

(No. 54.)



1894.

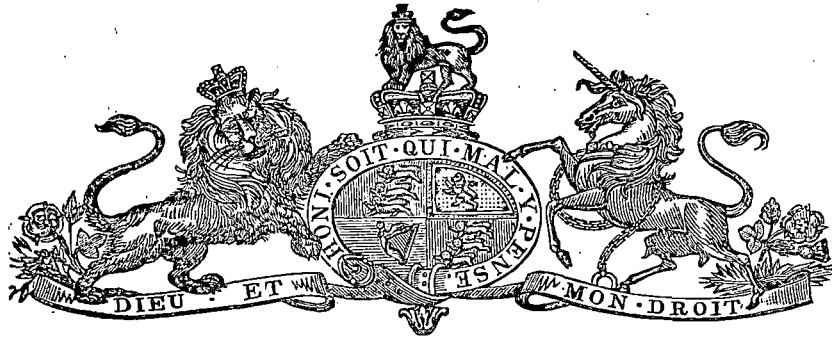
PARLIAMENT OF TASMANIA.

CENTRAL BOARD OF HEALTH:

REPORT FOR THE YEAR 1893.

Presented to both Houses of Parliament by His Excellency's Command.

Cost of printing—£8 15s.



CENTRAL BOARD OF HEALTH.

REPORT FOR THE YEAR 1893.

TO THE HONOURABLE THE CHIEF SECRETARY.

SIR,

WE have the honour to submit to you the following Report of the work of this Board in administering the Public Health Acts, the Vaccination Act, the Quarantine Act, and the Chinese Immigration Act, during the year 1893.

CENTRAL BOARD OF HEALTH.

1. During the year we received with much regret the resignations of two of our colleagues, the Rev. J. Oberlin-Harris, M.A., and Mr. F. J. Young, B.A. In their place the Administrator of the Government in Council on the 8th July appointed Major-General H. L. A. Tottenham and Mr. T. Bennison to be Members of the Board, and they have taken their seats accordingly. With respect to the officers of the Board, there has been no change during the year.

LEGISLATION.

2. As no amendments of the Health Acts were made during the late parliamentary session, we beg to repeat the recommendations and suggestions contained in the paragraphs numbered from 3 to 10 in our Report of last year, and to earnestly ask that they may be given effect to. Our experience during the past year has but strengthened our conviction of the necessity for such legislation. We also call your attention to the suggestions contained in paragraphs 22 and 26 of this present Report. The sanitary provisions contained in "The Hobart Corporation Act, 1893," are referred to elsewhere.

CERTIFICATES UNDER LICENSING ACT.

3. The necessary certificates as to the sanitary condition and accommodation of inns and public-houses required by the provisions of "The Licensing Act, 1889," were given after inspection by the various Local Boards of Health. In nine cases they were given by us with respect to houses in districts in which we are acting as Local Board.

PUBLIC BUILDINGS.

4. Under the powers conferred by the 11th Section of "The Public Health Act, 1885," we made regulations for securing and facilitating the carrying out of the provisions of the 114th Section of the same Act relative to public buildings. These regulations, after being submitted to the Hon. the Attorney-General, were gazetted on the 25th April, and are now in force. During the year, after inspection of the plans and premises, we have dealt with the opening of public buildings at Barrington, Bream Creek, Coppington, Cressy, Evandale, Hobart (2), Latrobe, Launceston, New Town, Trevallyn, Ulverstone (2), and Weldborough.

INFECTIOUS DISEASES.

Notification.

5. Though still manifestly incomplete, we are glad to record that there is great improvement in the matter of the notification of cases of infectious disease.

Typhoid Fever.

6. The table given in Appendix A. shows the number of cases of typhoid fever notified to the Board, and the number of deaths from the disease, registered for each month of the year, as well as during each month of the five preceding years. The temperature and rainfall, being the means of the observations taken at Hobart and Launceston, are also given, for the purpose of giving data for establishing comparisons and relation. It will be noticed that a considerable reduction took place both as regards frequency and relative mortality of the disease. This diminution of mortality was accompanied with a higher mean temperature, a coincidence not previously recorded in our experience in Tasmania. The total number of deaths from the disease was 25 for the year, as compared with a mean number of 74 during the preceding five years. The rate of the mortality from the disease was only 1.62 for each 10,000 of the mean population of the year, as compared with 5.15 for each 10,000 of the population during the preceding five years. The above rate for the year is the lowest we have upon record, and compares favourably with the rate in England.

Diphtheria.

7. The table in Appendix A. also gives in relation to diphtheria similar information to that given in relation to typhoid fever. Though there was a large increase in the number of cases notified there was a decrease in the number of deaths registered as being caused by the disease. The number of cases is the highest we have recorded; but the disease must generally have presented a mild form, as the 320 notified cases only resulted in 50 deaths. The mean number of deaths in each of the preceding five years was 43. The rate of the mortality from the disease was 3.23 in each 10,000 of the population, as compared with a mean of 2.99 in 10,000 in the preceding five years. This rate of mortality is about twice that of England.

Scarlet Fever.

8. Scarlet fever was not very prevalent during the year, only 28 cases being notified to us, and two deaths registered. These are the lowest numbers we have on record.

Whooping Cough.

9. This disease was very prevalent during the year; 35 deaths being registered as compared with two in the preceding year, and an average of 11.5 for the five years. The notification in respect of this disease is very imperfectly carried out, and no precautions seem to be taken to prevent the spread of infection among children.

Influenza.

10. Ever since the epidemic of 1891 influenza has been much more prevalent than formerly, 20 deaths from it having been registered, as compared with 19 in 1892, and 93 in 1891, and with a mean of 3.4 for the preceding five years.

Measles.

11. The year was marked by an epidemic of measles over a considerable part of the island. In the year 1885 there was a partial epidemic, causing the death of 20 persons; and one death was registered as caused by measles in 1886. Between that year and 1893 no deaths from the disease were registered. On the 24th June a letter was received from the Public Health Department of Victoria, informing the Board that the disease was very prevalent in that colony and spreading rapidly. On the 27th June a *Gazette Extraordinary* was published, with a proclamation by the Administrator in Council notifying that the Colony of Victoria was infected with measles, and with an Order in Council for detaining all vessels arriving from that colony for medical inspection, preventing the landing of persons suffering from measles except for conveyance to hospital under proper supervision, and providing for the disinfection of vessels. It subsequently appeared that measles was also prevalent in New Zealand, and that persons infected with it had arrived in Tasmania. The disease soon became so general that on the 19th July the proclamation was revoked and the Order in Council rescinded.

On the 24th of August the Local Board of Health of Hobart, and on the 14th of September the Local Board of Health of Launceston, officially notified to us under the provisions of the 75th Section of "The Public Health Act, 1885," the existence of an epidemic of measles in their respective cities. In both cities, and generally throughout the colony, the disease was reported to be of a mild type. Altogether 2773 cases were notified to us, in all likelihood not being half the actual number of cases, as many medical men notified families and not individuals, and many cases were not seen by medical men. The number of deaths registered as being due to measles was 36. Probably this does not represent the whole mortality due more or less directly to the disease, as the mortality from bronchitis and pneumonia—complications often supervening—rose very markedly. In the urban districts of Hobart and Launceston, during the months of September and October, when measles was the most prevalent, the deaths from bronchitis and pneumonia were 57, as compared with 21, 24, and 14 in the same months of 1892, 1891, and 1890 respectively.

