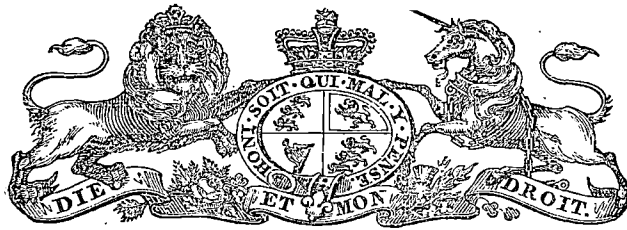


(No. 25.)



1890.

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PARLIAMENT OF TASMANIA.

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CENTRAL BOARD OF HEALTH:

REPORT FOR 1889.

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



## CENTRAL BOARD OF HEALTH.

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### REPORT FOR THE YEAR 1889.

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#### TO THE HONOURABLE THE CHIEF SECRETARY.

SIR,

WE have the honour to submit to you the following Report upon the administration of the Public Health Acts, the Vaccination Act, and the Quarantine Act, during the year 1889.

#### CENTRAL BOARD.

1. For the purpose of strengthening the Board and more easily securing a quorum at its meetings, a clause was introduced into the Public Health Amendment Act of last Session empowering the Governor in Council to appoint seven instead of five members to be the Central Board of Health; and under the provisions of this clause, C. E. Barnard, Esq., M.D., Government Medical Officer, was appointed, *ex officio*, a Member of the Board, and the appointment gazetted on the 17th December. On the 15th of February the Governor in Council appointed Mr. T. R. Atkinson to be Clerk in the office of the Board, in place of Mr. H. Barnard. These have been the only changes in the Board and the *personnel* of its Officers during the year.

#### LEGISLATION CONNECTED WITH THE PUBLIC HEALTH.

##### *Acts of Parliament.*

2. During the Parliamentary Session of 1889 considerable attention was given to matters more or less directly connected with the public health. In this connexion the more important Acts that were passed were "The Public Health Act, 1889," "The Sanitary Rate Act, 1889," and "The Town Boards Amendment Act, 1889." But in other Acts also incidental provisions were made that have bearing on sanitary matters.

##### *Constitution and Status of the Central and Local Boards of Health.*

3. The alteration made in the constitution of the Central Board is above referred to. A more important question had arisen as to the status of all Local Boards other than Municipal Councils, and as to the validity of all action taken by them. To settle this question as far as Local Boards which were also Town Boards were concerned, the above-mentioned Town Boards Amendment Act was passed, setting forth the manner in which such Boards were to be elected in the future, and validating all elections in the past. And as regards Local Boards nominated by the Governor in Council, clauses in the above-mentioned Public Health Act validated all their past action; fixed the quorum necessary to constitute their meetings in the future; and empowered the Governor-in-Council to appoint additional members to existing Boards.

##### *Rating powers of Local Boards.*

4. By "The Sanitary Rate Act, 1889," all elected Local Boards of Health are empowered to levy a yearly rate of not exceeding sixpence in the pound on the rateable value, or of a farthing in the pound on the capital value of the property within its District, for the purpose of carrying out the "sanitary service" of removing night-soil, refuse, &c. from the houses, or making provision of sewers sufficient to carry off night-soil.

##### *Additional powers of Local Boards as to new Streets, Buildings, &c.*

5. Greatly increased powers are given by clauses in "The Public Health Act, 1889," to Local Boards to properly control the making and building of new streets and houses. These clauses are taken from corresponding ones in the English Public Health Act of 1875,—clauses which, together with the by-laws based upon them, have worked very well at home. Those relative to new streets were adopted at the instance of

a Committee of this Board that reported upon certain resolutions of a Conference held in 1888 of delegates from the Municipal Councils of Hobart and Launceston, for the purpose of considering this with other matters, and we are glad to note that the Local Board of the City of Launceston is availing itself of the powers thus given. With respect to new Buildings, the clauses empower Local Boards to make By-laws, with the sanction of the Attorney-General and Central Board, that may be made equivalent to a Building Act so far as regards provisions for securing the safety and healthiness of houses.

#### *Noxious Trade Areas.*

6. "The Public Health Act, 1889," also contains clauses empowering the Governor in Council to appoint and define Noxious Trades Areas, and to make regulations for the carrying on of such trades in such areas, and providing that trades so carried on in such places shall not be deemed to be nuisances at law. Some steps have already been taken to carry out this law, and in doing this Tasmania is so far taking the lead among the Australian Colonies. Powers are also given to Municipal Councils to agree with persons carrying on noxious trades within their jurisdiction for the discontinuance or removal of them and for the payment of compensation; but these powers do not interfere with existing remedies against nuisances caused by noxious trades.

#### *Cemeteries and the Burial of the Dead.*

7. The unsatisfactory condition of the law of the Colony in regard to the burial of the dead has been put an end to by some of the enactments of the same statute—"The Public Health Act, 1889." Until the passing of this Act there was no law here, except in the City of Hobart, preventing the burial of the dead in any place whatever of which the owner consented to such burial: consequently burials had taken place in very unsuitable places. Now no burial can take place in other ground than a public cemetery without the consent of the Local Board of the District. Again, some cemeteries have been laid out in places which from their neighbourhood or character are improper for the purpose; for the future no new cemetery is to be laid out or used without the approval of the Local Board. With respect to existing cemeteries, Local Boards are empowered, after due notice, to close such as appear to them to be injurious to the public health. There is a means provided to ratepayers for bringing this part of the Act into force, and, if need be, appealing from the Local to the Central Board for its enforcement. Regulations may also be made by Local Boards with respect to the depth of graves, burial in vaults, &c.; and in case Cemetery Trustees do not make the regulations they are empowered to make under the Cemeteries Act of 1865, Local Boards may make such regulations. If in consequence of the closing of any cemetery under this "Public Health Act" any locality is left without any provision for the burial of its dead, the Local Board may make such provision. With respect to the burial of the bodies of persons who have died of infectious diseases, provision is made for immediate interment if necessary.

#### *Sanitary condition of Inns and Public-houses.*

8. In consequence of repeated complaints of the insanitary condition of many Inns and Public-houses in the country, a clause was inserted in "The Licensing Act, 1889," to the effect that "no certificate of approval of any person receiving a Public-house licence shall be granted in respect of any house unless and until a certificate is produced to the Licensing Bench from the Local Board of Health of the District within which such house is situate, that such Local Board is satisfied with the sanitary condition and accommodation of such house."

#### *Explanatory Circular.*

9. The new duties imposed upon, and the new powers confided to Local Boards by this legislation were so important that we issued a circular with full explanatory details of the principal sections. This circular was prepared immediately after the close of the Parliamentary Session, and copies sent to the Local Boards on the 12th December.

#### *Private Improvement Rates.*

10. Important and far-reaching as this new legislation undoubtedly is, we greatly regret that it was not made still more complete. In the administration of the Health Acts difficulties are continually arising from the incapacity of the owners of houses to immediately meet the charges necessary to carry out orders for improving their sanitary condition—orders to do what is absolutely necessary to render them fit for human habitation. In such cases there is now no course open but to close the houses against occupation. In England such cases are met by spreading the payment for such work over a series of years, and making such payment a first charge upon the property. This arrangement is made under the Private Improvement Clauses of "The Public Health Act, 1875." You were good enough, Sir, to embody these clauses in the Bill you conducted through the Legislative Council, but they were struck out in the House of Assembly, and consequently "The Public Health Act, 1889," does not contain them. We greatly regret this, and believe that it was done under a total misapprehension of the object and effect of the clauses, which have worked admirably well in England, and made its Act much more workable and with far less hardship to the poorer class of proprietors. We ask you urgently to take the first opportunity to get the matter reconsidered, especially as the principle of allowing time for payment of work done by a public body under such circumstances is already affirmed by the 194th Section of "The Police Act, 1865."

#### **METROPOLITAN DRAINAGE.**

##### *Conferences.*

11. The Municipal Council, being the Local Board of Health of the City of Hobart, having, at a meeting on the 27th May passed resolutions affirming the desirability of securing the proper sewerage of the whole metropolitan area, and inviting the co-operation of the Central Board, this Board held a conference with the Local Board on the 5th June, at which it was resolved to invite the co-operation of the

Local Boards of Health of Glebe Town, New Town, and Queenborough. Subsequently the Municipal Council of Glenorchy, acting as Local Board of Health for its district, was also invited to join the conferences. We have already reported to you, under date the 27th June, 1889, the result of these conferences, and our report was, by His Excellency's command, presented to both Houses of Parliament. The City Council has again evinced a disposition to carry on the consideration of the matter from the point at which negotiations ended, and we hope that during the current year a satisfactory arrangement may be made for beginning the urgently needed work of metropolitan drainage.

*Mr. Mansergh.*

12. In connection with this matter we took advantage of the presence of one of our members, Mr. J. Wemyss Syme, in Melbourne, to ascertain on what terms the services of Mr. Mansergh, who had been engaged by the Victorian Government to report upon the sewerage of Melbourne, would be secured for a corresponding report upon that of Hobart. The terms asked, and conditions laid down, were not such as we could recommend for acceptance. But the Mayor of Hobart, having obtained a Parliamentary appropriation for the purpose, continued the negotiation with Mr. Mansergh, though without any greater measure of success.

INFECTIOUS DISEASES.

*Notification.*

13. The forms that were prepared some years ago to facilitate the notification, as required by the 10th Section of the Act of 1887, by medical men, of the cases of infectious disease that came under their observation, having been found inconvenient, as not giving all the information required, we have issued fresh forms, and arranged that they should be transmitted free by post when endorsed by the doctor sending them. In these new forms we have, in accordance with the special desire of some members of the faculty, given all medical men the opportunity of pointing out special matters in connection with the cases that ought to receive the attention of the local sanitary authorities. In sending out these notification books we took the opportunity of again appealing to the medical men of the Colony to assist the Board in its efforts to deal with preventible diseases by giving timely intimation of their occurrence. But we regret to find that many cases are still unreported, not only in country districts far removed from medical assistance, but from Hobart and other places having a sufficient number of doctors in practice.

*Typhoid Fever.*

14. The following Table shows the number of cases of typhoid fever notified to the Board during each month of the year, as compared with those of the preceding year, and the deaths registered as taken from the monthly returns of the Registrar-General, and also the temperature and rainfall:—

MONTHS.	TEMPERATURE.		RAINFALL.		CASES.		DEATHS.	
	1889.	1888.	1889.	1888.	1889.	1888.	1889.	1888.
	F. <sup>o</sup>	F. <sup>o</sup>	Inches.	Inches.				
January .....	65.6	65.2	0.13	1.23	119	61	5	12
February .....	65.2	63.9	1.15	0.14	136	112	18	14
March .....	61.4	58.6	0.75	0.58	171	85	21	14
April .....	58.1	55.7	2.51	1.19	156	60	19	12
May .....	52.5	50.8	1.74	1.59	144	57	13	10
June .....	48.9	48.6	7.00	3.55	61	33	9	5
July .....	46.5	45.1	1.48	2.27	34	29	5	3
August .....	48.3	47.6	2.35	2.02	23	21	8	1
September .....	50.6	52.2	2.34	2.81	26	18	4	5
October .....	56.1	54.3	3.49	1.08	22	14	5	1
November .....	59.2	59.7	3.73	1.76	17	14	0	2
December .....	61.1	64.9	2.60	1.38	16	48	2	5
TOTAL .....	56.1	55.6	29.27	19.60	925	547	109	84

The large increase in the number of cases was accompanied by a large, though not a correspondingly large, increase in the number of deaths. We do not suppose that this lower ratio of deaths arose from any diminution in the virulence of the fever, but from the fact that a larger proportion of the cases were reported. The death-rate from typhoid fever for the preceding decade averaged 52 a year, so the death-rate for 1889 was more than twice the mean rate of the period 1879-1888—in fact it was higher than during any year of the period except 1887, when it reached 112. From figures kindly furnished in advance by the Registrar-General, it appears that when correction is made for deaths that actually occurred in the year, but which were registered subsequently, the deaths from typhoid fever for the year 1889 were 113 instead of the above given, 109—making the year the maximum one of the decade. The gravity of the fact that such mortality is occurring in our midst from a preventible disease is deepened by the circumstance which we have before called your attention to, that this mortality chiefly affects the breadwinning portion of the community. Of the above-mentioned 113, only 16 were below 15 years of age, and only 5 were above 50; the remaining 92 being between 15 and 50.

