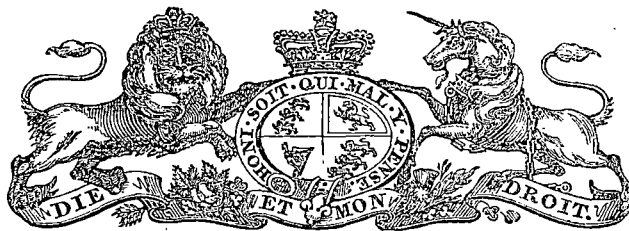


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PARLIAMENT OF TASMANIA.

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STRAHAN AND MOUNT ZEEHAN DISTRICT :

REPORT ON SANITARY CONDITION.

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



## REPORT ON THE SANITARY CONDITION OF THE STRAHAN AND MOUNT ZEEHAN DISTRICT.

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

GENTLEMEN,

By a Memorandum dated 4th February, 1890, addressed to the Hon. the President, the Hon. the Minister of Lands and Works drew attention to the neglect of sanitary precautions at the Mines about Mount Zeehan, and requested that an enquiry might be made by one of your officers. The Hon. the President accordingly instructed me to visit and report upon the locality. Edward H. Fowell, Esq., the Commissioner of Mines of the District, had already called attention to the same matter, and also to the condition of things at Strahan. I therefore arranged to make an inspection of that town on my way to Mount Zeehan. I have the honour now to submit to you the following Report, with suggestions as to the measures that should be taken.

### STRAHAN.

1. I arrived at Strahan on the 14th February. The town occupies the northern and north-eastern shore of Macquarie Harbour. The greater part of the township is laid out upon an elevated plateau covered with button-rush overlying sand and gravel. This plateau ends abruptly on the sea side with an almost precipitous escarpment, leaving a narrow beach which was to have been reserved as an esplanade, but which has been allowed to be occupied by private buildings. These buildings at present form the principal part of the town. On the button-rush plateau there are not many houses yet built. At the west end of the township there is low-lying swampy land on each side of the Duck or Manuka Rivulet, and here some of the principal houses are built, and others in course of construction; and as the railway station is to be placed here, probably many more houses will soon be put up. The fixed population is at present between three and four hundred, and is rapidly increasing. There are also continually many persons passing inwards and outwards, to and from the mines and railway works. The houses are at present all built of wood or of galvanised iron; but many of the floating population connected with the railway works are living in tents.

Description of town.

2. Most of the houses derive their chief water supply from tanks, storing the rain that falls on the roofs. Those living near the Duck Rivulet have to use its water in dry seasons. This water is of the usual brown colour of streams flowing through the peat of the button-rush plains, but is quite clear and well tasted, and it is very desirable that it should be kept quite free from pollution by house drainage. But the best drinking water is obtained from a spring of beautifully clear and bright water that rises on the beach at the east end of the township, and this spring is, from its position and surroundings, very liable to contamination. It is at present very inadequately protected by a cask let into the beach; the brim of the cask stands twelve or fifteen inches above the ground, and the water overflows even in the driest seasons. The wash-house belonging to one of the inns stands immediately above this spring, and slops therefrom may be thrown or splashed into it; cattle have free access to it, and children throw shells and other matters into it. I recommend that a proper cistern of masonry in cement be built round the spring, that it be covered over, and proper arrangements be made to deliver the water by a spout for domestic use, and the overflow into a trough for cattle, &c., and that the wash-house be removed.

Present water supply.

3. A few of the houses have underground drains, some directly running into the harbour, and some into a small rivulet running into the north-east end of it near the telegraph office. Many others of those standing on the Esplanade had surface drains running on the roadway and thence into the harbour, but most of these drains have been interfered with by the railway works. The

Present drainage.

houses on the swampy land at the west end of the town will naturally drain into the Duck Rivulet if special provision be not made to carry their sewage elsewhere. From what has been before said as to the comparatively high button-rush plateau over the town, with its abrupt escarpment at the edge of the esplanade, and of the sandy nature of its subsoil, it will be understood how the drainage of the plateau will naturally ooze out at the foot of the escarpment—that is, just behind the houses on the Esplanade. This actually occurs; and as the water is evidently still charged with an abundance of vegetable matter that quickly ferments and putrefies, special means are required for preventing its stagnation. Further reference will be made to this matter.