During the prevalence of the disease at Hobart Dr. Giblin, the Officer of Health of the City, prepared a leaflet giving simple directions for the treatment of patients, and for the necessary

precautions to be taken. We have to thank him and the city authorities for enabling us to put this leaflet at the disposal of all the other Local Boards of Health of the colony, by most of whom it was much appreciated and widely distributed. Some further details in connection with the epidemic are given under the headings of various Local Boards of Health.

Distribution of Infectious Diseases.

12. The table given in Appendix B. shews the distribution of typhoid fever, diphtheria, and scarlet fever in Tasmania during 1893 and the preceding five years, so far as the cases have been notified to us under the provisions of the 10th Section of the Act of 1887.

Phthisis.

13. The number of deaths from phthisis registered during the year as having occurred during the year was 108. This number is subject to augmentation by deaths that occurred during the year but were registered subsequently. Probably the death rate was similar to that of 1892. The mean death rate of the five years 1887-1891 was 9.44 in 10,000 living, as compared with 8.40 for 1892.

HEALTH DEPARTMENTS OF OTHER COLONIES.

14. We have had the usual interchange of reports and other information with the Health Authorities of the other Colonies, and the quarantine action that has been taken has usually been simultaneous and of common character.

QUARANTINE ACT.

Quarantine Stations.

15. On the 17th January, by an Order in Council, a Northern and a Southern Quarantine Station, respectively situated in the Rivers Tamar and Derwent, were appointed and defined; the Northern Station being near Middle Island, and the Southern Station at Barnes Bay. The Station at Barnes Bay is provided with the necessary buildings.

Smallpox.

16. The introduction of smallpox into Western Australia by one of the mail steamers, in April, necessitated the proclamation of that Colony as infected. This was done on the 6th of May, and on the 11th Regulations were made by an Order in Council. (See *Gazette* of May 16th, page 954.)

During the period in which the Regulations were in force no vessel arrived in the Colony directly from Western Australia; but passengers who had been on board the s.s. *Australia*, one of the infected mail steamers, were landed at Launceston before the fact of their having been thus subject to infection was known. They were immediately isolated, as well as the house in which they were received; until thorough disinfection was effected, and all danger of spread of infection over.

After official notification from Western Australia of the proposed reissue of clean bills of health, information was received on the 19th June from Victoria of the quarantining of a patient who had arrived in the Colony after discharge from the Hospital in Perth, but who was still in the desquamating stage of convalescence. The Quarantine Regulations were therefore continued in force till the middle of July.

On the 25th October the Board of Health of New South Wales informed us that a case of smallpox had been discovered in Sydney, and the patient and other inmates of the house in which he was found removed to quarantine, and that the issue of clean bills of health was discontinued. With your sanction all Health Officers were instructed to make a strict medical inspection of all vessels from New South Wales before granting pratique. This was done, but no case of smallpox was found. On the 15th November, no fresh development having occurred at Sydney, the Board of Health there resumed the issue of clean bills of health, and on the 18th of the same month the Health Officers of our ports were informed of the fact, and the special inspection discontinued.

Cholera.

17. On the 13th June a communication was received from the Health Department of Victoria proposing the resumption of the measures taken the preceding year for the prevention of the introduction of cholera from Europe and the Red Sea. This course was agreed to. As the preceding year's proclamations, not having been revoked, were still in force, no fresh action was needed until the actual appearance of cholera in the Colonies should make it desirable to issue special regulations.

Sanitary Convention of Dresden.

18. The International Sanitary Conference on the subject of precautions to be taken against epidemic cholera was held this year at Dresden, and resulted in the signing of a Convention greatly simplifying the procedure to be taken when compared with the stipulations of the conventions resulting from former international conferences. So much was conceded to the representations that

for many years have consistently been urged at these conferences by the delegates from Great Britain, that the Home Government has, under certain reserves, for the first time become a party to the Convention. Power being reserved to the Colonies to also become parties, we recommended to you that this Colony should join it; but, as none of the other Australasian Colonies have become parties, it was decided to act in common with them.

We still regret the action of the other colonies in the matter, as should cholera unfortunately appear on this side of the world, the measures to be taken by the respective Governments under the recommendation of the Sydney Sanitary Conference of 1884 are far more costly to the State, burdensome to individuals, and restrictive to commerce and intercourse than the regulations of the Dresden Convention as adhered to by Great Britain, while these regulations are shown by the experience of all countries, of whatever climate, to be quite effective.

LOCAL BOARDS OF HEALTH.

19. We are glad to be able to again put upon record that the various Local Boards of Health of the Colony have heartily seconded our efforts to carry out the provisions of the Health Acts. The reports sent in have been fuller of detail, and show that the law is being better understood and administered. In our Departmental Office Report we have given fuller details of the administration of the Acts in each Health District than are deemed necessary for publication.

Deloraine.