In the above table the temperatures and amounts of rainfall given are the means of those at Hobart and Launceston for the respective months. As far as climatological influences are concerned, the temperature seems to have considerable effect upon the prevalence of typhoid. Thus, the effect of the exceptionally high temperature December, 1888, is strongly marked upon the fever returns of that and the subsequent month.

*Diphtheria.*

15. The following table shows the comparative number of cases of diphtheria and deaths resulting therefrom for each month of the years 1889 and 1888, the deaths being taken from the monthly statistics of the Registrar-General :—

MONTH.	TEMPERATURE.		RAINFALL.		CASES.		DEATHS.	
	1889.	1888.	1889.	1888.	1889.	1888.	1889.	1888.
	°	°	Inches.	Inches.				
January .....	65·6	65·2	0·13	1·23	9	12	1	2
February .....	65·2	63·9	1·15	0·14	4	9	2	2
March .....	61·4	58·6	0·75	0·58	14	13	0	0
April .....	58·1	55·7	2·51	1·19	9	17	2	6
May .....	52·5	50·8	1·74	1·59	17	31	8	4
June .....	48·9	48·6	7·00	3·55	18	12	3	4
July .....	46·5	45·1	1·48	2·27	12	7	4	4
August .....	48·3	47·6	2·35	2·02	27	12	5	6
September .....	50·6	52·2	2·34	2·81	21	20	7	4
October .....	56·1	54·3	3·49	1·08	15	7	5	5
November .....	59·2	59·7	3·73	1·76	21	9	1	1
December .....	61·1	64·9	2·60	1·38	23	6	5	1
TOTALS .....	56·1	55·6	29·27	19·60	190	155	43	39

The average number of deaths from diphtheria for the decade 1879-88 was under 34. 1880 was the *maximum* year, with 90 deaths; and 1883 the *minimum*, with 10 deaths. Of the 43 deaths in 1889, 39 were of children under 15 years of age, and four of persons between 15 and 30. From 5 to 10 years of age is the most fatal period, having 22 deaths. As far as climatological influence is shown by the table, humidity as marked by rainfall seems to affect the prevalence of diphtheria more than high or low temperatures.

*Scarlet Fever.*

16. During the year scarlet fever was much less prevalent than during 1888, only 107 cases being notified as compared with 321, and only one death being registered as compared with five in 1888, and with six as the average for the decade 1879-1888.

*Whooping-cough.*

17. Whooping-cough became very prevalent towards the close of the year, but the notification of the cases that occurred was very irregular, and we therefore prefer to give no figures. One death from it was registered in September, two in November, and four in December, making seven for the year. There were no deaths from it registered in 1888. The average number of deaths for the decade 1879-88 was over seventeen.

*Distribution of Infectious Diseases.*

18. The following table shows the distribution of typhoid fever, diphtheria, and scarlet fever in Tasmania during the year 1889, as far as the cases have been notified to us under the provisions of the 10th Section of the Act of 1887 :—

In the District of the Local Board of	Typhoid Fever.	Diphtheria.	Scarlet Fever.	TOTAL.
Beaconsfield .....	46	31	4	81
Boobyalla .....	3	2	—	5
Bothwell .....	—	—	—	—
Brighton .....	6	—	—	6
Brothers' Home .....	17	—	—	17
Burnie .....	—	—	—	—
Campbell Town .....	11	—	—	11
Carnarvon .....	—	—	—	—
Clarence .....	1	—	—	1
Deloraine .....	11	8	1	20
Devonport .....	5	—	—	5
Ellesmere .....	—	—	—	—
Evandale .....	7	—	—	7
Fingal .....	6	—	3	9
Franklin .....	1	19	—	20
George Town .....	1	—	—	1
Glamorgan .....	—	15	—	15
Glebe Town .....	1	—	—	1
Glenorchy .....	33	3	1	37
Gordon .....	4	2	5	11
Gould's Country .....	—	—	—	—
Green Ponds .....	—	—	—	—
Hamilton .....	3	—	2	5
Hamilton-on-Forth and Don .....	—	5	1	6
Hobart .....	184	12	16	212
Invermay .....	23	5	—	28

In the District of the Local Board of	Typhoid Fever.	Diphtheria.	Scarlet Fever.	TOTAL.
Kentishbury .....	—	—	—	—
Kingston.....	1	3	—	4
Latrobe .....	1	—	—	1
Launceston .....	291	43	47	381
Lefroy.....	5	—	—	5
Leven .....	2	4	—	6
Longford.....	94	4	8	106
Mersey .....	1	—	—	1
New Norfolk .....	8	1	—	9
New Town.....	14	4	—	18
Oatlands .....	1	—	—	1
Penguin .....	2	—	1	3
Port Cygnet .....	—	1	—	1
Queenborough .....	21	—	1	22
Richmond .....	6	1	—	7
Ringarooma .....	2	—	—	2
Ross .....	1	—	—	1
Russell .....	2	—	—	2
St. Helen's.....	26	—	—	26
St. Leonard's .....	48	12	2	62
Scottsdale .....	2	—	—	2
Sheffield .....	3	—	—	3
Sorell .....	2	1	—	3
Spring Bay.....	4	—	—	4
Straits Islands .....	1	—	—	1
Tasman's Peninsula .....	1	—	—	1
Trevallyn .....	1	2	2	5
Ulverstone .....	1	3	—	4
Upper Piper .....	4	5	—	9
Waratah.....	—	4	—	4
Weldborough .....	2	—	—	2
Westbury .....	14	4	13	31
West Tamar .....	1	1	—	2
Wynyard .....	—	—	—	—
TOTALS .....	925	195	107	1227

In submitting to you this table we must again call your attention to manifest errors in it, arising from the difference of manner in which the provisions of the Act cited are carried out in different parts of the island. The thoroughness with which the notification of disease is carried out in Launceston, and the carelessness with which it is carried out in Hobart, make the comparative healthiness of the two cities appear in an unfair manner, and it is necessary to apply a correction to the figures above given in order to arrive at a just conclusion on the matter. The Registrar-General's returns of deaths, taken with the notifications sent us, afford a means of making such a correction. During the year 1889 there were registered in the Launceston Registration District, which includes the districts of the Local Boards of Health of Launceston, St. Leonard's, Invermay, Trevallyn, West Tamar, and Upper Piper, 40 deaths from typhoid fever, of which 23 occurred in the General Hospital and 17 outside. There were admitted to the hospital 256 cases of typhoid fever, of which 183 were from the Registration District. If deaths occurred in the same ratio among the 183 patients as in the whole 256, 16 of the 23 deaths would be chargeable, with the 17 above-mentioned, to the district, making the total typhoid deaths of the Launceston Registration District to be 33. If the average rate of typhoid mortality be taken to be one case in eleven, the 33 deaths would represent 363 cases. It will be seen from the above table that 368 cases were notified from the Local Boards embraced in the Launceston Registration District, showing that if one to eleven or twelve be the correct ratio of deaths to cases, the notification of cases was very thoroughly performed.

On the other hand, during 1889 there were registered in the Hobart Registration District, which includes the districts of the Local Boards of Health of Hobart, Queenborough, Glebe Town, New Town, and Glenorchy, 41 deaths from typhoid fever, of which 31 occurred in the General Hospital and 10 outside. There were 162 cases admitted to the General Hospital, of which 139 were from the Registration District, of whom 29 died (these are actual, not calculated, numbers). So the total typhoid deaths of the district were 39, which, at the above-mentioned ratio, would represent at least 429 cases. But the above table shows that from the Local Boards comprised in the Hobart Registration District only 253 cases were notified. It is therefore probable that it may be correctly assumed that while in the Launceston District all, or nearly all, the infectious diseases are reported, in the Hobart District not many more than one-half are. So while the returns show that about 17 in each thousand living in the Launceston District were attacked with typhoid fever, and about 7 in each thousand living in the Hobart District, they probably ought to show 17 in the thousand in Launceston, and 13 in the thousand in Hobart.

It would appear incidentally from the figures above given as to the admissions and deaths in the two hospitals, that a much severer type characterises the fever in the cases admitted to the Hobart Hospital, where more than twenty per cent. ended fatally, as compared with about nine per cent. of the Launceston Hospital cases. The average death-rate in the Sydney hospitals for the year was 10·34 per cent. of the admissions; the rates in the various hospitals varying from 5·15 per cent. at the St. Vincent's, to 21·62 at the Sydney Hospital.

## PREVENTIVE MEASURES.

19. During the year we have distributed large numbers of copies of the "General Memorandum on the proceedings which are advisable in Places attacked or threatened by Epidemic Disease," issued by the Medical Department of the Local Government Board, London, and which formed one of the Appendices to our Report last year. We have placed all Local Boards of infected districts in a position to gratuitously supply disinfectants where necessary. With respect to proper and permanent means of disinfecting clothing and bedding, our Engineering Inspector prepared a Report, with plans, for fixed establishments for Hobart and Launceston, and locomotive apparatus that would have been available elsewhere. These have been submitted to you, with the result that you have requested that they may be modified so as reduce their cost. The matter is consequently being reconsidered by our Inspector.

## QUARANTINE ACT.

20. No occasion has arisen during the year for the actual quarantining of any vessel arriving at any of our ports. In March, in consequence of a notification received from the Netherlands India Government of the existence of cholera at Flores, the Health Officers of Hobart and Launceston were warned to be prepared. In connection with an outbreak of smallpox at the Mauritius, notified in June, the medical inspection of vessels arriving therefrom was ordered, and all mercantile houses connected with the trade from that island informed of the precautionary measure taken. In November the reported occurrence of smallpox at Adelaide necessitated the taking of steps to watch the whole of the passenger traffic arriving either directly or through Melbourne. The Health Officers and Customs Authorities of all the outports were communicated with, and also the Tasmanian Steam Navigation Company, and Messrs. Huddart, Parker, & Company, who promised to exercise all possible care in regard to the shipment of passengers. Fortunately, no necessity arose for any interference with traffic. On Christmas day, the steamship *Aorangi*, from London, arrived at Hobart with a case of scarlet fever on board among the passengers to be landed here, but arrangements were made for continuing on shore the isolation that had been carried out on the ship, and consequently no detention of the ship was necessary.

## PUBLIC BUILDINGS.

21. During the year, under the provisions of the 114th Section of "The Public Health Act, 1885," plans have been approved, after modification by the Board, chiefly in the matter of the means of egress, for a chapel in Elizabeth-street, Hobart, an assembly-room in Melville-street, Hobart, and a skating rink at Latrobe. The Switchback Railways in Hobart and Launceston (the latter by the Officers of the Local Board) were also inspected, and after being strengthened and tested, were allowed to be opened for public use. Inspections have also been made of the Theatre and Tasmanian Hall, Hobart, and the means of egress improved.

## ENGINEERING INSPECTOR'S WORK.

22. During the year the Engineering Inspector has made thirty-one official visits to various parts of the Colony, special reports of which have been furnished—eight of them being printed and presented to Parliament by His Excellency's command. The more important engineering work has included plans, estimates, and reports upon the water supply of Latrobe, Formby, Torquay, and St. Helen's; a hydrographical survey and report upon the River Clyde and its sources, Lakes Sorell and Crescent; tide observations in connection with Hobart sewerage; means of disinfection by heat; detailed sewerage plans, &c. for part of Hobart and the Cascades establishment; and reports upon the sanitary condition of New Norfolk, its Asylum, the Lands and Works Offices, Hobart, Campbell Town Hospital, &c.

## BOARDS OF HEALTH OF OTHER COLONIES.

23. In addition to the usual interchange of reports and other information with the Boards of Health of the other colonies; we have to acknowledge with special thanks detailed information regarding sanitary legislation from Victoria, and noxious trades' areas from New South Wales.

## LOCAL BOARDS.

24. Nearly the whole of the Local Boards of Health have heartily co-operated with us in the administration of the Sanitary Acts. And in all cases of infectious diseases reported proper steps have been taken to prevent spread of infection. In the following paragraphs the words "infectious disease" refer only to typhoid and allied fevers, diphtheria and scarlet fever.