**Privies.**

4. There is one water-closet at *Gaffney's Hotel*. A few of the better class of houses—including those at the west end of the town—have privies with movable pails, which are periodically emptied, and the contents properly buried. But the contents of the privy pails of the greater number of the houses are periodically carried out by boats into the harbour and thrown overboard. Very few of the houses have proper receptacles for refuse.

**Details of inspection.**

5. Before making any further general remarks and suggestions, I beg to call your attention to the following details of my inspection, as they will partly explain the reasons for such suggestions. Generally speaking, the inspection was begun at the west end of the town, and proceeded eastwards along the Esplanade, and thence returning westward along the higher ground.

Stationmaster's house, now occupied by Mr. Hales, new and in good condition: drains into a tidal creek by an open ditch: the drain should be an underground one, as the ditch is very flat and will become offensive: water from roof.

Mr. Fowell's house is also new and in good condition: drains into the Duck Rivulet—this should be prevented: water from roof.

Mr. Moore's house is under similar conditions, and requires the same remedy as Mr. Fowell's.

There are two small cottages and two tents at the rear and side of Mr. Moore's: they have no privies: they get water from the Duck Rivulet: they have no drains nor refuse receptacles, and their slops and rubbish are thrown down about the doors.

The railway contractor's establishment consists of stores with lodgings for clerks, baker, butcher, &c., stables, bakehouse, and slaughterhouse: there are no privies: the bakehouse was clean, and so was the slaughterhouse, being quite new, but provision should be made for regularly and immediately burying the blood and offal. The stable manure was being allowed to accumulate close to the public road, and should be more frequently removed. In connexion with this establishment there were about 21 tents, occupied by railway navvies and operatives: there were no privies: slops and rubbish were thrown down promiscuously anywhere. As this camp is likely to be stationary as long as the railway work is going on, I spoke to the contractors as to the absolute necessity of organising a sanitary service for keeping it clean. Since my return to Hobart I have learnt that a case of typhoid fever from this camp has been admitted into the hospital. I thereupon wrote to the contractors reiterating the recommendation as to the immediate organisation of a sanitary service, and suggesting the adoption of the rules set forth in the 23rd paragraph of this report.

At the Public School on the Esplanade the schoolroom is clean. There is only one privy for master, boys, and girls, and, as there is no fence, it is also used by railway navvies and others. There is no playground, but adjoining the school there is a ti-tree swamp that should be drained, as it is covered with water in winter, and smells very offensively while drying up in summer. The railway bank in front has pounded up a small portion of the bay, and, though culverts are provided for letting the tide in and out, the place is sure to become unwholesome, to say nothing of its being dangerous to children; so it should be filled up from the adjoining bank.

At the Police Establishment on the esplanade the catchwater drain at the foot of the escarpment needs to be properly constructed at a lower level, with a good fall and proper outlet to the harbour. There should be sufficient drainage provided for the houses, with catchpits and gratings for the slops, as the road drains are stopped up by the railway works, and the gutters have become very offensive. The stables and manure heaps are on the road side, and drain directly upon it. The cells are in very fair condition and well ventilated, but the yard should be paved. There is only one privy for the two constables and their families and whatever number of male and female prisoners there may be in the cells. The constables' quarters need papering and whitewashing.

The *King River Hotel*, Mr. Symmons, is built on an occupation licence upon the Esplanade. The catchwater drain behind needs treating, as recommended above for the police quarters; the stable drains on to the street, and the manure is thrown on the foreshore part of the Esplanade. A pigsty built on the Esplanade was immediately done away with on my remonstrance, and prompt attention promised to other matters. The wash-house and kitchen also drain on to the street.

