified Causes Debility, Atrophy, Inanition Other Ill-defined and not specified Causes (INQUESTS). Accident or Negligence.	Fractures, Contusions Gunshot Wounds	Murder, Manslaughter

MORTALITY TABLES. - Deaths in the County Borough of Plymouth, for 12 months ending 31st December, 1896. : W4: 4H TOTAL. 75 and upwards. MFMF under 65 and under MF 55 and : under 45 and M : 01 35 and under M F 45. MF under 25 and : MFMF under 15 and under : Œ under and M Under H year. : : W : Specific Febrile or Zymotic Diseases Constitutional Diseases ... INQUESTS.—Continued. Respiratory System Digestive System ... Urinary System ... CAUSES OF DEATH. : : Hanging ... Other and undefined Methods ... : : Diseases of Nervous System ... Natural Causes. Circulatory System Suicide. :: : Gunshot Wounds Other Causes Cut, Stab Drowning Poison

CHART SHEWING MORTALITY FROM RESPIRATORY DISEASES, 1896.



Prevalence of Disease, 1896.

Of the 1,769 deaths registered as having occurred within the Borough during the year, 225 were caused by zymotic diseases:—

Influenza -		19
Measles -		90
Scarlet Fever -	-	3
Diphtheria -		15
Whooping Cougl	1 -	18
Fever -	-	5
Diarrhœa -	-	75
		225

From non-notifiable diseases, viz:—Measles, Whooping Cough and Influenza, there have been 127 deaths, as against 168 for the year 1896.

Of the 225 deaths caused by zymotic diseases—127 were caused by diseases not included amongst those that are compulsorily notifiable; I refer to Measles, Whooping Cough, and Influenza, the two former are especially fatal amongst the poorer classes in crowded centres, generally from complications involving the respiratory organs. These diseases are not regarded as being sufficiently serious to warrant due precautions being taken nor is medical advice sought in many cases until complications have rendered the case practically hopeless. Both are highly infectious, Measles from its earliest stages before the appearance of the characteristic eruption.

Both diseases levy a heavy annual death toll in this country, last year this toll amounted to 29,905, or in round numbers 30,000,

and practically little is done to prevent this waste of life. I am aware there are difficulties connected with the control of Measles, not common to other diseases. I am of opinion that by notification, by the co-operation of the School Board Officers, by careful systematic visiting of infected houses and healthy houses in their vicinity, by the issue of printed instructions throughout the infected area, by removal and isolation of the earlier cases, and by thorough disinfection of rooms, clothing, and bedding, much might be done to check this appalling waste of life. One can hardly imagine the effect on the public of the announcement by the Registrar General that there were 30,000 deaths from Cholera or Small Pox each year, still less can one imagine the effect that would follow the statement that practically nothing was done to prevent extension, nor were the diseases considered sufficiently grave to warrant notification. I am of opinion that if the same amount of energy was expended in dealing with Measles as that expended in the prevention of either Small Pox or Cholera, many thousands of lives would be saved annually.

Another preventable disease, Syphilis, more far reaching in its effects than any other; one that is alarmingly on the increase amongst the civilian population as well as amongst our sailors and soldiers, and against which no precautions whatever are enforced by the legislature or by Municipalities. The position of the Borough as a large naval and military centre renders the observation of the effects of this disease somewhat easy, and I am at a loss to discern the logical attitude of a legislature that has so carefully and effectually legislated for the protection of the public against such diseases as scarlatina and erysipelas, while it permits the spreading broadcast of such a disease as Syphilis. The attention of the public has recently been directed to the extension of this disease, and I trust that much-needed legislation for its control will result.

Measles.—Since March, measles have been prevalent in the

Borough in one district or another, adding to the mortality in each month of the year, with the exception of January and February. In September the disease became epidemic and still continues, since which time 63 deaths have resulted; the total number for the year being 90.

Whooping Cough.—During the year this disease has not been so fatal as in the previous years; there have been only two months of the year, July and October, in which deaths have not resulted from whooping cough; the total mortality for the year amounted to 18.

Influenza.—This disease, which has apparently become endemic in this country, has during the year shown a tendency to decline, and I have to record the lowest number of deaths from this cause for the past six years. During the year the total number of deaths attributed to influenza have been 19, as against 63 in 1895. During the past six years 299 deaths have resulted from this cause.

Scarlatina.—During the year 118 cases have been notified, as against 73 for 1895. Three cases only terminated fatally; in each case the children were under five years of age. Of the 118 cases reported 65 were removed to the isolation hospital.

Enteric Fever.—During the year 28 cases of this disease have been notified, 15 of which were removed to hospital. The number of deaths registered during the year as resulting from this disease was five. Four cases were imported; two were removed from ocean passenger steamers, and two were contracted in other districts, leaving 24 cases as originating within the Borough. In nine instances sanitary defects were found to exist in the houses occupied by the patients.

There has been, during the past six years, a general diminution in the number of cases occurring within the Borough. Small Pox.—No cases of this disease have occurred in the Borough during the year, although an outbreak was reported from the neighbouring township, the case was removed to the hospital ship "Maud" at the request and expense of the Local Authority.

Vaccination.—The report of the Royal Commission on vaccination appointed in May, 1889, has been presented, and notwithstanding the fact that the conclusions arrived at by the commissioners are in favour of Vaccination as a preventive measure against Small Pox, they have given no decisive verdict for the continuance of compulsory vaccination, but practically suggest a system of permissive vaccination, which means that only the educated and thoughtful will insist on the only protective measure possible (vaccination) being adopted in the case of their children.

During the past year I am pleased to be able to note that the guardians have been most active in carrying out the Vaccination Act within the Borough, and defaulters have been proceeded against.

Diphtheria and Membranous Croup.—Thirty-seven cases of Diphtheria, and 12 cases of Membranous Croup, have been reported during the year, of the former six and of the latter nine terminated fatally. Eight cases of Diphtheria were removed to the isolation hospital, one of which terminated fatally; no cases of Membranous Croup were removed.

In 21 of the houses in which Diphtheria and Membranous Croup appeared, grave sanitary defects were found to exist.

Plymouth has not suffered from any marked increase in the incidence of Diphtheria during the past six years as many other large urban districts have, in London the increase of this disease is especially marked, formerly diphtheria was looked upon as a disease of rural districts, but in recent years owing to little

known altered conditions there has been an increase in urban districts with no corresponding increase in rural localities.

Puerperal Fever.—Seven cases of this disease have been reported during the year, four of which terminated fatally. Every precaution is taken to prevent extension, the majority of these cases occur amongst the patients attended by midwives, who do not as a body fully appreciate the adoption of aseptic measures. Each nurse or midwife in whose practice Puerperal Septicæmia occurs, is duly cautioned to abstain from attending other cases for some weeks, her clothing is disinfected and she is ordered a disinfecting bath. The sanitary conditions of the patient's house is thoroughly examined and disinfection carried out, this is especially necessary in tenemented houses.

Diarrhœa.—During the year there has been an increase in the number of deaths from Diarrhœa due to meteorological condition already noted in a former paragraph, the total number of deaths being 73 as against 45 for the previous year, the increase was during the 3rd quarter.

Borough Hospital—The number of cases admitted to the Isolation Hospital has again shown a marked increase; during the year, 145 new cases were admitted, 5 cases remained from the previous year, and 22 still remained under treatment at the end of December, 1896. One death only occurred during the year. No cases of infectious sickness has occurred amongst the members of the hospital staff.

Hospital Ship "Maud."—One case only of small pox has been treated on board during the year, that being a case from Stonehouse, received at the request of the Local Authority.

The details of all cases of disease reported will be found in the appended tables.

PLYMOUTH SANITARY AUTHORITY'S HOSPITALS.

TABLE OF TOTAL CASES TREATED DURING 1896.

MOUNT GOULD HOSPITAL.

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	_	2 2	7	1 150	2	cvjso
		41	12		63	
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M.	:	:	:	:	:	
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M.	:	20	14	:	9	
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121	:	6	00	:	I	
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F.	:	:	:	:	:	:
M.	:	:	:	:	:	
F.	:	2	w	:	:	23
M.	:	m	7	I	:	I
F.	н	37	35	:	3	:
M.	3	32	30	:	5	
Œ.	:	:	:	:	:	:
M.	:	:	:	:	:	
	Remaining from last year	Admitted	Discharged	Died	Remaining in Hospital	Mortality, per cent
	F. M.	M. F.	M. F.	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

6 of the 145 cases admitted were from other Sanitary Districts, viz.:-

s.s. Tantallon Castle. Lowestoft Fishing Boat. I case of Scarlet Fever from Ivybridge.

I ,, S.S. Ophir.

I ,, Typhoid Fever ,, S.S. Ophir.

I ,, S.S. Ophir.