*Beaconsfield.*

25. From the Table above given it will be seen that the year was a very unhealthy one in the district of this Local Board, no fewer than 81 cases of infectious disease having been reported, accompanied with a corresponding mortality. In the previous year only 12 cases were notified. In consequence of an outbreak of typhoid fever early in the year, the Engineering Inspector made a visit to the town. It is situated on the lower slopes of the hills to the west of the Tamar, and a little more than a mile from the waters of the Middle Arm. The site is slightly undulating, with a general slope downwards and eastwards to the river, between which and the town are swampy flats partly covered with ti-tree. As these flats receive the water from the tail-races of the mining works, they render the general atmosphere of the place very humid, and there is consequently a prevalence of fogs that must render the town unhealthy. The soil and sub-soil are formed by the disintegration of crystalline silurian rocks, and are retentive of surface water. There is no system of drainage or water supply. With one exception, all the houses are wooden buildings. A house-to-house inspection of the localities in which fever had occurred showed a great want of good drainage, and of a proper supply of water. The Inspector attended a meeting of the Local Board and suggested to them the sanitary work that it was necessary to have done immediately in consequence of the outbreak of fever, but pointed out that it was impossible to properly deal with the wants and requirements

of such a town as Beaconsfield unless its affairs were administered by an authority with rating powers, such as a Town Board, which could provide a general system of drainage, and which could be entrusted by Parliament with powers to obtain a proper water supply for the inhabitants; and that until such drainage and water supply were provided, the town would be continually subject to visitations similar to the one it was then undergoing.

Unfortunately this prevision came to pass. The inhabitants of the town seem indisposed to take upon themselves the responsibilities of local self-government, and so nothing has been done in reference to permanent work; and at the end of the year, when an outbreak of diphtheria occurred, the town was virtually in the same condition as at the beginning. The Local Board, after vainly trying to prevent the spread of infection by appealing to the good sense of the parents and relatives of the patients, was empowered, under the provisions of the 14th Section of the Act of 1887, by the Governor in Council, at our recommendation, to isolate certain houses. These isolation orders were issued on the 18th December, and though other cases occurred subsequently, there was no further need of orders, as the example given produced the necessary effect.

Up to the end of the year the Local Board had no Officer of Health, but in one case of urgency the employment of a medical practitioner was authorised. Two supplies of disinfectants were sent.

#### *Boobyalla.*

26. In this district five cases of infectious disease were reported last year, as compared with none the preceding year. One of the cases of typhoid fever occurred at an hotel in Moorina, and the two cases of diphtheria reported occurred among the Chinese in the district. In all these cases special precautions were taken.

#### *Bothwell.*

27. At the beginning of the year there was no resident medical man at Bothwell, and although two suspected cases of typhoid occurred, no proper notification could be made. The district has, therefore, a clean bill of health for the year as far as infectious diseases are concerned, compared with one case in 1888. In July the Local Board passed a very complete set of Bye-laws, which were duly approved and gazetted in August. Dr. Meyer, having come to live in the neighbourhood, was appointed Officer of Health, and his appointment confirmed. During his survey of the River Clyde, in March, the Engineering Inspector visited Bothwell, and took the opportunity of making a rapid inspection of the town. As the town is dependent for its water supply upon the River Clyde, copies of the Inspector's report upon the condition of that river were sent to the Local Board, so that it might see the necessity for the adoption of proper conservancy measures in connection therewith, and with its sources Lakes Sorell and Crescent.

#### *Brighton.*

28. This district has a better record for the year than for the preceding one, only six cases of infectious disease having been reported, against 21 in 1888. One of the cases of typhoid was evidently caused rather by injudicious exposure than by unhealthy conditions at the house of the patient.

#### *Brothers' Home.*

29. Seventeen cases of infectious disease, all typhoid fever, were reported during the year from this district, as compared with twelve in the preceding year. It is very probable that more cases actually occurred than were notified this year, as a local Chinese practitioner was said to be attending many cases. The type of fever appears to have been very severe, as three deaths occurred in one house. Complaints were made of an unhealthy condition of things at a slaughter-house at Branhholm, in this district, and steps were immediately taken by the Local Board to have the nuisance remedied.

#### *Burnie.*

30. For two years in succession this district has had a clean bill of health as far as infectious diseases are concerned.

#### *Campbell Town.*

31. Eleven cases of infectious disease were notified from this municipality, as compared with seven for 1888. Most of the cases were treated in the Campbell Town Hospital. The inhabitants of the district are to be congratulated on the public spirit that has established this institution in a new building that is well fitted for its purpose, and an ornament to the town.

#### *Carnarvon.*

32. The town of Carnarvon was proclaimed under the Town Boards Act in the *Gazette* of the 23rd July, and the election of a Town Board, that is, *ex officio*, Local Board of Health, notified in the *Gazette* of the 13th August. We at once forwarded the necessary information and documents to enable the Board to fulfil the sanitary part of its duties. For the future the statistics of this town will be kept distinct, but for the year under review they are given under the heading "Tasman's Peninsula," of which police district the town forms a part.

#### *Clarence.*

33. Only one case of infectious disease was reported from this municipality, against seven cases notified in 1888, and the one case was said to have been an imported one, and contracted outside the district. In consequence of a complaint made by a resident of Bellerive as to the condition of the grave-yards in that town, the Local Board of Health asked the Central Board to have an inspection made. We accordingly instructed our Engineer to report upon the matter. A copy of his report, advising the closing of the existing cemeteries in Bellerive and the provision of an extra-urban one, and suggesting the measures to be taken in connection with burials until such provision could be made, was forwarded to the Local Board; and, we understand, steps are being taken to provide a new cemetery.



*Deloraine.*

34. Twenty cases of infectious disease were notified from this municipality, against 24 notified in the preceding year. To assist the Local Board in its precautionary measures to check the spread of infection, two supplies of disinfectants were sent.

*Devonport.*

35. By an Act of Parliament passed during the last session the towns of Formby and Torquay have been united into one town under the above name, and placed under the jurisdiction of a Town Board, which is also Local Board of Health. In the town five cases of infectious disease occurred, as compared with the same number in 1888 in the town of Formby. In connection with the water supply of the two towns, we instructed our Engineer to give every assistance to the local authorities, and he accordingly prepared a report setting forth the various sources of supply available, and the probable cost of the necessary works, and copies of his report, which was printed as a Parliamentary Paper, were forwarded to the Local Boards interested. A special Act of Parliament was also passed during the Session empowering the Town Board of Formby to establish waterworks, and these powers are now transferred to the Town Board of Devonport.

*Ellesmere.*

36. As in 1888, so in 1889, there were no cases of infectious disease reported by this Town Board.

*Evandale.*

37. There were seven cases of infectious disease notified from this municipality, as compared with five in the preceding year.

*Fingal.*

38. Nine cases of infectious disease were reported from this municipality, against twelve in 1888. In the matter of the constable's quarters at Avoca, referred to in our last Report as having been condemned as unfit for human habitation, before the expiry of our notice to the municipality the constable was removed. The house has since been burnt. Representations having been made to us that a new cemetery was being laid out by the Wesleyans at St. Mary's in an unsuitable place, we requested a report thereupon from the Local Board. Its Inspector visited the Cemetery and reported that it was unfit for the purpose intended, inasmuch as that it drained into an intermittent water-course which directly ran into the St. Patrick's Rivulet, which forms the water supply of the town. Our Engineer subsequently inspected it, in company with those interested, and confirmed the opinion of the Inspector of the Local Board of Health. As the only other burial-place available for the inhabitants of St. Mary's—the church-yard at Cullenswood—was represented to us as being overcrowded already, we endorsed our Engineer's recommendation that a Public Cemetery should be provided for the town in a suitable locality, and requested the Local Board to assist local efforts in this direction. At the time we took this action "The Public Health Act" of 1889 had not yet become law, and the Local Board had no direct means of intervening. But now that the Local Board has full powers under the Cemetery clauses of that Act, it is to be hoped that due provision will be made as suggested.

*Franklin.*

39. There were 20 cases of infectious disease reported from this district, compared with eleven in the preceding year. Of the 20 cases nineteen were of diphtheria, compared with one in 1888. It being reported that it was prevalent among the children attending the Public School at Victoria, Dr. Elliott, the Local Board's Officer of Health, was sent to report, and found that the occurrence of a few cases of inflammatory sore throat had been magnified into an outbreak of diphtheria. At Chitty's Road School, the teacher having contracted the disease, the Officer of Health advised the closing of the school, which was done for a time.

*George Town.*

40. There was one case of infectious disease notified from this district, against two in 1888.

*Glamorgan.*

41. An outbreak of diphtheria occurred in this municipality in August, and in all fifteen cases occurred, against none in the preceding year. Very careful inquiries were made by the Local Board, without result, as to assigning a probable cause for the outbreak. The cases (14) reported in August occurred in four households which appear to have had no interconnection, and lived a mile apart one from the other. His Worship the Warden reported:—

"As regards the water supply.—This is, so far as one can form an opinion without analysis, good, being obtained from the Meredith River, a clear running stream, not liable to pollution in any way. The water supply has to be carted upwards of a mile. This fact has induced every householder here to provide himself with galvanised tanks or casks (wood), and the late unusually wet winter has kept them always full; therefore no stagnation could occur. There is not a well or underground tank in the town.

"The milk supply.—Only three persons here supply milk for sale, and that in small quantities. The dairies of these are in very good wholesome order. The cows graze at large under wholesome conditions. In no instance are they kept in stalls. None of those houses which supply milk have had diphtheria in the family.

"Other food supplies.—The butchers' and bakers' premises are clean and wholesome."

As quinsy and other throat affections were also very prevalent among children, the Public School was closed for a time. A supply of disinfectants was sent. The precautionary measures taken seem to have checked the spread of the infection, as only one further case occurred after their adoption. Only one case was fatal.

*Glebe Town.*

42. Only one case of infectious disease was notified from this Town Board, against six cases reported in 1888. As the Park-street Rivulet in the City of Hobart is the natural outlet of the drainage of Glebe Town, the Town Board is interested in the question of the sewerage of the metropolitan area, and it was accordingly invited to attend the Conferences held to further the establishment of an authority to deal with the drainage of the whole area. At the meetings of the Conference the members of the Town Board, considering that the sewerage of their Town was complete, with the exception of the provision of an outfall, declined to co-operate further than was necessary to secure such outfall, and limited their action in the proceedings accordingly.

*Glenorchy.*

43. During the year 37 cases of infectious disease were notified from this municipality, while only nine cases were reported in 1888. In the earliest notification the Local Board complained that although one of two cases of typhoid fever discovered at Berriedale had ended in death, no notification had been made by the medical man in charge as required by law. The Local Board was thereupon advised to take proceedings against the defaulting doctor. In other cases the disease was attributed to the pollution of the Humphrey Rivulet, the source of the water supply of the most populous part of the district; but two analyses made of the water showed it to be fairly pure. Four cases of typhoid fever were sent to the Hobart General Hospital from one cottage, the Cavanagh's, and the Local Board was asked to have an inspection made of the premises. The report of this inspection described the back yard as "covered with stones, old bones, and rags," and an uncovered hole in it about 15 yards from the door was used as a privy. Another case of fever was found in the adjoining cottage. Notices were served, and the nuisances remedied. Other reports upon cases showed almost equal neglect of cleanliness and decency, the local Inspector describing the Station Master's, Mr. F. C. Smyth's, house at South Bridgewater as "in a fearful state of dirt."

The continued use of Dr. Benjafield's farm in the district of this Board as a depositing place for Hobart nightsoil gave rise to proceedings being taken by the Local Board to put an end to the nuisance. The Central Board, anxious that the Hobart Local Board should have time to make arrangements for securing another depositing place, asked the Glenorchy Board to stay proceedings. Ultimately the Hobart Board contracted with the owners of land in another part of the Glenorchy district for the deposit upon it of the nightsoil, which was to be conveyed to it by water; and this arrangement, after being approved by the Glenorchy Board, was sanctioned by us, under the 140th Section of "The Public Health Act, 1885." As the greater part of the nuisance connected with the disposal of nightsoil had been caused during its transport along the public thoroughfares, and as the new arrangement avoids the necessity of this transport, it promises to work well as far as this district is concerned. A Bye-law passed by the Local Board, dealing with the deposit of nightsoil in one portion of the district only, was refused the necessary certificate by the Attorney-General as being *ultra vires*.

The Local Board was represented at some of the meetings of the Conference on the drainage of the metropolitan district, as that included part of the municipality.

*Gordon.*

44. Eleven cases of infectious disease were notified from this district during 1889, against ten cases in 1888. Special reports on some of the cases were received from Dr. Turner, of Woodbridge. Our Secretary and Inspector visited the district and consulted with the Local Board, which, during the year, has been strengthened by the appointment of some new members.

*Gould's Country.*

45. No cases of infectious disease were notified from this district, whence two cases were reported in the preceding year.