The *Macquarie Harbour Hotel*, Mr. Gaffney, and the adjoining stores, &c., are also built under an occupation licence on the Esplanade. The back catchwater drain requires the treatment above recommended: the water-closet, bath, and some of the house sewage is

taken by underground drains directly into the harbour. The house-drain at the back was very foul, and the drainage escaping under part of the house; an immediate remedying of this was promised, and a pigsty, built on the Esplanade as at the other hotel, was also immediately removed. At the privies beyond the billiard-room old kerosene tins are used, which, when full, are thrown with their contents into the harbour. The urinal is badly constructed, is close to the road, and, as no deodorants are used, is at times very offensive. The stable is also on the Esplanade, drains on to the street, and has an open manure heap at the side.

At the branch office of the National Bank of Tasmania there is no drainage and no privy; the manager, though he sleeps on the premises, virtually living at the hotel.

Mr. F. O. Henry's stores are built on his own land adjoining the Esplanade; the stables drain into the rivulet before-mentioned as running into the harbour near the telegraph office.

The telegraph office-keeper's house also drains into the rivulet.

Mr. T. Martin has a butcher's shop on the Esplanade: it was very clean.

Mr. T. Bennett's house and lodging-house have a drain running under them, which takes part of the drainage from the east hill, and, perhaps, at times, part of the drainage from the *Union Hotel* next door. It is said to cause a great nuisance. As the hotel proprietor's stable on the east hill will, if occupied, drain into this water-course, I would recommend that he should divert this drainage from going under Bennett's house and send it down the box-drain he has made from the hotel to the harbour.

The *Union Hotel*, Mr. Grining, is drained by the above-mentioned box-drain. The wash-house before mentioned, as standing close by the spring on the beach, should be removed.

The Post Office Keeper, Miss Grining, lives at her father's at the hotel.

Mr. Currie's cottage has no drains, and slops are thrown upon the Esplanade, the roadway of which is made no further than the Post Office.

Mr. Davey occupies a small dirty cottage, without drains and without privy; the slops are thrown on the Esplanade.

There is a box-drain taking the sewage from Mr. Matthews' house into the harbour.

There are also two tents on this part of the Esplanade, both without privy accommodation.

All the above properties are upon or fronting upon the Esplanade. The following are upon the east hill:—

Mr. T. Martin's house on the slope of the hill: no privy, no drains.

Mr. G. Belbin's house is in similar condition.

Mr. Grining's stable has been already referred to. It does not seem to be at present occupied.

On the opposite hillside, and on the button-rush plain before-mentioned, there are the following properties:—

Mr. F. O. Henry's house, in good sanitary condition.

Mr. Tenniswood's house (Mr. Henry's property), should have the back drain properly covered and catchpits and gratings fixed.

The same remarks apply to Mr. Taylor's house (also Mr. Henry's property).

Mr. John Bennett's house (Mr. Gaffney's property). Slops thrown on ground; privy in bad condition.

Mr. Gaffney's stables (8 stalls), with great accumulation of manure.

Mr. Herbert's house also belongs to Mr. Gaffney, and the same remarks apply to it as to Mr. Bennett's.

Also to Mr. Glover's house.

Mr. W. House's house also belongs to Mr. Gaffney. It drains into a ditch covered with slabs. The privy was overfull.

The above five premises drain into a gully that runs through Mr. Henry's property into the rivulet discharging into the harbour near the Telegraph Office, and in wet weather a nuisance is caused. Mr. Gaffney has tried to remedy it by putting in some drain pipes, but the drain should be continued to the rivulet. The premises mentioned are on the north side of Harvey-street. On the south side are:—

Mr. Norman's house (Mr. Gaffney's property), without drains:

Mr. Turvey's (Mr. Gaffney's), also without drains:

Mr. Gaffney's slaughter-house, which was in dirty condition with old offal lying about, and skins and bags of fat, which were very offensive. This slaughter-house drains in wet weather on to the Queen River Road. Mr. Gaffney is going to remove it.

At the western side of the button-rush plateau Mr. Gaffney is putting up a baker's shop and has two houses—

Mr. Jones's, which has no drains and no privy, and

Mr. Jackson's, in similar condition.