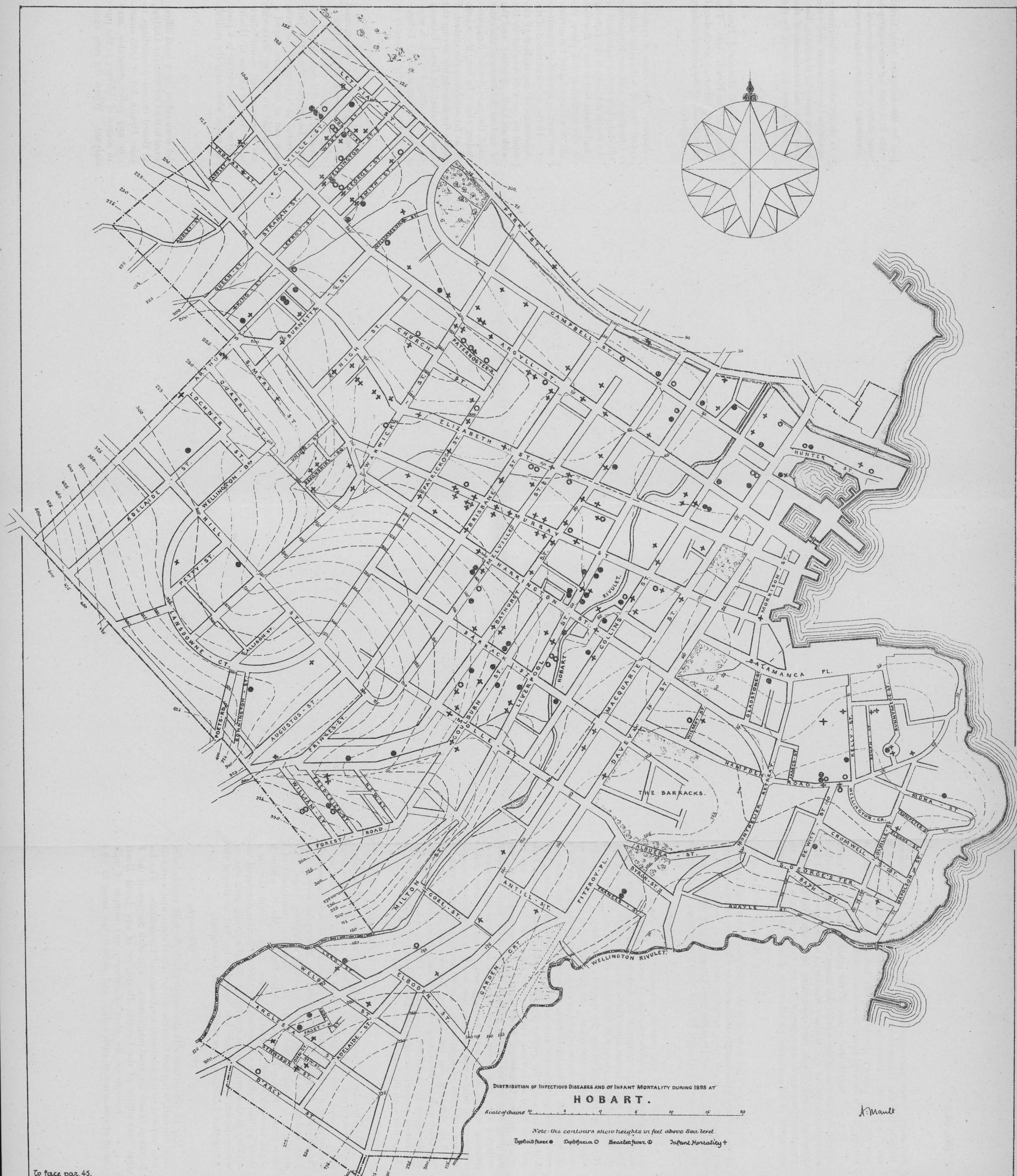
20. The past year was an unhealthy one in some parts of this district. Five cases of typhoid fever, eighteen of diphtheria, six of scarlet fever, five of measles, and two of whooping cough, were notified. The outbreak of diphtheria was specially severe at Chudleigh, and our Inspecting Engineer made a report upon that township, which occupies a flat alluvial plain in the watershed of the River Mersey, about 850 feet above the sea-level. The only outlet for its drainage is the Lobster Rivulet, which runs along the northern boundary of the township, and whose bed is but a few feet below the level of the plain. At the beginning of August, when the inspection took place, the whole plain was a water-logged swamp, the water standing in the wells to within a foot of the surface of the ground. These wells form the water supply of the place, and are sunk to the bed of limestone rock which underlies the alluvial boggy soil to a depth of about 14 feet. In the neighbourhood of the cottages in which the greater number of cases occurred every little depression of the surface of the soil was filled with water, and the only means of drainage was afforded by open ditches cut by the orders of the Chudleigh Road Trust. The surface was strewn with all kinds of refuse, and the nightsoil was buried in the ground. The roofs were not spouted, and as the floors of the older cottages were at a lower level than the surface of the ground outside, the condition of dampness existing within doors may be imagined. There was some overcrowding also. In fact, the whole condition of things was precisely that which is everywhere recognised as favourable to the spread, if not the causation, of diphtheria. Unfortunately no means were available for thoroughly drying the land by cleaning out the Lobster Rivulet and cutting through drains. But the Road Trustees improved matters by cutting additional side drains to the roads in the neighbourhood in which most of the cases of diphtheria occurred. But the town will never be a healthy one until the Lobster Rivulet is properly straightened and cleared of impediments—a work that is especially necessary in connection with the improvement of the school site.

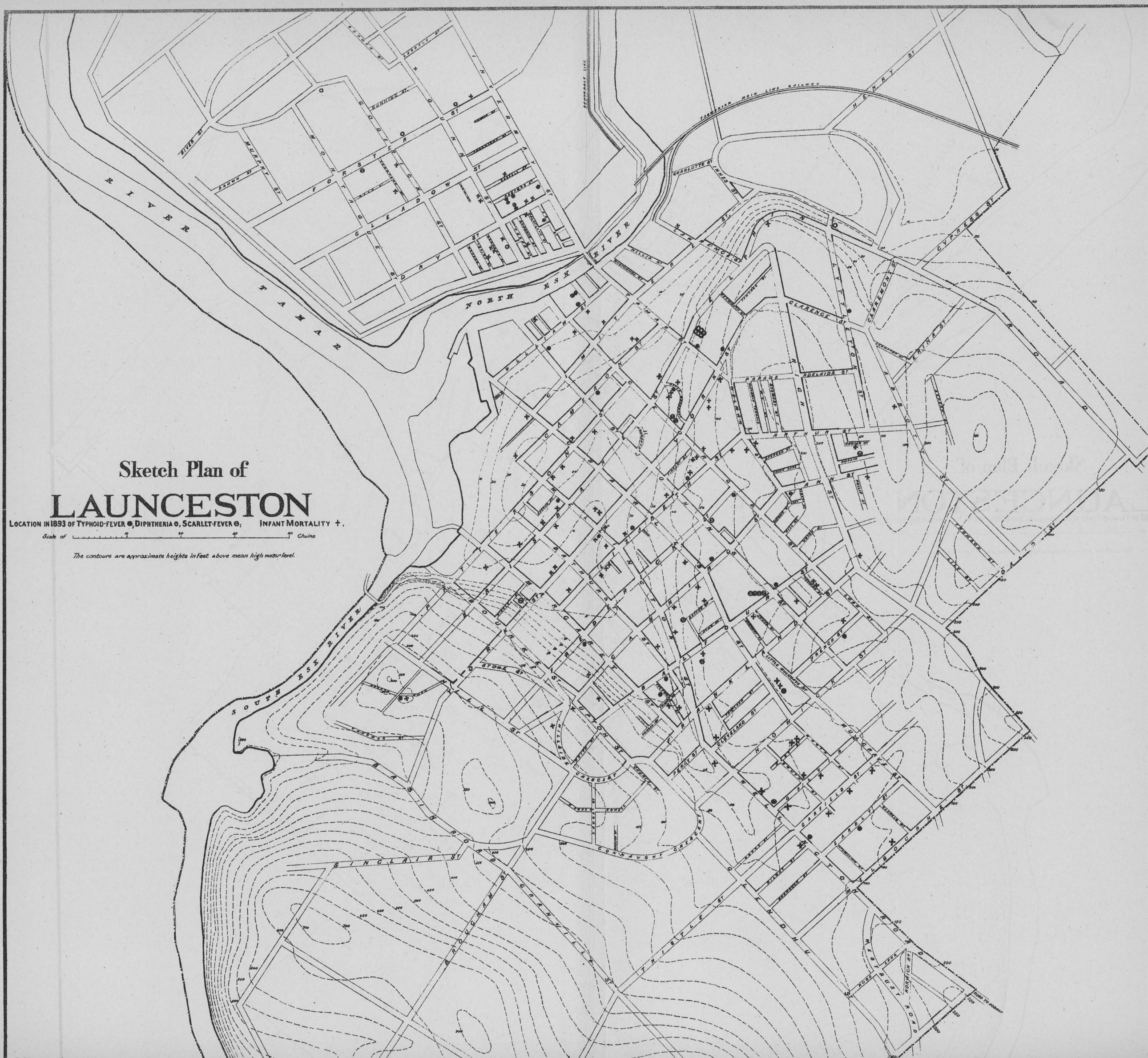
Devonport.