*Green Ponds.*

46. This municipality has had a clean record as far as infectious diseases are concerned, for two years consecutively. Dr. Drought having resigned the officership of health, Dr. Meyer was appointed in his stead by the Local Board, and his appointment confirmed by us.

*Hamilton.*

47. Five cases of infectious disease were notified from this municipality during the year, against six in 1888. The first case of typhoid notified, a fatal one, being locally attributed to the quality of water used in the district—being that of the River Clyde—it was analysed, and found to be greatly polluted, and apparently by animal matter. Our Engineer was therefore instructed to make an examination of the river with a view of discovering the causes of its pollution. His report has already been referred to as having been printed and presented to Parliament. Copies of it were also furnished to the Local Board. No source of pollution was found in the town of Hamilton itself, but it was evident that in addition to the deterioration of the quality of the water caused by the lowering of its surface in Lakes Sorell and Crescent, the river was further polluted in its course between Bothwell and Hamilton, and the attention of the Local Board was called to this fact.

*Hamilton-on-Forth and Don.*

48. Six cases of infectious disease were notified from this district during 1889, against only one in the year before.

*Hobart.*

49. During the year 212 cases of infectious disease were notified from this city, against 227 during 1888. In paragraph 18 of this Report we have called attention to the manifest error in the number of these notifications. In the middle of March Dr. Giblin, the Officer of Health of the Local Board,

reported to it on the prevalence of typhoid fever. At that time only 47 of the cases that occurred during the whole year had been reported to him, and there was reason to think that the fever would be less virulent than during the preceding year. He says:—"I do not think any cases are attributable to impure water, unless, as is possible, owing to an intermittent supply the sewage from the street reaches the pipes through the fire-plugs. Milk, too, is a frequent carrier of the disease, and many severe epidemics in various places have been distinctly traced to an impure milk supply, but, though carefully enquired into, no blame appears attachable to any dairy. It is true that in two instances typhoid occurred in houses where milk was sold, but the sale of milk was at once forbidden and discontinued. On the whole, it seems reasonable to believe that this year's fever is due to the prevalence of typhoid in previous years, the poison of which has remained in the neighbourhood of the houses, and has become revived by the summer heat. Any accumulation of filth, any disused and badly disinfected cesspool, any defective drain, may thus be the habitat of the poison." Dr. Giblin also prepared an amended edition of Dr. Swarbreck Hall's directions for preventing the spread of infectious diseases.

We have referred in paragraph 11 of this Report to the Conferences that were held with the Local Board of this city on the subject of the drainage of the metropolitan area. During the negotiations that were thus opened, and which are still going on, we thought it undesirable that the work we had ordered to be done for the drainage of the block beyond Antill-street should be carried out, and consequently instructed our Engineer, whom we had appointed as the person to fulfil the order, to hold his hand for the present.

The complaints continually made against the manner in which the nightsoil of Hobart was collected and taken to the depositing place at Glenorchy induced the Local Board to cancel the contract made with Messrs. Cox and Hore for this service, and to undertake it with its own staff. This was done for some time, but eventually a contract was made for that part of the service which relates to the transport from Hobart and disposal of the nightsoil with a firm which carries it by steamer to Ashburton, and there employs it as manure to the land; the collection in Hobart being still done by the Local Board's staff. Two or three inspections have been made of the manner in which the work was carried on at Glenorchy.

We would call your special attention to the desirability of having proper contoured plans prepared of the metropolitan area similar to those that have been prepared of the metropolitan area of Victoria. Whether the drainage of this area be effected by a special authority, or by the various existing local authorities, this is an indispensable preliminary requirement, and without it no work can be laid out or begun. Had an arrangement been made for a visit from Mr. Mansergh such a visit could have had no immediate result in consequence of the want of such plans. The making of such plans in no way decides or affects the question of what system of sewerage shall be adopted. But time will be saved by their immediate preparation, as without them no Board can set itself to work.

Another necessary preliminary matter—the determination of the set of tide currents in the estuary of the Derwent—is receiving attention from our Inspecting Engineer.

As the Infectious Disease Returns from the city are so manifestly incorrect, we do not see the utility of continuing the tables showing their distribution through the city commenced in previous Reports. The only reliable statistics are those of the Registrar-General, and in an Appendix we give comparative tables of deaths from preventible diseases, and a chart of their distribution. (See Appendix A.)

#### *Invermay.*

50. This district has continued under our administration under the provisions of the sixth section of "The Public Health Act, 1887," as no Town Board or Local Board has been formed. There were 28 cases of infectious disease notified, as compared with 10 in 1888. In connection with every one of the cases our Local Inspector (Superintendent Armstrong) made or had made an inspection of the premises in which it occurred, had all nuisances removed, and had all precautions advised by the medical man in charge properly carried out, and disinfectants supplied. We gladly bear testimony to the zeal and intelligence with which he has carried out his duties.

We reported to you last year that we had instructed our Secretary to take proceedings against Messrs. Upton for carrying on an unlicensed noxious trade at Invermay after affording them time for its removal. The matter was brought before the House of Assembly by one of the Members for Launceston on the 24th January, and the House resolved:—"That in the opinion of this House no further action should be taken by the Central Board of Health in suspending operations in Upton & Co.'s soap and candle manufactory, Launceston, until the matter is dealt with by Parliament." We accordingly instructed our Secretary not to commence proceedings, and also to take no further steps in the case of Messrs. Evans, to which we referred in our last Report.

In consequence of these proceedings Messrs. R. Miller & Co., whose application for permission to establish similar works at Invermay we had refused in 1888, renewed their application, pleading that as Parliament had interfered to protect a firm who had established and carried on a noxious trade establishment in disregard of the law and of the decision of the Central Board, their firm, which had acted in accordance with both, should be placed in the same position with respect to carrying on their trade. Fully admitting the force of the plea, and very desirous to aid in the extension of industries, we could not, in the interests of the public health, sanction in any matter under our control the establishment of any more noxious manufactories in immediate proximity to the dwellings of a large population, especially as all these manufactories will have to be removed, and every additional one will add to the difficulties of removal.

The same considerations compelled us to refuse our consent to the building and carrying on of a boiling-down and glue factory by Mr. E. Dinham, in Green-street, for which application was made in April.

All these applications show the necessity of dealing with the question of Noxious Trades Areas under the Act of last year.

*Kentishbury.*

51. The proclamation of Sheffield as a town under the Town Boards Act and the election of a Town Board necessitated the re-proclamation of the rest of the former Health District and the appointment of a new Local Board of Health. The arrangements for doing this were not completed at the end of the year. There were no cases of infectious disease reported from the district.

*Kingston.*

52. There were four cases of infectious disease notified from this district, against six during 1888. An outbreak of diphtheria being rumoured from Longley public school, we instructed Dr. Elliott, the Officer of Health of the Local Board of Franklin, the nearest resident medical man, to visit and report. He found that three cases had occurred, and arranged for their isolation, but saw no necessity to otherwise interfere with the conducting of the school.

*Latrobe.*

53. Only one case of infectious disease was reported during the year from this district, as compared with three for the year before.

We instructed our Engineering Inspector to assist the Local Board in the matter of the water supply of the town. He accordingly made the necessary examinations, and drew up a report upon, and estimates of the cost of, waterworks both for supplying the town separately and in conjunction with Formby and Torquay, which were presented to Parliament by His Excellency's command.

*Launceston.*

54. There were 381 cases of infectious disease notified from this city during the year, against 365 cases in 1888. The principal changes consisted in a greatly increased number of typhoid fever cases in 1889, there being 291 cases against 190, and a greatly diminished number of scarlet fever cases, being 47 against 144. In consequence of the prevalence of fever among the inmates of the Girls' Industrial School, we asked for a special report upon the building, its drainage, ventilation, and other sanitary arrangements, and we are glad to record that in all these respects great ameliorations have been effected.

At the beginning of March, in consequence of the numbers of cases reported, we asked the Local Board to furnish us, with respect to every house in which an infectious case had occurred during the preceding two months, information respecting the construction, condition, and ventilation of the drains, and the condition of the back yards. The report received in reply to this request contained information relative to 113 houses in which cases had occurred, of great signification in regard to causation. In the Galvin Town District, with an estimated population of 700, and where before sewerage was effected fever was very rife, only 3 of the 113 houses were situated, say 2 per cent., while in comparatively undrained Inveresk, with an estimated population of 1350, and where the swampy nature of the ground makes drainage urgently necessary, 25 of the houses were situated, being about 9 per cent. of the inhabited houses. Of the 113 houses 78 were said to have properly constructed drains, 34 improperly, and one doubtful, but of the whole 113, only one had properly ventilated drains. With respect to the back yards, those of 102 of the houses were not paved. It was explained by the Local Board why so little had hitherto been done in regard to ventilation of drains and paving of yards, but the evident connection of unventilated drains and unpaved yards with the fever cases was pointed out to the Board to induce it to pay immediate attention to these matters. The Sanitary Officer of the Local Board in his half-yearly reports incidentally refers to and urges the adoption of this course.

The Sanitary Officer in his half-yearly Report also calls especial attention to the large infant mortality in Launceston, which he attributes in great measure to milk adulteration with impure water, to prevent which he is devoting special attention, 39 samples of milk having been taken for analysis. From these reports it appears that during the year 5060 yards of public sewers and 12,720 yards of private drains were laid under the supervision of the City Surveyor, making a total of over ten miles; and 1146 notices were served under the Public Health Acts—a very fair record of sanitary work.

During the year the Local Board passed a Bye-law on the subject of the proper construction of dry basements to all houses, and it was duly confirmed and gazetted.

Provision has been made of land at Verulam, about two miles from the heart of the City, for the establishment of an infectious diseases hospital for Launceston and neighbourhood. Government is making the necessary roads, fences, &c., and has arranged terms with the Corporation for a water supply from their works.

Launceston being specially interested in the noxious trade establishments at Invermay, the Local Board of the City is taking steps to get a noxious trade area proclaimed in its neighbourhood, under the provisions of the Public Health Act of last session. In connexion with the burial clauses of the same Act, it is also negotiating with Government for the provision of a general extra-urban cemetery that will put it in a position to close all the intramural grave-yards. Our Engineer has inspected and reported upon land near the City in connexion with both these matters.

*Lefroy.*

55. There were five cases of infectious disease reported from this District during the year, against three reported the year before. The Local Board had to complain of the difficulty it experienced in getting notifications of these cases from the local medical practitioner in time to take satisfactory preventive measures against the spread of infection. A supply of disinfectants was sent.

*Leven.*

56. Six cases of infectious disease were reported from this District during the year; none were notified the year before. The Local Board adopted a complete set of Bye-laws, which were duly confirmed and gazetted.

*Longford.*

57. No less than 106 cases of infectious disease were reported from this municipality during the year, as compared with 14 in 1888. Of the above, 94 were of typhoid, generally of a mild type, and distributed between the towns of Longford and Perth. Our Engineering Inspector paid a visit to these towns in May

and examined every house in which fever had occurred. He found that in most cases all due precautions seem to have been taken in the way of burying all discharges from the patients and the water used in washing in connexion with them. The use of disinfectants was also general. Particular inquiry was made with respect to the food supply in every case, but there was no evidence of any propagation of fever by means of milk, meat, or bread. He says—"The questions of the origin of the outbreak and the diffusion of the fever are medical ones beyond my province. But there are certain well known causes of typhoid fever that were almost universally present in connexion with the cases. The more prominent of these were the foul condition of the privies, and the general unwholesomeness of the back-yards on account of their being the receptacle for all the slops of the houses. There is also in many of the houses in which fever has occurred great over-crowding. These matters should receive immediate attention, especially as this condition of things exists not only in regard to houses in which fever has prevailed, but very generally throughout the township." To meet the then present emergency he recommended the immediate adoption of remedial measures in accordance with those advised in similar circumstances by Dr. Buchanan, the medical officer to the Local Government Board in England. And to effect a permanent improvement in the healthiness of the town he recommended the proper drainage of the town. Longford is now a comparatively old one. Its site has a clay sub-soil. Very few of the houses have any drainage at all, and the back-yards have received all the slops for many years; and as these yards are usually quite flat and level, the slops can only be absorbed by the earth. Many of the houses are of brick, and their damp and decaying condition reveals what the state of the soil is even after several years of exceptional dryness. Until these houses and yards are drained, the town cannot be healthy.