MORTALITY PER CENT

	cs/so	123
		::
	,	4100
	:	314
	:	75
	121	203
-		40
	Cases treated in Hospital	Cases nursed at home

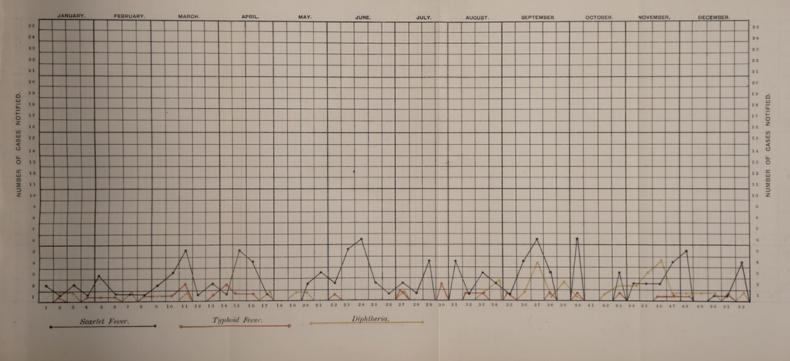
Total.			_		:			
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Influenza.	M.	:	:	:	:	:	:	
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iemiodie (141	H.	:	:	:	:	:	:	
Erysipelas.	M.	:	:	:	:	1	:	
Typhoid Fever.	F.	:	:	:	:	:	:	
reneal biodurT	M.	:	:	:	:	:	:	
Membranous Croup.	F.	:	:	:	:	:	:	
	M.	:	:	:	:	-	:	
Diphtheria.	F.	:	:	:	:	:	:	
oisedtdaiff	M.	:	:	:	:	;	:	
Scallet Fever.	F.	:	:	:	:	:	:	
Scarlet Fever.	M.	:	:	:	:	:	:	
AO I HAIRC	[보	:	:	:	:	:	:	
Small Pox.	M.	:	1	I	:	:	:	
		Remaining from last year	:	pa	:	Remaining in Hospital.	Mortality, per cent	
		Remainin	Admitted	Discharged	Died	Remainin	Mortali	

THE INFECTIOUS DISEASES (NOTIFICATION) ACT, 1889.

Table sherving the number of cases of Infectious Disease notified each month during the year 1896.

	Totals.	0	118	37	12	0	28	0	0	7	0	141	343
,	Dec.	:	9	3	10	:	I	:	:	:	:	17	32
	Nov.	:	13	6	I	:	3	:	:	63	:	19	47
,	Oct.	:	10	w	:	:	I	:	:	:	:	8	24
0	Sep.	:	13	6	:	:	63	:	:	:	:	6	33
	Aug.	:	∞	8	I	:	m	:	:	Н	:	6	25
	July	:	11	1	I	:	7	:	:	23	:	13	30
	June	:	14	:	:	:	I	:	:	1	:	14	30
	Мау	:	7	2	I	:	I	:	:	:	:	9	17
	Mar. April	:	II	-	:	:	23	:	:	:	:	91	30
	Mar.	:	11	I	:	:	9		:	I	:	13	32
	Feb.	:	7	I	:	:	m	:	:	:	:	6	20
,	Jan.	:	7	61	3	:	3	;_	:	:	:	00	23
,		:	:	:	-	:	:	:	:	:	:	:	:
,		;	:	:	:	:	:	:	:	:	:	:	:
	NOTIFIABLE DISEASES.	Small-pox	Scarlatina or Scarlet Fever	Diphtheria	Membranous Croup	Typhus Fever	Typhoid, or Enteric Fever	Continued Fever	Relapsing Fever	Puerperal Fever	Cholera	Erysipelas	Totals in each month

CHART SHEWING NUMBER OF CASES OF SCARLET FEVER, TYPHOID FEVER, AND DIPHTHERIA, NOTIFIED EACH WEEK FOR THE YEAR ENDING DECEMBER, 31st, 1896.



THE INFECTIOUS DISEASE (NOTIFICATION) ACT, 1889.

Table sherving the number of Notifications received in the eight years, 1889-1896.

Totals.	3167 399 63 63 486 13 	5153
9681	118 37 12 28 141 141	343
1895	108 108 108	260
1894	182 182 38 38 38 137	445
1893	1 469 660 100 100 174 174	777
1892	1264 52 52 6 93 77	1604
1681	239 556 112 51 51 51 51 74	469
1890	352 955 955 955 955 955 955 955 955 955 9	702
1889*	.: 470 472 5 : 1 : 1 : 2 : 2 : 2 : 2 : 2 : 2 : 2 : 2	553
		:
Notifiable Disease.	Small-pox Scarlatina, or Scarlet Fever Diphtheria Membranous Croup Typhus Fever Continued Fever Relapsing Fever Puerperal Fever Cholera Erysipelas	Total

* The compulsory notification of Infectious Disease came into operation in the Borough on the 12th November, 1889.

Monthly Table of Deaths from All Causes and Zymotic Diseases, with the rates per 1,000 per annum.

															_
Deaths of	Persons aged 60 and upwards.	49	57	38	33	46	34	37	41	29	37	99	53	520	
Dear	Infants under 1 year of age.	26	30	34	32	27/	27	89	10	26	31	47	57	460	-
Annual Rate	per I,000 living.	86.	08.	.63	98.1	1.50	.63	6.25	2.80	1.33	2,53	90.5	2.80	2.50	
No. of Deaths	from Zymotic Diseases		9	7	14	6	7	47	2.1	IO	61	38	21	206	
Annual Rate	per 1,000 living,	15.62	19.28	18.88	18.75	18.61	14.36	24.06	18.61	13.16	C4	27.38	27.52	19.59	
No. of Deaths	from All Causes.	120	145	142	141	149	108	181	149	66	122	206	207	1769	
			:	:	:		:	:	:	:	:	:	:		
	TH.	:	:	:	:	:	:	:	:	::	:	:	:	:	
	MONIH	January	February	March	April	May	June	July	August	September	October	November	December	 Year	

TOTALS Erysipelas : : : Cholera Puerperal Relapsing Fever Continued : : : Typhoid Fever : : Lyphus Croup. Membranous Diphtheria Scarlet Fever Smallpox 10 Artisans' Dwellings, Notte Street Alfred House, Alfred Place 20 Beatrice Avenue, E. 23 Bedford Park -18 Alvington Street 5 Armada Terrace 49 Baring Street . 1 Beaumont Place Road Terrace 5 Alma Cottages 10 Belmont Street 4 Adelaide Road 4 Belair Terrace Ashley Place 4 Abbey Place 23 Albert Road .

	TOTALS		I	Н	I	77	I	1	I	I	I	2	1	63	Н	I	I	I	Н	1	1
	Erysipelas		:	:	:	:	I	:	1	I	:	::	1	:	I	:	I	:	:	I	:
	Сројсга		:	:	:	:	:	:	:		:		:	:	:	:	:	:	:	:	:
	Paerperal Fever	-	::	:	I	:	:	:	/	:	::	:	:	:	:	::	:	:	:	:	
.90	Relapsing		:	:	:	/	:	:	:	:	:	:	:	:	:	:	:	:	:	:	::
, 1896.	Continued Fever		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
LIST,	Typhoid		1	I	:	:	:	:	:	:	:	:	:	:	:	:	:	I	Н	:	:
EET	Typhus		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
STREET	Membranous		:	::	:	:	:	:	:	:	:	:	:	:		:	:	:	:	:	:
SES-	Diphtheria		:	:	:	:		:	:	:	:	:	:	61	:	:	:	:	:	:	:
DISEASES	Scarlet Fever		:	:	:	61	:	-	:	:	I	61	:	:	:	-	:	:	:	:	-
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TOTALS	63	1	I	I	1	1	7	I	1	I	I	I	_	I	I	_	1	61	I	I
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Сројега	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:		
Puerperal Fevet	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:		:	100000
Relapsing	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	1000
Continued Fever	:	:	:	:	:		::	:	::	:	1	:	:	:	:	:	:	:	:	
Typhoid	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
Ecact Labyus	:	:	:	:	:			:	:	:	:	:	:	:	:	:	:	:	:	
Membranous	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
Diphtheria	61	I	:	:	:	:	:	:	н	П	:	:	I	:	:	I	:	61	:	-
Scarlet Fever	:	:	П	:	:	=	2	1	:	:	::	:	:	I	:	:	П	:	I	,
xod llam2	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
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TOTALS

Erysipelas Сројега Puerperal Puerperal Relapsing ZYMOTIC DISEASES-STREET LIST, 1896. Fever Continued Typhoid Fever Lyphus Cronb Membranous : 1 : : Diphtheria CI Scarlet Fever Smallpox 19 Egerton Road S. Elphinstone Barracks 7 Dove's Cottages-Drill Hall Cottages 13 Ermington Terrace 3 Eton Place 2 East Street
2 Edgcumbe Place
6 27 Desborough Road 3 "Koad - 13 Culme Terrace -1 Deptford Place -4 Edith Terrace 30 Cromwell Road Crozier Cottage Road 21 Exeter Street

ZYMOTIC DISEASES-STREET LIST. 1896.

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Puerperal Fever.			:	:	:	:	:	:	:	::	:	::	:	:		: :	:	:	
Relapsing Fever.		:	:		:	:	:	:	::	:	:	:	:	:			:	:	
Continued		:	:	:	:	:	:	:	:	:	:	:	:	:			:	::	
Typhoid Fever.		:	:	:	:	:	:	:	:	:	:	:		:			:	:	-
Typhus		:	:	:	:	:	:		:	:	:	:	:	:			:	:	
Membranous		:	:	:	:	:	:	:	:	:	:	:	:	:			:	:	
Diphtheria		:	:	:	:	:	:	:	:	I	:	I	:	:		: :	:	:	
Scarlet Fever	,	7	1	:	:	I	:	:	:	:	:	:	:	:	-	:	:	I	
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	22 Fyeter Street	ייייייייייייייייייייייייייייייייייייייי	. 22	,,		,,	31 Flora Street	Florence	"	Francis Street	" "	Frederic	Friary Street	"Amalii	Garden	Gascoyne Place	26 Gasking Street	General	Course Cottons

	TOTALS	I	I	-	1	I	I	I	I	1	I	I	I	-	Т	K	23	I	1	2
	Erysipelas	:	I	I	I	:	1	:	:	П	I	I	:	:	:	::	:	::	::	:
	Сројега	:	:	::	::	:	:	::	:	:	:	:	:	:		:	:	:	:	:
	Puerperal Fever	:	:	:	:	:	:	:			:	:	:	:	:	:	:	:	:	:
1896.	Relapsing Fever	:	:	::	::	:	:	:	:	:	:	:	:	:	::	:	:	:	:	:
	Continued Fever	:	:		:	:	:	:	:	:	:	:	:	:		***	:			
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DISEASES	Scarlet Pever	:	:	:	:	:	:	:	:	:	:	Н	I	I	-	63	I	:	I	2
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TOTALS Erysipelas Cholera Puerperal Fever Relapsing Continued Fever Typhoid Fever Lyphus Membranous Diphtheria Scarlet Pever Smallpox 24 "..." "..."
20 Home Sweet Home
21 "..."
31 "..."
31 "..." Terrace 24 Hyde Park Road z James Cottages - 25 " Street 5 John Street - 63 Jubilee Street - 5 1 Hicks' Lane 60 High Street 6 Higher Street 20 Henry Street 19 Ilbert Street

-STREET LIST, 1896.