21. Diphtheria was very prevalent in this town in November, when eight of the eleven cases notified occurred. A very large number of cases of measles occurred, the outbreak taking place in July. The disease was imported from Melbourne in a manner giving a singular example of the transmission of infection through a person who himself successfully resisted the full development of the disease. A young man employed in Melbourne arrived thence at Launceston about the 14th July, and at once went on to Devonport by a coasting vessel. On arrival at Devonport he went straight to a friend's house, a Mr. B. There he complained of being out of sorts, and stayed a short time. Thence he went to another friend's, Mr. S., where he was laid up for two days with slight bronchitis and congestion of the lungs. From this he soon recovered, but in due course those he had come in contact with at the two houses developed measles. On the Officer of Health making further enquiries it transpired that the young man was employed at Melbourne in a place where the son of his master had had measles, but he alleged that he never went near the patient. Altogether 173 cases were notified from Devonport.

Glenorchy.

22. In connection with the enquiry into the milk supply, samples were taken by a local officer from the milk being sent from the district into Hobart, and were submitted to the Government Analyst, who certified to the adulteration of some of the samples. The Local Board caused proceedings to be taken before the local magistrates. The 46th Section of the Public Health Act of 1885 enacts that "any officer of the Central Board, or of any Local Board, or any police constable, may procure at the place of delivery any sample of milk in course of delivery to the purchaser or consignee of such milk," and submit the same to be analysed. When the case came





Sketch Plan of

LAUNCESTON

LOCATION IN 1893 OF TYPHOID-FEVER ●, DIPHTHERIA ○, SCARLET-FEVER ⊙, INFANT MORTALITY +.

Scale of 1" = 100 Yards

The contours are approximate heights in feet above mean high water-level.

before the court it was dismissed by the magistrates, on the ground, as we understand, that the samples were not taken at the place of delivery. Acting under the advice of the Law Officers of the Crown we did not recommend an appeal from this decision, but we brought the matter under your notice, and advised the alteration of the wording of the Section cited. The wording of the Section is taken from that of the 3rd Section of the English Sale of Food Act Amendment Act of 1879, a section that has reference to milk sold under contracts of sale, and does not repeal or interfere with the 13th Section of the Sale of Food Act of 1875 as to taking of samples of milk while being sold retail. It is under this latter Section that proceedings are taken in England, and its wording should be adopted.

Hobart.

23. The health of this city, as far as typhoid fever, diphtheria, and scarlet fever are concerned, showed a great improvement over 1892, only 115 cases being notified as compared with 167. The location of the cases is shown on the accompanying plan. But there were no less than 1101 cases of measles notified. The measures in relation thereto taken by Dr. Giblin, the Medical Officer of Health of the city, have already been described.

During the year the Hobart Corporation Act was passed, consolidating and amending the various statutes under which the city is governed. The principal new sanitary provisions of the Act consist in the extension of the right to use the Hobart Rivulet as a common sewer by nearly half a mile upwards from the Molle-street bridge, so that now for its whole course through the city the rivulet may be used for the purpose mentioned—a piece of legislation that we greatly regret. Further provisions are also made in connexion with the slaughtering of cattle; and largely increased powers are obtained for the making of by-laws.

In February the Local Board of the city called our attention to the following extract from the report for January of its Officer of Health:—

“During the month there were no less than five fatal cases of diphtheria in the district; two of these were at Glenorchy, two at the Hospital admitted from the Kingston district, and one at the Hospital from Battery Point. It is significant that there were more cases of this disease under treatment and more fatal cases in Hobart during the year 1892 than at any previous time, and it is also significant that this is concurrent with the growing custom of obtaining a larger milk supply from the country than formerly. While typhoid is largely a disease of towns, diphtheria has been more prevalent in country districts, and has of late years been attributed to infection from certain mammary diseases in cows. If this is so, it would appear that a thorough inspection of all dairies by a competent veterinary surgeon should from time to time be made, without whose report as to the freedom from disease of all the cows no milk should be permitted to be sold. Failing this all milk should be heated to boiling-point before use, especially in the cases where the customer cannot rely on the care and cleanliness of his dairyman, and where the milk comes from the country.”

In reply, we promised that if the Local Board would cause a thorough inspection to be made of all dairy establishments in the city, a similar inspection should be made concurrently in all outside districts supplying Hobart with milk. This promise was carried out. At the same time we pointed out that the Local Board of Health of Hobart was among the few that had made no provision by by-laws to secure such control of the milk supply of the citizens as that recommended by its Officer of Health.

In consequence of complaints made by the Women's Sanitary Association, we instructed our Engineering Inspector to visit and report upon the condition of the Hobart Slaughter-yards. His report on the yards was presented to Parliament (Parliamentary Paper No. 75, 1893.)

A deputation from the Hobart Sanitary and Improvement Association called our attention to the fish-boxes placed near the fish market, and used in connection with the fish supply of the city. Our Engineering Inspector made a report upon the matter, which is still under consideration.

Launceston.

24. Except for the epidemic of measles, the health of this city again shows a marked improvement in relation to infectious diseases, only 72 cases of typhoid fever, diphtheria, and scarlet fever being notified, in comparison with 85, 108, 146, and 381 in the years 1892, '91, '90 and '89 respectively. The accompanying plan shows the location of the cases and that of infant mortality. There were 631 cases of measles reported, mostly of a very mild type.

In connexion with the occurrence of smallpox in Western Australia, the Local Board made enquiry as to the condition of the work at the site of the proposed infectious diseases hospital at Verulam. The platforms prepared for the temporary hospitals and buildings are in good condition, but no framing is prepared for the buildings. If an outbreak should occur requiring hospital accommodation at Verulam, tents would have to be used at first.

In connexion with the sanitation of work-rooms and factories, the Local Board adopted by-laws to secure proper ventilation and prevent overcrowding, and the by-laws have been duly certified, approved, and gazetted.

Queenborough (Rural).

25. The Hobart Women's Sanitary Association asked us to have a special inspection made of the condition of part of the township of Wellington under the jurisdiction in health matters of the

Local Board of Health, and in road matters of the Road Trusts of Wellesley and Leslie. Our Engineering Inspector found a very bad condition of affairs, chiefly caused by want of drainage and of an organised service for the removal of night-soil and house refuse. The Local Board has no rating powers and no means of organising such a service. An attempt to organise one by voluntary subscription failed from want of general support. We therefore reported to you the necessity of getting a Town Board appointed. In the meantime we are endeavouring to get some service established, and are consulting with the Road Board of Wellesley as to what can be done.

Sheffield.

26. Four cases of diphtheria were notified from this town. The Local Board reported a case in which it was very desirable to close a polluted well. The Act requires as a condition precedent to the closing of a well by a Local Board a certificate from the Officer of Health, or from two qualified medical practitioners, that the water is unfit for human consumption. As the Board has no Officer of Health, and as there are not two resident medical men, the well could not legally be closed. It would be desirable that the Act should be so amended as that the certificate of the Government Analyst should be sufficient. Our Engineering Inspector visited Sheffield and advised the removal of the cemetery to a site outside the Town.