These remarks, called forth by the condition of Longford, are equally applicable to Perth. And the Engineer's report was forwarded to the Local Board of Health, with strong recommendations that his suggestions should be carried out.

Two fatal cases of dysentery occurred at Bishopsbourne, in this municipality, and gave rise to four fatal cases in the adjoining municipality of Westbury. The first case was that of a young man, J. B., whose mother, Mrs. B., nursed him, took the disease, and died before him. His sister, Mrs. R., who came to nurse her mother, went home after her death and died there with three of her children. Dr. Haines reported that J. B. had been ill for five days when he saw him.—"He was suffering from acute and well-marked dysentery, and had been using the common closet of the family—the usual filthy cesspit. I at once ordered this to be closed and disinfected . . . as they could easily bury and disinfect the dejections. . . . I may mention that I warned every one in attendance of the highly infectious nature of the case, and disinfectants were freely used; but the closet contamination (which they used after I had directed them not to), no doubt, infected both mother and sister—who came to see her just before death." After the fatal result of the cases the house remained unoccupied, but Dr. Haines gave full directions as to the thorough disinfection of the place before new tenants should be admitted.

The Local Board passed a very complete code of Bye-laws, which were duly confirmed and gazetted.

#### *Mersey.*

58. The union of Torquay and Formby into one town under the Town Boards Act will necessitate the proclamation of the rest of the former Health District of Torquay and Formby as a health district, to which it is proposed to give the name of Mersey. In this district one case of infectious disease was reported during the year, and two in the year before.

#### *New Norfolk.*

59. Nine cases of infectious disease were reported from this municipality during the year, against twelve cases in 1888. The Local Board having requested that our Engineering Inspector might "make a full report on the sanitary arrangements of the Town of New Norfolk, and offer any suggestions he may deem necessary for their improvement," we instructed Mr. Mault to accede to the request. He accordingly visited the town and inspected every house in it, and made a report upon the general condition of the town and the necessary measures to be taken to improve it, together with a detailed statement in respect of each house. The General Report was printed and presented to Parliament by His Excellency's command, and, with a manuscript copy of the detailed statement, was sent to the Local Board.

The Official Visitors of the Hospitals for the Insane also requested that our Engineer might supplement his report upon the drainage of the older buildings at the New Norfolk Hospital by one upon that of the new buildings just completed. We acceded to the request, and the Engineer's report was printed as a Parliamentary Paper.

#### *New Town.*

60. Eighteen cases of infectious disease were reported from this district during the year, against 26 in 1888. As the whole of this district would be comprised in the proposed metropolitan drainage area, the Local Board was represented at the conferences that took place on the subject during the year. At the request of the Local Board we instructed our Engineer to advise it in reference to the disposal of sewage in a part of its district where a nuisance had been created.

#### *Oatlands.*

61. Only one case of infectious disease was reported during the year from this municipality, against three in the year before.

#### *Penguin.*

62. Three cases of infectious disease were reported from this district during the year, against one case in 1888. A supply of disinfectants was sent; and the employment of a medical man by the Local Board in a case of urgency was approved, and the fees paid.

#### *Port Cygnet.*

63. Only one case of infectious disease from this district was reported during 1889, against 13 reported the year before. A complete set of Bye-laws was passed by the Local Board and duly confirmed and gazetted. At the request of the Local Board we had prepared and printed for it notices to dairymen to register their dairies and forms of registration. While these notices and forms were in type we offered to

supply them to all other Local Boards having similar provisions in their bye-laws to those of the Port Cygnet bye-laws with respect to dairies, and the offer was in nearly every case gladly accepted. During the year the Local Board dealt with a case of a sleeping chamber in a store on the wharf which was unfit for human habitation.

*Queenborough.*

64. During the year 22 cases of infectious disease were notified from this district; during the year before there had been 23 cases. As part of this district is comprised in the proposed metropolitan drainage area, the Local Board was represented at the conferences that took place with the view of getting an authority appointed for carrying out the sewerage of this area.

*Richmond.*

65. There were seven cases of infectious disease notified from this municipality during 1889, being the same number as in the year before. A supply of disinfectants was sent.

*Ringarooma.*

66. Two cases of infectious disease were reported from this district during the year, as against one in the year before.

*Ross.*

67. Only one case of infectious disease was notified from this municipality during the year; in 1888 three cases were reported.

*Russell.*

68. There were two cases of infectious disease notified from this police district, being the same number as in 1888. No Local Board has yet been formed here.

*St. Helen's.*

69. There were 26 cases of infectious disease, all of them typhoid fever, notified from this district, where only one case had occurred in the year before. The outbreak appears to be attributable to the use of water from polluted wells. At the request of the Local Board of Health we instructed our Engineer to report upon the water supply of the district and the sources from which a better supply could be obtained, and the cost of the necessary works. In his report, which was printed as a Parliamentary Paper, there is a full account, from information obtained from Dr. Fox, the Officer of Health of the Local Board, of the outbreak of the fever. The Local Board has moved in the matter of obtaining the better supply of water suggested by our Engineer, but we regret to say that local opposition has hitherto succeeded in defeating its efforts. On the application of the Local Board we gave consent, under the provisions of the 115th Section of "The Public Health Act, 1885," to close certain of the polluted wells. Two supplies of disinfectants were sent. A temporary cottage hospital was fitted up for one of the cases in which there was no proper accommodation at home.

St. Helen's stands on the flat deposits at the head of George's Bay. The surface soil is porous, but rests on a retentive subsoil, into which the various wells are dug. As there are no proper drains, all the wells are liable to be polluted by the soakage of chamber and other slops and the contents of earthen cesspits into the ground. Another still more dangerous source of pollution has been incidentally brought into prominence during the year. One of the burial-grounds is in the town, close to some of the houses, and not far from one of the polluted wells. In this graveyard a body was buried at a depth of only two feet six inches, because in the wet season that was prevailing the grave could not be sunk deeper. The effluvium from this shallow grave was complained of, and special measures were then taken. But the occurrence emphasizes the necessity not only of getting a good water supply independently of wells in such positions, but of getting an extramural cemetery.

*St. Leonard's.*

70. There was a large increase in the number of cases of infectious disease notified in this district during the year, being 62 cases as compared with 28 in 1888. As seventeen of the cases occurred in the village of King's Meadows, inspections of every house in which there was a patient were made by Dr. Thompson, then Surgeon-Superintendent of the General Hospital, Launceston, and by our Engineering Inspector. The inspections showed that there were present in the locality all the conditions most calculated to breed and propagate typhoid fever—an abundance of stagnant water liable to be polluted, bad water supply, bad drainage, and foul privies. Some of the water used for domestic purposes was analysed and found to be polluted with sewage. Most of the suggestions made for the amelioration of the condition of things were seen to be carried out by the officers of the Local Board; and we hope that very soon a better water supply will be given to the place in connection with that which the Corporation of Launceston is laying down to the proposed Infectious Diseases Hospital at Verulam, which adjoins the village of King's Meadows.

During the early months of the year four cases of fever occurred at Queechy, in this district, a dairy farm sending milk for sale into Launceston. The Sanitary Officer of that city reported that ten cases had taken place there in five families supplied with milk from this dairy, and at least one case occurred under similar conditions in St. Leonard's. The Officer of Health of St. Leonard's made a special report upon the premises, and at his suggestion the water supply of the farm—the tidal portion of the North Esk River—was analysed, and was found unfit for drinking purposes. Notice was served for the thorough cleansing of the premises; but, as this was not promptly done, it was found necessary to stop the sale of the milk for a time. Eventually, on the removal of the cows and the making of due provision for separating the milk trade from the house, the sale of milk was again allowed.

In every one of the 62 cases an inspection was made of the premises in which the disease occurred, and a written report sent dealing with the sanitary condition of the place and the measures taken to abate nuisances. We have had the pleasure during the year of conveying to the Local Board our hearty thanks for the manner in which it has fulfilled its onerous duties.

*Scottsdale.*

71. Two cases of infectious disease occurred in this district in 1889, where seven had occurred in the year before. The newly constituted Local Board passed Bye-laws, which were duly confirmed and gazetted.

These bye-laws were gazetted on the 2nd of April, and they contained the usual provision for the yearly registration of all dairies in the district, such registration to be effected on or before the 1st day of January in every year. The question was raised whether it was legal to enforce registration for the then current year; and, on the application of the Local Board, we obtained the opinion of the Hon. the Attorney-General upon the point. He held that, notwithstanding the date of the gazetting of the bye-law, the obligation to register existed,—the main obligation imposed by the bye-law being registration. The mention of the 1st January is directory, and a mere detail that does not affect the main obligation.

*Sheffield.*

72. The Town of Sheffield having been proclaimed under "The Town Boards Act," and a Town Board elected on the 29th November, such Board became Local Board of Health of the Town, and the jurisdiction of the former Local Board ceased therein. In the whole of the former Health District three cases of infectious disease were notified during the year, against seven notified in 1888.

*Sorell.*

73. There were three cases of infectious disease notified from this municipality during the year, whence, during 1888, fifteen cases had been notified.

*Spring Bay.*

74. Four cases of infectious disease (all typhoid) were notified during the year from this municipality, against the same number of cases (all diphtheria) notified in 1888. The occurrence of these cases called the attention of the Local Board to the quality of the water supply of the district during dry weather; and the water of Prosser's River and of the Brushy Plains River was analysed, and found unfit for human consumption. The attention of the Local Board is being devoted to securing better water supplies for the Towns under its jurisdiction.

*Straits Islands.*

75. One case of infectious disease from these islands was treated in the Launceston Hospital during the year. No case had been reported in 1888.

*Tasman's Peninsula.*

76. Only one case of infectious disease was reported from this district in 1889: in the year before eight cases had been reported. Dr. Smith also reported a few cases of mild chickenpox, and the ordinary precautions were taken.

*Trevallyn.*

77. Five cases of infectious disease were notified from this town during the year; in 1888 only two cases were reported. In four of the cases it was considered that the disease had been contracted in Launceston.

*Ulverstone.*

78. There were four cases of infectious disease notified from this town during the year, against nine in 1888. Our Engineer paid the Town a visit, and made a preliminary inspection in connection with a proposal to establish waterworks, but the matter is still in abeyance.

*Upper Piper.*

79. In this district 9 cases of infectious disease were reported during the year, whereas 37 had been reported the year before. Of these 37 cases 25 were of typhoid fever, chiefly among the men living in the various camps along the line of the Scottsdale railway during its construction. On the completion of the earthworks of the line and the breaking up of the camps, the district resumed its normal character, and only four cases of typhoid were reported during 1889. In consequence of the occurrence of diphtheria and the general prevalence of sore throats among the children attending the Underwood public school, it was closed for a time, and thoroughly fumigated and cleansed before re-opening. In connection with this closing of the school, the question arose as to whether the action of the Local Board, under the 90th Section of "The Public Health Act, 1885," closed the building, or only discontinued the holding of classes within it. The Underwood school was held in a building rented by the Education Department but belonging to a religious body who used it for public worship on Sundays. The Local Board prevented its being so used on the Sunday succeeding the closing of the school. The matter was referred to the Law Officers of the Crown, and the Solicitor-General gave an opinion upholding the action of the Local Board of Health.

Fatal cases having occurred at the Post Office, Lilydale, we asked you to arrange with the Postal Authorities for the temporary transfer of the business to another house, so as to allow of the proper disinfection of the premises in which deaths took place.

*Waratah.*

80. Four cases of infectious disease were reported from this district during the year, being the same number as in the year before. The numbers of the Board having been reduced by removal, a new Board, including five new members, was appointed by the Governor in Council.

*Weldborough.*

81. Two cases of infectious disease were notified from this district during the year, only one having been reported in 1888. The two cases occurred in one house, and the Local Board reported—"The house is situated near the old slaughter-yard, and the fever was caused by using impure water for domestic purposes, taken from a water-hole into which the refuse from the slaughter-yard drained. There was no earthly reason for their using this water, as pure water, which they now use, could be got from a water-race near at hand." An alarm of smallpox from near the Chinese camp fortunately proved to be occasioned by a case of chicken-pox.

*Westbury.*

82. There were 31 cases of infectious disease reported from this municipality during the year, against 18 in the year before. Dr. Park was appointed Officer of Health of the District, and his appointment



duly confirmed. Special inspections and reports were made upon most of the cases reported. In our remarks upon Longford, § 57 of this Report, we have given particulars of an outbreak of dysentery. The Mrs. R. referred to therein lived in this municipality, and having caught the disease came home, and within 21 days she and three of her children died. Dr. Haines, of Longford, attended these cases also, and under his advice all due precautions were taken.