ZYMOTIC DISEASES

TOTALS Etysipelas Сројега Puerperal Relapsing ZYMOTIC DISEASES-STREET LIST, 1896. Continued Fever Typhoid Fever Lyphus Croup Membranous Diphtheria Scarlet Fever Smallpox " Kirkby House, Kirkby Place 28 Knighton Road 12 Kensington Terrace
10 King Lane
37 ", Street -9 " Street - 5 Lambhay Hill - 8 Street 9 Leigham Villas 11 Lisson Grove 16 Lockyer Road 7 Julian Street 8 Laira Place I Looe Street . 11

	TOTALS		I	I	— ,	-		-	1	I	I	I	н.	I	I	I	I	н	+	٠,	1 ,	-
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	Puerperal		:,	:	:	:		:	I	:	:	:	:	::	:	:	:	:		:	:	:
9	Relapsing Fever		:	:	::	:		:	:	:		:	:	:	:	:	:	:		:	:	:
, 1896.	Continued Fevet		:	:	:	:		:	:	:	:	::	:	:	:	:	:	:		:	:	:
LIST,	Typhoid Fever		:	:	:	:		:	:	:	:	:	:	:	I	:	:	:		:	:	:
	Lever		:	:	:	:		:	:	:		:	:	::	:	:	:	:		::	:	:
STREET	Membranous Croup,		:	::	:	477		:		:	:	:	:	:	:		:	:		:	:	
ES	Diphtheila		:	:	:	:	****	:	:	:	:	:	:	:	:	:	:	:		:	:	
DISEASES	Scarlet Fever		:	:	:			:	:	I	H	:	:	:	:	:	:	I		I	I	
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Slaughter-houses .- Again I must bring to your notice the condition of the Slaughter-houses in the Borough, which, with two exceptions, are what are known as private houses. They are eight in number; one having been demolished during the year for street improvements, one other also is scheduled for demolition, leaving seven. The situation of these establishments is practically in close proximity to the Meat Market, and in the midst of a dense population. Their position is eminently unsuitable for the purposes of the slaughter of cattle, and the approaches to the majority are narrow and dangerous. The structural and internal arrangements are not such as to commend themselves to Sanitarians, nor do any of the houses meet all the requirements of the Local Government Board's suggested rules as to the site and structure of Slaughter-houses. The above remarks refer to the private establishments in the Borough, and, especially to their structure, position, and fittings. The most forcible argument against the continuance, in our midst, of private Abattoirs, is the absence of control and skilled examination of all animals before killing, this is absolutely essential if we are to entirely prevent the slaughtering of animals for food, suffering from disease. Not only should each animal be examined, before slaughter, by a skilled examiner; but, also, when killed, the examination to include the viscera; each carcass or quarter should also be branded or tagged, as having been examined and passed as fit for human food.

Before concluding these remarks, in justice to the owners and occupiers of the private slaughter houses here, I am able to report that every facility has been afforded to myself and inspector for the inspection of these establishments at all times. By owners and slaughter-men we have always been courteously received, and all possible information afforded us.

I would again, as I have in former reports, point out the urgent necessity of obtaining powers for the periodical examination of all milch cows within the Borough, with a view to eliminate all animals suffering from tuberculosis, the scourge

alike of man and animal, transmissable from one to the other. From statistics, it is computed that 26 per cent. of the dairy cattle in this country are infected with tubercle. This enormously heavy incidence of disease is of the gravest import, and of vital importance to the public health of the country. The number of deaths per annum in England from tuberculosis (a preventable disease) averages 56,000, or one in nine); the proportion of deaths from tuberculosis to deaths from all causes per million, is, in round numbers, 112,000. Having in view the enormous loss of life each year caused by tuberculous disease, the efforts of all Sanitary Authorities should be directed to means whereby this enormous annual death toll might be lessened. Legislation is urgently required, to enable Authorities to deal with all animals suffering, or suspected of suffering from tuberculosis.

I strongly recommend for your consideration the whole question of dealing with animals intended for food, and also dairy cattle coming within the jurisdiction of the Council. The cost would not be a heavy one. I refer to the employment of a skilled Veterinary Surgeon by the Corporation, who could periodically examine all dairy cattle within the Borough; who would also examine all animals before and after slaughter, and who might also have in charge the horses owned by the Corporation, the number of which will be largely increased in the near future.

In taking this most important scheme in hand, the first step will be for the Corporation to provide in some convenient and accessible locality, public abattoirs absolutely under Municipal control, or a series of such contained in one building, thus enabling any butcher who desired to do so, to rent a separate abatoir. Facilities for the transit of dead meat from the abatoir to the Wholesale Meat Market should be provided. The establishment should be provided with the necessary lairages—cold storage rooms—and arrangements for tripe boiling, gut scraping, etc., which is now carried on in various parts of the Borough, to the annoyance of many of the

inhabitants. These establishments should not be permitted except at the abattoir. A cremator should also be provided for the destruction of all diseased carcases, and all meat seized as unfit for food.



Plymouth Meteorological Report.

To the Chairman and Members of the Sanitary Committee.

GENTLEMEN,

I have the honour of reporting on the administration of the Meteorological Observatory during 1896, together with a summary of the chief meteorological conditions with which the town was favoured.

The equipment of the observatory remains the same as when founded in 1892, and consists of Standard Barometer, Maximum and Minimum shade Thermometers. Dry and Wet Bulb Thermometers, Rain Gauges, Sunshine Recorder, and Stevenson Screen.

The station still remains incomplete for the want of the following instruments:—Anemometer and Anemograph for registering force and direction of the wind, which, in such an important seaport, it is most essential should be accurately recorded. Self-registering Rain Gauge. Thermometer for maximum temperature in sun and temperature of sea.

The observations were taken twice daily throughout the year at 9 a.m. and 9 p.m. local time and amounted in the aggregate to upwards of 5,000 observations, the tabulation and reductions of which I personally execute.

In the readings of the instruments I have been ably assisted by Mr. E. H. Whiteford, Mr. W. F. H. Creber, and Mr. E. H. Netten, to all of whom I tender my thanks as well as to Messrs. Chalice and Venton for assisting in registering the rainfall at Freedom Fields.

Daily and weekly reports were furnished to the local press and paragraphs descriptive of exceptional weather as such occurred.

Monthly climatological reports were forwarded to Silvanus Trevail, Esq., Chairman of the Sanitary Committee, Cornwall County Council, and were incorporated with the monthly health reports issued by that authority and which are circulated throughout the Kingdom.

Agricultural statistics of the weather were furnished to the Meteorological Office weekly and full reports at the end of each month,

Fortnightly returns were made to the Medical Officer of Health.

Particulars of the temperature, sunshine, and rainfall were supplied to A. Chandler, Esq., Secretary of the Climatological Committee, Devonshire Association, for insertion in the Association's proceedings, and the annual rainfall statistics have been sent to G. J. Symons, Esq. for publication in his *British Rainfall* 1896.

Early in September the station was inspected and the instruments compared with standard instruments by J. S. Harding, Esq. of the Meteorological Office, London, and found to be in a satisfactory condition.

I am indebted to Dr. A. N. Davis for the particulars of rainfall at Blackadon Asylum which he has taken throughout the year and which will be found in table No. 4 at the end of the report.

During the year I received numerous enquiries from Medical gentlemen and others asking for particulars of the climate of Plymouth to all of whom the information has been readily accorded.

Through the courtesy of the secretary of the Meteorological Office, who has kindly furnished me with a copy of the Official Weather Reports I have been enabled to prepare the table in the appendix.

From an analysis of these reports, it is exceedingly gratifying to me to be able to draw your attention to the following important facts:

1st. That on an average of 25 years the mean temperature of the air at Plymouth was 50.8 degrees, standing with Falmouth fourth in the British Isles, being exceeded only at Valencia 51.0 degrees; Jersey 51.2 degrees; and Scilly 52 degrees.

2nd. That the bright sunshine recorded each year on an average extending over a period of 15 years was 1617.5 hours, placing Plymouth sixth in the British Isles.

3rd. That the rainfall on an average of 30 years at Plymouth was 36.36 inches, which is only two inches in excess of the average of the British Isles, and is exceeded at nineteen places out of a total of sixty-three, including Manchester 37.81 inches; Glasgow 39.61 inches; Douglas 41.25 inches; Falmouth 47.69 inches; Londonderry 40.11 inches; and Valentia 55.80 inches.

I believe if these particulars, together with a summary of the pleasant attractions in this neighbourhood were published and extensively circulated throughout the large manufacturing and commercial centres, that it would be the means of placing the town in its true position, and also attract numerous visitors and enhance its popularity as a health and pleasure resort.

The tables at the end of the report have explanatory notes and it is unnecessary for me to say anything regarding them here.

In conclusion I beg to tender you my sincere thanks for your kind assistance and cordial co-operation extended to me throughout the past year.

I have the honour to be, gentlemen,

Your obedient servant,

H. VICTOR PRIGG,

Borough Meteorologist.



RESULTS OF OBSERVATIONS MADE DURING THE YEAR 1896.

The Observatory is situated on "The Hoe," to the north of the Gardener's Lodge, and is in latitude 50° 21' 44" N.; longitude 4° 8' 20" W.; its altitude is 117 feet above mean sea level.