Soreli.

27. The year was marked in this Municipality by an unprecedented amount of sickness, no less than 41 cases of diphtheria, 3 of scarlet fever, 2 of typhoid fever, and 23 of measles being notified. Early in the year diphtheria broke out in a severe form at the small township of Kellevie and Bream Creek, and 34 cases occurred, with 10 deaths. The municipality had no Officer of Health; we therefore sent our Engineering Inspector, and engaged Dr. Hood, of Sorell, to accompany him. At Kellevie they found that some of the patients were being sent to Hobart Hospital, a journey of over 30 miles, involving 15 miles of conveyance by ordinary country vehicles to the Sorell station, 15 miles, more in the railway carriages, and then the crossing the ferry to Hobart. It is not surprising that some of the patients died on the journey. The doctor and inspector recommended the establishment of a cottage hospital, and the Government authorised us to assist the Local Board to meet the expenses entailed by the carrying out of this suggestion. We accordingly contributed £72 8s. 11d. from the amount of the Parliamentary appropriation for health purposes, and the Local Board contributed a little more than that amount from the municipal funds. As the Member for the district in his place in Parliament during the debate on the Estimates on the 16th of August said in reference to our management of this cottage hospital, that his experience shewed him that we did our work in a very expensive way, we beg to make the following remarks:—15 patients were treated at the hospital at an average cost of £10 each, and of this sum the Central Board could control rather less than one-half, and the Local Board rather more than one-half, and we maintain that in the circumstances the cost was very moderate instead of “very expensive.” A temporary hospital cannot be worked as economically as a permanent one. In this case the following exceptional circumstances aggravated the costliness of the work: a high rent had to be given for a cottage, as the service for which it was used was naturally regarded as interfering with prospects of future tenancy, and when it was given up it had to be thoroughly disinfected and renovated. The medical attendance involved a 30 mile journey for each visit. Two trained nurses had to be engaged in Hobart, and, as one of them caught the disease, a third had to be provided and sent; and most of the furnishing and provisioning had to be done from Hobart. The most costly part of these arrangements was the providing of medical attendance from a distance, and the paying of nurses on a temporary engagement as distinguished from a permanent one:—and both these arrangements were unavoidable. If the cost of the staff thus provided be excluded, the rest of the expenditure, as the following figures shew, compares favourably with that of most of the permanent hospitals of the country after deduction is made of the cost of their staffs; the figures being for the year 1892, the last returns we have—

	£	s.	d.
For each patient treated at the Devon General Hospital	5	12	6.
Ditto Launceston General Hospital	5	2	6
Ditto Hobart General Hospital	4	3	4
Ditto Kellevie Cottage Hospital,.....	3	18	0
Ditto Campbell Town Hospital.....	3	11	0
Ditto Beaconsfield Hospital.....	2	12	4

The average cost of each patient at the permanent hospitals being £4 4s. 4d., as compared with £3 18s. at the temporary hospital at Kellevie.

Straits Islands.

28. No cases of infectious diseases were notified from the islands. At the request of the inhabitants of some of the Furneaux Group we arranged with Dr. Davis to proceed there for vaccination purposes, and during his visit 75 persons were vaccinated, 73 operations being successful and two unsuccessful.

Westbury.

29. Thirty-seven cases of diphtheria, two of typhoid fever, fifteen of measles, and four of whooping-cough were notified from this municipality. This alarming amount of sickness attracted the serious attention of the inhabitants and authorities, and at the request of the Local Board of Health, our Engineering Inspector made an examination into the sanitary condition of the principal localities, and a portion of his report will be found in an Appendix (C) to this Report.

BY-LAWS.

30. During the year four Local Boards have passed new or amended by-laws, which have been duly certified, confirmed, gazetted, and laid on the Table of both Houses of Parliament. The following Local Boards are still without the facilities for sanitary administration conferred by proper By-laws:—Brighton, Carnarvon, Deloraine, Dundas, Fingal, Glenorchy, Green Ponds, Hamilton-on-Forth, Kennishbury, New Norfolk, Oatlands, Richmond, Ringarooma, Ross, Sheffield, Spring Bay, Ulverstone, and Westbury.

CHINESE IMMIGRATION.

31. During the year 92 Chinese entered the Colony and were duly examined, and 88 were found properly vaccinated, and the other four were vaccinated by the Health Officers. Of the immigrants 74 landed at Launceston and 18 at Hobart.

VACCINATION.

32. There were only 99 persons vaccinated during the year, of whom 96 showed successful vaccination, and 3 unsuccessful. Of the whole, 98 were primary vaccinations, and one a re-vaccination. If the vaccination of the Straits Islands children and of the Chinese immigrants be excluded, only 20 children were brought to the vaccinators during a year in which there were in the Colony at least 4500 children of the age fixed by law as the vaccination period, that is, from six to nine months old, and probably 20,000 unvaccinated children under six years of age. As for the present we cannot put in force the compulsory clauses of the Vaccination Act, we would appeal to the medical men of the Colony to make use of their justly great influence with parents to remedy this condition of things.

Calf Lymph.

33. We have kept up a supply of fresh calf lymph, so as to be ready for any emergency. The subject of the bacteriology of vaccine lymph has received much attention at home, especially in connexion with the preservation of calf lymph in diluted glycerine. And it is satisfactory to know that the lymph so preserved which we obtain from Dr. Faulkner's establishment at Hastings, in New Zealand, is giving such good results—results quite comparable with arm-to-arm vaccination with humanised lymph. Further, the constitutional symptoms have, so far as we know, been always of moderate and favourable character and unattended with secondary eruptions.

CONCLUSION.

34. In conclusion, we have again to express our thanks for the assistance we have received from other Departments of the Government, and especially to the Law Officers of the Crown, the Commissioner of Police and his staff, and the Government Analyst. We beg to enclose herewith Departmental Office Report referred to in paragraph 19.

We have the honor to be,
Sir,

Your obedient Servants,

P. O. FYSH, *President.*
C. E. BARNARD, *M.D.*
THOS. BENNISON.
CHAS. HARBOTTLE.
WILLIAM PERKINS.
J. WEMYSS SYME.
HENRY L. A. TOTTENHAM.

A. MAULT, *Secretary.*
Hobart, 17th April, 1894.

APPENDIX A.

