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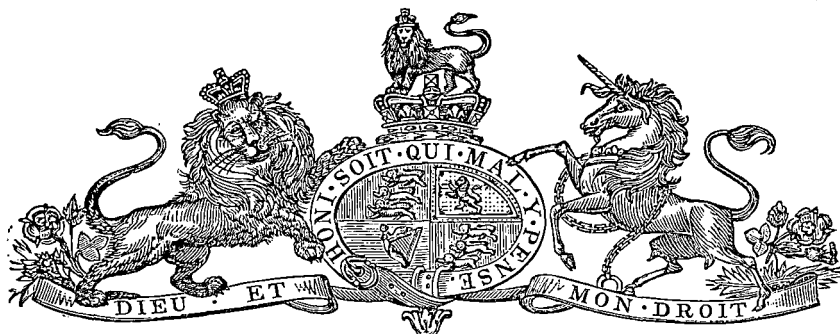
1887.

PARLIAMENT OF TASMANIA.

CENTRAL BOARD OF HEALTH :

REPORT FOR 1886, WITH APPENDICES AND DIAGRAM.

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



CENTRAL BOARD OF HEALTH.

ANNUAL REPORT, 1886.

TO THE HON. THE CHIEF SECRETARY.

SIR,

THE Central Board of Health has the honour to present you with a Report of its work for the year 1886.

On the 7th September last, in an Interim Report, an account was given of the work done up to that date, and to avoid repetition this Report will furnish details only of occurrences that have happened since; but its general conclusions will refer to the whole year.

Central Board of Health.

No change took place in the membership of the Board nor in the staff of the Department. The Board held 10 general and 2 committee meetings, making the total number for the year 33 general and 4 committee meetings.

Correspondence with Local Boards on various matters still continued, as will be seen hereinafter. Communications were also held with the Central Boards of Health of the other Colonies.

Inspector's Work.

The Board's Inspector furnished a continuation of his Report on the drainage of Hobart, giving details of the cost of construction. This was rendered necessary, as doubt had been thrown on the correctness of the total cost by some of the Members of the Local Board when the first Report was before them for consideration.

A full and valuable Report was also made on the sanitary condition of the Town of Launceston, offering suggestions for the improvement of the drainage, based on Schone's ejector system, so successfully introduced at the Houses of Parliament in London and at other places in England. This Report was presented to Parliament last Session, and was printed as Paper No. 139.

The Inspector also reported on the sanitary condition of the Municipality of Longford; at the same time proposing a scheme for the better water supply of the Towns of Longford, Perth, Cressy, and Bishopsbourne.

These two latter Reports were in continuation of the general system of inspection of the whole Colony intended to be carried out by the Central Board, and reference to which was made in the Interim Report.

Besides these, the Inspector made reports upon the sanitary condition of the Municipality of Brighton, chiefly in connection with an outbreak of diphtheria in that district, also upon outbreaks of diphtheria at Little Oyster Cove and at Bruni Island. In the latter practical suggestions were made as to the need of a strict surveillance being kept upon vehicles conveying patients to the

Hospital who were suffering from infectious diseases. Copies of this Report were forwarded to the Boards of Management of the General Hospitals of Hobart and Launceston, from whom replies were received agreeing to adopt these suggestions.

Copies of the foregoing Reports are herewith forwarded you for your information.

Besides the work detailed above, the Inspector also furnished the Reports alluded to under the heading "Correspondence."

While upon the subject of these Reports the Board would express its regret that the House of Assembly should have thought fit to refuse to vote the amount placed upon the Estimates for the Inspector's salary, thus depriving the Board of a valuable officer. This surely must have been done in entire ignorance of the nature of the work required of him, and of the value of such reports as he has since completed, and of how impossible it is for the Central Board to carry out the Public Health Act without such an officer.

Correspondence.

The correspondence between the Central Board and the Hobart Local Board comprised the following matters :—

The Local Board, after considering Mr. Mault's Report and suggested scheme of drainage which had been forwarded for its information and assistance, informed the Central Board that it did not approve of the same. It is believed, however, that notwithstanding the summary rejection of the scheme, it will be found in the near future that a system of underground drainage will be initiated as necessary for the improvement of the sanitary condition of the city.

Complaints having been made to the Central Board of a nuisance arising from the deposit of the city night-soil at Sandy Bay, Mr. Mault was instructed to visit the locality and report. A very bad state of things was revealed, and the Hobart Local Board was communicated with and furnished with a copy of Mr. Mault's report thereon. The nuisance was abated for a time, but only for a time, and matters were subsequently as bad as ever. The inhabitants of Sandy Bay complain of the annoyance they are subjected to by having their night's rest disturbed by the incessant rumbling kept up by the night-carts on their way to the depositing places. This has in part been remedied.

The attention of the Central Board having been called to a burial-ground in the middle of the town of Sorell, as being likely from its position to pollute the water supply if the interments in it were continued, the Local Board was communicated with; and as there seemed to be a difference of opinion between some of its members and the Officer of Health, Mr. Mault was sent to inspect and report thereon. The result was, that although there was nothing to show that the water supply was polluted, yet it was deemed advisable that the burial-ground should be closed. But before this could be done a new cemetery would have to be established under "The Cemeteries Act, 1865." The Local Board was advised accordingly.

By-laws.

The Central Board has confirmed by-laws passed by the Hobart Local Board for the registration of dairymen, cowkeepers, and purveyors of milk, and for the regulation of privy accommodation and removal of night-soil. By-laws have also been confirmed passed by the Launceston Local Board for the registration of dairies and the cleansing of rights-of-way.

Several other Local Boards have taken advantage of the Model By-laws issued by the Central Board, and are now bringing some of the most important of these by-laws into force by the mode of procedure required by "The Public Health Act."

Regulation and Control of Milk Supply.

A very important Act, recently passed by the Parliament of New South Wales, entitled "The Dairies Supervision Act, 1886," and containing regulations in respect of the production and distribution of milk, was received from the Board of Health of that Colony.

"The Tasmanian Public Health Act, 1885," contains provisions by which most of these regulations can be enforced, but hitherto proper advantage has not been taken of them.

That an infected milk supply can spread disease has been so conclusively proved, and is so generally accepted, that we need not here dwell on the subject; but we wish to impress most strongly upon the Local Boards the necessity of making by-laws dealing with this matter.

Our "Public Health Act" provides for the inspection of all places where milk or butter is kept for sale or for human consumption, and gives power to Local Boards to make by-laws for the registration of dairymen, cow-keepers, and purveyors of milk; for the inspection of cattle in dairies;

the prescribing and regulating of the cleansing, drainage, and water supply of dairies; and the securing of cleanliness of milk stores, milk shops, and milk vessels.

The Central Board issued a direction to Local Boards to make such by-laws, and at the same time furnished them with Model By-laws for their instruction and adoption as suited their requirements. We regret to say that only the Local Boards of Hobart and Launceston have taken any steps in the matter, and passed by-laws dealing with dairies and milkmen.

In reference to the question of keeping a strict supervision over the milk supply, a serious difficulty is experienced in Launceston through the provisions of "The Public Health Act" not being extended or applicable to the whole of Tasmania. Many of the dairies supplying this town with milk are situated in the Police District of Selby, and as "The Public Health Act, 1885," applies only to towns and municipalities, these dairies are consequently, for the present, beyond the reach of its jurisdiction and of any regulations that might be made under the Act for registration and inspection. We trust that this difficulty will shortly be overcome, as the matter is under the consideration of the Central Board in connection with a proposed amendment to "The Public Health Act, 1885."

Noxious Trades.

A valuable Report of a Royal Commission on Noxious and Offensive Trades, together with a Bill referring to the resumption of land as areas for sites for such trades, has also been received from the Board of Health of New South Wales. It is desirable to obtain, if possible, similar areas in this Colony. This matter will be brought before you again, amongst the proposed amendments to "The Public Act, 1885."

A Conference between the Central Board and the Hobart Local Board was arranged, for the purpose of discussing the question of selecting and defining areas for noxious trade sites. This had to be postponed, as, owing to the approaching termination of the Parliamentary session, no amendment to "The Public Health Act" relating thereto could be introduced.

The Launceston Local Board had also been communicated with in reference to areas for noxious trade sites, but nothing came of the correspondence, for the same reason as above.

A petition was received by the Central Board from a number of the inhabitants of Launceston complaining of Mr. Ditcham's Bone Mills, but no action was taken pending the amendments on the subject of "Noxious Trades" in "The Public Health Act, 1885."

Besides the above, the Central Board is indebted to the Boards of Victoria, South Australia, and Queensland for much valuable information concerning the question of noxious trades, all of which was, at the time of receipt, forwarded to the Government for its information.

Public Buildings.

A copy of its Regulations for the construction, extension, management, and use of Public Buildings, was received from the Central Board of Health of Victoria. These might, with modifications, be adopted in this Colony. Sufficient attention is not paid to the means of exit from many of the rooms used for public gatherings, not only in Hobart and in Launceston, but in other places also. Should a panic take place, calamitous results would be almost inevitable, as means of exit ordinarily large enough are then invariably found altogether insufficient; and, consequently, the only safe rule is to provide for a panic.

Infectious Diseases.—Typhoid Fever.

In the absence of any report from the Hobart Local Board of Health of the number of cases of infectious disease in that city, especially of typhoid fever, the Central Board issued a circular letter to the various Medical Practitioners, asking for information on this subject. These circulars were kindly and promptly replied to, with the result that, as far as could be ascertained, there were 24 cases outside the General Hospital, 1 of which was fatal. Dr. Parkinson reported that 24 cases were admitted into the General Hospital, 6 of which came from the country; and that 5 of the patients from the town died, and 3 from the country. This would leave 42 cases for Hobart, 6 of which were fatal.

Dr. Thompson, of the Launceston General Hospital, reported that 103 cases of continued fever of a typhoid type were treated in that institution during 1886, of which 77 came from the town, and 26 from the country. 6 of the cases from the town died, and 3 of those from the country. The number of cases of typhoid fever treated outside the Hospital is not known. The Registrar's Return for 1886 shows the number of deaths under the head of typhoid fever in the town of Launceston to be 26, thus leaving 17 deaths from this cause to have occurred outside of the Hospital, from which it may be inferred that the number of cases was proportionately large. It must, however, be borne in mind that the Registration District of Launceston includes the Police District of Selby.

The Launceston Local Board reported that sporadic cases of fever and diphtheria had occurred in that town, resulting fatally in two cases of each disease; and that an outbreak of typhoid fever of 15 cases, occurring in a small area, was attributable to an infected milk supply.

A few cases of typhoid fever have been reported from various other parts of the Colony. Of those that occurred in Police Districts where there was no Local Board, steps were taken by the Central Board, with the assistance of the police, to prevent the spread of the disease; and, in a case occurring at a dairy in the Selby district, Dr. Thompson kindly visited the locality, and advised as to remedial measures.

While much remains to complete the knowledge of the nature of the germ of typhoid or enteric fever and its mode of propagation, it is known certainly that it prevails in every inhabited part of the world. Since the year 1841 the fact has been recognised by English and French physicians, and in the present day by every nation, that this fever reaches its maximum development in the autumn or late summer, declines slowly during the winter and spring, and begins to increase progressively with the advance of summer. Tasmania is no exception to these observations.

Taken by itself, temperature has no influence on the increase of typhoid. The most favourable conditions are furnished by the absence of rain, which in seasons of drought implies great heat and dryness of atmosphere. The absence of ozone has been shown by Dr. Angus Smith to be necessary to the malignity of certain classes of germs. Heat, drought, and the quantity of ozone are, however, predisposing causes only: it is a mistake to confound such with direct exciting causes. However numerous and potent the former may be, in the absence of the latter there can be no epidemics of disease: but, on the other hand, if predisposing causes are infrequent or unfavourable, it is quite possible for a disease of the nature of typhoid to grow and spread. Thirty-five or forty years ago enteric fever was almost, if not quite, unknown in our midst, though there were very dry summer seasons: but, given the introduction of the seeds of the disease into the Colonies, increased population, more rapid and improved communication, increased saturation of the soil with yearly accumulations of faecal and decaying vegetable matters, and the disease will manifest itself sooner or later. The vitality of the typhoid bacillus has been shown by recent experiments to be capable of resisting the action of freezing.

As a guide to those who, in seeking the direct exciting causes of typhoid, and who may have been confused by references to obscure cosmical influences, celestial or subterranean phenomena, one of the latest authorities, Dr. Quain, in his *Dictionary of Medicine*, p. 1678, says:—"In common with other fevers, typhoid fever is due to the introduction from without of a specific poison (the bacillus of Koch) into a system more or less predisposed to the disease. With regard to the origin of the poison two distinct views have been entertained: one, that it is specific in its nature, and derived only from some pre-existing case of the disease; the other, that, while usually produced in a person suffering from fever, it may also be generated anew by the decomposition of sewage and, perhaps, of other forms of animal filth. The former of these views is associated with the name of the late Dr. Budd, of Bristol; the latter, or pythogenic hypothesis, had its chief supporter in the late Dr. Murchison. Fortunately the practical issue of both theories is the same, namely, that the great preventive measure is the prompt removal of faecal matters, so that neither air nor water may be contaminated by them." This last sentence speaks with precision, and should form the motive or mainspring of action to Local Boards in all outbreaks of endemic or epidemic disease of this nature. Remove the existing cause—the accumulation or wrongful disposal of faecal matters, or, as some hold, of vegetable as well as animal matters, the impurities under special conditions of food and water—and no matter how great the heat, the influence of sunspots or planets, or how severe the drought, typhoid fever will cease to be generated and disseminated.