The barometer is a marine pattern by Adie, and is fixed 116 feet above sea level.

The thermometers are by Negretti and Zambra.

All readings of the barometer are corrected for index error.

Duration of bright sunshine is ascertained by a Campbell-Stokes' sunshine recorder.

The rain gauges are the Meteorological Office pattern, made of copper, and fixed 10 inches above the ground. Those at "The Hoe" and Freedom Fields are 8 inches in diameter and fixed at 117 feet and 208 feet above mean sea level, respectively. The gauge at Blackadon Asylum (situated about thirteen miles east of Plymouth on the south-east border of Dartmoor) is five inches in diameter and fixed at a height of 607 feet above sea level.

All the instruments were supplied through the Meteorological Office and verified at Kew Observatory.

The observations are made twice daily at the hours of 9 a.m. and 9 p.m. local time (Greenwich time 9 hrs. 16 mins.)

The direction of the wind is taken to true and not magnetic bearings.

The averages which the results in the tables are compared with are as follows:—

 Temperature
 25 years
 1870 to 1895

 Atmospheric pressure 10 years
 1880 to 1889

 Sunshine
 15 years
 1880 to 1895

 Rainfall
 30 years
 1865 to 1895

CHIEF CHARACTERISTICS OF THE WEATHER DURING EACH MONTH, 1896.

JANUARY. The weather was mostly cloudy and misty, temperature and pressure much above the average, especially about the 9th when the reduced reading of the Barometer was 30.919 inches.

Frost was registered in the screen twice and on the grass on five occasions.

The minimum on the grass was 27.0 degrees on the 30th.

Bright sunshine was nearly five hours in excess of the average.

Wind was light and variable.

FEBRUARY. Fair and dry, with temperature about the average, and pressure high.

No frost registered in the screen, and only twice on the grass. Sunshine deficient; rainfall below the average.

Wind, light, mostly north-easterly.

MARCH. Very unsettled, with frequent falls of rain and hail.

Thunder and lightning occurred during first few days.

Pressure below the average; temperature high; wind, mostly from the westward with frequent gales.

Rainfall considerably above the average. Sunshine very deficient.

No frost registered in the screen but four nights on the grass.

April. Fine dry and fairly mild during greater part of the month; few showers and squally weather experienced during second week.

Temperature above the average; no frost throughout the month.

Pressure fairly high and above the average.

Several days bright continuous sunshine, but the total for the month below the average.

Rainfall very deficient.

Prevailing winds westerly and north-westerly, generally light; gale on the 12th.

May. With the exception of a light shower of rain during the night of the 21st, the weather was very fair, warm, and sunny.

The mean temperature was above the average; on five days the maximum temperature was above 70 degrees, and the minimum during twelve nights above 50 degrees. Pressure was high and steady.

Rainfall two inches below average,

Abnormal amount of bright sunshine, more than 50 per cent. above the average.

Light north-westerly and northerly winds prevailed.

June. The weather was variable and showery, with bright and sunny days intervening.

Temperature above the average, the maximum temperature in the shade was 81'4 degrees on the 15th which proved to be the highest for the year.

Night temperature was warm throughout, the minimum being 44'1 degrees.

Pressure below the average and very unsteady until last week when it became higher.

Large amount of bright sunshine exceeding the average by about 25 per cent.

Rainfall below the normal, and fell during eight days.

Light cooling breezes from the north-west prevailed.

July. During the first and last portions of the month the weather was wet and unsettled, with heavy rain about the 25th; the middle portion was fine and dry.

Temperature was normal.

Pressure steady and slightly above average,

Sunshine exceeding average by 17 per cent., but was generally intermittent.

Rain fell on 14 days in light showers, the total being very deficient.

Thunderstorm passed over the town on the 26th.

The prevailing winds were north-westerly and south-westerly.

August. Unsettled, distant thunder heard, and showery during first few days—then more settled until latter part—when wet and dirty weather set in and continued until end of the month.

The temperature was below the average; pressure high and steady until end of month, when a low-pressure system set in accompanied with squalls and heavy rain.

Bright sunshine was about the average and rainfall much below. North-westerly winds predominated.

SEPTEMBER. The weather during this month was very wet and unsettled, with strong westerly gales during third week.

Temperature, normal; pressure fluctuated considerably but exceeded average.

Very small amount of bright sunshine registered.

Rainfall considerably in excess and fell during 26 days.

Wind mostly from the westward.

OCTOBER. Cold and wet with frequent gales.

Temperature, low and changeable, the mean below average.

Pressure fluctuated considerably, and ranged from 30.501 inches to 29.189 inches, the mean was above the average.

Sunshine slightly in excess of the normal; there were five sunless days.

Rain fell on 21 days but the months total was below the average

Thunderstorm on the 9th.

Slight fall of snow.

Frost was recorded in the screen during two nights, and six on the grass.

NOVEMBER. During the first part of the month the weather was fine and dry; about the second week a change set in, the temperature rising, and showery unsettled weather was experienced.

The Temperature was below the average; pressure fairly high but fluctuating throughout.

Sunshine very much in excess, Rainfall deficient.

Frost registered in the screen six nights, and on the grass fourteen nights.

DECEMBER. The weather was extremely changeable, very wet and frequent gales.

Temperature about the average; frost in the screen on four occasions, and eight times on the grass.

Sunshine deficient; there were 14 sunless days.

Rainfall very heavy; the total being nearly twice the normal.

Wind very variable.

THE YEAR. The year has been remarkably dry and fine, with a large amount of bright sunshine,

During the first six months the air was much warmer than usual, the temperature being above the normal during each month; during the last six months it was below the average, bringing the mean of the year close to the average.

Rainfall was very deficient during nine months; the year's total being nearly $7\frac{1}{2}$ inches below the average.

The prevailing wind was north-westerly.

Table No. 1.--TEMPERATURE, IN STEVENSON SCREEN.

	Date.	3oth 2nd 19th 3oth 2nd 1st 28th 19th 19th 21st 29th 1oth 2oth	Feb. 2nd
Absolute Temperature.	Minimum.	30.5 34.0 34.0 37.8 37.0 447.1 46.8 46.8 30.0 29.5 28.8	27.9
Absolute T	Date.	17th&26th 28th 28th 22nd 19th 12th 15th 7th 23rd 8th 3rd 18th 1st	June 15th
	Maximum.	52.9 562.9 77.2 77.7 65.9 65.9 53.4	81.4
	Range.	0 6.5 9.2 9.0 11.7 12.5 12.5 12.6 10.8 11.5 8.0	10.8
ls of	Minimum.	\$8.8 38.8 43.2 44.1 54.7 55.2 53.7 53.7 36.5 39.2	45.8
Means of	Maximum.	64.3 67.2 67.2 67.2 67.3 67.3 67.7 67.7 67.7 67.7	5,95
† Difference	from	0 + + + 2.5 + + + 2.7 +	+0.3
, Mean Temperature		61.4 61.4 61.4 61.4 61.4 61.4 61.4 61.4	2.15
			:
1806		January February March April May June July August September October November December	Means

* The Mean Temperature given above are the Means of the daily readings of the Maximum and Minimum Thermometers.

⁺ The Average here referred to is the average of 25 years, 1871 to 1895.

REMARKS (TABLE No. 1).

Temperature of the Air.

The mean temperature of the air for the year was slightly above the average—o'3 degree. During the first six months the mean temperature was considerably above the average the greatest excess being in March, 3'6 degrees.

During August, October and November the temperature was below the average.

The warmest day was 15th June, the shade temperature being 81'4 degrees and the coldest day 2nd February, the minimum for the day was 27'9 degrees.

The warmest night temperature was 65.4 degrees on the 13th June, and coldest day temperature 34.4 on 7th January.

Table No. 2. ATMOSPHERIC PRESSURE.

1		
Observed Monthly Range.	inches. 1.334 1.035 1.035 0.663 0.469 0.913 0.639 0.577 1.571 1.292 1.292	1,00,1
Date.	14th 19th 229th 229th 25th 25th 25th 19th 14th 6th	Dec. 6th
Lowest.	inches. 29'585 29'609 28'945 29'816 30'003 29'425 29'425 29'759 29'759 28'940 29'189 29'189 29'311 28'508	28.508
Date.	9th Ist Ioth 19th 25th 29th 18th IIth 30th 1st 23rd 27th	Jan. 9th
Highest.	inches. 30'919 30'644 30'297 30'472 30'338 30'338 30'336 30'501 30'501 30'603 30'456	30.616
Difference from Average.	inches. +0.340 +0.430 -0.085 +0.262 +0.262 +0.047 +0.083 +0.289 +0.147 +0.326 -0.204	960.0+
Mean Pressure (at 32° F. and Sea Level.)	inches. 30°369 30°320 29°882 30°247 30°247 29°968 30°050 30°096 30°096 30°096 30°096 30°096	30.080
	*::::::::	i
1896.	January February April May June July September October November December	Means

REMARKS (TABLE No. 2.)

The extremes observed were 30.919 inches on the 9th January, and 28.508 inches on the 6th December, giving a total range of 2.411 inches.

The greatest monthly range occurred in December, and the least in May,

The mean pressure was slightly above the average.

BRIGHT SUNSHINE. DURATION OF ri, Table No.

Sunless Days.	11 1 1 8 20 7 41	56
Sunny Days.	20 27 27 30 30 30 31 27 23 17	310
Percentage of Possible.	40188888867 40188888889989	92
Greatest Daily Amount (hours).	6.00 6.08 10.00 14.50 14.85 12.80 10.12 9.04 8.05 5.90	14.85
Difference from Average (hours).	+ 4.7 - 16.7 - 29 6 - 12.9 + 69.8 + 38.1 + 6.5 + 20.2 - 4.5	+125.6
Percentage of Possible.	21 30 40 66 66 57 27 33 19	40
Actual Sunshine (hours).	55.74 63.22 109.53 164.81 313.55 277.80 231.02 187.77 99.18 113.01 79.95 47.20	1743.44
	11111111111	sc
1896.	January February March April May June July August September October November December	Totals and Means

REMARKS (TABLE No. 3).