*West Tamar.*

83. Two cases of infectious disease were notified during the year from this district, whence eight cases had been notified in 1883. In addition to the above two cases, Dr. Gutteridge, of Launceston, reported on the 5th December that he was attending four children having whooping-cough, and who had caught it from a cousin who had brought the disease from Melbourne. Within a fortnight eighteen more cases were reported—chiefly among children of families related to each other. All practicable precautions were taken, and none of the cases were fatal.

*Wynyard.*

84. This District had a clean bill of health for the year as far as infectious disease is concerned—and had only one case in 1888.

**BYE-LAWS.**

85. Of the above-mentioned 60 Local Boards of Health, only twenty-nine have taken advantage of the provisions of the various Public Health Acts empowering them to make bye-laws, and some of the twenty-nine only imperfectly. We would strongly urge upon all Local Boards the necessity and utility of making a full and complete code upon all matters within their competence. Incidents are continually happening in connection with sanitary matters in a district which can only be dealt with efficiently by being dealt with immediately. Where there are bye-laws referring to such matters they can be thus immediately dealt with; where there are no bye-laws much time has to be lost, and perhaps the time for efficient action lost while reference is made to the Central Board for advice, or for orders by the Governor in Council. The possession of a good code of bye-laws does not involve their continual enforcement in season or out of season, but is a provision of means of acting when needful.

**CHINESE IMMIGRATION ACT, 1887.—51 VICT. No. 9.**

86. During the year only two Chinamen arrived in the Colony, both of whom were naturalised British subjects, and had been vaccinated.

**VACCINATION ACT, 1882.—46 VICT. No. 19.**

*Proceedings in Parliament.*

87. A Bill for amending "The Vaccination Act" by providing that "notwithstanding anything to the contrary contained in "The Vaccination Act, 1882," no person shall be liable to any penalty for refusing or neglecting to submit himself or any child of whom he is the parent for vaccination as provided in the said Act, or for neglecting or refusing to have any child of whom he is the parent vaccinated as provided in the said Act," was passed during the last Session of the House of Assembly. It was thrown out on its second reading in the Legislative Council. But you, in your place in the Council, having regard to the deliberately expressed opinion of the House of Assembly, and to the fact that a Royal Commission had been appointed in England to inquire into the whole matter of legislation on the subject, promised that until that Commission had reported the compulsory clauses of the Act should not be enforced against parents. On your bringing the matter before the Board we gave instructions to our Secretary to retain in his hands the quarterly returns of births received from the Deputy Registrars. The Superintendents of Police were thus deprived of the information upon which they took proceedings, and consequently no further prosecutions were instituted. At the same time we requested the Superintendents to discontinue the prosecutions which had been begun; and we instructed our Secretary, who had been directed to proceed, under the 24th Section of "The Vaccination Act," against the Superintendent of Police of the City of Hobart for neglect of duty, to take no further action.

*Royal Commission in England.*

88. The Royal Commission above referred to was issued on the 29th of May. The Commissioners were selected to represent both sides in the controversy respecting vaccination, and they were to inquire into the effect of vaccination on the prevalence of, and mortality from, smallpox; whether other means could be relied on to prevent the disease; whether any means could be adopted for preventing the evils, if any, resulting from vaccination; and whether any alterations should be taken in regard to the proceedings for securing vaccination, and in particular with respect to prosecutions for non-compliance with the law. Up to the end of the year the Commission had published one report, containing only evidence taken with respect chiefly to the first subject of inquiry.

*Public Vaccinators.*

89. The House of Assembly having refused during the Session of 1888 to vote the appropriation for the salaries of the Public Vaccinators for the two divisions of the Island, we were obliged to arrange with Drs. Davis and Willes for payment of their services by fees for work actually done, with the existent scale for travelling expenses. When the enforcement of the compulsory clauses of the Act ceased this arrangement had to be modified, as it was no longer worth while going into sparsely inhabited districts for the fees to be paid on the number of children vaccinated, for often a long journey was undertaken for nothing, as no children were brought. We have therefore arranged to pay a small fixed additional fee to the Vaccinators while on duty at the places we specially arrange with them to visit.



Vaccination in 1889.

90. The action taken by Parliament told very remarkably upon the vaccination work of the Public Vaccinators for the year. The number of vaccinations performed by them fell from 2808 in 1888 to 1081 in 1889. The principal falling off was in the number vaccinated by Drs. Davis and Willes, which dropped from 1713 to 457; the vaccinations performed by all other doctors acting as Public Vaccinators in the districts in which they reside falling from 1095 in 1888 to 624 in 1889. Owing to the great falling off in numbers, the cost of each vaccination performed by the Public Vaccinators for the northern and southern divisions of the island rose from 9s. 2½d. in 1888 to 17s. 3d. in 1889. Of the 1081 vaccinations performed in the year, 912 were certified successful upon inspection eight days after the operation, and 169 were not brought back for inspection. There were also 97 unsuccessful vaccinations performed, and 75 certificates of postponement were given; so altogether 1253 children were brought to the Public Vaccinators. Of those actually vaccinated, 567 were under one year of age, 513 from one year to fifteen years old, and one over fifteen years.

Children born in 1889.

91. The Deputy Registrar's Returns of Births are sent to us under the 21st Section of "The Vaccination Act," when the children referred to in them are between six and nine months old, so we can only deal in this report with those registered in the first two quarters of 1889. As many children are not registered until some time after birth, the numbers given in the following table under the head "births" do not comprise the whole of the births for the half-year. The numbers of deaths and removals are partly founded on estimate, as the returns on these matters are still incomplete. The term "remaining children" is intended to designate those still alive and still living in the various districts. The number of vaccinations performed in connection with these children is given up to the 1st of May, 1890; of course more of them will be vaccinated later on, and this fact should be remembered when comparing this table with that given on page 14 of our Report for last year, as this latter table was made up to the middle of August.

TABLE of Work under the Vaccination Act with respect to Children born in Tasmania in Half-year ending 30th June, 1889.

REGISTRATION DISTRICTS.	Births.	Deaths.	Removals.	Remaining Children.	On Medical Certificate.			Percentage of remaining Children vaccinated, &c.
					Vaccinated.	Postponed.	Insuscep- tible.	
Hobart .....	514	51	50	413	0	0	0	0·0
Launceston .....	278	27	31	220	23	1	0	10·9
Beaconsfield .....	58	6	3	49	14	0	0	28·6
Bothwell .....	25	2	1	22	0	0	0	0·0
Brighton .....	19	2	1	16	0	0	0	0·0
Campbell Town .....	35	3	2	30	2	0	0	6·7
Clarence .....	17	2	1	14	0	0	0	0·0
Deloraine .....	68	7	3	58	5	1	0	10·4
Emu Bay .....	61	6	3	52	13	2	0	28·8
Esperance .....	19	2	1	16	4	0	0	25·0
Evandale .....	33	3	1	29	1	0	0	3·4
Fingal .....	47	5	2	40	12	0	0	30·0
Frankford .....	5	0	0	5	0	0	0	0·0
Franklin .....	24	2	1	21	2	0	0	9·5
Geeveston .....	16	2	1	13	1	1	0	15·3
George Town .....	11	1	0	10	0	0	0	0·0
Glamorgan .....	18	1	1	16	0	1	0	6·2
Gordon .....	14	1	1	12	2	0	0	16·7
Green Ponds .....	16	1	1	14	0	0	1	7·1
Hamilton .....	30	3	1	26	0	0	0	0·0
Horton .....	24	2	1	21	4	8	0	57·1
Kingston .....	13	1	0	12	0	0	0	0·0
Lefroy .....	12	1	0	11	1	0	0	9·1
Longford .....	73	7	3	63	5	0	0	7·9
Mersey .....	39	4	2	33	6	3	1	30·0
New Norfolk .....	63	6	3	54	0	0	0	0·0
Oatlands .....	37	3	2	32	0	0	0	0·0
Port Cygnet .....	16	2	1	13	0	0	0	0·0
Port Frederick .....	2	0	0	2	2	0	0	100·0
Portland .....	29	3	1	25	1	3	0	16·0
Port Sorell .....	6	0	0	6	0	0	0	0·0
Ralph's Bay .....	2	0	0	2	0	0	0	0·0
Richmond .....	30	3	1	26	0	0	0	0·0
Ringarooma .....	77	7	4	66	13	1	0	21·2
Sheffield .....	30	3	1	26	0	0	0	0·0
Sorell .....	26	2	1	23	0	0	0	0·0
Southport .....	14	1	0	13	2	0	0	15·4
Spring Bay .....	16	1	1	14	0	1	0	7·1
Strahan .....	0	0	0	0	0	0	0	0·0
Tasman's Peninsula .....	3	0	0	3	0	0	0	0·0
Ulverstone .....	102	10	5	87	11	0	0	12·7
Victoria .....	15	1	1	13	5	0	0	38·5
Waratah .....	23	3	1	24	4	1	0	20·8
Westbury .....	51	5	2	44	2	0	0	4·5
Total .....	2016	192	135	1689	135	23	2	9·4

Should the compulsory clauses be again enforced they would not be operative with respect to the remaining children born in the half-year referred to in the above table, as the time within which proceedings could be taken would have lapsed. So it is not probable that the condition of things with respect to their protection from smallpox can be much bettered.

*Effect of the Compulsory Clauses.*

92. Our experience of the working of the Vaccination Act has shown that its success mainly depends on our having the power to compel the fulfilment of its provisions. This power should not be used arbitrarily, and we took every precaution while we were exercising it that it should not be so used. But the suspending of the enforcement of the Act has taken it out of the category of ordinary law, which always fixes a penalty upon law-breaking, and thus the Act has lost the moral force that attaches to ordinary law. The effect of this is shown in our experience. When we took over its administration it had been allowed to become almost a dead letter, yet, by reorganizing the service, and by persevering attention to details, we succeeded in getting 75 per cent. of the "remaining children" born during the second half-year of 1887 brought to the public vaccinators in the districts in which we could rely upon the law—that is, in all the districts of the island except the City of Hobart and the Municipalities of Bothwell, Hamilton, and New Norfolk. When the children born in 1888 came under the operation of the law the agitation against its enforcement had so far succeeded as to get an amending Bill passed through the House of Assembly, which also refused to vote the appropriation for the salaries of the public vaccinators. The result of this was that the percentage of remaining children born in 1888 (excluding those born in the four districts before mentioned) brought to the public vaccinators fell to 43 per cent. When the children born in the first half-year of 1889 came under the law the agitation against it had further secured the entire suspension of all police action, with the result that the percentage brought to public vaccinators has fallen to less than 10 per cent. We beg to call your attention to the reports of the Public Vaccinators contained in Appendix B.

*Ratio of Vaccinations to Births.*

93. The above percentages refer to the children born in the respective periods and vaccinated. There were, as mentioned in Section 90, other vaccinations also performed. Taking all the vaccinations performed in 1889, their number amounted to 26 per cent. of that of the births; in 1888 the number of vaccinations amounted to 60 per cent. of that of the births. In Victoria, where there is a compulsory law, the number of vaccinations equals 75 per cent. of the births; in England the number equals 86 per cent. But in New South Wales, where there is no compulsory law, the number of vaccinations only equals six per cent. of the births. As regards Tasmania, it will be seen that the proportion of the population protected from smallpox is constantly and quickly diminishing.

*Supply of Lymph.*

94. The principal supply of calf lymph has been procured from New Zealand. Owing to the comparatively small number of vaccinations performed, the difficulty of getting a continuous supply of good humanized lymph is greatly increasing.

CORRESPONDENCE.

95. The transaction of the business of the Department during the year has involved the receipt of 1530 letters, 405 accounts, 2262 reports, returns, and other documents, and the despatch of 2363 letters and 7800 reports, circulars, and other papers,—making a total of 14,360 documents dealt with.

APPENDICES.

96. We have appended to this Report appendices containing reports on matters connected with our Department.

We have the honour to be,  
Sir,

Your obedient Servants,

P. O. FYSH, *President.*  
C. E. BARNARD, *M.D.*  
W. BELBIN, *M.H.A.*  
W. BENSON.  
C. HARBOTTLE.  
J. WEMYSS SYME.

A. MAULT, *Secretary.*

Hobart, 20th May, 1890.