In contrast with the language of those who would undervalue sanitary effort, and try to teach us that we must sit down to a yearly autumnal visitation of typhoid, it is profitable to quote from the Report of the Registrar-General of England. In reference to the decade 1871 to 1880, he says:—"The deaths from fever, including typhus, enteric fever, and ill defined forms of continued fever, fell from an annual average of 885 per million to 484, a decline of no less than 45 per cent. This is the most satisfactory of all the declines shown in the table, not only because it is the greatest in amount, but because enteric fever—to which is due the main bulk of the deaths attributed to fever—is, of all diseases, putting aside the effect of vaccination upon smallpox, the one which is most directly and largely affected by sanitary measures; so that the decline in mortality under this heading is the best test available of the efficacy of sanitary administration. Doubtlessly there are for typhus and for enteric fever, as for other zymotic diseases, epidemical years, when meteorological or other uncontrollable conditions favour the development of the specific virus to which these fevers are due, but, on examining the figures in the successive annual reports, the irregular fluctuations of mortality caused by the recurrence of such years are almost entirely obliterated by the continuous and progressive fall which has been produced by more careful sewerage, better water supply, and other sanitary improvements."

The Central Board of Victoria, in its Report for the year 1885-6, says:—"Typhoid fever is, to a great extent, a preventible disease; the germs, when generated, are propagated through neglect of

sanitary precautions, or through want of caution, drinking impure water or other contaminated liquids. . . . To successfully combat this disease a war must be unremittingly waged against decomposing refuse and the reckless diffusion of nightsoil.

Again, referring to the great mortality from fever in 1884, the Registrar-General of Queensland writes as follows :—

“It may be that the drought from which Queensland suffered during 1884 has largely contributed to this result. The absence of the ordinary rain—which in the Colony frequently falls with force and volume similar to that in the tropics, cleansing the open watercourses and drains in our large centres of population, and also washing all impurities from the surface—rendered the task imposed on the various Boards of Health of cleansing our cities and towns a very difficult one.

“It is evident from the result that, unaided by nature in the manner indicated, they have been unable to combat successfully with the death-dealing germs engendered during the hot and dry season experienced in 1884. The increased mortality from this cause—the highest ever recorded in this Colony—must be looked upon with the utmost gravity, and those charged with the sanitary condition of our townships should make strenuous efforts to fight against this fatal disease, one which in nearly all cases attacks the very flower of the population—those in the prime of life and strength. The more glaring sanitary defects may have been dealt with by them, but it is apparent that many death-dealing nuisances are still in existence to cause such a heavy loss of life from typhoid fever as that which occurred last year.”

Here, be it observed, though the influence of drought is recognised, yet the necessity and practicability of supplementing the defects of nature in rain supply are emphasised, and all the more stress laid on the need of flushing and cleansing. The object of sanitarians is to diminish, as far as practicable, the foci of the disease, and cut off the channels of communication between man and its germs. In older communities, where the machinery of sanitation has had time to become more perfect than in cities of recent growth, there is an appreciable and marked diminution in the number of deaths from typhoid after the completion of sanitary works. Professor Corfield, in his work on the *Utilisation of Sewage*, p. 164, says—“But it is especially in the case of typhoid fever that important results have been obtained from the sanitary improvements. At no less than nine towns the diminution in the number of deaths has exceeded one-half, reaching at Salisbury 75 per cent. At ten towns the reduction has been between one-third and one-half. Bristol, with a reduction of 33 per cent., being at the bottom of this list.” Instances could be multiplied of reduction of death-rate also in Continental towns, and we may go further, and even speak of its entire disappearance in some instances. It is possible in Tasmania, with better agencies and more earnestness, to achieve the same results as in the towns and cities of England. But, up to the present, sanitation in Australia and Tasmania can hardly be said to have made great strides; at the present moment there is only one city properly and effectually drained, and the question of the best method for the removal of nightsoil remains to be solved by more than one of the largest cities.

When typhoid passes from an endemic form to an epidemic in any one of the artificial divisions of the Continent of Australia, its spread through the entire group of Colonies might be considered as highly probable, for various reasons—such as the frequent intercommunication by rail and steamer, which admits of patients with the ambulatory form of the disease travelling from one colony to another; the consentaneous neglect in removal of accumulation of filth, and the general absence of sanitary precautions, especially in smaller towns; and the pollution of rivers and streams. But a reference to the diagram subjoined will show sometimes a combined fall in the various colonies in the mortality, sometimes a gradual rise on the part of two or three, while on other occasions there is a great rise in one colony and a fall in another; and sometimes a variability in all the colonies. In fine, the fluctuations are not so exact, uniform, or consentaneous as to predict with certainty a rise in one colony because the epidemic is rife in another. Furthermore, and even in the towns of one colony, as Tasmania, the fever-rate may be high one year in Launceston and low in Hobart, or another year, low in Launceston and very high in Hobart. It may be found, too, breaking out in localities where hitherto it has been unknown, the outbreak being owing to its introduction by persons travelling, or to neglect of local hygiene. On the diagram the lines and curves of variation for the Australian Colonies are taken from Mr. Hayter's *Year Book*, 1886, and give the number of deaths per 10,000 of living persons over a period of 12 years. He states, at page 291, that during 20 years “the death-rate from typhoid fever has fluctuated considerably, but nevertheless there were three pretty well-marked maximum periods, viz., 1866-7, 1877-8, and 1883. The minimum periods are not so well marked.” There is, it will be observed, no definite cycle of four or six, or any number of years, in the appearance of this disease. These facts are proofs of the endemic nature of the disease, depending for its exciting causes on local neglect of hygiene. These are probably increased by the influence of accidental agencies, which are the outcome of want of caution, and cause the transmission of this, as of other more freely communicable Zymotic diseases. The Central Board asks not only Local Boards, but every individual in Tasmania, to recognise the more tangible causes at work in evolving such fatal maladies; and while seasonal variation may intensify the activity of germ life and make it more abundant, to supplement the diminished rain supply by attention to copious flushing, to prevent the pollution of drinking-water and milk and butter supply, to pay very great care to the prompt removal and disinfection of excreta, as well as of all accumulations in back

yards and cellars ; but, above all, to take an intelligent and lively interest in the election of such councillors or aldermen who will become the members of their Boards of Health, in order to ensure that the conditions of the public health, which are the "first wealth" of every country, may be duly complied with.

How much can be done by paying attention to these conditions is well shown by the curve relating to England upon the diagram above referred to. It is founded upon the table given in the Registrar-General of England's Report for 1886, and shows a marked contrast to the curves of all the Australasian colonies. While these latter curves exemplify by the suddenness and accentuation of their great rises and falls what may be considered as the uncontrolled range of fever, the latter, by its steady and almost uniform downward gradient, shows how susceptible the fever and its causes are to human control when wisely directed. What is the cause of this difference? Simply this: in England sanitary works have been, and are continually being carried out, while in Australasia comparatively nothing has been done.

There is another important matter. As so much can be done to ensure purity in the preparation and consumption of food and drink by women, we trust that the time is not far distant when a Sanitary Association presided over by, and largely composed of women, will be established in Tasmania.

Diphtheria.

As above-mentioned, some cases of Diphtheria occurred at Launceston. The serious outbreak of this disease in the Brighton district, resulting in a large proportion of deaths, is alluded to under the heading of "Abstracts from Reports of Local Boards."

Another very serious epidemic of no less than forty cases occurred in the Bothwell district, fortunately without any fatal results.

Diarrhœa.

The serious mortality from Diarrhœa, especially among infants, recorded in the Vital Statistics of the Colony, is a matter that requires and will receive the attention of the Central Board. Part of it is certainly due to preventible causes. In regard to special outbreaks, the Officer of Health for Glamorgan, Dr. A. G. Naylor, reported twenty cases of English cholera, resulting in three deaths.

The Central Board of Health wishes to record its thanks to the Inspector of Police, Mr. Bernard Shaw, for his hearty and willing co-operation, as evidenced by the valuable assistance afforded by the police under his instructions in carrying out the suggestions of this Board in any matter requiring their help.

The Central Board has reason to believe that many cases of infectious disease are not reported to the Local Boards, as provided for under Section 80 of "The Public Health Act, 1885." Whether this arises from the medical attendant not furnishing the occupier of the house with a certificate that there is a person suffering from an infectious disease in such house, or from the occupier after receiving such certificate not reporting the same to the Local Board, either through negligence or a desire to conceal the fact, there is no certain evidence. It is very desirable that all Local Boards should enforce the law in regard to this notification, as no effectual steps can be taken for the prevention of the spread of disease without the information asked for as to its occurrence be forthcoming: and the Central Board appeals to the medical men of the Colony to second its efforts in this matter.

To facilitate the obligation of the medical attendant, and also to make known the provisions of the Act relating to the above, the Central Board supplied every known medical practitioner in those portions of the colony in which the Act is in force, with printed forms of certificate with the 80th Section as a note at the foot thereof.

Amendment of the Public Health Act.

A year's working of the Act has shown the desirability and even the necessity of various amendments. In the first place it has been found that there is great need that the provisions of the 6th Section in regard to the application of the Act should be so extended as that the Central Board could immediately act in cases of emergency in places outside the towns and municipalities. This might be done by extending the application of the Act as to provisions regarding the powers and duties of the Central Board of Health and the Police to the whole colony, leaving the provisions regarding the powers and duties of Local Boards as at present.

The difficulty experienced by many Country Local Boards in obtaining duly qualified Officers of Health points out the necessity of modifying in their behalf the enactments of the 17th Section; some

general provision might be made to meet this difficulty by a modification of existing arrangements in regard to the other public medical services of the colony. The memorandum of the Inspector dated 11th January, 1887, (see Appendix B), the remarks made by Dr. Richardson in his report to you, dated 18th April, 1887, and those made by Dr. Butler in his report as Officer of Health of Brighton as hereinafter quoted (see page 10), all refer to methods by which provision might be made for the necessary medical service required by the Act, and the Central Board calls special attention to them. In connection with this same subject, the 85th Section should also be so modified as to empower Local Boards to cause the removal of persons suffering from any infectious disease having no proper lodging to Hospitals without a medical certificate, as it has been found that these cases occur most frequently in places where such a certificate cannot be obtained.

The provisions of Section 62, in regard to the inspection of places where food is prepared or stored for purposes of sale, should be made mandatory instead of permissive, in such wise as that periodical inspection should be secured.

An addition should be made to Section 80, as to reporting cases of infectious disease. The section provides for the reporting of such diseases when they occur in any house visited by a medical practitioner, but no provision is made for reporting the cases brought to the medical man from the country: such provision ought to be made.

The 87th Section, referring to the exposure of infected persons and things, should be extended, so as to prevent the heedless exposure of the corpses of persons who have died of infectious disease.

The whole of the provisions regarding noxious trades, Sections 96 to 100, are based upon the existing legislation of other colonies and of Great Britain. The 98th Clause might be so modified for the protection of existing interests as to enact that, in the case of any complaint made by a Local Board in respect of any old established business, the Court might dismiss the complaint if satisfied that the business was carried on with the *best known methods* for avoiding nuisance: this would not interfere with the rights of individuals to protect themselves.

In regard to the 116th Clause, greater scope should be given to provisions for preventing the pollution of rivers and streams than is given either by this section or by the Rivers Pollution Act.

There is a matter not alluded to in the Act that ought to be provided for in any amendment of it. In various parts of the country the burial-grounds are so placed as to injuriously affect the public health, and, in some cases, the supply of water for domestic purposes. It is therefore desirable that for the future the consent of the Central Board should be requisite in regard to the position of any cemetery that may be proposed to be newly established, and that the same Board should have power to make regulations in respect of drainage, and of the minimum depth of interments.

Local Boards.

The preparation of this Report has been much delayed by the neglect of Local Boards, their half-yearly reports not having been forwarded until long after the time specified by the Central Board.

There were 22 Local Boards in 1886, and of these 21 have now, after repeated applications, sent in their reports for the last six months of that year. The Local Board of Hobart was the only defaulter for the first half-year, and is again in the same undignified position. This neglect is much to be deprecated, and the Central Board regrets that it has again to bring this matter under your notice.

In a circular upon the subject, Local Boards in Rural Municipalities were informed that the Central Board, in issuing one general printed form of half-yearly Report, only expected them to reply to such questions as were applicable to their own particular circumstances. This was considered necessary, as complaints had been made that the printed forms were too elaborate, and not applicable to rural districts; but it must be borne in mind that it would be almost impossible to compile and issue different forms of returns of this kind for each district suitable to its own particular circumstances. For the future these reports will only be asked for once a year.