Bright sunshine during the year was considerably above the average of 15 years—1881-1895. The greatest excess was during May and June; 32 and 25 per cent. respectively.

During five months the sunshine was deficient, September being more than 53 per cent. below the normal.

The greatest daily amount during the year was registered on the 27th of June with 14.85 hours; but the day on which the highest per centage of possible sunshine was November 8th, when 92 per cent. was received.

The mean daily sunshine was 4.76 hours.

The sun shone on 310 days.

Table No. 4. RAINFALL.

-	- 1				-												
	Blackadon Asylum	Date.		24th	8th	20th	13th	21st	16th	24th	24th	24th	6th	14th	Ist	Dec,	Ist
day.	Blackado	Amount.	Inches.	98.0	0.34	1.14	0.15	90.0	16.0	0.63	0.20	1.98	06.0	18.0	2 23		2.53
in one	Fields.	Date.		24th	8th	20th	24th	2 I St	16th	24th	26th	21st	6th	14th	ıst	Sep.	2 ISt
Greatest fall in one day.	Freedom Fields.	Amount.	Inches.	0.20	0.58	1.07	01.0	0.05	0 68	0.65	0.38	1.44	0.57	0.57	80.1		1.44
Grea	The Hoe.	Date.		24th	8th	2oth	24th	21st	16th	24th	25th	21st	6th	14th	Ist	Sep.	21St
	The	Amount.	Inches.	0.48	0.24	1.07	60.0	10.0	49.0	96.0	0.42	1.40	0.20	0.50	1.03		1.40
or more	don m.	Blacka		19	7	26	12	I	OI	13	91	27	23	11	28		193
Wet days or falls of 0.01 or more		breedd blei¶		15	9	24	IO	I	IO	13	14	25	20	12	26		176
W falls o	.54	Тһе Но		91	7	24	10	1	00	14	14	26	21	12	26		621
	not no	Blackad Asylun	Inches.	2.87	0.82	01.4	0.64	90.0	5.69	2.26	2.27	6.23	81.6	26.I	12.67		48.02
ainfall.	s we	Freedo blai4	Inches.	1.26	08.0	3.05	0.50	50.0	89. I	1.53	1.88	5.15	3:14	1.0.I	50.6		28.62
Total Rainfall.	The Hoe.	Difference from Average.	Inches.	-2.66	-2.13	+1.41	-2.01	-2.02	-0.28	-1.33	-1.00	+1.78	00.1-	-2.74	+4.63		-7.44
	The	Rainfall.	Inches.	1.25	0.74	3.87	0.58	10.0	69.1	1.64	1.84	62.5	5.06	1.03	8.52		29.12
				1	1	1	1	,	. 1		1	1	- 1	1	1		1
	1896.			January	February	March -	April	Mav -	Tune -	Iuly -	August-	September	October	November	December		Totals

REMARKS (TABLE No. 4).

Remarks on the Rainfall.

During nine months the quantity registered was considerably below the average, the driest month being May, with a fall of o'or inch.

Daily falls of over one inch was registered on three days at The Hoe, five days at Freedom Fields, and eight days at Blackadon Asylum, including one day on which 2'23 inches fell.

The mean wet day rainfall for the year was 0'16 inch.

Table No. 5. AMOUNT OF CLOUD, RELATIVE HUMIDITY, AND GENERAL PHENOMENA.

1806.	Mean amou of Cloud.	t	Mean relative humid- ity. Saturation-100.	n relative humid- Saturation100.			Num	er of d	Number of days observed	erved.	
	9 a.m.	9 p.m.	9 a.m.	9 p.m.	Fog.	Snow.	Hail.	Clear Sky.	O'cast.	Thunder	Distant Lightning
[anuary	6.4	6.4	89	89	7	0	0	I	11	0	0
February	8.7	0.9	88	88	2	0	0	n	7	0	0
March	9.4	3.1	84	92	0	0	61	00	w	1	0
April	2.0	3.3	81	89	1	0	0	12	3	0	0
May	3.8	2.00	89	79	I	0	0	23	0	0	0
Tune	6.3	8.4	94	83	0	0	0	14	0	0	0
July	6.5	4.3	80	88	-	0	0	IO	I	1	0
1st	9.9	9.4	80	85	0	0	0	∞	0	0	0
		2.2	85	88	3	0	0	1	3	0	I
October	2.8	× ×	93	82	3	П	0	9	w	1	0
November	6.5	3.8	87	88	-	I	0	9	7	0	0
December	6.1	0.2	90	87	П	0	0	0	4	0	0
				1				1			-
Means and Totals	8.9	8.4	83	87	23	61	64	100	46	60	I

REMARKS (TABLE No. 5.)

Amount of Cloud, Relative Humidity, and General Phenomena.

The sky was clearest during April, May, and June, and overcast in January and December.

The air was driest during May, the mean Relative Humidity being 73. The driest air recorded was on 14th May, when it contained 46 per cent. of moisture. On sixteen days during the year the moisture in the air was under 60 per cent.

Fogs were most prevalent during January and February

Table No. 6.-DIRECTION OF WIND.

Calm per cent	13 10 6 3 3 5 11 7	9
N.W. per cent	27 36 37 37 31 27 27 27 27 27 14 14 14	23
W. per cent	11 23 20 3 12 19 19 17 8	13
S.W.	41 23 24 28 28 28 28 29 40 10	15
S. per cent	22722487021	7
S.E. per cent	2 6 7 2 2 1 1 1 1 2 2 4 4	9
E. per cent	111 122 13 13 15 10 10 10 10 10 10 10 10 10 10 10 10 10	2
N.E. per cent	23 36 7 7 13 14 10 10	91
N. per cent	81 81 82 84 84 84 84	6
9681	January February March April June July August September October November December	Means

REMARKS (TABLE No. 6).

The wind during the year was somewhat variable, the prevailing winds being North westerly.

Only 36 per cent of the winds were Easterly and Northerly, whilst 64 per cent were Westerly and Southerly.

Gales occurred in March, April, September, and December.

APPENDIX.

Mean Temperature, Sunshine, and Rainfall, at various Towns and Health Resorts in the British Isles.

		Town.			Mean Temperature. 25 years.	Mean Daily Range. 25 years.	Average Annual Sunshine. 15 years.	Average Annual Rainfall. 30 years.
T. C. L.						0	Hours	Inches.
PLYMOUTH	:	::	:	:	20.9	8.11	1017.5	30.20
u	::	:	:		46.2	4.11	1420.0	30.84
Glasgow	:	:		:	46.8	2.11	8.5601	19.68
	:	::	:	:	46.7	14.2	1297'2	28.21
	:	:	:	:	47.8	14.2	1279.8	25.62
ol	:	:	:	:	1.84	6.11	1339.7	33.89
Oouglas	:	:	:		0.84	1.11	1.2651	41.25
er	:	:	:	:	9.44	13.3	1	37.81
Liverpool	:	:	:	:	8.84	10.4	1	28.93
0	:	:	::		49.7	8.01	1349.6	-
	:	:	::	:	49.7	7.4	1654.5	35.16
Oxford	:	::	:	:	6.84	13.6	1482.2	25.72
Cambridge	:	:	::	:	48.7	1.91	6,1251	23.29
	:	::	::	:	6.64	14.8	1240.1	24.84
Southampton	:	:	:	:	50.5	13.8	1647.8	31.27
	:	:	:	:	9.64	10.5	9	29.24
Falmouth	:	::	:	:	8.05	9.8	1734'4	69.24
Armagh	:	:	:	:	47.4	12.2	1262'9	H
	:	:	:	:	49.5	0.11	-	1
Valencia	:	:	:	:	0.15	10.3	1487.7	55.80
	:				0.15	1.01	1030.5	4

REPORT

Of Work done by the Sanitary Staff,

For the Year ending December 31st, 1896.

GENTLEMEN,

I have the honour to submit for your approval my Fifth Annual Report of the work done by the Inspectors, for the year ending December 31st, 1896.

Acting under the instructions given from time to time by the Medical Officer of Health, active work has been carried on in all parts of the Borough. During the month of November in company with the Medical Officer, every house in the added area of Laira was visited and reported upon; the houses in the older parts of Compton Gifford and Pennycross, were also systematically visited.

It will be seen by the tabulated statement that the whole of the Inspectors have made a total of 22,157 recorded visits: of these 6,811 were to premises under the Bye-laws for Houses Let in Lodgings.

Under the "Sale of Food and Drugs Act," 103 samples have been purchased, as compared with 101 in the previous year; proceedings were taken in six cases, and fines amounting in the aggregate to £15 10s. od. imposed. The articles submitted for analysis were as follows: Milk 50; Cream 5; Coffee 4; Spirits 14; Sweets 11; Butter 11; Lard 4; Olive Oil 4. Total 103.

The number of complaints of nuisances existing on premises were fewer than formerly, showing the benefits of the systematic sanitary work done in previous years; complaints received were generally attended to the same day.

The Common Lodging houses were periodically inspected, and reported on to the Medical Officer, who visited them from time to time.

In addition to the notices served for the abatement of nuisances in dwelling houses, there have been 1,209 notices issued under the "Infectious Disease Prevention Act."

I append a table showing the particulars of the work done.

I remain Gentlemen,

Your obedient servant,

W. J. ADDISCOTT,

Sanitary Inspector.

TABLE

Giving Particulars of Visits and Work done by the Inspectors in the Health Department.