There is also an unfinished house belonging to Mr. Bantick.

6. The public cemetery occupies a portion of a button-rush plain to the south-east of the town, Cemetery overlooking the waters of the Harbour, and its position is satisfactory from a sanitary point of view.

7. I now go on to consider what should and can be done to better the sanitary condition of the Proposed town. From its emplacement and the character of its surroundings it is evident that for the present works.

there is practically no outlet for its drainage but the Harbour. Unfortunately, the Harbour in its present condition is very unsuitable for the purpose. At its northern end, where the town is situated, there is not more than nine inches of average rise and fall of tide, and the prevailing winds and currents seem to have a tendency to carry all drift material upon the foreshore—a considerable width of which is, notwithstanding the small rise and fall, left exposed at every ebb. The very small quantity of sewage now discharged into the Harbour, together with the soakage from the pigsties and manure heaps previously referred to, mixing with the dead seaweed thus exposed, already cause a great nuisance, which could only be aggravated if more sewage were discharged under present conditions. On the other hand, it is clearly beyond the capabilities of the town to go to the expense necessary to pump or otherwise divert the sewage so as to be purified before discharge. I think, therefore, that the only practicable provision that can be made to remedy this existing nuisance and prevent its aggravation is to hinder the exposure of decaying and putrescible matter by constructing the necessary work to ensure a minimum depth of three or four feet of water all along the foreshore in front of the town esplanade. This work would not entail a large expenditure, as the proposed railway embankment from the new jetty in front of Gaffney's would serve as the sea-wall for the greater part of the distance, the only additional work along this distance being the filling in between the railway and the present foreshore. The greatest depth of water in this interval is about four feet, and the mean depth not more than two feet six inches. The bank behind the Esplanade would everywhere furnish ample material, and close at hand, for this filling up. To the eastward of the new jetty, as very little filling up would have to be done to secure the necessary depth of water, the chief expenditure would be the necessary piling or concrete walling for the sea face. All this work is not only necessary from a sanitary point of view, but desirable in interests of the town, as it would correct any mistake or injustice that has occurred in connection with the occupation of the present Esplanade by private buildings. It would certainly be remunerative, as the prices obtainable for frontages along a new and wider Esplanade and for the fee simple of the land held on occupation licence on the present Esplanade, would more than pay for the work.

Henry's Rivulet.

8. In connection with the above work it will be necessary to deal with the rivulet running through Mr. Henry's property to the Harbour near the Telegraph Office. The course of that part of this rivulet that runs through the Esplanade ought to be straightened and culverted.

Water supply.

9. As regards the future water supply of Strahan, there are several small streams running into the bay to the eastward of the town, one or more of which, as they come from high ground, will be available for providing water that can be delivered by gravitation. The country through which these rivulets flow offers facilities for the construction of storage reservoirs. In the mean time care should be taken to protect the existing sources of supply—the spring by the work previously described, and the Duck or Manuka Rivulet by prevention of pollution, and by clearing it of much of the deadwood that prevents its flow and deteriorates the quality of its water.

Drainage and removal of refuse.

10. When the proposed work on the Esplanade is done, all houses fronting upon it, and all those on Mr. Henry's and Mr. Gaffney's properties, should have properly constructed and ventilated underground drains. Immediately a sanitary authority is constituted it ought to make arrangements for the periodical collection and burial or destruction of all house refuse, contents of privy pails, stable manure, and slaughter-house offal, &c., and for the prevention of all nuisances by a proper system of regular inspection.

Smelting works.