MONTHS.	TEMPERATURE.						RAINFALL.						TYPHOID FEVER.					
													Cases.					
	1888.	1889.	1890.	1891.	1892.	1893.	1888.	1889.	1890.	1891.	1892.	1893.	1888.	1889.	1890.	1891.	1892.	1893.
January	F.° 65.2	F.° 65.6	F.° 66.8	F.° 62.1	F.° 60.9	F.° 63.37	In. 1.23	In. 0.13	In. 0.96	In. 2.85	In. 2.01	In. 4.59	61	119	46	22	14	23
February	63.9	65.2	67.3	62.5	63.6	64.99	0.14	1.15	2.51	0.49	0.47	0.14	112	136	60	48	20	28
March	58.6	61.4	62.2	65.0	62.8	61.65	0.58	0.75	2.89	0.60	2.51	1.27	85	171	73	65	73	39
April	55.7	58.1	56.2	55.7	55.1	57.52	1.19	2.51	1.96	0.11	1.10	1.42	60	156	34	50	60	29
May	50.8	52.5	51.6	52.4	48.4	50.94	1.59	1.74	1.02	2.73	2.90	2.75	57	144	32	37	20	16
June	48.6	48.9	50.4	48.5	47.0	47.12	3.55	7.00	5.83	0.96	3.00	2.39	33	61	12	42	29	11
July	45.1	46.5	44.5	47.2	45.5	46.98	2.27	1.48	3.47	2.68	2.50	3.89	29	34	21	61	13	6
August	47.6	48.3	47.7	50.2	47.8	50.05	2.02	2.35	3.45	1.55	1.38	2.79	21	23	6	42	4	6
September	52.2	50.6	51.9	52.8	50.1	53.02	2.81	2.34	2.33	1.40	1.31	2.47	13	26	8	35	4	3
October	54.3	56.1	52.6	56.2	52.4	57.85	1.08	3.49	3.33	3.93	1.25	1.14	14	22	10	19	5	7
November	59.7	59.2	57.1	58.2	60.0	58.58	1.76	3.73	1.75	1.53	1.59	1.77	14	17	15	13	2	12
December	64.9	61.1	58.9	60.4	59.0	63.50	1.38	2.60	1.21	4.99	1.65	1.13	48	16	19	12	12	10
Whole year	55.6	56.1	55.6	55.9	54.4	56.30	19.60	29.27	30.71	23.82	21.67	25.75	547	925	336	446	256	190

MONTHS.	TYPHOID FEVER.						DIPHTHERIA.											
	Deaths.						Cases.						Deaths.					
	1888.	1889.	1890.	1891.	1892.	1893.	1888.	1889.	1890.	1891.	1892.	1893.	1888.	1889.	1890.	1891.	1892.	1893.
January	12	5	5	4	5	3	12	9	31	2	6	11	2	1	6	0	2	7
February	14	18	6	9	4	2	9	4	25	13	11	43	2	2	8	1	3	8
March	14	21	9	6	10	2	13	14	13	2	33	19	0	0	6	1	9	5
April	12	19	5	6	6	4	17	9	12	10	16	44	6	2	1	1	9	5
May	10	13	5	8	5	3	31	17	16	5	20	29	4	8	7	5	10	2
June	5	9	3	8	2	3	12	18	16	9	38	15	4	3	2	3	12	3
July	3	5	6	10	3	1	7	12	8	14	32	22	4	4	0	0	7	5
August	1	8	1	11	1	3	12	27	14	4	21	39	6	5	3	2	4	2
September	5	4	3	7	1	0	20	21	11	7	14	21	4	7	7	3	1	2
October	1	5	0	4	3	2	7	15	29	5	9	22	5	5	2	1	5	3
November	2	0	3	4	2	1	9	21	18	6	5	42	1	1	3	0	3	5
December	5	6	3	4	2	1	6	23	9	2	14	13	1	5	4	2	2	3
Whole year	84	113	49	81	44	25	155	190	202	79	219	320	39	43	49	19	67	50

APPENDIX B.

In the District of the Local Board of	Typhoid Fever.					Diphtheria.					Scarlet Fever.					TOTAL.					
	1888	1889	1890	1891	1892	1888	1889	1890	1891	1892	1888	1889	1890	1891	1892	1888	1889	1890	1891	1892	1893
Beaconsfield.....	5	46	3	4	4	...	...	31	48	5	3	2	7	4	...	12	81	51	9	7	2
Bellerive.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Boobyalla.....	...	3	...	1	1	...	...	2	6	...	...	...	...	...	...	...	5	6	1	1	...
Bothwell.....	1	...	5	4	1	1	...	...	...	...	...	...	...	...	...	1	...	5	4	1	1
Brighton.....	7	6	5	1	3	1	8	...	...	2	1	7	...	...	2	22	6	5	1	7	2
Burnie.....	...	...	6	1	1	...	...	...	1	...	...	...	...	...	...	...	...	7	2	1	...
Campbell Town.....	4	11	4	4	...	...	3	...	29	...	1	...	...	...	...	7	11	33	4	...	1
Carnarvon.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clarence.....	3	1	...	8	...	...	1	...	...	6	9	3	...	...	...	7	1	...	8	6	9
Deloraine.....	9	11	10	6	1	5	9	8	3	11	12	18	6	1	58	24	20	14	75	19	29
Derby.....	12	17	3	1	9	3	...	...	3	1	1	...	...	...	3	12	17	6	2	13	3
Devonport.....	3	5	1	...	...	...	2	...	12	1	...	11	2	...	...	7	5	13	1	...	11
Dundas.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Evandale.....	3	7	2	...	1	...	2	...	...	1	...	...	...	...	...	5	7	2	1	1	2
Fingal.....	6	6	...	1	...	...	6	...	8	3	...	3	...	...	...	12	9	8	4	...	3
Franklin.....	...	1	1	11	2	1	1	19	1	9	4	49	10	...	...	11	20	2	20	6	44
George Town.....	2	1	1	2	...	1	...	6	...	...	...	...	...	...	...	2	1	7	2	...	1
Glamorgan.....	...	...	1	1	...	...	15	...	...	19	3	...	...	...	...	...	15	1	1	19	3
Glebe Town.....	2	1	3	6	...	1	1	...	...	1	2	3	...	...	...	6	1	3	6	1	3
Glenorchy.....	4	33	2	6	3	6	3	3	2	...	2	4	2	1	...	9	37	4	6	5	10
Gordon.....	3	4	...	3	...	...	2	1	...	...	2	5	5	...	...	10	11	1	3	...	2
Gould's Country.....	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...
Green Ponds.....	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...
Hamilton.....	...	3	2	...	3	5	5	...	1	1	1	...	2	...	...	6	5	3	1	4	5
Hamilton-on-Forth and Don.....	1	...	...	...	...	...	5	...	...	6	1	...	1	...	1	1	6	...	...	7	1
Hobart.....	149	184	86	197	78	62	18	12	6	5	82	49	60	16	1	227	212	93	204	167	115
Invermay.....	9	23	7	5	6	6	1	5	10	1	2	5	...	1	...	10	28	18	6	15	12
Kentishbury.....	...	...	...	...	...	...	6	...	3	5	...	3	...	...	...	...	6	...	3	5	1
Kingston.....	6	1	...	1	...	1	...	3	6	...	...	...	...	...	...	...	6	4	6	1	...
Latrobe.....	3	1	1	...	...	...	...	...	...	...	14	...	...	...	1	...	3	1	1	...	14
Launceston.....	190	291	105	87	54	44	31	43	33	18	13	21	144	47	8	365	381	146	108	85	72
Lefroy.....	...	5	...	1	5	2	3	...	2	...	...	...	...	...	...	3	5	2	1	5	2
Leven.....	...	2	...	...	...	1	...	4	...	...	...	...	...	...	...	...	6	...	...	...	1
Longford.....	11	94	2	18	12	13	3	4	1	2	...	7	...	8	11	14	106	14	48	20	20
Macquarie.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey.....	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Mount Stuart.....	...	...	...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	2	1
New Norfolk.....	10	8	11	3	6	11	...	1	...	...	2	...	...	...	...	12	9	11	3	6	11
New Town.....	8	14	5	6	8	2	1	4	...	...	3	...	17	...	...	1	26	18	5	6	11
New Town, Rural.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oatlands.....	...	1	4	5	1	1	3	...	1	...	...	...	...	2	4	...	3	1	5	7	5
Penguin.....	...	2	...	...	...	...	...	...	...	...	...	1	1	...	...	1	3	...	...	1	...
Port Cygnet.....	3	...	...	...	2	...	5	1	5	...	4	...	5	...	8	13	1	13	4	6	...
Queenborough.....	15	21	5	3	9	2	2	...	1	...	4	...	6	1	...	23	22	6	3	13	4
Queenborough, Rural.....	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Richmond.....	6	6	2	2	1	...	2	1	...	1	1	...	...	...	...	8	7	2	3	2	1
Ringarooma.....	...	2	...	...	...	1	1	...	7	...	4	...	...	...	...	...	1	2	7	...	5
Ross.....	3	1	1	...	2	...	...	...	...	...	5	...	...	...	...	3	1	1	...	7	...
Russell.....	...	2	4	...	...	1	1	...	...	1	...	1	...	...	...	2	2	4	1	...	2
St. Helen's.....	1	26	14	5	13	3	...	...	...	...	...	...	...	...	...	1	26	14	5	13	3
St. Leonard's.....	7	48	9	3	15	2	4	12	3	...	12	3	17	2	...	28	62	12	3	30	5
Scottsdale.....	...	...	...	3	...	...	...	...	...	13	...	...	...	...	1	...	...	...	...	17	1
Scottsdale, Rural.....	7	2	3	1	1	...	...	...	...	22	5	...	...	...	4	7	2	3	1	27	7
Sheffield.....	1	3	...	1	...	...	...	...	...	...	4	...	...	...	...	1	3	...	1	...	4
Sorell.....	5	2	2	4	1	2	1	...	...	...	41	8	...	...	...	15	3	2	4	1	46
Spring Bay.....	...	4	1	1	...	...	4	...	...	...	1	...	...	2	1	...	4	4	1	3	2
Strahan.....	...	...	4	1	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	...	...
Straits Islands.....	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	1	...	...	2	...
Tasman's Peninsula.....	2	1	...	2	...	...	...	...	...	...	3	6	...	2	...	8	1	...	4	...	3
Trevallyn.....	2	1	3	...	1	...	...	...	...	...	...	2	...	...	2	2	5	3	...	3	...
Ulverstone.....	9	1	3	1	...	...	...	...	...	...	13	...	...	...	8	9	4	3	1	8	13
Upper Piper.....	25	4	1	1	...	2	12	5	1	2	1	...	...	...	...	1	37	9	2	3	1
Waratah.....	4	...	1	2	...	1	...	4	...	...	1	...	...	...	...	4	4	1	2	...	2
Weldborough.....	...	2	1	1	1	...	...	...	...	...	1	...	...	...	...	1	2	1	1	1	...
Westbury.....	8	14	3	4	1	2	7	4	8	...	37	3	13	1	1	18	31	12	5	8	39
West Tamar.....	...	1	3	2	1	2	8	1	...	...	1	...	...	...	...	8	2	3	2	1	3
Wynyard.....	...	...	11	1	2	1	1	...	...	1	...	...	...	...	...	1	...	11	2	2	1
Zeehan.....	...	...	...	15	1	4	...	...	...	...	1	...	...	...	...	...	...	...	15	1	5
TOTALS.....	547	925	341	432	256	190	164	195	208	69	219	320	317	107	31	1028	1227	580	605	558	538