## APPENDIX A.

## LOCATION OF DISEASE IN THE CITY OF HOBART.

The accompanying plans shew as nearly as practicable the places in which fatal cases of Zymotic and Infantile diseases occurred in the City of Hobart during the years 1888 and 1889, distinguishing the deaths of one year from those of the other. They have been prepared with the object of pointing out localities which, from the recurrence of disease in them, seem to require examination with respect to the existence of special unhealthy conditions. Circumstances have prevented the preparation of similar plans of the City of Launceston.

*Zymotic Diseases.*

It would have been far more useful had the location of all cases been made instead of only the location of the fatal ones. In the body of the Report (Section 49) we have given the reason why this is impracticable. The fatal cases include those of all ages registered as resulting from Typhoid or Enteric, Simple Continued and Scarlet Fevers, Diphtheria, Whooping Cough, Influenza, and Diarrhoea. The deaths registered as resulting from Infantile Diarrhoea or Cholera Infantum are not shewn on this plan; and no deaths were registered from Cholera or Dysentery. With respect to the deaths that occurred in the General Hospital only those have been taken of patients admitted from the city, and they are shewn at the place of their residence before admission. In all there were 132 deaths from these diseases during the two years, and the locality of 119 of these is shown on the plan. The remaining 13 deaths occurred in Anglesea, Argyle, Bathurst, Davey, Elizabeth, King, Liverpool, Melville, Mona, Murray, Sackville, Warwick, and Williamson streets, but the street numbers of the houses could not be ascertained. A glance at the plan will shew several places where recurrence of fatal disease points out the desirability of inspection. The most striking group of deaths is that in the "notorious Antill-street block," between Davey and Macquarie streets, and this locality has been the subject of special examination which exposed a condition of things that quite accounted for the unhealthiness of the place.

The markings on the block bounded by Macquarie, Campbell, and Collins streets and the Hobart Rivulet, especially when taken in connection with those on the same block upon the plan of location of infant mortality, should also call attention. An examination of this block would shew many houses whose condition and circumstances combine almost all the elements of unhealthiness—damp, dirt, dilapidation, over-crowding, unpaved and undrained yards, floors flush with, or even below, the adjoining soil; and all this on made-up ground only three or four feet at most above the tide, and liable to be flooded in wet weather.

*Infantile Mortality.*

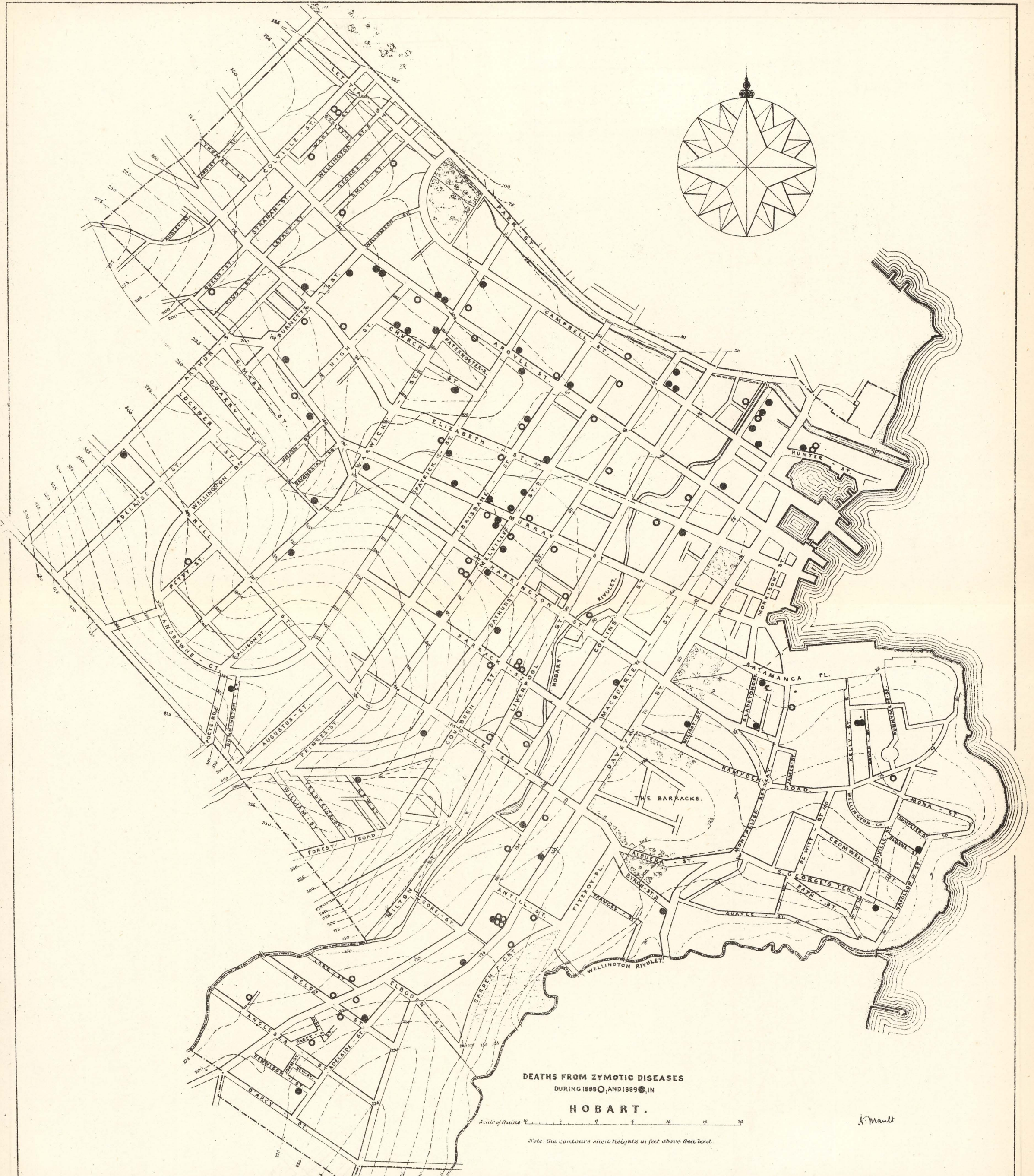
During 1888 and 1889 there were registered 236 deaths of children of 12 months old and under. The residences of 206 of these are shewn on the accompanying plan. Of the other 30, four resided in Murray-street, three in each of Campbell and Goulburn streets, two in each of Bathurst, Brisbane, and Melville streets, and one in each of Anglesea, Argyle, Burnett, Collins, Davey, High, Macquarie, Melbourne, Mona, Patrick, Watchorn, and Williamson streets, Hampden Road, and Lansdowne Crescent, but the street numbers of the houses could not be ascertained. Some of the 206 shewn died from zymotic diseases, and consequently are also marked on the former plan. It would have been preferable had the plan indicated the place of residence of all children under five years of age whose deaths were registered instead of those under one; but this would have taken more time than is at the disposal of our officers. But enough is shewn to fulfil the purpose we have mentioned as the reason for the preparation of the plan.

More than two years ago we asked the Local Board to inquire into the circumstances connected with infant mortality in the City. The request was refused, the Officer of Health at the same time attributing the great infantile mortality in the months of January, February, and March to climatic influence. The influence of temperature upon diarrhoeal diseases of infants is well known, and was not forgotten when the inquiry was asked for. It was pointed out to the Local Board that the object of the inquiry was to find whether other influences were at work, and if so, whether these other influences were amenable to human control. Such an inquiry is greatly facilitated by such a plan as the one given, as it points out the localities where it is most needed, and shews that while the temperature is the same in all parts of the City, the resulting mortality is widely different, and consequently that another factor must be taken into account. Dr. Hunter, in a recent report, mentions a difference of about 100 per cent. in the rates of infant mortality of the districts of Collingwood and Fitzroy in Melbourne. And Dr. Russell's report of 1886 shews about 120 per cent. of difference in the rates of different parts of Glasgow.

Our Inspector made an examination of the premises in Argyle-street, a little below Warwick-street, where five deaths are marked for the two years. He describes one of the houses, No. 183, Argyle-street, as a four-roomed stone and brick cottage of which the two lower rooms are altogether under the street level, and have wood floors flush with the level of the back-yard. These floors had stagnant water under them, and one of these rooms is dark. The upper-room floors are flush with the street, and the walls are all mildewed with damp. The back-yard is unpaved, and is a small area of 3 yards by 4½. Spouting broken. One child under 12 months died here in 1888, and one in 1889. Eight souls are living in it now. In its present condition the house is dirty and unfit for human habitation, and yet seven shillings a week rent is paid for it. It is one of a group of four—two towards the street, and two in a yard, which is unpaved and dirty, with open ash and refuse heap and manure heap and stable. There are four dirty privies, and the drainage runs out upon the surface of an uncultivated garden.

No. 187, where one child under a year old died in 1888, and two in 1889, is a pair of back-to-back houses, in which seven people live. The front house floor is about 4 feet below the street level, and has a little slabbed area in front. The rooms are damp, but the place is cleaner than No. 183. The tenant is but newly come, and the house is not so crowded as it has been.





DEATHS FROM ZYMOTIC DISEASES  
DURING 1888 O, AND 1889 @, IN

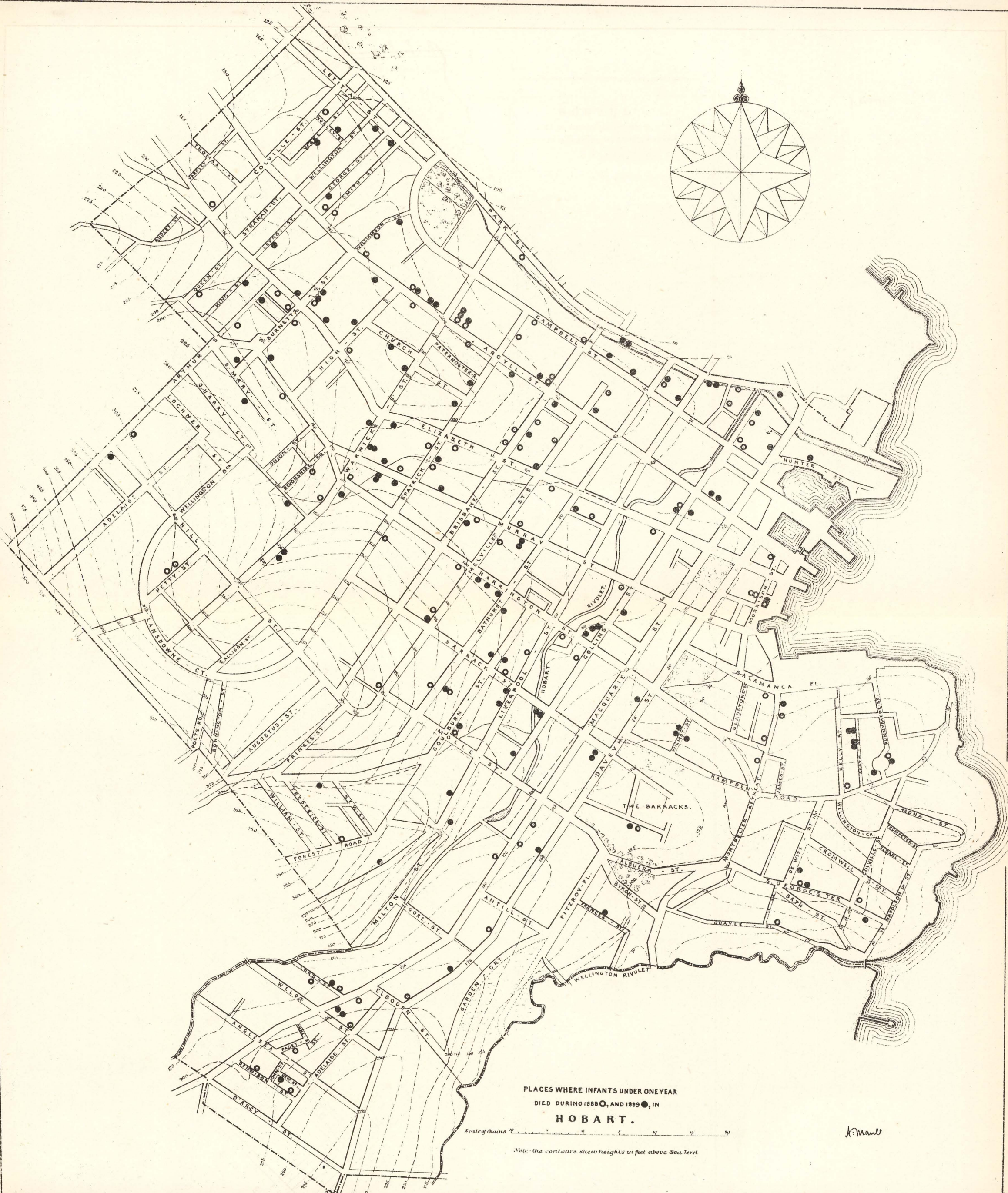
HOBART.