11. It has been proposed to establish smelting works at Strahan. The question of the proper emplacement of such works is of special importance in a community that derives its chief water supply from the rainfall on the roofs of the houses. I therefore examined the neighbouring country with the view of determining where such works could be best established; and I have no hesitation in recommending, both on sanitary and commercial grounds, that the land at the western and north-western ends of Long Bay be reserved for such works. With respect to the sanitary aspect of the matter, there is close behind the flat upon which works could be built high land on which the chimney shafts could be erected, giving a greatly increased elevation to them; and the prevailing north-westerly winds would carry the fume away from the town while they were blowing, and at other times the height at which it would be delivered into the air would be sufficient, with the high temperatures at which it is kept in the processes usually followed in Australia, to prevent its condensation and fall until it had reached a considerable distance. And with respect to the commercial view of the matter, there is a sufficiency of flat land, if properly divided, for several works. The site is within five or six hundred yards of the railway now being constructed, and could easily be connected therewith; and there is a deep water channel to within thirty or forty yards of the shore.

Sanitary authority.

12. Before my arrival a petition had been prepared, under the provisions of the Town Boards Act, praying for the proclamation of Strahan as a town under that Act. I had, therefore, no occasion to take any steps with the object of getting a Local Board of Health. As the petition, which was published in the *Gazette* of the 18th March, is signed by the great majority of land and householders in the township, the town will probably soon be proclaimed and a Town Board elected.

13. I have to return hearty thanks to Mr. Fowell, Commissioner of Mines and Stipendiary Magistrate, Mr. P. O. Heury, J.P., Mr. Moore, Inspector of Roads, Mr. Hales, Resident Engineer

of the Railway, and other gentlemen, for much courtesy and for the information their local knowledge enabled them to give me; and to Mr. Conlan, Superintendent of Police, who accompanied me in my inspection.

#### ZEEHAN.

14. I reached Trial Harbour on the 21st February, and Zeehan on the 22nd. The township of Zeehan, as laid out and partly sold in lots, occupies a button-rush plain at the junction of the Main Creek with the Little Henty River, about thirteen miles east of Trial Harbour, and at an elevation of nearly six hundred feet above mean sea level. But only one house, an inn, has been built upon it.

15. But a population of about 400, which number is constantly augmenting, has been gathered round the mines which are being worked, the principal settlement of which population is on the main road from Trial Harbour at about a mile and a half from the township that is laid out. This site is about fifty feet higher than the township, but is in its present condition very unfit for a settlement, as it is virtually an undrained swamp, heavily timbered, and covered with ti-tree and other scrub. In wet weather it is traversed by several streams, sometimes confined within slightly raised banks, and sometimes spreading over wide surfaces on their way to join the affluents of the Main Creek; and even after the long spell of fine weather that had prevailed when I saw it, the level of the "ground water" was everywhere within a few inches of the surface, and almost every hole stood full of black water. This settlement chiefly occupies land held under mining leases by the Mount Zeehan Mining Company and the Silver Queen Company; and, with I believe one exception, all the houses, stores, &c. are built on residence licences. All the houses are built of timber or galvanized iron, but the majority of the miners are still under canvas. There is no Public School.

16. Two affluents of the main creek run through the settlement, and are known locally as the Queen Rivulet and Dispatch Rivulet. They run constantly, and are the principal sources of water supply. Samples of water taken from them and from a well at the hotel were analysed last September by the Government Analyst, with the following result:—

Sample of Water.	1.	2.	3.	4.	5.
<i>Parts in a Million.</i>					
Free Ammonia .....	0.10	0.32	0.80	0.20	0.05
Albumenoid Ammonia.....	0.46	0.36	0.22	0.28	0.10
Nitrogen as Nitrates .....	0.08	0.00	0.29	0.37	1.13
<i>Grains in a Gallon.</i>					
Chlorine as Chlorides.....	1.20	1.20	3.80	1.20	3.00
Total Solids.....	6.00	6.50	9.00	4.50	30.00

No. 1 was taken from the Queen Rivulet, above the place where the water pumped from the mining shaft runs into it.

No. 2 from just below where this water runs into it.

No. 3 from a well at Mr. Anderson's hotel.

No. 4 from the Dispatch Rivulet.

No. 5 shows the limit of impurity in "usable water" fixed by Dr. Parkes (*Practical Hygiene*, Sixth Edition, 1883), and I have added it for the purpose of comparison.