APPENDIX C.

EXTRACTS from Report on the Sanitary Condition of the Town of Westbury.

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2. The township of Westbury, as laid out, occupies a very large area, about 2400 acres; but the part of it that may be considered "town" occupies about 80 or 100 acres round Lyall-street and the neighbouring parts of Westbury Road, Lonsdale Promenade, King-street, and William-street. The population of the whole town was 1104 at the Census of 1891, and probably has not increased since. The site of the town is an undulating plain varying from about 580 feet to about 630 feet above the sea level. It is generally from 10 to 40 feet above, and drains towards the Quamby Brook that flows into the River Meander a few miles from the township. The surface soil in most places is not very retentive, but the town common and the banks of the brook are swampy. The subsoil appears to consist of the mixed clays and sands of the tertiary drift of the great plain extending between the eastern and western mountain ranges of the northern part of the island, with some admixture of the disintegrated rock of the intrusive basalt of the neighbourhood.

3. To rightly understand the present condition of Westbury it must be borne in mind that it was formerly not only relatively but also absolutely much more important than now. It was the centre of one of the most flourishing and extensive agricultural communities in the island, and thirty years ago had a population of 1550, and was then probably after Hobart and Launceston the most important place in the Colony. But the opening of the Launceston and Western Railway took away its relative importance to its District, and transferred its business to the terminal stations, chiefly to Launceston, so that in 1881 its population had fallen to 1156, and in 1891, as before mentioned, to 1104, and had become an agricultural rather than a trading community. This decadence will account for much that is said further in relation to the condition of the houses; and also for the limited scope of the works suggested in this report, which must be taken to represent what is practicable financially, rather than all that is desirable from a sanitary point of view.

4. There must be over forty miles of streets laid out in the township, but the greater part of them are left in grass. The roads of communication with the neighbourhood and the streets of the "town" portion of the township are kept in good order, and the side channels, though unpaved, are clean, with the exception of that on the south side of the Westbury road for about 17 chains from the Quamby Brook. The foul condition of this drain is caused by its being the outlet of the drainage of a slaughter-house and other premises in Lyall-street, as hereinafter described. This drainage runs down the Westbury road as far as Lonsdale's Promenade, whence the channel runs by the roadside, first through the reserved green of the Promenade, then through a paddock which is private property, and lastly through the Town Common to the Brook, but all the way close to the public road. It spreads out and forms a swamp, which was offensive when I was there, and which, in summer time, must be much more so. This is a matter that should be at once remedied, and it might be readily done in the way I suggest later on. The healthiness of the town would also be improved by the better surface drainage of the whole of the Common, especially on the south side towards King-street. If the clearing out and improving by straightening of the channel of the Quamby Brook were within the means of the authorities, a good deal of the flooding that the Common suffers from could be prevented. The town map shews that the Brook meanders through the Common to such an extent that its channel is 105 chains long between points that are only 35 chains apart. By a give-and-take line, say 45 chains long, not only could 60 chains of tortuous length with great friction be saved, but the gradient improved from about 1 in 1200 to 1 in 500. But this is not a work of immediately pressing necessity.