There is a great difference in the manner in which the returns are sent in. The information asked for is such as should be in the possession of every Local Board taking any interest in the health and well-being of the community over which it presides. The Central Board therefore appeals to all Local Boards to take more interest in sanitary matters, and assist it in carrying out the provisions of an Act that has for its object the preservation of the health and lives of the public by means of the improvement of the sanitary condition of the country, and the prevention of the

occurrence and spread of disease. The following remarks, founded chiefly upon the half-yearly reports, refer to the principal matters in connection with the administration of the Act in the districts of the various Local Boards :—

Hobart.—No report for any part of 1886 has been received from this Local Board.

Launceston.—The Local Board continues to administer “The Public Health Act” with intelligence ; and, during the past six months, has improved the sanitary condition of the town by the construction of works and by taking action under the Act, as thus shown :—

1 mile 500 yards of sewer pipes and 2 miles of house drains were laid down ; 151 defective house drains and sinks were repaired by order of the Inspector ; 102 houses have been connected with sewers by underground drainage ; 93 water-closets erected, and water supply added to 81 water-closets. There are 79 cow-keepers in the town, 48 of whom are registered. There are several cow-keepers outside the town who sell milk within it, 8 of whom are registered as purveyors of milk. All of the dairies within the town have been inspected, some oftener than others, and there has been a general improvement in the condition of the premises. Special reports and steps taken to prevent the sale of unwholesome milk have been taken in respect of 4 dairies during the past six months. 21 butchers’ premises have been inspected, and show great improvement in their condition. The public abattoirs are under the management of the municipal authorities ; their construction is reported as being satisfactory, and their cleanliness unsurpassed. All the noxious trades’ establishments, numbering 9, are registered ; the drainage from some of these is still unsatisfactory, although much improved during the half-year. Complaint has been made against one bone and manure mill, and the owner has endeavoured to remove the cause of complaint. One establishment complained of in the early part of the year has ceased to exist. Notices for over-crowding in houses have been served in 3 cases, and complied with ; 356 notices have been served and attended to for the cleansing of filthy premises, including removal of pigs ; 17 houses have been demolished as unfit for habitation, and 2 ordered to be repaired. Of the 5 lodging-houses inspected, there was an improvement in their sanitary condition as regards drainage, privy accommodation, and general cleanliness. 68 notices have been served on owners of cattle-sheds and stables, the paving and draining of which is being slowly proceeded with. 156 notices for other offences against the Act have been issued, and of these 108 have been complied with up to the date of this return.

Bothwell.—The epidemic of diphtheria reported in the last return has entirely died out, the Officer of Health reporting the district to be free from any infectious disease. No sanitary improvements of any kind have been effected during the past half-year, chiefly owing to the Officer of Health, Dr. Lethbridge, resigning on his leaving the district, and there being no other resident medical man to appoint in his place.

Brighton.—The report from this Local Board states that the general sanitary condition of the district is good, and that there has been no epidemic or contagious disease during the last six months of the year 1886. There is a very strange discrepancy between this report and that of the Officer of Health, Dr. G. H. Butler, who, referring to the same period, gives a return of eight cases of diphtheria, of which four were fatal, and, in connection with this outbreak, makes the following very apposite remarks :—“ I think something ought to be done in the shape of appointing health officers for the country districts, whose duty it would be to go to a district as soon as they hear of the outbreak of any infectious disease, as under the present arrangement the Local Boards prefer to send a constable to report on any case than incur the expense of sending for their Health Officer. This, of course, refers more especially to places where there is no resident medical man. I am quite sure the epidemic of diphtheria would not have run riot in this district, as it did from July to December, had early and effectual precautions been taken to stamp it out, as might have been done had a Health Officer visited the district and compelled the residents to take even ordinary precautions.” At the time of the outbreak the Central Board received from the police reports upon some of the cases, and, in view of the evident gravity of the outbreak, sent its own Inspector, Mr. Mault, who made a special report thereon, which has been referred to under the heading of Inspector’s Work. In this report Mr. Mault traced the spread of the disease in an almost unbroken line from the original case, and showed that there had been a disregard of the most ordinary precautions against infection, as well as a probable cause of the disease from the unsatisfactory nature of the water supply in the summer, and the insanitary condition of some of the houses as regards drainage, cleanliness, and their proximity to nuisances. All this fully bears out the justness of Dr. Butler’s remarks. It may be here explained that Brighton is 16 miles from Hobart, where Dr. Butler resides, and that there is no resident medical man in that district ; but in a case of this kind, where human life is at stake, the question of cost should not be considered.

Campbell Town.—No information of any importance, except that there had been no epidemic or contagious disease in the district.

Clarence.—This Local Board seems to know little or nothing about its district. The report states that there had been no inspection. Two cases of diphtheria are reported.

- Deloraine.*—This Local Board reports that its district is in a fair state of cleanliness and freedom from infectious disease.
- Evandale.*—The report states that this Local Board is on the eve of much improvement in its sanitary arrangements. Three mild cases of infectious disease are reported,—viz., one typhoid fever and two of diphtheria.
- Fingal.*—Several of the dairies in this district have been inspected, and their condition reported as satisfactory. The condition of the butcher's premises was at one time complained of, but now reported as being good. One case of typhoid reported.
- Glamorgan.*—The report from this district is a fairly good one, and represents it as being in a satisfactory sanitary condition.
- Glenorchy.*—This Local Board reports its water supply as being polluted, but seems to possess very little other information about its district. It has no Inspector, and has no time to carry out the provisions of the Public Health Act, 1885.
- Green Ponds.*—This Local Board is, unfortunately, without either Officer of Health or Inspector, so that nothing has been done in the way of inspection. It complains of the unsatisfactory nature of the cesspits at the old State school, and the construction of new cesspits at the new Public school. This matter was laid before Government for reference to the Director of Education, and it is to be regretted that it was decided to allow the cesspits to remain, "as being more convenient." Difficulty may be experienced at some of the public schools in thinly populated country places in making arrangements for the frequent emptying of earth-closets; but it is the duty of the Government to provide the best sanitary arrangements at these schools, without regard to mere "convenience."
- Hamilton.*—This Local Board had no Officer of Health for a portion of the last six months of the year, and no Inspector; consequently no inspection has been made, and the information contained in its report is very meagre. The Officer of Health reports only one case of diphtheria.
- Longford.*—The sanitary condition of this district is reported as being fairly satisfactory. The condition of the butchers' premises, of which there are 13, is reported as being generally good. 2 cases of diphtheria are reported.
- New Norfolk.*—This district is reported as being generally healthy. The condition of the butchers' premises and private yards is returned as "medium."
- Oatlands.*—No inspection has been made in this district, and the Local Board seems to be in complete ignorance of its sanitary condition; and nothing is being done in the way of sanitary improvement.
- Richmond.*—This district is reported as being free from infectious disease, and the condition of the dairies, butchers' premises, and private yards as being good.
- Ross* reports itself as being "too clean" for infectious disease; and the general sanitary condition is said to be good.
- Sorell.*—This Local Board reports that it has had no Report of its district supplied by its Inspector, and that no cases of infectious disease have been reported, no medical man being within reach; also that the services of its Officer of Health were dispensed with at the end of 1886.
- Spring Bay.*—This district has not yet been inspected, but its general sanitary condition is reported as being good.
- Westbury.*—No Officer of Health has been appointed in this district, and no inspection done, consequently very little is known as to its sanitary condition and general cleanliness. 3 cases of typhoid fever reported.
- Glebe Town.*—This is the first report from this small township, which has been proclaimed under "The Town Boards Act, 1884." The Local Board is doing what it can with the small amount of funds at its disposal, and has laid down about a mile of tarred channeling, and 1000 feet of underground drain-pipes. Underground drainage is being proceeded with, as well as the general construction of streets, footpaths, and channel drains. At the date of this Report no Inspector had been appointed; but the condition of private premises, as regards cleanliness and drainage, is reported as being good.

H. A. PERKINS, *M.D.*, *President.*

J. A. HARDY.

JAMES H. B. WALCH.

GEO. CRISP.

HENRY HUNTER.

W. H. GRAHAM, *Secretary Central Board of Health,*
Hobart, 18th July, 1887.

SYNOPSIS of Reports for the Year 1886,

Name of Town or Municipality.	Estimated Population at date of Report.	Number of Houses or Dwellings.	Water Supply.	Drainage and Outlets to Drainage.	Cemeteries.		Dairies.
					Number.	Total Area.	
Hobart	No Report						
Launceston	14,400	3268	St. Patrick's River, to a dam; thence by mains	Underground drains discharging into River Tamar	4	17½ acres	87
Brighton	3116	317	River Jordan	Surface only	8	13 acres	5
Bothwell	554	92	River Clyde and tanks	Surface-drains into river below water supply	3	Not known	4
Campbell Town	2710	Unable to reply	Elizabeth River to Reservoir	Surface-drains	4	17 acres	None
Clarence	1485	199	House roofs and water holes	Surface-drains	5	5	63
Deloraine	4626	Not known	Rivers, streams, and springs	Natural	6	14½	None specially
Evandale	2867	301	South Esk River	Into South Esk, below township	2	4 acres	1
Fingal	2500	225	South Esk and St. Paul's Rivers, and St. Patrick's Creek	Good	6	30 acres	70
Glamorgan	244	Unknown	Meredith River	Surface-drains discharging into the sea	3	4½ acres	None on a large scale
Glenorchy	3917	Not known	Humphrey's Rivulet	None	6	Not known	None
Green Ponds	Unknown; Electoral District includes Brighton	180	Rainfall on houses, and wells	None	4	Unknown	None
Hamilton	1854	Not known	River Clyde	None	Not	known	None
Longford	5600	Not known	South Esk River	Surface-drains	5	24 acres	None
New Norfolk	3644	Unknown	Lachlan Rivulet	Surface-drains, except deep barrel-drains from Asylum to River Derwent	3	11 acres	Unknown
Oatlands	2473	450	River Nile and tanks	None	9	10 acres	None
Richmond	2062	275	Rain-water and Coal River	None	3	2 acres	25
Ross	353	66	Macquarie River	Surface-drains	4	7 acres	None
Sorell	2612	Unknown	A mountain stream	Surface-drains into the sea	6	Unknown	No regular dairies
Spring Bay	1035	168	Rainfall and running streams	Surface-drains	4	8 acres	No special dairies
Westbury	5773	919	Rivers, creeks, wells, and tanks	None	2	12½ acres	No dairies
Glebe Town	400	89	Hobart Waterworks	Partly underground and tarred channels	None	..	1

D I X A.

received from the various Local Boards of Health.

Butchers' Premises.	Noxious Trades.	Privy Accommodation : Number of Closets.	Privy Accommodation at Schools and Factories.	Is a Manure Depot provided, and where?	Scavenging, how performed.	Have difficulties arisen in administering "Public Health Act" by Local Board?
21	9	Water closets 1290 Privies with pails . 650 " cesspits... 982 Water-washed ditto 456 Other kinds 17 3395	Satisfactory	Yes; about 3 miles from town	Day labour	No.
8	1	317	Sufficient	No	None	None.
1	1	92	Sufficient	No	Not required	Difficulties might arise, there being no Officer of Health in the District
5	None	1 ordinary privy, with cesspit, to each house; 1 earth-closet	Sufficient	None	Not performed; tenders about to be called for	None.
1	None	Unable to say	Unable to say	No	None	None.
3	None	Ordinary privies to each house	Does not apply	None	Does not apply to a country place	None.
3	None	About 120	Sufficient	Not yet	None	None.
5	None	Ordinary privies to each house, besides 10 earth-closets	Sufficient	No	None	Impossible to carry all out.
1	1	Nearly all earth-closets	Good	None	None	None.
2	Not known	Not known	Not known	No	None	No time.
4	None	Not known	Unsatisfactory, and at Kempton insufficient	No	None	None.
None	None	Not known	Not known	No	None	Found unworkable in this District.
13	None	Not known	Good	No	None	Inapplicable to a country district.
6	None	Unknown	Sufficient	No	None; gutters cleaned twice a year	None.
Unknown	None	Unknown	Not known	Not yet	Not any	No reply.
6	1	Mostly pails	Sufficient	None	None	No reply.
4	None	6 pails; 40 ordinary privies	Good	No	None	None.
1	None	Not known	Good	No	Not at all	None.
None	None	2 W.C's. into cesspits; remainder not known	Sufficient	None	None	None.
18	Not aware of any	No means of ascertaining	It is believed it is sufficient at State Schools	No	None	The Act cannot be carried out in a country district.
None	None	2 ordinary privies, with cesspit; the remainder not known	Only one private school; no factories	No	Streets still in the hands of contractors	Want of funds.

APPENDIX B.

MEMORANDUM.

11th January, 1887.