It will be seen that, as far as the more dangerous elements of impurity are concerned, none of the waters analysed were good. I understand that in No. 2 no more than traces of lead were found, but it seems to show that it was polluted by the men working down the shaft. Mr. Anderson at once discontinued the use for drinking purposes of the well water when the result of the analysis of No. 3 was known, and has put up tanks for storing the rain-water from the roofs. Apart from their present condition, the waters of the two rivulets will in the future be more and more liable to pollution as mining work and settlement increases.

17. The following extracts from my notes, made during the inspection of the settlement, will give a general idea of the condition of things:—

*Mount Zeehan Hotel*, Mr. T. Anderson, has an underground drain to a water-course at back, now dry, but which has a good stream in wet weather. It has been cleared out through the property, but below it spreads out into a swamp and eventually drains into the Dispatch Creek. The piggeries are upon this now dry water-course, and must in wet weather add to the noisomeness of the swamp. Privies with cess-pits—holes dug into the ground—very wet and foul. Stables to be removed to new building, which will be drained into the above-mentioned drain. Details of inspection of settlement.

Policeman's hut and two cells (movable) have no privy accommodation.

Post office and house.—Privy with box over full. Stagnant water-hole and refuse heap close to back door.

Messrs. Nicholson and Eagle slaughter at an open place about a chain from the post office; some slabs over a trench leading to Dispatch Rivulet a few yards off. Abominable stench from blood, &c. in trench, causing great nuisance to post office, and all going to it. The butcher's shop on main road has open drain running partly under it (see next paragraph).

Messrs. Fowler and Company's house, store, and stable.—Privy with earth cesspit. The drainage is by open ditches, one beginning close to cesspit, and one running under part of the above-mentioned butcher's shop. These ditches deliver the drainage partly on the adjoining low swampy ground and partly into the ditch by the main road side, which latter ditch is in places nearly filled up with timber, rubbish, and earth.

Messrs. Jones and Hayward's house and store, &c.—No spouts, no drains, no privy, slops thrown on back yard, which is covered with refuse. The bakehouse on the other side of the road was clean within, but had open drain close at back, and a stable five yards off.

The Government Road Camp has tents for 11 men. It has been in the same place for more than a year, but no provision has been made for privies, nor for the disposal of slops and refuse.

**Mining settle-  
ments.**

18. I also visited the miners' settlements on the Mount Zeehan, Argent, Silver Queen Extended, Silver Queen, Montana, Silver Crown, Western, Junction, Evans's, Silver King, Silver Bell, Monte Christo, Silver Hills, Sunrise, and other claims at Mount Zeehan, and the Mount Dundas Prospecting Association's at Mount Dundas. The best sanitary arrangements were those made on the first-mentioned claim, where I noted—

Mount Zeehan Company.—Manager's house, 10 paling huts, 1 log hut, 1 tent, (about 33 men employed), two privies with cesspits, which were covered over from time to time and the privies removed. Manager has holes dug for slops and refuse, which are treated as the cesspits. The married men seem to take advantage of this arrangement, as the ground round their cottages was kept clean, but round the single men's huts there was the usual accumulation of the dirt and refuse of camp life.

The last part of the above note characterises the appearance of most of the camps. Where the bush is still uncleared close round the camp the men get into the habit of continually using it about the same place until it becomes very offensive; and sometimes while walking along a track the nose detects the nearness of the camp before any of the huts are seen. My suggestions as to the arrangements to be made and the precautions to be taken were invariably well entertained by both mining managers and miners, and I have to record my thanks for the great courtesy and kindness with which I was everywhere received and treated.

**Cemetery.**

19. There is no public cemetery in the District. One burial has taken place near the Comstock Company's mines. It is very necessary that a proper place should be at once selected and reserved as a burial-place for the district.