Number of visits to premises for all purposes	-		22,057
" of notices served to abate nuisances -		-	1,078
,, complied with	-		941
,, not complied with		-	137
" letters written relative to sanitary work	-		752
" tests applied to house drains -		-	1,502
Of these totals 6,811 visits, 725 tests to drains, 672 notice letters written were in connection with Premises the "Bye-laws for Houses Let in Lodgings."	es se whic	rved,	and 356 ne under
Disused drains destroyed	-		14
Wall drains piped			49
Pipe drains repaired or relaid -			462
Choked drains cleared		-	90
Soil pipes, renewed or repaired -	-		95
Iron traps re-set		-	29
Earthenware gully traps provided -	-		1,071
New apparatus supplied for W.C's.		-	613
Flushing cisterns fixed	-		482
Flushing cisterns repaired		-	73
W.C.'s re-built or re-constructed -	-		57
Surface of courtlages repaired		-	125
Galvanised refuse receptacles provided -	-		186
Premises cleansed and limewashed -		-	229
Roofs and flats repaired	-		65
Urinals constructed		-	7
General nuisances not enumerated in the above	-		334
Total		-	3,981

Report of Borough Analyst.

BOROUGH LABORATORY, MUNICIPAL BUILDINGS,

PLYMOUTH, 6th March, 1897.

GENTLEMEN,

I beg to report that 103 articles have been submitted to me for analysis, during the past year, in connection with the Food and Drugs' Adulteration Act.

They consist of :-

Milks	 	50
Spirits	 	14
Butter	 	11
Confectionery	 	II
Cream	 	5
Lard	 	4
Olive Oil	 	4
Coffee	 	4
		103

Eleven of these (10.7 per cent.) were adulterated in a varying degree, but prosecution was advised only in six cases, it being

considered that the adulteration in the other five cases was insufficient to assure convictions. Convictions were obtained in each of the six cases prosecuted, and fines amounting in all to \pounds , 15 10s. followed.

The milk vendors were, as usual, the worst offenders, and furnished 10 out of the 11 cases of adulteration.

Of 50 samples of milk examined 10 proved to be more or less adulterated—either by skimming, or watering, or both. Proceedings were taken against six of the worst of these, resulting in each of them being fined.

For the previous four years there has been a progressive decrease in the amount of adulteration of milk in Plymouth; thus, in 1895, five per cent. only of the samples examined were adversely reported on; it is, therefore, somewhat disappointing to witness in 1896 a sudden increase to 20 per cent.

It, however, emphasises the necessity of an unrelaxing vigilance, and persistance in examining our milk supply.

One sample of spirit was found to have been diluted with rather more water than allowed by statute; but the excess was so slight that no action was taken in the matter.

None of the specimens of butter examined were found to be mixtures with margarine, or otherwise adulterated: this seems to be the general tendency throughout the country, a considerably less number being reported against last year than in preceding years.

The other articles examined were all genuine.

In addition to the items analysed under the Food & Drugs' Act, analyses were made of 36 samples of water sewerage, &c., for the Sanitary, Borough Engineer's and Water Departments, five samples of disinfectant were also examined; and two specimens of a fluid for the Chief Constable, in a suspected criminal case.

PHOTOMETRIC REPORT ON PLYMOUTH GAS FOR 1896.

During the year the illuminating value of the gas was rarely found below the required standard of 15 candles.

On one occasion it sank to 14.50, and on another it was found as high as 17.02 standard candles.

Following are the monthly averages:-

January	15'43	July	15.20
February	16.35	August	15.06
March	15.32	September .	15.00
April	15.19	October	15.16
May	15.16	November .	15.15
June	15.19	December .	

The average for the year was exactly the same as in 1895, viz.:—15:31 standard candles.

I am, Gentlemen,

Yours faithfully,

ary of the cyclic and the Mary's

CHAS. E. BEAN, F.R.C.S.E.

ANNUAL REPORT OF THE PORT MEDICAL OFFICER FOR 1896.

Plymouth Port Sanitary Authority.

GENTLEMEN,

I have the honour of submitting for your information my Sixth Annual Report on the health of the floating population frequenting the Port, and upon the work of your officials for the year 1896.

The repealing of the Quarantine Act, and passing of the Public Health Ports Act has considerably increased the powers and duties of Port Sanitary Authorities. The work formerly under the direction of the Privy Council and H.M. Customs, has been transferred to the Local Government Board, who have issued regulations for the guidance of local authorities, in dealing with Cholera, Yellow Fever, and Plague.

During the year 189 cases of sickness have been reported to me, occurring on vessels arriving at the port. Each vessel reporting sickness has been medically inspected upon arrival by myself, or in my absence, by my deputy.

The number of vessels medically inspected during the year was 89. I also had occasion to visit for inspection, in company with the Inspector, 124 vessels.

Fifteen cases of infectious disease have been removed from vessels to Hospital during the year. 10 of these were removed to the "Pique" Hospital Ship, and five to the Borough Hospital, the latter being passengers arriving by mail boat.

All the foregoing cases were discharged convalescent.

During the early part of the year, the hospital ship "Pique" developed a somewhat serious leak, which necessitated her being placed in dry dock, where she was re-caulked and re-sheathed. She had not been docked for 13 years. All necessary repairs being completed, she was replaced at her moorings.

The continuous inspection of vessels has been carried on during the year by the Inspector, the number inspected being 2904; this is exclusive of those vessels medically inspected.
221 of these required lime-washing, painting, or cleansing;
7 required repairs to crews quarters, to render them fit for habitation. The necessary disinfection of cabins, forecastles, &c., from which infectious cases of sickness have been removed, has been carried out under my personal supervision; the bedding, clothing, and personal effects having been removed to the disinfecting station to be dealt with.

No alteration in the staff has taken place during the year, the necessary equipment of boats, cots, etc., has been kept in good working order. The staff comprises two Caretakers and Nurse--the wife of one of the Caretakers, two Boatmen and one Inspector. Whenever necessary, Nurses are supplied from the Borough Isolation Hospital. Appended will be found details of the cases, and of inspections for the year.

I must again take this opportunity of tendering my thanks to the Officers of H.M. Customs, the Shipping Agents and the Dock Officials for their unvarying courtesy, and ready co-operation and assistance always afforded to your officials in their work. To the Chairman and Members of your Committee, and the Clerk, I beg to express my hearty thanks for their support during the year.

I have the honour to remain, Gentlemen,

Your obedient Servant,

J. M. Williams

PLYMOUTH PORT SANITARY AUTHORITY.

Inspection of Vessels from 1st January to 31st December, 1896.

DOCK.	NUMBER.	Number to be cleaned or white-washed.	sick referred to
Sound Brunswick Wharf Cattedown Cattewater Commercial Wharf Devonport Dockyard Gun Wharf Great Western Docks James' Wharf Keyham Laira Mutton Cove Oreston Richmond Walk Sutton Wharf Sutton Creek Stonehouse Pool & Creek. Shepherd's Wharf Tamar Wharf Torpoint Turnchapel Vivian's Wharf Victualling Yard Wigan Wharf	18 130 224 32 41 — 955 5 23 43 14 25 37 571 102 108 73 44 30 1 — 8		Quarter-6 cases of Enteric Fever, and 2 Malarial Fever from the "Harlech Castle." 1 case of Gastro Enteritis from s.s. Humbert. 1 ,, I case of Erysipelas from s.s. Egyptian Prince.
Total	2904	221	3rd 4th

REMARKS.

	Vessels inspe				
dur	ing 1896			L. P.L. M. V. I	2,904
,,	"	"	,,	1895	3,012
	a latera		Decrease		108
Insanitary	Vessels inspec	ted during	1896		221
	"	,,	1895		196
			Increase		25
Insanitary	Average for th	nis year			75%
,,	" lo	ust ,,			$6\frac{1}{2}\%$
			Increase		I 1/8 %
					of the State of th

The registered tonnage of the above 2,904 vessels was 685,769 tons, carrying 26,069 seamen.

There are 24 steamers trading bi-weekly, weekly, and fortnightly, to the Great Western Docks, and 8 sailing craft to Sutton Wharf. These vessels are only seen once a fortnight or three weeks, but if they could be seen on every entry into Port, the whole total of shipping would be nearly double.

Some 58 barges and similar craft were seen during the year (under the Canal Boats Acts) at the various wharves when discharging or loading.

APPENDIX B.

N.	ATION	ALITY.		NUMBER
American				 _
Austrian				 4
British				 2624
Belgian				 _
Danish				 32
French				 36
German				 57
Greek				 2
Italian				 14
Norwegian				 94
Netherlands				 6
Portuguese				 -
Russian				 15
Swedish				 19
Spanish			•••	 I
			Total	 2904

REMARKS:—Regular Traders (steam and sailing) to Great Western Docks, seen only once a fortnight or so.

Vessels	coming	here under	the British Flag	 2624
,,	,,	- ,,	Foreign "	 280
		Total		 2904
				-
Vessels	coming	here from	Foreign Ports	 649
,,		,,	Coasting ,,	 2255
				2904
				-

APPENDIX E.

Ventilation and other alterations made by suggestion.

Date.	Ship's Name.	Remarks.
1896.		
1st Quarter '	"Maid of Mona" and "Leeds"	F'estle. decks to be caulked and other repairs
2nd ,,	"Westward"	F'estle. ladder to be repaired
3rd ,,	"Mary Barrett," B.I, and "Astrea"	F'estle. decks to be caulked.
4th ,,	"Mary Barrett"	Old water casks to be replaced with Iron Tank.

The above seven vessels have done what was required.

E. B. KELLY,

Port Sanitary Inspector.