IN consideration of the fact that there are no qualified medical practitioners in the Rural Municipalities and Police Districts of Bothwell, Brighton, Carnarvon, Glenorchy, Green Ponds, Hamilton, Kingborough, Macquarie, Port Davey, Portland, Selby, South Longford, and Spring Bay, and that many parts of other municipalities and districts are so far from any doctor as to be practically beyond medical help, could not something be done under a subsidiary Health Act to obtain such help for these, or most of these places? For instance, could not Government guarantee a minimum income to a duly qualified man who should settle at a fixed place in each of the above districts, on conditions of which some might be the following:—

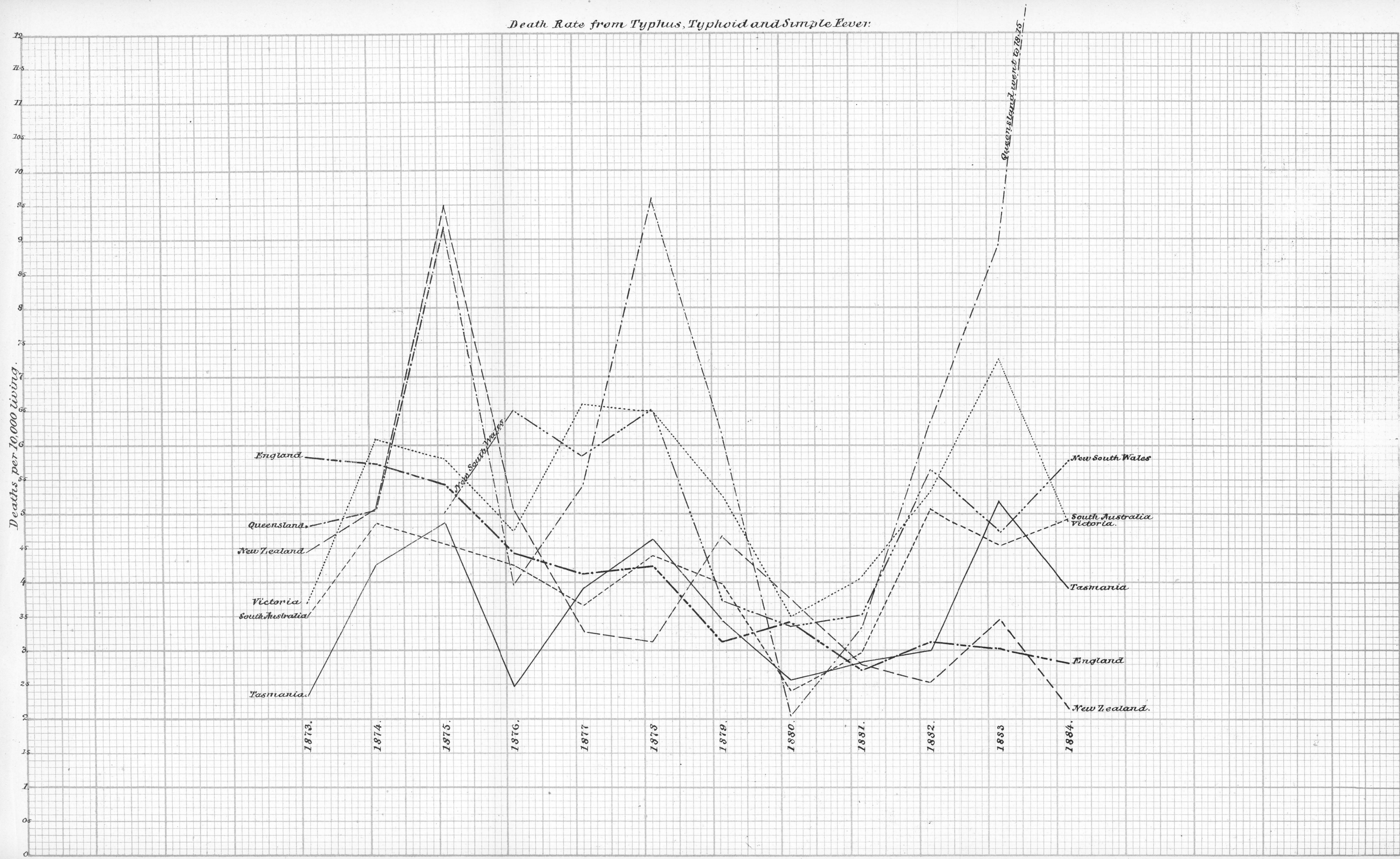
That a certain portion of the guaranteed income should be a fixed salary for fulfilling duties under the Public Health and Police Acts, (and perhaps the Vaccination Act).

That the remainder of the guaranteed income should be applied to the payment of fixed mileage rates for visiting patients living more than miles from his house—these patients paying the ordinary fees paid by those who live within that distance, so that they would not be pauperised by receiving gratuitous medical relief, nor be tempted to call in the doctor unnecessarily.

The local authorities of other districts where medical men are already established, and of the above districts when the income of the medical man exceeded the guarantee, should be empowered to certify these mileage rates in special private cases, and in all public cases under the above Acts, for payment from the Consolidated Fund.

A. MAULT.

Death Rate from Typhus, Typhoid and Simple Fever:



T A S M A N I A.

R E P O R T

TO THE

CENTRAL BOARD OF HEALTH,

BY

ALFRED MAULT,

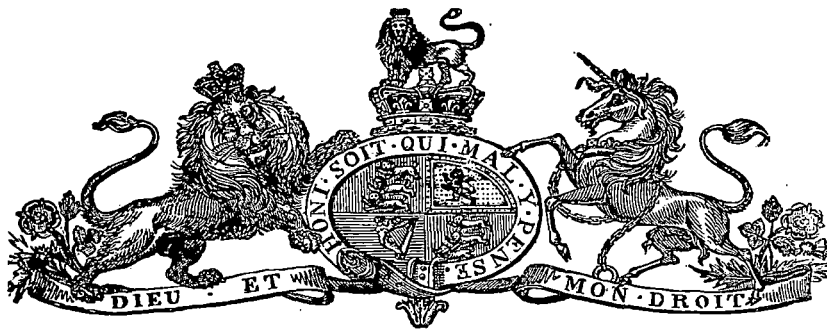
Engineering Inspector to the Board,

ON THE

SANITARY CONDITION

OF THE

MUNICIPALITY OF LONGFORD.



Tasmania:

WILLIAM THOMAS STRUTT, GOVERNMENT PRINTER, TASMANIA.

1887.

The Secretary, Central Board of Health, to the Worshipful the Warden of Longford,
Chairman of the Local Board of Health.

Central Board of Health Office, 16th December, 1886.

SIR,

IN accordance with the following Minute, I have the honor to forward you herewith a Report on the Sanitary condition of the Towns in the Municipality of Longford, which was laid before the Central Board of Health at a meeting this day :—

“ Mr. Mault’s Report on the Sanitary condition of Longford, Perth, Cressy, and Bishopsbourne, was laid on the table and read ; thereupon,—

“ It was resolved,—

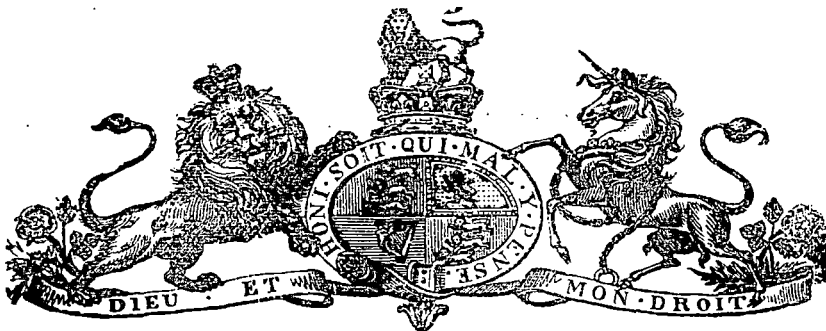
“ That copies of the Report be forwarded to the Longford Local Board for its information, urging upon it to seriously consider the valuable suggestions contained therein, especially as regards the water supply and river pollution.”

I have the honor to be,

Sir,

Your obedient Servant,

W. H. GRAHAM, *Secretary.*



REPORT ON THE SANITARY CONDITION OF THE MUNICIPALITY OF LONGFORD.

To the President and Members of the Central Board of Health.

MR. PRESIDENT AND GENTLEMEN,

1. I have the honour to submit to you the following Report upon the sanitary condition of the towns of Longford, Perth, Cressy, and Bishopsbourne, in the Rural Municipality of Longford. Towns in the Municipality.

2. The following table shows approximately the area, population, number of houses, and density of population in what may be called the urban part of the above towns :— Area and population.

Towns.	Area in Acres.	Population.	Houses.	Population to the Acre.
Longford	700	1286	250	1·84
Perth	360	478	95	1·33
Cressy	120	240	45	2·00
Bishopsbourne	60	90	18	1·50

3. Such comparatively small populations scattered over large areas are difficult to be dealt with in regard to sanitary arrangements. The dwellings as a rule are separated by considerable intervals from each other, and thus the extent of streets to be scavengered, and the lengths of drains and watermains to be laid, are so much greater in connection with each house than is the case in towns, that a greater proportionate expense is entailed. Works that cost comparatively little for each house served by them in populous places, not only cost absolutely more for each house in open districts, but this greater cost coincides with a smaller rateable value, and consequently imposes a heavier burden. It cannot therefore be expected that country townships with scattered houses should have sanitary arrangements administered on the scale of those of urban populations. As some compensation for this, it may be remembered that some domestic arrangements that would be offensive and noxious in thickly peopled districts are comparatively harmless in the open country. Difficulties of sanitary administration in the Country.

4. In the following remarks and suggestions the fact that country townships are in question has never been forgotten ; for the circumstances of a Local Board administering a large Rural Municipality ought not to be lost sight of. Permanent structural work such as drainage, or work of daily routine such as scavengering, may be required for the benefit of only a small portion of a district, and the cost of such work ought not to be borne by those not benefited. The Local Board can best make all arrangements for doing it, as it best knows all the circumstances. Some such works are hereinafter referred to, and the information given is for the purpose of enabling the Rural Municipal authorities to judge as to the cost, desirability, and possibility of carrying out the suggestions made. Rural authorities.

Plans and estimates only approximate.

5. The time and means at my disposal only permitted the making of a cursory examination, so that the plans attached to this Report, and the estimates given, are only to be taken as indications of what may be done, and of the direction in which it is desirable to make the surveys and take the levels necessary before undertaking any work. I have to thank the Worshipful the Warden, the Council, their Clerk, their Officer of Health, and their Surveyor, for much valuable information, and for unfailing courtesy.

Position, condition, &c. of Towns.

6. The towns in the Municipality are situated upon the plateau drained by the South Esk River and its tributaries, and at an elevation of from 450 to 600 feet above the sea. The surrounding lands are cleared and cultivated. The condition of the roads and streets is exceptionally good and clean, though no scavenging service exists. Most of the houses have privies with cesspits, a few only having movable boxes or pails, and the emptying of both classes of privies is left to the householders themselves to arrange for. With the exceptions below described there are no public sewers, though but comparatively little of the drainage finds its way upon the public streets.

Longford.

Drainage.

7. At Longford there are sewers from the public buildings and from some vaults in the churchyard, running across Wellington-street and discharging into open gutters at George's Square—the gutters in turn discharging into the Lake River. During my stay there was nothing offensive to be perceived in connection with these drains. A small pipe sewer has just been laid to take the house-slops from the new bank in Marlborough-street to a road gully-catchpit at the junction of Wellington and Marlborough streets, whence they will run through the road drain that discharges itself into a street gutter. This arrangement for transferring a nuisance is sure to become offensive, and will have to be remedied.

Water supply.

8. Longford is chiefly supplied with water from the South Esk River, delivered by barrel-carts filled by pumps fixed at the bridge—the suction pipes of the pumps being taken so far across the river as is thought sufficient to avoid the water coming down the Lake River. As the lower part of the course of the Lake River is through marshy land the quality of its water is not thought to be equal to that of the South Esk. Most houses have rain-water tanks to save as much of the expense of obtaining river water as possible—the newer houses having large storage space. There are a few wells, but in most of them the water is brackish and unfit for human consumption. Practically speaking, the town is supplied from the river at a cost varying from eightpence a week, in the case of cottages, to eight or ten shillings a week in the case of large houses—say from £1 10s. to £12 a year, and averaging £3. The quality of the water seems to be at present very fair, but, as subsequently shown, it is by no means free from liability to pollution. And a water supply that has thus to be procured in retail quantities is always used more or less sparingly for cleansing purposes.

Slaughter-houses.