Scale of chains 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Note: the contours show heights in feet above Sea level.

K. Mant





PLACES WHERE INFANTS UNDER ONE YEAR  
DIED DURING 1888 ○, AND 1889 ●, IN  
**HOBART.**

Scale of Chains 0 1 2 3 4 5 6 7 8 9 10

Note the contours show heights in feet above Sea Level

K. Maudslayi



There is but little doubt that experience will shew in Hobart, what it has shewn everywhere else, that the sanitary condition of the house is a very important factor in modifying infant mortality. It is worth noting that while the average yearly rateable value of the houses in which resided the typhoid fever patients whose cases ended fatally in 1883 and 1889 was £31 10s., that of houses in which infants under one year of age died was only £23 : the average for the whole of Hobart, excluding houses with shops, was £27 10s.

Infant mortality is a result of causes which are to some extent under human control, and is a subject that demands attention. Dr. Russell's reports shew that sanitary work in Glasgow lessened the yearly infant death-rate of that city 20 per cent. in the decade 1871 to 1880. Such a diminution in Hobart would mean the saving every year of the lives of 40 children under five years old.

APPENDIX B.

THE following are Reports from the Public Vaccinators for the Northern and Southern Districts of the Colony :—

Thornhill, Devonport East, 4th June, 1890.

ALLOW me to draw your attention to the effect of the action of Parliament in suspending the Compulsory Clause of "The Vaccination Act" in my District, as exemplified in the annexed list of places visited by me in the north-eastern part of it in 1888 and 1890 :—

Places visited.	Number vaccinated in 1888.	Number vaccinated in 1890.
Ringarooma .....	10	2
Branxholm .....	3	0
Derby .....	14	1
Gladstone .....	9	0
Springfield .....	1	0
Jetsonville .....	6	0
Ellesmere .....	4	0
German Town .....	0	2
St. Mary's.....	6	0
Gould's Country.....	5	0
St. Helen's.....	4	0
Falmouth.....	2	0
Totals.....	64	5

Unless the compulsory clause be enforced vaccination in Tasmania will be a thing of the past, and not 10 per cent. of the rising generation will be protected against smallpox ; and should that scourge unfortunately get a hold in the island, it will sweep the children off by the hundred.

The only plan to keep up a constant supply of reliable lymph in the Colony is to have vaccination performed regularly during the year. If the compulsory clause of "The Education Act" were suspended I am of opinion that the attendance at some of the State Schools would fall off as much as the vaccinations have.

I am, &c.

G. F. DAVIS, *Public Vaccinator.*

Fernhurst, Parattah, 20th June, 1890.

I HAVE the honour to report, for your information and that of the Government, that during the year 1889 I have visited for vaccination purposes, on 191 occasions, places in the Districts of Bothwell, Brighton, Campbell Town, Carnarvon, Clarence, Franklin, Glamorgan, Glenorchy, Green Ponds, Hamilton, Kingborough, New Norfolk, Oatlands, Richmond, Ross, Sorell and Spring Bay, principally State Schools, but also Police and Post Offices, and also at private residences ; that I have travelled 2616 miles—1336 by rail, sea, and coach, and 1280 on horseback and on foot. I have vaccinated during that year 397 children, 208 cases having been successful, 47 unsuccessful ; 23 of these were re-vaccinated by me, and of these 13 successfully, the remaining 10 cases not having been brought for examination, nor the result reported to me. Of 107 cases of vaccination there was neither attendance for examination nor a report of the result furnished, although requested.

The result of my work in the year 1889 has been very unsatisfactory and disheartening, and I attribute it to the suspension of the compulsory provisions of "The Vaccination Act," without the carrying out of which in a resolute manner I feel sure this country will not be secure from a large mortality when variolæ shall arrive. I have been frequently told by parents that, unless they are compelled by the law, "they are not going to have their children vaccinated."

In the year 1883 I vaccinated	1506	subjects,	865	successfully.
" 1884 "	766	"	670	"
" 1885 "	1157	"	1006	"
" 1886 "	638	"	520	"
" 1887 "	572	"	387	"
" 1888 "	855	"	519	"
" 1889 "	397	"	208	"
And, in five months of the present year, only	38	"		

I have, &c.

CHARLES J. WILLES, *Public Vaccinator for Southern Tasmania.*

## APPENDIX C.

### WATER AND WATER ANALYSIS.

MANY of the towns in the Colony have been placed in situations in which there is great difficulty to obtain a good supply of water in dry seasons. Rivers and water-courses in which during winter there is a large flow, often dry up in summer, or become a series of stagnant pools in which the water becomes of bad quality, as it is very subject to contamination from all sorts of sources, such as house drainage, cattle droppings, &c. The consequence is that the dry season is usually marked in such places by outbreaks, more or less extensive, of miasmatic and diarrhoeal diseases. The past year has afforded many examples of this as well as of outbreaks of such diseases from the use of impure water from other sources of supply, such as water-holes and wells. In connection with all such outbreaks, one of the first steps taken by Local Boards of Health has been the ascertaining of the quality of the water used by the people attacked by the disease.

The attention of various Local Boards has also been occupied with the desirability, and even urgent necessity, of securing a good permanent supply of water for their respective districts. In connection with such supply, one of the most important considerations naturally is the quality of the water of the proposed source.

This ascertaining of the quality of water, whether in connection with the occurrence of disease or with the establishment of waterworks for the permanent supply of districts, has been done at the request of the Central Board by the Government Analyst, W. F. Ward, Esq.; and the Central Board highly appreciates the great assistance it has derived from that gentleman, not only in the numerous analyses he has made, but also for the valuable suggestions he has added in his reports upon them, and the cordial manner in which he has given assistance to our Engineer and Secretary. The real significance of some of these analyses has, in some cases, not been understood,—especially in connection with water proposed to be used as a domestic supply for towns. It has therefore been thought desirable, while putting on record for future reference some of the principal analyses made during the year, to preface the table with some explanatory remarks.

In Tasmania, as elsewhere, the most important source of pollution to water is the organic matter—either animal, which is the more dangerous, or vegetable, which, though less dangerous, is yet so when in quantity. The admixture of organic matter with water is shown by the presence of nitrogen in the form of ammonia, albumenoid matter, nitric acid, or of nitrous acid. The free ammonia represents the ammonia combined with acids. The albumenoid ammonia is that yielded by albumenoid or organic matter. The nitric acid exists as nitrates, and the nitrous acid as nitrites, both usually due to the oxidation of nitrogenous matter. The larger living organisms are not taken into account in the chemical analysis, but are mentioned separately. Pollution is also often shown by the quantity of chlorine in the water. This, when caused by tidal admixture of sea water, or by the passage of the water through salt-bearing strata, salt marshes, &c., may not be very dangerous, but it is an indication of danger when derived from the urine, &c. of sewage. These nitrogenous matters and chlorides are the dangerous constituents of water that are usually given in the analyses. Attention is also paid to the quantity of solid matter in the water.

Dr. Parkes, in his "Practical Hygiène" (6th edition, 1883, page 93), gives a table of typical waters divided into four classes, from which the following is taken:—

	PURE.		USABLE.		SUSPICIOUS.		IMPURE.
	Grains in a gallon.	Parts in a million.	Grains in a gallon.	Parts in a million.	Grains in a gallon.	Parts in a million.	
Free ammonia.....(under)	0·0014 =	0·020	0·0035 =	0·050	0·0070 =	0·100	All quantities above those given as "Suspicious."
Albumenoid ammonia .....(under)	0·0035 =	0·050	0·0070 =	0·100	0·0087 =	0·125	
Nitrogen in nitrites .....(under)	Nil.		Nil. (under)		0·0350 =	0·500	
Nitrogen in nitrites .....(under)	0·0100 =	0·140	0·0790 =	1·129	0·1660 =	2·370	
Chlorine in chlorides .....(under)	1·0000 =	10·400	3·0000 =	42·857	5·0000 =	71·428	
Total solids in solution .....(under)	5·0000 =	71·428	30·0000 =	428·571	50·0000 =	714·280	

In giving this table, Dr. Parkes remarks upon the necessity of using it sometimes with qualification, especially with regard to the source whence the water is derived, as deep wells sometimes give a quantity of free ammonia and chlorides which if taken from a shallow water-hole would point to probable sewage

pollution, or, at least, to the presence of urine. "The presence of a considerable amount of albumenoid ammonia with little free ammonia and chlorides is generally indicative of vegetable origin, often peaty." With respect to chlorine, he says—"Generally speaking, an excess of chlorine is a reason for suspicion until a satisfactory explanation of its presence is obtained."

Wanklyn says—(*Water Analysis*, 6th edition, 1884)—"If a water yield no albumenoid ammonia, it may be passed as organically pure, despite of much free ammonia and chlorides; and if, indeed, the albumenoid ammonia amount to 0·02, or to less than 0·05 per million, it belongs to the class of very pure water. When the albumenoid ammonia amounts to 0·05 per million, then the proportion of free ammonia becomes an element in the calculation, and I should be inclined to regard with some suspicion a water yielding a considerable quantity of free ammonia along with more than 0·05 of albumenoid ammonia."

"Free ammonia, however, being absent, or very small, a water should not be condemned unless the albumenoid ammonia reaches something like 0·10 per million. Albumenoid ammonia above 0·10 begins to be a very suspicious sign, and over 0·15 ought to condemn a water absolutely. The absence of chlorine, or the absence of more than one grain of chlorine per gallon, is a sign that the organic impurity is of vegetable origin rather than of animal; but it would be a great mistake to allow water highly contaminated with vegetable matter to be taken for domestic use."

The following Table gives the principal analyses of water made during the year 1889 for the information of various Local Boards of Health:—

Place whence Water was taken.	Date.	Parts in a Million.			Grains in a Gallon.	
		Free Ammonia.	Albumenoid Ammonia.	Nitrogen in Nitrates.	Chlorine in Chlorides.	Total Solids.
North Esk, St. Leonard's (high water).....	January	0·030	0·140	0·110	0·80	5·00
Water-hole, King's Meadows.....	March	0·320	1·120	0·640	2·00	35·50
Humphrey Rivulet, Glenorchy.....	March 7	0·060	0·100	0·200	1·20	6·00
Ditto.....	March 15	0·005	0·060	0·015	0·80	4·00
Well at Beaconsfield.....	Ditto	0·040	0·090	0·170	3·00	15·50
River Clyde, at Hamilton.....	Jan. 31	0·320	0·540	None	3·80	14·00
Ditto.....	July	0·020	0·520	Traces	4·30	17·50
Ditto, at Bothwell (mean of two).....	March 25	0·105	1·070	0·065	1·35	12·50
Ditto.....	July	0·020	0·240	0·016	1·90	11·00
Mountain River (Lake Sorell).....	August 13	0·010	0·100	None	0·30	2·50
Lake Sorell (mean of three).....	Mar.-Aug.	0·018	0·777	0·010	0·28	14·30
Lake Crescent (ditto).....	Ditto	0·026	1·007	0·040	0·72	11·90
River Mersey.....	April	0·010	0·080	Trace	0·50	5·50
River Don.....	June	0·070	0·190	0·340	1·00	8·50
Ditto.....	July	None	0·110	0·360	1·10	5·50
Melrose Rivulet (Don).....	Ditto	None	0·100	0·580	1·60	8·00
Prosser's River.....	April	0·060	0·260	None	20·60	56·50
Brushy Plains River.....	Ditto	0·120	0·480	None	5·40	19·50
George's River (mean of three).....	May-Sep.	0·070	0·167	0·072	1·13	7·67
Power's Rivulet, George's Bay.....	October	0·020	0·180	0·090	1·80	7·50
Well at St. Helen's (Iles).....	May	0·100	0·360	4·280	8·00	43·00
Ditto (Johnston).....	Ditto	0·100	0·260	4·150	3·30	26·00
Ditto (Brookes).....	Ditto	1·600	7·040	1·970	35·70	131·90
Ditto (Lee).....	Ditto	0·280	0·480	5·700	23·50	70·00
Ditto (Doddridge).....	Ditto	0·120	0·200	4·840	4·90	28·50