Cases of Sickness reported to the Port Sanitary Officials, and seen by the Port Medical Officer during the Year 1896.

roll medical Omcer during the rear 1030.	Nature of Sickness or Accident,	Malarial fever Pleurisy Malarial fever; 13 cases of Mumps Seaman injured by falling from aloft Seaman, poisoned hand Malarial fever I Typhoid fever I Malarial fever Malarial fever Malarial fever Malarial fever I Malarial fever I Malarial fever I Malarial fever I Malarial fever Seamen, feverish colds I Malarial fever Seamen, feverish colds I Malarial fever I Enteric fever I Enteric fever I Enteric fever I Heart disease, removed to S.D. & E.C. Hospital I Measles; I Bronchitis; 3 Scalds I Enteric fever
roit menical	Ship's Name.	Don Ruapehu Valetta Osval Aral Himalaya Oriental Kaikoura Grantully Castle Victoria Manuka Medway Ormuz Mt. Stewart Don Tongariro Ruapehu "" "" "" "" "" "" "" "" "" "" "" "" ""
	Date.	January 9 "" 12 "" 22 "" 24 "" 31 February 9 "" 24 "" 24 March 3 "" 24 "" 19 "" 15 "" 15 "" 15

Cases of Sickness reported, &c.-Continued

Ship's Name. Nature of Sickness or Accident.	era s.s. 1 Malarial fever allon Castle ,, 1 Enteric fever; 1 Influenza anata , 2 Malarial fever removed to R.N. Hospital 1 Scarlet fever removed to R.N. Hospital 1 Scarlet fever removed to R.N. Hospital 1 Scarlet fever removed to R.N. Hospital 2 Scarlet fever removed to R.N. Hospital 2 Scarlet fever removed to R.N. Hospital 3 Scarlet fever removed to R.N. Hospital 4 Scaman, Scurvy. 5 Mate, smashed thumb 5 Scaman, Scurvy. 6 Malarial; 1 death from Syncope. 7 Enteric Fever; 2 Mumps. 8 I Phthisis; 1 Multiple Neuritis. 8 I Phthisis; 1 Multiple Neuritis. 9 I Geath from Phthisis. 1 Geath from Phthisis. 1 Chicken Pox; 1 death from Insolation. 1 Chicken Pox; 1 death from Insolation. 1 Chicken Pox; 1 death from Insolation. 1 Scaman, injury to toe. 1 Phenmonia. 1 Phenmonia. 1 Phthisis; 1 Phthisis; 1 Convulsions. 1 Chicken Pox; 1 death from Insolation.
Ship's Name.	
Date.	April 14 "" 17 "" 19 "" 19 "" 25 "" 25 "" 17 "" 17 "" 17 "" 17 "" 17 "" 17 "" 17 "" 17 "" 17

Cases of Sickness reported, &c.-Continued.

Nature of Sickness or Accident.	I Enteric fever.	Malarial fever.	Enteric fever; 1 Malarial fever.	Malarial fever.	Seaman, Tumour in Neck.	4 Scurvy; 2 Malarial fever.	2 Malarial fever; 1 death from Heart Disease.		3 Malarial fever.	Mate, Injury to Eye.	Mate, Apoplexy; removed to R. A. Hospital (died).	Seaman, feverish cold.	2 Malarial fever to R. N. Hospital.		" "		3 Malarial fever	I Heart Disease to S.D. and E.C. Hospital	Mate, injured by a fall	I Malarial fever to S.D. and E.C. Hospital
ne.	S.S.	I	SS.	,, I	sch. S	4	S.S. 2		. 2	sch.	s.s.	kt. S	S.S. 2	,, I	" 2			bk.		bk. I
Ship's Name.	Don	Lady Gladys	Oceana	Oriental	Perseverance	Brazilian	Orinoco	Kaikoura	Victoria	John Sims	Texa	Frederica	Shannon	Atrato	Tainui	Britannia	Peninsular	Bonus	County of Clare	Elieaser
te.	OI	10	12	19	20	23	24	27	28	29	I	63	3	S	7	13	21	22	22	30
Date.	June			"	"			,,	"	"	July	"	t	. "	"	"	11	"	"	"

Cases of Sickness reported, &c.-Continued.

Nature of Sickness or Accident.	r Gastro Enteritis to Hospital Ship "Pique" Malarial fever Malarial fever Colic Malarial fever Malarial fever Malarial and z Malta fever to R.N. Hospital Malarial and t Malta fever to R.N. Hospital Malarial and to R.N. Hospital Malarial fever Boy, Injury to head, to S.D. and E.C. Hospital Seaman, Rheumatism Rospital Malarial fever Malarial fever
	s.s. sch. sch. s.s. bk.
Ship's Name.	Humbert Gothic Thames Don Henry Fisher Massilia Arcadia Tongariro Carthage Ballaarat Orellana J. W. Wearing Oriental Stag Ophir Inchanga Vellore Scotia Magna
e e	2 4 4 7 5 0 2 2 2 3 2 3 2 4 4 4 4 4 4 4 4 4 4 4 4 4
Date.	August """" September """ """ October """ """ """ """ """ """ """ """ """ "

Cases of Sickness reported, &c.-Continued.

Nature of Sickness or Accident.	2 Accidents; seaman, sore legs 1 Malarial fever 3 Malarial fever 1 Venereal Seaman, crushed by a goods train Fireman, Erysipelas, removed to Hospital Ship "Pique" 3 Accidents, removed to S.D. and E.C. Hospital 1 Accident, sent to his home	
Ship's Name.	Red Jacket s.s. Shannon "" Para Useful "" N. C. Bull Egyptian Prince s.s. Waltikka Eliza O'Keefe sch.	
Date,	October 20 ", 25 ", 27 "	

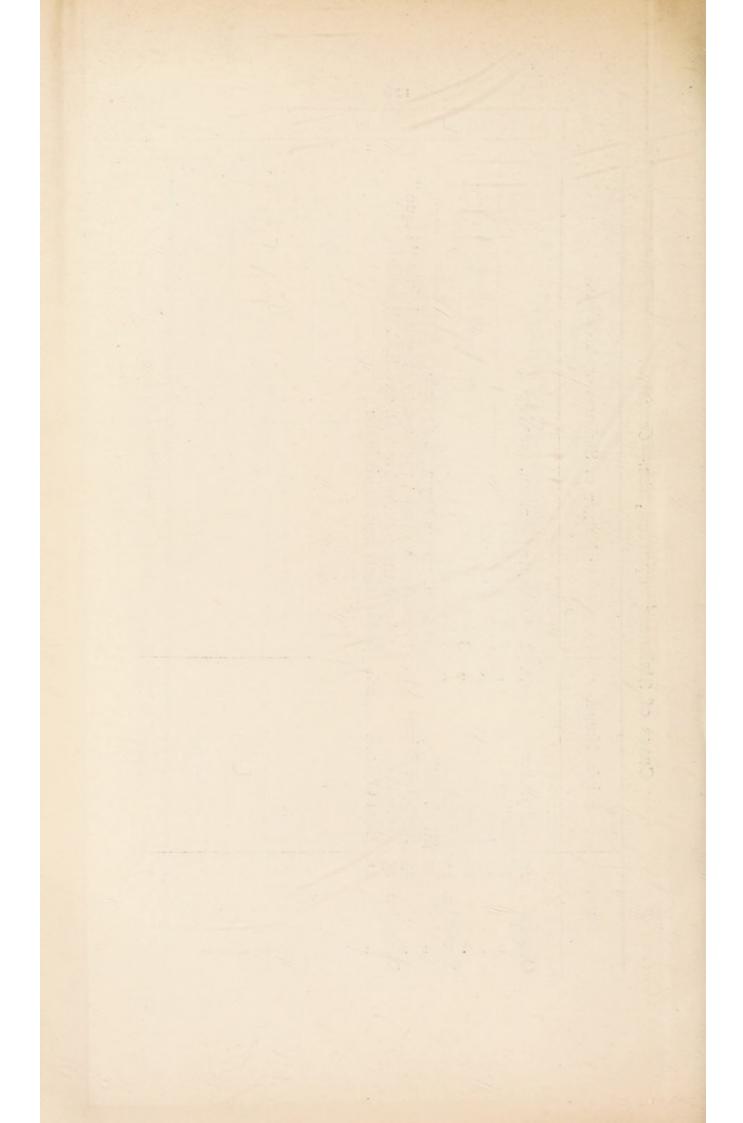
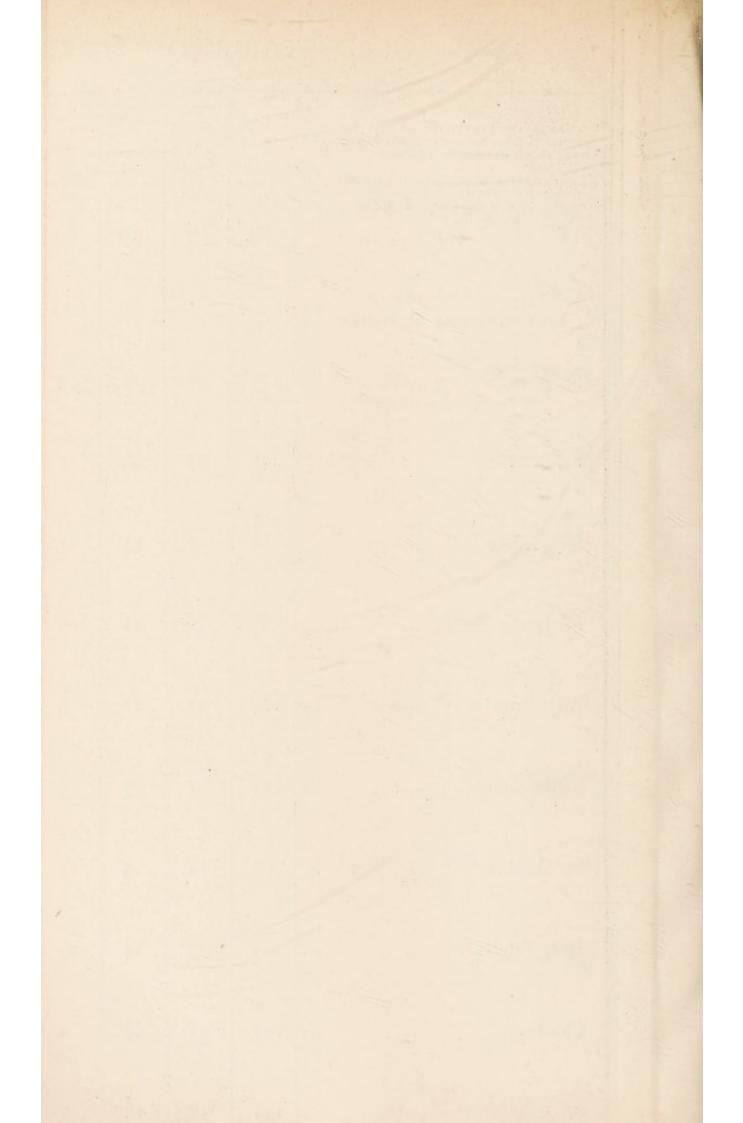


TABLE OF DEATHS DURING THE YEAR 1896, in the County-Borough of Plymouth, classified according to Diseases, Ages, and Localities.