9. At the beginning of next year a new by-law will come into force forbidding the slaughtering of cattle by butchers in any of the towns of the Municipality. The Council has not made any provision for establishing a public slaughter-house, but it would be desirable to do so, and one would be sufficient and commodious for Longford and Perth, if not for the other two towns as well. If the building of one be decided upon, a site in Gay-street, near the back entrance to the goods station, would be convenient, as the traffic to and from it would not much interfere with that of the streets. Cattle and sheep brought by train would not have to traverse any streets; those from the Perth and Carrick side of the town would pass only by Union-street; and those from the Cressy side might be brought by Herbert's Road, and the back streets leading into it. In the meantime the condition of the butchers' establishments is not satisfactory. They are not properly built, especially as regards their floors and the lower part of their walls; and no good drainage arrangements exist. Most of them look as if the water supply was a costly luxury. Pigs are kept in their immediate neighbourhood to feed upon the offal as if for the express purpose of making these animals as unwholesome to man as possible, both while they are living and when they are dead.

Bakehouses and dairies.

10. No registration of bakehouses nor of dairies has hitherto been required. This registration had better be undertaken, as control could then be better exercised in case of necessity.

Noxious trades.

11. These are no noxious trades establishments actually in the town of Longford. Reference is hereinafter made to the fellmongeries in the Municipality.

Burial grounds.

12. There are three burial-grounds in Longford, but no public cemetery. None of the burial-grounds can be said to be crowded, but there are a number of vaults in the churchyard, the drain from which has been above-mentioned. Probably the complaints

which have been made about this burial-ground, which is situated in the midst of the most important part of the town, are due to offensive emanations arising when these vaults have to be opened. Whether or not a public cemetery be established, powers should be procured to close and properly fill up all vaults. If a public cemetery be established, the site proposed by the Warden, of land near or upon the old racecourse reserve, would be very suitable.

Perth.

13. There is a drain from the church burial-ground at Perth, with an outlet on the bank of the river, but there was no sign of there ever having been any flow through it. It should be stopped; and all burial vaults, both in the churchyard and public cemetery should be closed as above suggested. House slops and refuse are chiefly disposed of in the gardens, and there were no traces of any offensive flow in the street gutters. Drains, &c.

14. The water supply of Perth is chiefly drawn from the South Esk River, and distributed by carts; the average cost to householders being less than at Longford, as the distance to be traversed is not so great. What has been said above in regard to the quality and quantity of the similar supply at Longford applies equally to Perth. Water supply.

15. There are but two butchers at Perth, and when the by-law regarding slaughter-houses comes into force, they might be accommodated at the public abattoir, if there be one established at Longford or in its neighbourhood. The condition of the premises of the baker here shows that some control ought to be exercised—the yard of the house and bakehouse being the open run of a number of pigs and dogs. Butchers' and bakers' shops.

Cressy.

16. At the upper end of the back street at Cressy, and immediately opposite some dwelling-houses, an offensive drain, running from a large private establishment where pigs, &c. are kept, flows into the street gutter. This ought certainly to be at once remedied, either by conveying the drainage upon land away from houses, or by rendering it inoffensive in its character. There is one butcher's shop in the town. Drainage, &c.

17. The water of Cressy is chiefly obtained from the Lake River, distributed by barrel-carts, and is supplemented by rain-water caught in tanks. The average cost to the householders is as high, or higher, than at Longford. The quality of the water is very fair. Water supply.

Bishopsbourne.

18. This small hamlet is dependent upon wells and rain-water tanks for its water supply. The quality of the water from some of the wells is not very good, and in one case the Officer of Health has ordered the discontinuance of its use for human consumption. The well in this case is situated within ten feet of a pigsty, from which the drainage in wet weather, in all probability, soaked or ran into it. Water supply.

Noxious Trades.

19. There are four licensed fellmongeries and tanneries in the Municipality—two on the South Esk River a little below Longford, one on the same river at Perth, and one at Cressy. There are also two others on the South Esk River, close to Perth, one being immediately opposite the town, and one just above, both these being in the Rural Municipality of Evandale. The fellmongery at Cressy is in the town, and not on the immediate bank of the Lake River. The two near Longford are immediately on the South Esk River bank, but below the place whence the water supply for the town is taken. But the one at Perth and the two adjoining that township are so situated as to directly affect the water supply both of that town and of Longford. Without doubt there are also other fellmongeries higher up on the course of the South Esk and its tributaries. At all these establishments not only does the drainage from the washing-places and pits—and in wet weather from the refuse-heaps and drying-grounds—flow into the river, but the sheepskins are left for days to soak either in the river itself or in running water directly communicating with it. The water supply of the whole district is thus contaminated, and it is impossible to foresee what may be the effect of this at some time or other upon the public health. The skins soaked come from all parts of the country and from over the sea, and there is no inspection as to whether the germs of anthrax or other diseases are present or not. It is this that makes the steeping of the skins in drinking water so noxious to both man and beast, and nothing could have a greater tendency to spread disease. Even the eating of the meat of affected animals is not so dangerous, as cooking is said to kill *bacillus anthracis*, for the water in which the skins have been soaked is drunk just as it is, without boiling, and consequently with any germs it may contain in Fellmongeries.

full vitality.* Part at least of the nuisance thus caused by these establishments could be dealt with under the Rivers Pollution Prevention Act, and under the 98th Section of the Public Health Act. But the prevention or control of skin-steeping in running water does not seem to have been directly contemplated in the framing of either of these Acts. It would therefore be desirable in any amendment of the Public Health Act to provide for the prevention of all pollution whatsoever of rivers and streams that are sources of the people's water supply. In the meantime all Local Boards of Health should adopt the 26th of the By-laws proposed by the Central Board of Health.

Proposed Works.

Water supply. 20. The most pressing want of the district is a good supply of water for domestic purposes. Some difficulties, such as those referred to in the third and fourth paragraphs of this Report, will have to be encountered in providing this supply, but they are not insuperable. A variety of means and methods, and of sources of supply offer themselves, and may be considered separately for purposes of comparison.

Longford
separately.

21. Longford might be supplied from its present source, the South Esk River, but means should be adopted to prevent its contamination. The following is a description of the scheme proposed for this separate supply:—A Tangye's steam-pump fitted with "Colonial" boiler, and capable of raising 3200 gallons an hour, might be fixed near the cottage adjoining the present pumps, with a suction-pipe going out, as now, to the middle of the river. A reservoir tank, covered in to keep out heat and light, and capable of holding 54,000 gallons, should be raised on a strong staging 40 feet high above the ground, at the higher part of the town. The place shown for this is the corner of the reserve behind the police office. Such a reservoir would hold a week's supply for domestic purposes only, in case of accident to the engine, or of the discoloration of the river-water by flood. If 40 feet be considered insufficiently high for fire extinction purposes, a greater height could be obtained at a very slight addition to the hereinafter estimated cost. The distributing system of 3-inch, 2½-inch, and 2-inch cast-iron pipes is only shown on the plans in places where it was thought there was a sufficient number of houses to take the water. If further mains were laid the estimate would have to be increased, but the yearly return would most likely be proportionately so also. As the working expenses would not be increased, the yearly balancing of the account would probably not be so affected as to need the making of any change in the charges proposed.

House service.

22. The house services ought to be limited to half-inch pipes and taps. Where larger service pipes are required the water should be supplied by meter, and this could be done at the rate of two shillings a thousand gallons. It is estimated that in Longford 200 houses would be connected with the system as laid down on the plan.

Description
and cost of
work.

23. The work to be done, including providing and fixing steam-pump and boiler, wooden engine-shed, plate-iron water-tank, 33 feet in diameter and 12 feet deep, raised on a 40-feet staging and covered over, four and a half miles of cast-iron mains, with 20 fire-plugs, and with the necessary valves, stop-cocks, &c., service pipes with screw-down brass taps to 200 houses, would cost about £2020; or, with ten per cent. added for contingencies, £2222.

Yearly cost.

24. The yearly cost of the supply would be as follows:—	£	s.	d.
Interest and sinking fund,† 5 per cent. on £2222	-	111	2 0
Repairs, &c., 3 per cent.	-	66	13 4
Engine-driver, fuel, &c., 300 days at 11s.	-	165	0 0
		342	15 4
Contingencies at 10 per cent.	-	34	4 8
Total yearly cost	-	£377	0 0

* In *The Veterinarian* for October, 1886, there is an account of some cases of splenic apoplexy among men, one fatal, which occurred near Leicester, arising from blood-poisoning by germs of anthrax. Dr. Moore, of Leicester, the Health Officer of the district in which the cases occurred, writes: "All parts of the bodies of animals dying of this disease are poisonous, and may convey the disease to others, either directly or indirectly. It is rare for the disease to arise from eating the flesh, as the poison is destroyed by cooking. The disease affects horned cattle, sheep, &c., in all parts of the world, and inasmuch as all parts of the animals dying of this disease are poisonous, it is conceivable that the importation of skins to any district may constitute a source of this disease. The water in the brook forming the drinking supply for cattle may occasionally contain the poison, as it receives the *drainage from the tanyards*, in addition to that from the *dog-lock pits*, and the Village of Shearsby." During the last few months the subject has been forcing itself into public attention in England. In *The Lancet* of October 9 there is a notice of many cases of anthrax in human subjects—several fatal—in which the presence of *bacilli anthracis* was clearly proved. Mr. Park tells me anthrax is certainly present in Tasmania.

† This, and the corresponding item in each subsequent estimate, is explained in the paragraph (47) of this Report relating to the provision of Funds.

25. This yearly outlay might be met thus :—If of 200 dwellings to be supplied 80 are of superior class and 120 are cottages, a yearly charge of 50s. on the former would produce

120 cottages at 20s. a year	-	-	-	-	-	-	-	-	-	£200	0	0
Meter customers, stables, gardens, &c.	-	-	-	-	-	-	-	-	-	57	0	0
											<u>£377</u>	<u>0 0</u>

Other classification and rating of the houses might be found fairer and more convenient. That is a matter to be duly considered. But no difficulty should be found in raising the above amount, as much more is now paid for a very inferior supply.

26. If Perth be separately supplied, a steam-pump to raise 1800 gallons an hour might be fixed in William-street opposite the end of Frederick-street, and a reservoir on Clerk's Hill above the Longford Road. Mains of 2½-inch and 2-inch cast-iron pipes would distribute the water to about 95 houses. The cost of these works, with 10 per cent. for contingencies, would be about £1226. The yearly outlay would be, for interest and sinking fund as before, £61 6s.; repairs, £36 15s.; driver, fuel, &c., £150; contingencies as before, £24 19s.; making a total of £273. To meet this in so small a town would require heavier payments than at Longford; say—

	£	s.	d.
30 houses at 100s. a year	-	-	-
65 cottages at 26s. a year	-	-	-
Meter customers, stables, gardens, &c.	-	-	-
	<u>£273</u>	<u>0</u>	<u>0</u>

Even these payments would be less than those at present made for an inferior supply.

27. It would not be practicable to supply separately either Cressy or Bishopsbourne, as the yearly cost would be greater than could be borne by such small communities.

28. Another plan would be to pump the water from the river at Perth into a reservoir upon Clerk's Hill, and thence distribute it to Longford, Perth, and even Cressy if desired: Bishopsbourne could not well be supplied by this means. In carrying out this plan it would be better to employ the water-power of the fall near the bridge to drive a turbine to work pumps, and fixed as shown on the plan on the east bank of the river. To do this the weir across the river would have to be repaired and strengthened so as to secure to Mr. W. Gibson his present water-power. The supply should be taken from above the skin-steeping place and drainage outlet of Mr. Croom's fellmongery. The reservoir should be constructed in masonry, to hold 100,000 gallons. The pumps should be capable of raising 6000 gallons an hour into the reservoir. The cost of these works, with distributing mains and service pipes and fittings, would be about £5678 for Longford and Perth; and the yearly outlay would be—

	£	s.	d.
Interest and sinking fund at 5 per cent.	-	-	-
Repairs, &c. at 3 per cent.	-	-	-
Wages, oil, &c.	-	-	-
Contingencies	-	-	-
	<u>£631</u>	<u>0</u>	<u>0</u>

To meet this sum, 110 houses would have to pay 60s.	-	-	-
185 cottages, 20s.	-	-	-
Meter customers, &c.	-	-	-
	<u>£631</u>	<u>0</u>	<u>0</u>

29. If Cressy be also supplied by this means, a much greater length of main would be needed, and the total outlay would be increased to £8463; and the yearly cost would be, for interest and sinking fund at 5 per cent.

Repairs at 3 per cent.	-	-	-
Wages, &c.	-	-	-
Contingencies	-	-	-
	<u>£875</u>	<u>0</u>	<u>0</u>

	£	s.	d.
And to meet this, 130 houses would have to pay, at 80s. a year	520	0	0
220 cottages 20s. - - - - -	220	0	0
Meter customers, stables, &c. - - - - -	135	0	0
	<u>£875</u>	<u>0</u>	<u>0</u>

More costly
than separate
supply.

30. It will be noticed that by the two latter schemes the householders of Longford would be required to pay more, and the householders of Perth and Cressy less, than under separate schemes.

Supply by
gravitation
from Brumby's
Creek.