**Drainage.**

20. The most pressing need of the settlement from a sanitary point of view is proper drainage, not only to carry off the sewage and slops from the houses, but to dry the subsoil of the whole site upon which they have been built. To secure this I would suggest that the Despatch Rivulet be cleared out as far as is necessary to secure a good fall; that a nine-inch drain be laid down the main road and road to post office with outlet into the rivulet to take house slops, and every householder be compelled to drain his premises thereinto with proper sinks, catchpits, &c.; that at the back of the residence areas as deep a ditch as practicable be cut on each side of the main road to drain the subsoil, and that action be then taken under the 119th and 121st sections of "The Public Health Act of 1885"; and that all water-courses, whether constantly or intermittently flowing through the settlement, be properly cleaned out and all impediments removed. No house drainage should be allowed to pass anywhere but into the drain above mentioned, and the drainage passing through it could be treated for purification, if necessary, before its outflow into the rivulet.

**Water supply.**

21. Another urgent need of the settlement is good water. I believe an excellent supply of this could be obtained from the branch of the Queen Rivulet that crosses the main road about a mile from *Anderson's Hotel*. The mining claims that lie on the course of this rivulet above the point whence the supply would be taken are in the hands of companies whose shafts and principal works drain elsewhere, and consequently it might be easily kept free from pollution. More than sixty feet of pressure could be obtained, and the water might be brought, by contouring the hills, a great part of the way to the settlement in earthenware pipes, and thus much expense might be saved. This source would also serve for the township as laid out, at which place there would be sixty or seventy feet more pressure.

**Refuse dis-  
posal, &c.**

22. The proper disposal of house refuse; the substitution of movable pails for the obnoxious earthen cesspools of the privies now in use; the cleaning out and disinfection of these cesspools; the organization of a sanitary service in connection with the pails; the regular inspection of the District for the removal and prevention of nuisances; the provision of a proper site for a slaughter-house, as well as the matters alluded to in the preceding paragraphs, all call for the immediate attention of a local sanitary authority.

23. As the settlements of miners round the various mines are in many places likely to form <sup>Settlements round mines.</sup> permanent hamlets, it is necessary that the sanitary arrangements should be more complete than those required for a temporary camp. The nature of these arrangements should depend upon circumstances. Where the mining settlement is in the immediate vicinity of the town it ought to be treated as part of the town: where it is comparatively isolated in the bush I would recommend that special regulations, partly embodied in bye-laws, should be made. These regulations ought to include the following obligations:—

That for every four huts or tents there should be provided in a convenient place a privy (a *bush* privy would do) with a movable pail, to be emptied at least once a week, and the contents buried; or with a catchpit two feet deep, which, when filled to within nine inches of the level of the ground, shall be covered over with the earth dug out in forming it, and the privy removed to another place, where a catchpit shall be dug as before.

That one or more convenient places shall be reserved as ashpits in each mining settlement, and dug out as catchpits; and that all house slops, bones, meat-tins, ashes, and other refuse matters shall be thrown therein and nowhere else.

That such ashpits shall be kept so as not to be offensive in any way, either by periodically burning the contents, or by covering them and providing new ashpits, as described in regard to privy catchpits.

And the mining population should be informed as to the statutory provisions relating to the pollution of water-courses and water-holes, and should be recommended not to use water for drinking purposes except after having been recently boiled. I would further suggest that, in order to make the various mining companies, their local managers, and the residents upon the claims responsible for the carrying out of these regulations, they should not only be made as bye-laws by the local sanitary authority, but should be coincidentally approved and ordered under the 72nd Section of "The Mineral Lands Act, 1883," by the Commissioner of Mines for the District, as "arrangements for the prevention of nuisance and for the observance of decency."

24. With respect to the establishment of a sanitary authority to administer the Public Health <sup>Sanitary</sup> Acts in the district, as Zeehan has not been proclaimed a Town under "The Police Act, 1865," it <sup>authority.</sup> is not practicable at present to form a Town Board under the Act of 1884; and, were it practicable, the area reserved as a Town does not comprise that upon which the population is settled. As it is very desirable that in a community that is likely to be so important an one as that of which the nucleus is now gathered here, there should be a sanitary authority with full powers, including those for rating for road-making, drainage, and water supply, I would suggest that the area of the Township should be extended so as to include at least two miles of the main road to Trial Harbour, with a definite width of land on each side of it; and that, with this extended area, it should be proclaimed a Town under the 6th Section of "The Police Act, 1865." The residents would then be in a position to take the necessary steps to have it proclaimed a Town under "The Town Boards Act." Government has already so far recognised the importance of the Settlement as to arrange for building the police offices there, and not on the Township as laid out.