	1	-	MORTALITY	FEOR ALL	Caree			I III I				1000000			_	-				-										
Names or Localatins adopted for the purpose of these Statistics; public institutions being shown as reparate localities.			1	SOURCE A	- Carrie			1	1	1 2	1 3	1 4	5		1 7	8	9	10	11	Dearm	13	1.4	15	16 16	17	18	19	20	21	22
(Columns for Populations and Births	At all	Under Year.	and under	and mades	and under	and under	and upwards.		1	1	4	100	-	. 4	Fevers.	1 9	1	4	1	1	14	1.5	a sele	1	111	17	1	4	35	A.E.
are in Table B.) (a)	(6)	(c)	(d)	(e)	(1)	(9)	(h)	(i)	3	South	Diplot	Membro	Typhu	Trybal Trybal	1	telapsis	adja.	C Contract	Lynn	Mead	Whoopin Cough	Pilarthess for and Dynamiczy.	Peru	Patrial	Proceedings Processings and Processing	Heart Disease.	Infer	Injur	All Other Diseases.	TOTAL
	100		1	(0)		.0,	(11)	117								_	-										1			
ECCLESIASTICAL PARISHES.																														
								Under 5	***		***	- 1		***	***	***				5		10		1	17		***		21	55
St. Andrew	145	36	19	4	4	53	29	5 upwards	***	***	***	***		1	***		1	185		1		1	1	12	14	12	2	6	39	90
St. Peter			10				1	Under 5	***	1	***	***	***	***		***	***	1		18	2	4	***	***	31	***	1	3	52	113
31.4710	- 237	73	40	5	8	65	46	5 upwards			***		***	1	***	***	***			1		1	1	23	18	12	2	1	64	124
St. Saviour	50	20	13	1	1	5	10	Under 5	***		1			***	***				***	9	***	1	***	1	7	***	***	***	15	33
						3	10	5 upwards Under 5	227		1	***	***	***	***		***			***	***	""			1	2	***	1 2	9	17
St. James	95	26	11	5	6	22	25	5 upwards	***			***		1			1				***	1	1	9	6	9	2	3	25	37 58
	1000							Under 5			1			***				***		9		0		3	11	1			25	59
All Saints	123	37	22	3	3	35	23	5 upwards				1			***		1	***	***	1	110	2	***	11	12	6		3	27	64
The second second								Under 5	-		200	-	***					***		8	***			1	11				22	42
Christ Church	122	27	15	5	4	31	40	5 upwards					***	:				***			1	3		4	14	8		2	47	80
								Under 5		1		***	***		***	***				1	***	4			3	***	***	2	12	23
St. Matthias	91	18	5	1	3	32	32	5 upwards				***	***		***	***		***		***		***	***	11	4	14	2	2	35	68
								Under 5	***	1		1		***		***		***	1	3	1	10			13	***	***	***	21	51
Holy Trinity	98	37	14	***	4	20	23	5 upwards		***		***			***							2	***	5	7	6	2	4	21	47
	1							Under 5	22.			2	***	***	***			***	1	8	4	7	***	1	7			1	33	64
Charles	193	38	26	2	12	56	59	5 upwards	***				***	***		***	***	***	***		***	2		13	27	21		4	62	129
	1		1		To go			Under 5	***			1	***		***			***		3	4	2	***	2	21	1		1	35	70
St. Jude	178	52	18	7	6	53	42	5 upwards	***		***	1		1	***	***	***		1	***	***	1	1	17	11	10	5	3	57	108
St. John	164	56			6	1.	18	Under 5 5 upwards	***		2	2	***	***	***	***	1	2	1	13	4	3	***	1	17	***		***	47	90
St. John	104	30	34	7	10	43	10	Under 5				***	***		***	***			***	6	***	***	***	9	12	12	2	4	32	74
St. Luke	70	21	8		2	14	2.4	5 upwards	***		***		***			***		***	3			5	1	2	4		1	***	28	29
								Under 5				***	***							2				-	2	3		***	4	41
Emmanuel	25	6	3	2	***	7	7	5 upwards			***										***			2	1	4		1	8	16
																						-						200		
Desire Incrementary																														
Public Institutions.																														
Borough Hospital	1		1				***	Under 5	***		1		***	***										***	***			***		1
				1	***	***	-	5 upwards			***		***		***	***	***				***			***	***					***
S. D. & E. C. Hospital .	45	3	3	4	4	27	4	Under 5			***				***									***	3			1	2	6
					100	1		5 upwards	***				***		***				1			***	***	1	3	2		11	21	39
Homosopathic Hospital	5			1	1	3		Under 5	***				***	***	***	***		***					4.1	***			***	***	***	***
								5 upwards				***		***	***	***		-111	***		***				1			1	3	5
Millbay Barracks	. 2	1	***	***		1	***	Under 5	143				***	***	***	***	***			***	***	***	811	***	1	***			***	1
215 200 100			1					5 upwards Under 5	***	***			***		***	***		***	***		***	***	***			***			.1	1
The Citadel	· . I	1	***	***					***		***		***	***						***	***	***	***		1					1
								5 upwards Under 5				***	***	***		***			***	***	***	***	511							
Drake's Island	t				1			5 upwards							***	***				***		***	***			***	224	***		***
		1					100	Under 5	***		***		***	***	***			***		1	1	***	***				***	1		1
Workhouse and	107	8	3		3	43	50	5 upwards	***				***	***								1		10	3	12	***	***	6	11
	1		1					Under 5						***	***					***			200		9	12		3	61	96
Plymouth Borough Asylum (BLACKADON, IVYBRIDGE.)	. 16	***		***	224	13	3	5 upwards			***			***		***	200						-	2		***			***	***
	1							Under 5		3	4	7	**	***				3	3	87	17	58	-	9	156	3		10	334	695
Totals	1	160	200	12	10	124	100	5 upwards			2	2	***	5	***	***	4		3	3	1	. 15	5	132	147	133	18	50	554	1074
TOTALS	1769	400	235	48	68	523	435		200						-		-								, "	-3		30	334	10/4



(B) TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1896, in the County Borough of Plymouth, Urban Sanitary District; classified according to Diseases, Ages, and Localities.

	POPULATI	ON AT ALL			New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health.												Number of such Cases Removed from their Homos in the several Localities for Towarment in Isolation Hospital.												
NAMES OF LOCALITIES adopted for the		Estimated	Registered	1	2	3	4	5	1 6 1	7	8	9	10	11	12	13	1	2	1 3	4	5	1 6	1 7	8	9	10	11	12	13
purpose of these Statistics, Public Institutions being shown as separate localities.	Cennya shps.	middle of	Registered Births.	100	1	4	1 0			Fever.				1			4	1	4	1			Fever.	-		4	3		
(a)	(6)	(6)	(d)	Smily	Starte	Diplote	Membras	Typhan,	Enteric Typhole.	Company	Reliquing	Patryeral	Cholen	Erysipsi			Smally	Scarled	Diplote	Membras	Typhen	Lorente Typhosta	Continued	Religions	Pareperal	Onto	Eryston		
Ecclesiastical Parishes-																													
St. Andrew	9363				15		1		2			1		8				10									1		
St. Peter	11785				9	4			5				-	14				5	3			2			- 100	***	***		
St. Saviour	. 2450			***	6	1			***	***				2				2											
St. James	. 5864		***		3	2	***		9	***		2		7			***	1				5		***		***	***		
All Saints	6778				12	2	1			***	***	1		4				11	1								***		
Christ Church	. 6244			***	6	4			2	***		***		9				5	2		***	1	- 111		*	***	***		
St. Matthias	. 4488			***	1	3			2			***		6			***					2					1		
Holy Trinity	. 4351			***	5		2							8				2			***			***	***				
Charles	. 10849				13	6	2		1	***	***	***		19				6	2		***			***					
St. Jude	7557		***		24	2	4	418	4			***		24			***	9		***		2		***	***				
St. John	. 6964			***	13	5	2					2	100	22			**	8			***		***	***		***			
St. Luke	. 3342				1	1		***		***		***	***	4			***	***					***	***					
Emmanuel	. 1387			277	1	5	222		2		***	1		5				1					***	***	***	***			
Public Institutions-																													
S. D. & E. C. Hospital .				***	6	2			1	***		***	***	2				6	***		277	***	***		***	***	***		
Workhouse				941	10		***		***			***		7			22.5	1		***			222		***	***	***		
Elphinstone Barracks .					1	***							***	***						***			***	***	***	***			
The Citadel	***				1		***											***		***			***						
Totals	. 84248	90276	2643		118	37	12	441	28			7	-	141				67	8	***		12					2		