31. The above schemes involve the taking of the water from the South Esk River for human consumption. Such as it now is it is liable to contamination, and as the country gets more and more settled this liability will increase. If a supply could be obtained from sources not liable to pollution it would certainly be much preferable. Such a supply is offered by the upper part of Brumby's Creek, which is a perennial stream of beautiful water rising in the higher valleys of the Western Mountains, flowing over a rocky channel, and said to have a comparatively large volume even in the driest summers. Should further inquiry show it to be desirable to form a reservoir to store sufficient water to insure a constant supply, such a reservoir could be easily made, as the conformation of the ground offers facilities for such a purpose. The distance of this source of supply from the towns of the Municipality is an objection, but one that is compensated for by the fact that the water might be delivered from it by gravitation, and thus the expense of pumping would be avoided.

Further
examination
necessary.

32. As before mentioned, only cursory examinations of the district from which this supply would be obtained, and through which it would have to be brought, have been made, so the following estimates must be taken as approximative ones only, but they give results that show that a proper examination and survey of the country is desirable, especially as the water of Brumby's Creek, in the upper part of its course, is so exceptionally pure and good.

Works pro-
posed.

33. A sufficient height to deliver water by gravitation to all the townships would be obtained by drawing the supply from the creek at some point between the bridge on the road leading to the school reserve, and Mr. Joseph Frankcombe's property. For the first five miles the conduit might be made of earthenware glazed socket-pipes with cement joints, as the pressure would not be very great; then 12 miles of 4-inch cast-iron pipes would be laid through Cressy to Longford bridge; whence $1\frac{3}{4}$ miles of 3-inch pipes would deliver the water to the reservoir on Clerk's Hill at Perth. The branch supply to Bishopsbourne would be taken by three miles of earthenware pipes and $2\frac{1}{2}$ miles of $2\frac{1}{2}$ -inch and 2-inch iron mains. The distributory and house services would be as before described.

Cost.

34. The cost of these works, as nearly as can be now estimated, would be about £10,413, or with 10 per cent. added for contingencies, £11,454. The yearly charge would be—

	£	s.	d.
Interest and Sinking Fund - - - - -	572	10	0
Repairs - - - - -	343	10	0
Contingencies - - - - -	91	0	0
	<u>£1007</u>	<u>0</u>	<u>0</u>

Nothing is allowed for way leave in the above estimates, as along a greater part of their course the pipes would be laid under public roads, and would in all cases be laid in suchwise as to interfere as little as possible with the property passed through; so that only nominal, if any, compensation should be asked for.

Revenue.

35. As the distributing mains under this scheme would traverse long distances, no doubt some traffic in water could be had along their course. But no provision is made for irrigating lands, so all supplies for cattle-watering in fields must be controlled by having covered and protected ball-taps in connection with the drinking-troughs. This is very usually and easily done. Some houses would also be supplied in passing. The general income would probably be—

From 200 houses at 60s. a year - - - - -	£600	0	0
230 cottages at 20s. - - - - -	230	0	0
Meters, stables, &c. - - - - -	177	0	0
	<u>£1007</u>	<u>0</u>	<u>0</u>

36. The following table shows the relative cost of these various schemes for supplying the Municipality with water :—

Table of relative cost.

Nature of Scheme.	Total Cost.	Yearly Cost.	Longford, for each		Perth, for each		Cressy, for each		Bishopsbourne for each	
			House	Cottage.	House	Cottage.	House	Cottage.	House	Cottage.
	£	£	£ s.	£	£	£ s.	£	£	£	£
Longford separately	2222	377	2 10	1						
Perth separately	1226	273	5	1 6				
Longford and Perth together	5678	631	3 0	1	3	1 0				
Longford, Perth, and Cressy	8463	875	4 0	1	4	1 0	4	1		
The four Towns	11,454	1007	3 0	1	3	1 0	3	1	3	1

37. The above table shows that the gravitation scheme is the only one that would supply the whole of the towns at a moderate yearly cost. And though the better classes of houses in Longford might under it have to pay a few shillings a year more than under the separate scheme, the superior quality of the water is quite worth the extra payment. It is therefore evident that this supply from the Western Mountains holds out sufficient inducements to make it worth while to thoroughly examine the ground so as to obtain definite information as to its cost and its feasibility in every respect.

Superiority of supply by gravitation.

Drainage Works.

38. Though the areas of the towns in the Municipality are not so much built upon as to make it necessary to adopt at once a scheme of general drainage, the condition of parts of Wellington and Marlborough streets at Longford is such that some steps must be immediately taken to dispose of the sewage from the dwelling-houses abutting upon them. What is done now should be so arranged as to become part of any general system that may hereafter become necessary. The lines of drains shown on the accompanying plan of Longford are thus designed. The part of the town—the southern and western—where drains are not marked, will eventually have to be drained into a main sewer to be built, when required, in the valley below Herbert's Road. But the sewers from the rest of the town must run the direction shown on the plan, so that the work now recommended to be done will be of permanent use.

Longford.

39. The sewage from the town should not be allowed to pollute the river, so the sewers are to be built at levels allowing for irrigation by any scheme that hereafter may be adopted on the low meadows bordering the South Esk River between the railway bridge and the old ford. But as long as the river is allowed to be contaminated by the fellmongeries it is not worth while going to the expense of irrigation works, and so a temporary outfall is provided a little below the road bridge. Thence the main sewer of 12-inch glazed pipes would go up Bridge-street to Latour-street, up Latour-street to Lyttelton-street, up Lyttelton-street to Wellington-street, and up Wellington-street to the junction of Marlborough-street. At the corner of Bridge-street and Latour-street it would receive a 9-inch branch draining the lower part of Wellington-street. At the crossing of Latour and Smith streets it would receive the sewer from the police office, draining also part of Smith and Wellington streets. At the crossing of Latour and Archer streets it would receive the sewer from the churchyard. And at the junction of Wellington-street and Marlborough-street it would receive 9-inch branches draining the higher part of both those streets.

Works.

40. Provision would be thus made for the drainage of about 220 houses, the branch drains from which would be made with 6-inch and 4-inch pipes, communicating with trapped grids in the back yards. Any further house-draining arrangements would be made at the expense of the proprietors. Regulations ought to be made for preventing uninterrupted communication between the sewers and the interior of houses, so as to exclude sewer gas and provide for sewer ventilation.

House-drains.

41. The outlay upon these works would be about £1180; or, with ten per cent. for contingencies, £1300. The yearly cost for interest and sinking fund, repairs, and contingencies would be about £114, which would be about covered by a rate of ten shillings a year from each house drained, or, if the houses were classified, by a rate averaging that amount.

Cost.

42. When irrigation becomes necessary for purifying the sewage before its discharge into the river, its cost would have to be added to the above estimate. The site mentioned

Irrigation.

above for this irrigation is a suitable one, as it would allow for the drainage of the effluent water into the river below the mill weir, thus giving an increased fall. That the land is below flood-level is not of much importance, for during floods purification of the sewage is not necessary. Incidentally, use might be made of the sewer in Bridge-street to drain the swamp between that street and the railway.

Refuse Removal, &c.

Privies.

43. It would be very desirable to make some arrangement for the periodical and frequent removal of privy refuse. As before mentioned (§ 6), some of the houses are already provided with privies having movable pails, but the greater number have privies with cesspits. Some of these are very foul. That at the Longford Public School was brimming full, and had not been emptied since it was built about three years ago. This is not only bad in itself, but is incidentally so, as children at school ought to be taught the proper use of sanitary appliances, and the absolute necessity of cleanliness in the use of them. In some of the houses at Perth the condition of things was also bad.

Service for
Longford and
Perth.

44. In remedying this, Longford and Perth, as they are within a short distance of each other, might be served by one establishment. The preliminary work to be done in these two towns would be the filling up of about 300 cesspits and the altering of the privy seats to allow of the use of pans; the providing of about 400 of these pans in galvanised iron with close-fitting lids; of a proper night-cart for their carriage; and of land in a convenient locality for a depositing place, with a shed on it. All this would cost about £810.

Working
staff.

45. In working this establishment a staff of two men and a horse would have to collect and cleanse the pans and defecate their contents. A weekly collection would have to be made from every house, the pans removed being replaced by clean ones; the pans would have to be emptied at the depositing place, and properly cleansed and deodorised; the material collected would have to be covered over with earth, and stacked when dry and deodorised ready for use as manure. No nuisance need be made by these operations if a little solution of sulphate of iron be used, or any other cheap deodorant. The yearly cost, with interest on the outlay for preliminary work, &c., would be about £260—being about 15s. a year on each house served. If any of the manure could be sold—and as it should contain the blood and offal from the public or private slaughterhouses, it would be a rich fertiliser—the yearly cost would be much lessened.

Cressy and
Bishops-
bourne.

46. Cressy and Bishopsbourne are both too far from Longford to be included in the above arrangement, and are each too small to support the cost of a similar one. Perhaps it would be possible to make a contract with some one in each neighbourhood to effect the periodical removal and deodorisation necessary, at a moderate cost.

Financial Arrangements.

Providing
necessary
funds.

47. The practicability of most of the suggestions made in this Report greatly depends upon the solution of the question of how the necessary funds are to be provided. The importance of enabling local administrations to carry out necessary works without unduly burdening the ratepayers has been everywhere acknowledged, and nowhere more than in England. Practically speaking, the whole of the money spent there on sanitary work has been advanced on loan by the Government to local, urban, and rural authorities. These authorities, both here and elsewhere, can only obtain the necessary funds by borrowing, and the central Government can always get loans at lower rates than they. In the foregoing estimates it has been calculated that the Government could get money at four per cent., and would advance it for permanent works to Local Boards at five per cent.—a rate that would cover the original interest and form a sinking fund repaying the advance in 40 years. Local Boards would thus be enabled to do work that now, for lack of funds, cannot be done, though of the greatest necessity. And ratepayers would share the burden, as well as the advantages, of these works with their successors; and furthermore would know that their money was not being uselessly wasted, as the works would not only have to be approved beforehand, but would have proper supervision during construction.

48. In connection with all matters referred to in this Report, I shall be happy to furnish you, or the Local Board of Longford, to whom, I presume copies of it will be sent, with any further explanations that it is in my power to give.

I have the honor to remain,

Mr. President and Gentlemen,
Your faithful Servant,

A. MAULT.

Central Board of Health, Hobart,
9th December, 1886.

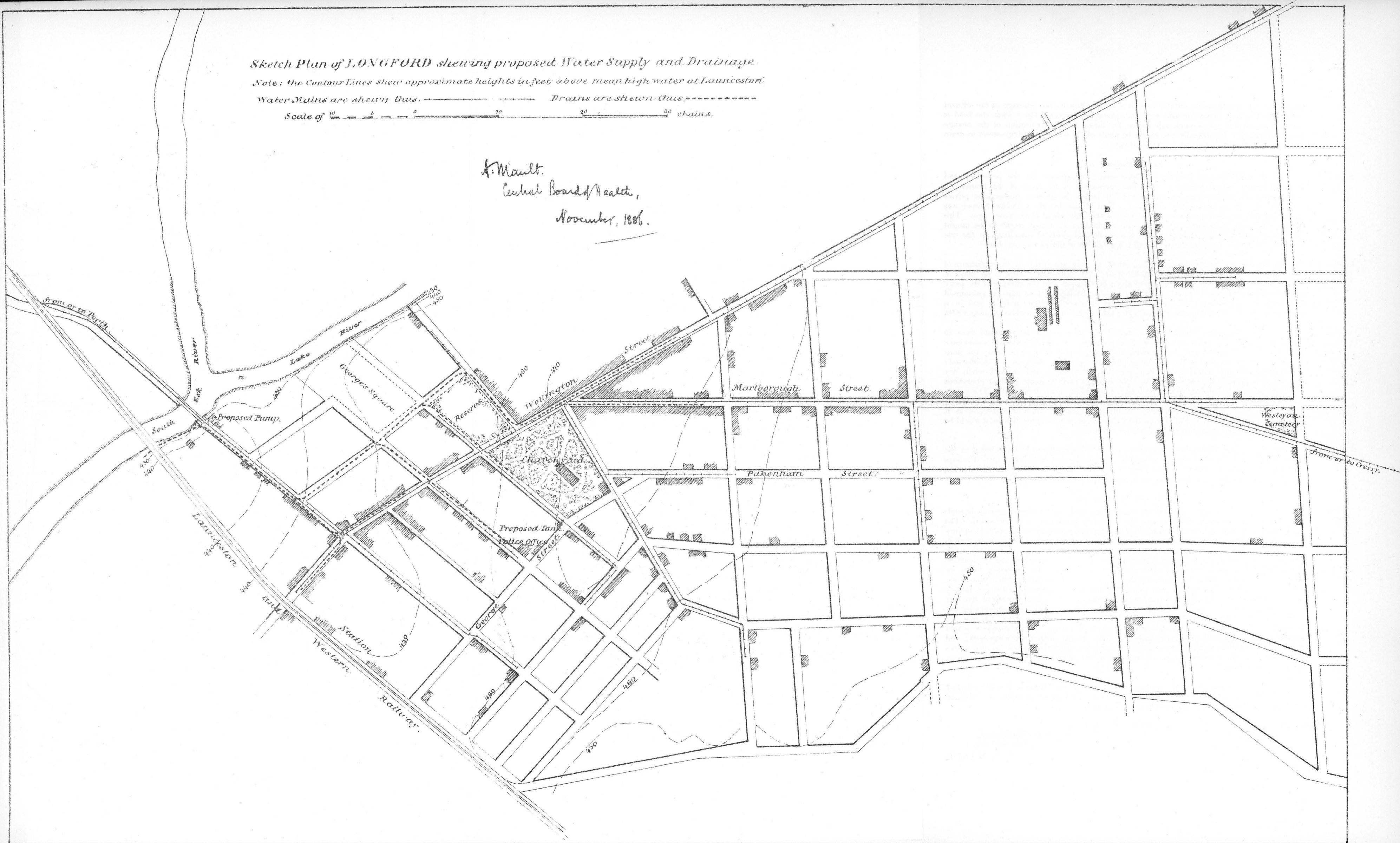
Sketch Plan of LONGFORD shewing proposed Water Supply and Drainage.