25. As all the above arrangements will take time to be carried out, I made arrangements to <sup>Local Board</sup> have a public meeting called to consider the question of the desirability of immediately forming a <sup>of Health.</sup> Local Board of Health. At this meeting the necessity for so doing was recognised, and seven gentlemen were elected as representing the whole district, including Mount Dundas, and as being fit and proper persons to be appointed by the Governor in Council as members of its first Local Board of Health. I would recommend that the district over which this Local Board should have jurisdiction should be, generally speaking, that part of the Police District of Macquarie that lies between the Pieman and Great Henty Rivers.

#### REMINE OR TRIAL HARBOUR.

26. Reminé, the Township at Trial Harbour, would be included in the above district. It <sup>Reminé, or</sup> has at present a fixed population of under fifty persons, but a considerable number of people are <sup>Trial Harbour.</sup> continually passing through on their way to or from the Mount Zeehan mines. The houses are of wood, and the site of the Township is upon the sand-dunes of the coast. The water supply is derived from the Reminé Rivulet, and seems to be fairly good. At the Government Buildings there are pail closets; all the other houses have privies, with cesspits dug in the sand. The worst feature of the place is the ti-tree swamp, on the edge of which *Webster's Hotel* is built. This swamp is always wet, and is very foul with slops and refuse from the house, horse-droppings, &c., and with poultry paddling about in it. The overflow from a water-race from the Reminé Rivulet, which supplies the hotel with water, runs through it. It ought to be drained, and could be very easily, and it could then be cultivated. The cheapest plan would be to cut a deep open channel to the outlet on the beach, with lateral drains through the marsh, and a pipe or box-drain to the hotel. As the open channel is necessary to the making and draining of Loatta-street and part of the Esplanade, I would suggest that the Government should undertake to make it from Waratah-street to the beach, and that the owners of the adjoining lots should then be called on to make the lateral drains. The work is one of absolute necessity. The swamp, in its present condition, is a constant source of danger to the hotel, where fever has already occurred, and to the entire township.

Cumberland  
reservoir.

27. While at Zeehan I was repeatedly told that the water in the reservoir on Mount Heemskirk supplying the works of the Cumberland and Montagu Mining Companies was chiefly collected from a bare granite country, and consequently was of very superior quality, and would afford by far the best water supply for the whole district. I therefore took advantage of a day's detention at Trial Harbour to walk up to the reservoir. It was empty; but the water of the stream that supplied it was dark-coloured, as the greater part of the reservoir and the area draining into it is covered by the peaty soil of button-rush plains and scrubby swamps. Before this reservoir could be made serviceable for domestic water supply, its basin would have to be cleared of this soil and vegetation, and the further cost of taking the water to Zeehan would be very great. So I adhere to the recommendation made in paragraph 21 as to the water supply of the district.

#### QUEEN RIVER.

Queen River  
mines.

28. A detention of two days at Strahan enabled me to visit the Queen River settlement. There is now only a small population engaged in gold-mining there; but miners' huts are numerous and in the usual condition, without privies, and with refuse lying about. I had not time to get on to the Linda Goldfield, so I cannot speak as to the condition of things there. But with regard to all mining communities living outside the jurisdiction of a Local Board of Health, I would suggest the desirability of the Central Board requesting the various Commissioners of Mines to take the action set forth in the 23rd paragraph of this Report in relation to the "arrangements for the prevention of nuisance and for the observance of decency," as they are empowered to do by the 72nd Section of "The Mineral Lands Act, 1883."

29. I left Strahan on the 8th of March, but owing to stress of weather and accidents did not reach Hobart till the evening of the 12th.

I have the honour to remain,  
Gentlemen,  
Your faithful Servant,

A. MAULT, *Engineering Inspector.*

*Hobart, 25th March, 1890.*