5. I visited most of the houses in the town proper and the neighbouring streets. With but few exceptions they have comparatively large yards and gardens. A great fault to be found with many of the older houses is that their ground floors are level with, and sometimes even lower than, the surface of the adjoining soil. Where this is the case the yards should be lowered on the house side, or, where this is impracticable, a surface channel should be cut to act as a catchwater drain, and prevent the rain water and surface moisture from soaking under the houses. Many of the houses are also unspouted: where this is the case notices should at once be served to remedy the defect. Very few of the houses have underground drains, and the outlets of such as exist, with but one or two exceptions, are in the street gutters. Most of the householders say that their slops are emptied into their gardens. The privy accommodation almost invariably takes the form of a closet with an earthen cesspit, emptied when considered necessary. It will be seen how very undesirable this arrangement is when we come to consider the water supply, especially as frequently the cesspit is within a few yards of the well.

6. Some of the older houses are quite unfit for human habitation in their present condition.

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7. As to the actual nuisances connected with the drainage and condition of some of the houses, I would recommend that immediate steps be taken to remedy the following:—In the first place, there is the open ditch or drain to which reference has already been made. This is the outfall of a covered drain that runs from Mr. Lovatt's yard, taking his house and part of his slaughter-house and butcher's shop drainage. In passing through the Bank property it receives the house drainage from the Bank premises. It then runs through Mr. Barrett's property, but receiving no drainage from it, and empties itself into an open ditch running along Archdeacon Hogan's garden, and comparatively near to his house, and that on the adjoining property. The sewage from this drain then runs along the Westbury Road as before described.

On the other side of Lyall-street, opposite Mr. Lovatt's premises, there is on the premises occupied by White & Co. (formerly Best) fronting to William-street, an open pit, in which there is always water, and which receives the house and yard drainage. When horses were kept on the premises it used to receive the stable manure also. It is very offensive. On the adjoining premises, belonging to Mr. Mehegan, the house and yard drain runs through the privy cesspit, washing its contents into a box, whence it is used for garden watering in the Chinese fashion. This was very offensive.

8. To abate all these nuisances and prevent their recurrence I would recommend the construction of a sewer along Lyall-street, across Lonsdale Promenade, to an outfall on the north side of the northern boundary fence of the late Captain Jones' property. This outfall would be on Lot 3 of block G3 as marked on the lithographed plans of the town, and would be sufficiently far down the hill to secure a good gradient to the sewer, and at the same time would allow part of the hillside to be irrigated with the sewage. This could all be arranged so as to cause no nuisance, and the outlet would be about 150 yards away from the nearest dwelling-house. The sewer should be made of 9-inch drain pipes all through, so as to permit of prolongation hereafter to William-street. It would serve for the drainage of the premises occupied by Lovatt, Root, the Commercial Bank, Barrett, the Police Office on the north side of Lyall-street, and by Mehegan, White & Co., Jordan's, the Public Library, the Police and the Post Office on the other—all which premises need drainage, and would be greatly improved in value thereby. The cost of the sewer would be about £140, which sum would have to be apportioned among the properties benefited. The additional cost of the branch drains to each property would not be much.

10. There are three slaughter-houses in the town.

11. I strongly recommend the removal of all these slaughter-houses from their present places. The slaughtering of cattle, sheep, and pigs, and the disposal of their blood, offal, and refuse, cannot be carried on in immediate contiguity to dwelling-houses without causing nuisance. The business should therefore be done outside of towns. The most suitable locality I could find for a slaughterhouse during my visit to Westbury was on the Government reserve, adjoining Quamby Brook, at the north-west corner of the township. The ground formation is exactly suitable for the purpose, the surface having a rapid fall towards the brook, providing good drainage, and permitting the blood and washings to be caught in movable receptacles placed so that they could be easily loaded into carts without lifting. There would be good access from the road leading to Egmont bridge, and small paddocks might be arranged, if necessary, to pen the cattle and sheep intended for slaughter.

12. The water supply of the town is derived almost exclusively from wells supplemented in very dry seasons by water from the brook. I have already described the subsoil. The wells are sunk into it for depths varying from 20 to 90 feet, the formation at the bottom being similar to that all the way down—clay of various colours and clayey sands. There are said to be no veins of water in the sandy beds, but the whole side of the well in each case “weeps” water. The height to which the water rises in the wells varies according to the season, the difference between summer and winter level being as much as 30 feet or more in some. The water also varies much in degree of hardness, but I saw none that I should describe as hard.

The facts above mentioned as to the absence of veins or springs of water, and as to the variation of its level, seem to clearly show that it is derived from the percolation of the local rainfall through the various beds of the tertiary drift. If it was the drainage of the water falling on the neighbouring mountain range it would be in more definite channels or springs, and it would be more slowly affected by summer and winter variations of rainfall. If this be so, great care ought to be taken to prevent surface pollution of the soil; but instead of this it would seem that care was taken to pollute it. As before mentioned, nearly all the privies have cesspits that are merely holes dug in the soil, that consequently receive all the soakage from the cesspits.

In some of the wells there were distinct marks of the surface soakage on the brick steining. At the public school privies there were brick cesspits filled with water, being, in fact, wells supplied from the same source as the other wells, that is to say, from ground soakage, and into this water all evacuations were made, so that the places were very offensive.

13. The proper remedy for this condition of things is to abolish all privy cesspits and establish a sanitary service for the town within the meaning and under the provisions of the Sanitary Rate Act. The rateable value of the town (exclusive of public property which would be rateable for such purpose) is £3744, and therefore a small rate would be sufficient to establish a fortnightly service. Until this is done the water-supply will always be in great danger of pollution. When it is done care must be taken to properly clean out and disinfect the existing cesspits before filling them up. Advantage should be taken at the same time to supply with proper privy accommodation the houses that at present are without it, and there are several.

14. During this year no less than 38 cases of diphtheria have been reported from the Health District of Westbury, of which 15 cases occurred in seven families in Westbury, 13 in two families at Hagley, eight in six families at Carrick, and two in one family at Exton. However obscure the subject of the causation of diphtheria may be, there is, I believe, complete unanimity of opinion among medical men as to its connection with foulness of surface and dampness of the soil about dwelling-houses. The preceding

descriptions of the nature and condition of the subsoil and of the pollutions to which the soil is subject probably account for the prevalence of the disease. Land drainage on a sufficient scale to correct the evil is out of the question for financial reasons, but the pollution of the ground by privy cesspools should all the more urgently be prevented by abolishing them.

15. I paid a visit to Carrick, where, as before-mentioned, cases of diphtheria have occurred. The village is supplied with water from the Lower Liffey by a conduit delivering it to a stand-pipe. The slaughter-house belonging to Mr. Deneen is in close proximity to the police station, being not more than five yards from the cells. The family of the constable in charge has suffered much illness, and attribute it naturally to the nuisance caused by the slaughter-house.

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At the Public School the privies are badly arranged. The privies intended for the boys should be separated from those intended for the girls, and both should be made pail closets. The hotels were both kept in good condition.

16. At Exton the privies at the Public School were in similar condition to those at Westbury School. The cesspits should be cleaned and filled up, and the places supplied with moveable pails.

17. In conclusion, I would repeat to the Local Board of Health the advice I gave when I had the pleasure of meeting the members—that a code of By-laws similar to those adopted by the Longford and other Boards of like constitution and circumstances should be prepared and passed. The sanitary administration of the district would be much simplified thereby, and in cases of emergency much valuable time might be saved.

A. MAULT, *Engineering Inspector and Secretary.*

Hobart, 30th November, 1893.