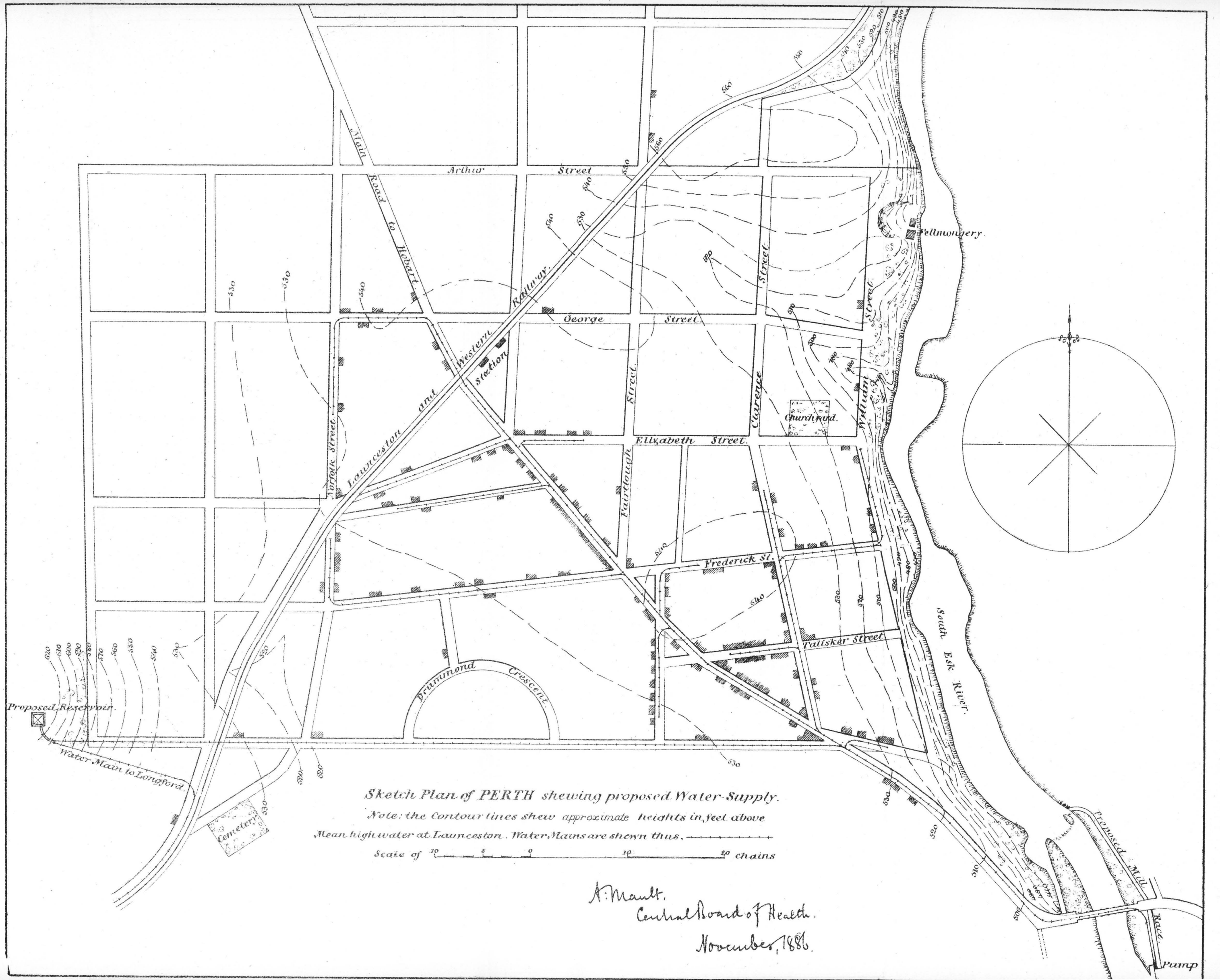
Note: the Contour Lines show approximate heights in feet above mean high water at Limerick.

Water Mains are shewn thus, ————— Drains are shewn thus, - - - - -

Scale of 10 5 0 10 20 30 chains.

A. Maule.
Central Board of Health,
November, 1886.







Municipality of Longford. Sketch Plan of Water supply.

Note: Water mains are shown thus - - - - -

Scale of $\frac{1}{4}$ miles.

A. Mant. Central Board of Health.

November, 1886.

T A S M A N I A.

R E P O R T

TO THE

CENTRAL BOARD OF HEALTH,

BY

ALFRED MAULT,

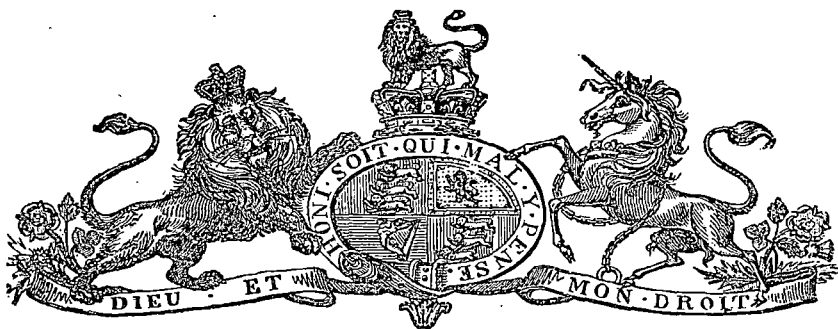
Engineering Inspector to the Board,

ON THE

SANITARY CONDITION

OF THE

MUNICIPALITY OF BRIGHTON.



Tasmania:

WILLIAM THOMAS STRUTT, GOVERNMENT PRINTER, TASMANIA.

1887.

The Secretary of the Central Board of Health, to the Worshipful the Warden of
the Rural Municipality of Brighton, Chairman of the Local Board of Health.

SIR,

IN accordance with a Resolution passed at a Meeting of the Central Board of Health, held on the 30th of December, 1886, I have the honor to forward to you copies of the Report of Mr. Mault upon the Sanitary Condition of the District under the administration of your Local Board,—more especially having reference to the recent prevalence of Diphtheria. The Central Board will heartily second all proper precautionary measures that your Local Board may adopt with a view to prevent the recurrence of the disease that has been so fatal in the district.

I have the honor to remain,

Sir,

Your obedient Servant,

W. H. GRAHAM, *Secretary.*

Central Board of Health,

Hobart, 2nd January, 1887.



*REPORT upon the Sanitary Condition of the Rural Municipality of Brighton,
having special reference to the recent prevalence of Diphtheria there.*

To the President and Members of the Central Board of Health.

MR. PRESIDENT AND GENTLEMEN,

IN accordance with your instructions, I have visited various parts of the Rural Municipality of Brighton with the object, more particularly, of enquiring into the causes of the recent outbreak of diphtheria there, and beg to make the following report:—

2. The population of the Municipality is scattered among a number of townships and villages, of which the principal are Pontville, Brighton, Bagdad, North Bridgewater, Broadmarsh, Elderslie, Black Brush, the Dromedary settlement, and the Tea Tree. Most of these are situated upon the River Jordan and its tributary streams, from which they derive their water supply, with a supplementary provision from rain-water tanks.

3. Though draining a very large area of land, the Jordan and its tributaries are in dry weather reduced to being only a succession of apparently stagnant water-holes. Most probably there is an underground flow connecting and supplying all these water-holes, but, nevertheless, the water in summer is not of good quality. Not only are the stream-beds the ultimate destination of much of the drainage from the houses and farm-yards on their banks, but the water-holes are used for doing such of the sheep-washing as is still practised. As this takes place in the dry season, the water is all the more polluted by it.

4. Pontville, at the crossing of the Jordan by the main road from Hobart to Launceston, is the principal town of the Municipality. The natural slope of the ground favours the drainage of the houses into the river. Most of the houses have privies with cesspits, and among the most offensive of these cesspits are those connected with the Epsom Hotel and the adjoining house. The privies here form part of a building directly connected with the houses, and are said to have been in a most offensive condition for some time past. In 1882 there was a fatal case of diphtheria in the above-mentioned adjoining house; and in July of this year there occurred in it what most probably was the first case of the present season, and one from which all the others can be traced by a connexion more or less direct and unbroken.

5. This case was that of Samuel Devereux, a child of 5 years of age. On the 21st of July the child was taken to Hobart and seen by Dr. Crowther, who says that his impression is that it was then suffering from some laryngeal affection. It was being taken again to Hobart on the 26th of the same month, when it died in the railway carriage when near South Bridgewater station. It was taken home, and while lying there the body was visited by many of the child's schoolfellows. It is said they were not allowed to kiss the corpse, but Mr. Thomas says that his daughter—hereinafter mentioned—did kiss it. It was buried in the Catholic Cemetery, part of the funeral service being held in the church, which is also used as the day and Sunday school of the Catholic children of the district. The death was registered as resulting from "Mumps," and consequently the parish priest, Father O'Regan, had no idea of any danger attending the introduction of the body into the church and school. He now refuses to allow the bringing in of any coffin.

6. After the death of the child, Mrs. Devereux and her family were taken in at the Epsom Hotel, and stayed there some days. While they were there a girl of 17, named Henry, came as servant, and stayed about a week. It is said that she was not in good health on arriving, but the evidence as to this is conflicting. If she was ailing, she was probably all the more susceptible to infection. After about a week she became too ill to do any work, and left for her home, about nine miles away on the Dromedary,—a most ill-advised proceeding. This home is a small wooden cottage, perched 1100 feet up the mountain, in a position almost inaccessible for steepness, and on a damp slope which loses the sun at 3 o'clock in the winter time. The cottage looks comfortless enough for such an invalid, especially as there is no glass in the windows. After taking 10 hours to walk the

nine miles, the girl got to this house after dark, voiceless and exhausted, and remained there, no doctor seeing her, until her death on the 14th August. Her death was registered as due to quinsy, and her body was carried to the Catholic Cemetery at Brighton for burial, after being taken into the church for part of the funeral service, as in the preceding case.

7. The attention of the police having been aroused by this case, two more of the Henry children were found to be ill with diphtheria, and were removed to the hospital at Hobart in a special conveyance, and the cottage was thoroughly fumigated. These children recovered, and are now at home.

8. Among the children who attended the day school held in the Catholic church were those of Mr. Thomas, the Brighton railway station-master above mentioned, two of whom were taken ill, and were seen by a local vendor of homœopathic medicine and treated for quinsy. One of these children, Amy, died on the 17th September, and the death was registered as caused by quinsy; but the other child, being removed to the hospital at Hobart, was found to be suffering from diphtheria. The dead child when laid out was visited by her schoolfellows and playmates, about 40 in number it is said, many of whom were allowed to kiss her lips. The child taken to the hospital recovered.

9. Among those who visited Amy Thomas, when dead, were the daughters, one about 17 and one younger, of a neighbour named Bass. The younger also attended the Catholic school. These both had diphtheria, and were treated in the hospital at Hobart. The younger died there on the 20th October, and was taken home for burial. When laid out her schoolfellows visited the body, and the sad ceremony of the parting kiss was again permitted. The elder daughter recovered.

10. A young storekeeper, of Pontville, Mr. Hoare, was a friend and frequent visitor at Miss Bass's. He caught the disease. Two of his sisters kept house for him, and in turn catching it, went home to their parents, who lived at Elderslie, at the upper end of Broadmarsh, where one more of the family caught it. These three were all sent to the hospital at Hobart, where one died on the 15th November, and the other two were discharged cured. Since their return another brother has contracted the disease, and is now convalescent at the hospital. Mr. Hoare, senior, has undertaken to have his house, which is well situated and cleanly kept, at once thoroughly fumigated.

11. A person named Mrs. Purcell, who lives in the neighbourhood of the Thomas and Bass families, who makes her living as a charwoman, is said to have gone about the houses of some of the above-mentioned sufferers from diphtheria. She herself included Mr. Thomas's house, but Mr. Thomas denies this. In the early part of October Mrs. Purcell went and stayed for a week in the house of Mr. F. Oakley at Tea Tree. I agree with Dr. Turner, of Richmond, in his description, in his letter of the 19th October, of Oakley's house and its surroundings. There is nothing that seems likely to offer an originating cause of diphtheria. But immediately after Mrs. Purcell's stay diphtheria broke out among the children—five of whom suffered from it—one being a fatal case. Every precaution is now being taken in the house.

12. In the family of Miss Halley, the mistress of the school held in the Catholic Church, there has also been a case of diphtheria—her niece, named Crowder, having contracted the disease after seeing some of her schoolfellows above mentioned. The child is now convalescent.

13. Between all the above cases there appears to have been an unbroken connexion. When the disease first occurred everything seems to have been done to facilitate rather than check its spread, and under the circumstances the wonder is not that there were so many, but that there were so few cases.

14. The following table gives the particulars of this group of cases :—

No.	Date.	Name.	Number of Patients.	Deaths.	Probable Cause.
1	July, 1886	Devereux	1	1	Insanitary condition of house
2	August	Henry	3	1	Living in same house with the Devereux family
3	September	Thomas	2	1	Visiting and perhaps kissing No. 1 after death
4	Sept. and Oct.	Bass	2	1	Ditto, ditto, No. 1 and No. 3 ditto
5	Oct., Nov., & Dec.	Hoare	5	1	Visiting No. 4
6	Oct. and Nov.	Oakley	5	1	Charwoman coming to stay after having been at Nos. 1, 3, and 4
7	Nov. and Dec.	Crowder	1	—	Visiting Nos. 1, 3, and 4
		Total	19	6	

15. What appears to have been an isolated case of ulcerated sore throat, originating from local causes, occurred in December at Bagdad, at Mrs. Webb's. In front of the stables and out-houses near her dwelling there is a very foul pond, likely enough to cause disease, and one of her children has been received into the Hospital at Hobart suffering as above-mentioned. The pond is to be drained and filled up.

16. There can be no doubt that the sanitary condition of the whole Municipality, which is otherwise very favourably situated in regard to healthiness, is seriously affected by the unsatisfactory nature of its water supply in summer. The character of this supply has been already alluded to, and it certainly would be improved if the Municipal Council would strictly enforce its own by-law relating to river and stream pollution, duly passed, approved, and gazetted in March, 1877. Probably a due examination of the streams in the district, especially of the Dromedary Rivulet, and others rising in the higher lands, would show that a constant supply could be obtained to furnish the district with water by gravitation at a moderate cost.

17. Another source of disease will be removed by the due enforcement of the Municipal Council's by-law relating to drainage and cleansing of lands and buildings, and the provisions of the Public Health Act in that behalf. Some of the houses are badly situated in regard to the neighbourhood of nuisances, and some are themselves, in their present condition, not fit for human habitation. Among these is the constable's house in the police lock-up, consisting of a kitchen, living-room, and bedroom, not one of which is weather-tight. Most of the ceilings have fallen off. The living-room is only lighted by a small fan-light over the door, and consequently the door itself has to be kept open all day. I understand the Municipal Council has already drawn the attention of Government to the condition of this house. Something should be immediately done.

18. But the most deplorable case was at the cottage of William Shearman, the milkman, at Mr. Martin Keating's, at Upper Broadmarsh. This is a cottage of two rooms, of which only one is occupied; the other having no floor, is used as a potato and rabbit-trap store. The room occupied is 12ft. long, 10ft. broad, 6ft. high to the wall-plate, and open to the shingles of the roof. The walls are of rough upright slabs, and most of the joints between them are open, as the strips that originally covered them are gone. The window opening, 2ft. square, has no sash and no glass, a few boards being nailed across, with joints sufficiently open to let in a little light. The floor is of rough slabs, like a piece of badly made corduroy road, which it is impossible to ever properly clean, and it looked as if the effort had not even been made. In this single room Shearman, his wife, and seven children live and sleep. It is situated on the border of the yet uncleared bush land of the farm. There is a waterhole, used also as a washing-place, in the paddocks in front, about 200yds. from the cottage. There is no privy.

19. On my first visit the mother and children hid themselves in the bush, so the cottage was examined in their absence. Though perhaps outside my immediate duties, I put on record what I saw, as it may help the local authorities in the efforts they have made, and are still making, to better the condition of things in this case. The furniture in the only occupied room of the cottage consisted of a wooden bedstead with a boarded bottom, upon which were a few dried fern fronds and a few sacks, not sewn together to form bedclothes, but simply loose sacks. This bed occupied the corner opposite the entrance door. Another corner was occupied by another bed formed of a few rough slabs placed on stones to raise them about 6in. from the floor, and having only a few loose sacks without any mattress of ferns. There was a small wooden table near the boarded-up window, one broken stool, a camp oven, a broken iron pot, a billy, a tin teapot, a horn lantern, a small wooden tub, evidently used for mixing flour, a small sack of flour, eight cups and a tin pannikin, and two saucers, but no plates, knives, forks, or spoons. On the low bed there were a cat and four kittens; and two fowls were also in the room, and outside was hanging a cage extemporised out of a small box, and a very tame pigeon in it. The ground round the house had been cleared for a garden, and had evidently been cultivated some years ago, as there were self-sown potatoes still growing here and there; and there were a few dead bush plants that had been set in broken boxes.

20. The next day, by making my approach through the bush behind the house, I succeeded in finding the family at home. The mother had whitewashed the room walls, and was engaged in whitewashing the slabs outside, and the splashes of lime on her skin, and hair and clothes,—which I will not describe,—gave the finishing touch to her unwashed, unkempt, and uncared for condition. The eldest child, a girl of about 14 years of age, was decently clad and clean, as it was well she should be, seeing that she had to take her father's dinner to him down at the farm every day. The rest of the children, from a boy of about 13 to an infant of two years of age, had no clothing except bits of sacking tied about them with string. The roughest of the refuse that had been littering the floor on the previous day had been carried out, and was being burnt in a great heap in the garden.

21. As long as these children are well, and in fine weather, they certainly thrive and enjoy the wild life they are leading. In bad weather they must be miserable, and I saw some of them cowering in the wide open fireplace of the cottage, doing penance, poor things, literally in sackcloth and ashes, for the faults of their parents. The father is said to be a hard-working old man; the mother

is comparatively young—seemingly about 35—evidently doing nothing she can help doing, and said to spend her time in the bush, or fishing in the Jordan. Both are said to be sober. Clothes have occasionally been given, and have been worn without mending until they dropped off or were pulled off by bush and brier.

22. Shearman was employed on the farm, and occupied the cottage before Mr. Keating bought the property, about seven years since. Mr. Keating told me that he had never been in the cottage, and would do nothing to it as long as Shearman lived there, as he was sure it would be useless, and consequently if I reported it unfit for human habitation he would send the occupiers away, and close the place. Something must certainly be done, as such a family cannot be allowed to go on promiscuously herding together in one small room, but that something should not consist in the dismissal of a hard-working man from his employment, and the throwing of his children on the public charity.

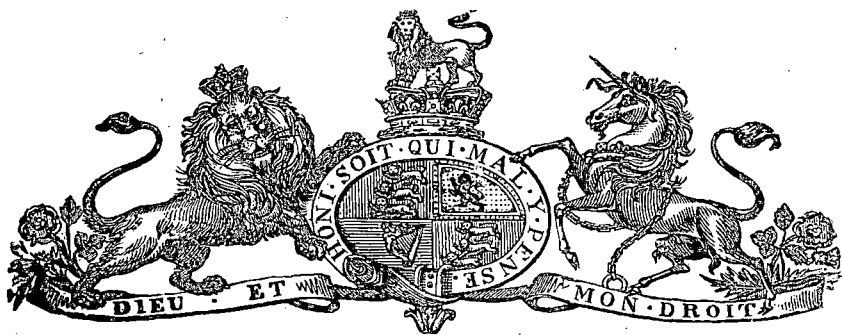
23. While at Pontville I had occasion to visit the public school, and was pleased to find that Mr. Ball, the master, was taking precautions to guard the health of the pupils during the prevalence of diphtheria in the neighbourhood. The latrines are not well constructed nor situated, but they are kept dry with the proper use of earth, and are disinfected with the continual application of carbolic acid. It would be well to reconstruct these closets with movable receptacles, as any drainage flowing from the present cesspool must certainly run into the river. The class rooms are well ventilated, and sprinkled every other day with carbolic acid.

24. I have to thank the Warden, the Council Clerk, the Inspector of Police, and some of his officers, especially Constable Marshall, of Elderslie, for the assistance they so courteously and continually gave me.

I have the honor to remain,
Mr. President and Gentlemen,
Your faithful Servant,

A. MAULT.

Central Board of Health of Tasmania,
Hobart, 30th Dec., 1886.



REPORT upon an Outbreak of Diphtheria at Brunî Island.

To the President and Members of the Central Board of Health.

MR. PRESIDENT AND GENTLEMEN,

IN accordance with your instructions I visited Brunî Island, for the purpose of inquiring into the circumstances connected with the recent outbreak of Diphtheria there.

2. The whole of the cases of diphtheria that have occurred at Brunî have been in the family of Mr. J. Denne. Mr. Denne lives in a large house, dry and well situated on a sandy hill overlooking the estuary of the Derwent and D'Entrecasteaux Channel, and about a quarter of a mile from the beach. There is, and from the nature of the soil can be, no stagnant drainage from either the house or outbuildings. There is a pool of clear water adjoining the beach, but it is not offensive in any sense. The water supply is derived from large rain-water tanks, that are well kept. The privies are in good order, and well removed from the dwellings; and there is nothing about the house that suggests itself as being in any likelihood a source of diphtheria or other similar disease.

3. Mr. H. Denne, who lives with his father, had a child who appears to have been constitutionally subject to affections of the throat, and was otherwise weak. This child was under the medical care of Dr. Crowther, and was taken to Hobart on the 20th November to be seen by him, and returned home on the 22nd. At home it became worse, and Dr. Crowther was sent for, and found that the child was then suffering from diphtheria, from which death ensued on the 25th. The body was taken by steamer to Kingston and buried in the church-yard there on Saturday, the 27th. The church, which is also used as a Sunday-school, was fumigated, and no school held on the following Sunday. No cases of diphtheria have since occurred at Kingston.

4. Two other grandchildren of Mr. J. Denne's in the house at the time, one being also a child of Mr. H. Denne's, took diphtheria, and were taken to the hospital at Hobart, one on the 27th November, and one on the 17th December; they were successfully treated, and are now convalescent. At the house, all the instructions given by Dr. Crowther for disinfection have been, and are still being, carefully carried out; and every precaution is being taken to prevent the spread of the infection through postal letters or otherwise.

5. These circumstances seem to indicate that this outbreak of diphtheria did not originate in any defective sanitary conditions at Mr. Denne's. In all likelihood the child who died was, when taken to Hobart, in a state highly susceptible to diphtheritic infection, and while in that state was, either in the steamboat or in Hobart, unwittingly subjected to such infection. The disease being thus introduced into the house, the other two cases naturally followed.

6. These cases forcibly call attention to the conditions under which persons suffering from infectious diseases make use of public conveyances. The owners of the channel steamers are, practically speaking, compelled to convey such persons. In many cases their vessels furnish the only means whereby medical help can be reached; and they have often to convey these unfortunate passengers free of charge. They have no means of distinguishing infectious from other cases, and, consequently, have hitherto done nothing in the way of disinfecting their vessels after the conveyance of diphtheria or fever patients. They are quite willing to carry out the law whenever they are put in possession of the necessary information as to the infectious character of the disease of any of their passengers, and they are ready to take all necessary precautions in the conveyance of the dead. Most of the above observations also apply to coach and cab owners.

7. To remedy this state of things I would suggest that the Hospital Board be requested to instruct the gatekeeper to make an entry, in a book to be provided for the purpose, of (1) the number of every public conveyance bringing any patient to the Hospital, (2) the driver's name, (3) the locality from which the patient has been brought in the conveyance—for instance, from such a number in such a street, or from such a vessel in the harbour, or from such a coach, &c.—and (4) the patient's name: that when the nature of the disease has been ascertained by the proper medical officer, if it be infectious, that the Inspector of the Local Board or the police should be informed thereof, in order to see that all the public conveyances concerned, whether cab, coach, or steamer, should be properly disinfected as required by law. And, furthermore, all medical men should be requested as far as possible to do the same in regard to infectious cases brought directly to them. I understand that it has occurred at the Hospital that when the medical officer has been present at the reception of an infected patient brought in a cab, he has ordered the immediate disinfection of the carriage before leaving the Hospital grounds.

8. In conclusion, I have to acknowledge the assistance furnished, as willingly as usual, by Mr. Superintendent Harris and his officers. I have also to thank Captain Harrison for kindly taking me across in his boat from the Pilot Station to Bruny, and thus saving me much time.

I have the honor to remain,
 Mr. President and Gentlemen,
 Your faithful Servant,

A. MAULT.

*Central Board of Health of Tasmania,
 Hobart, 30th December, 1886.*