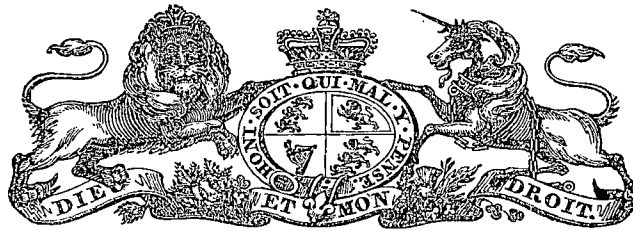


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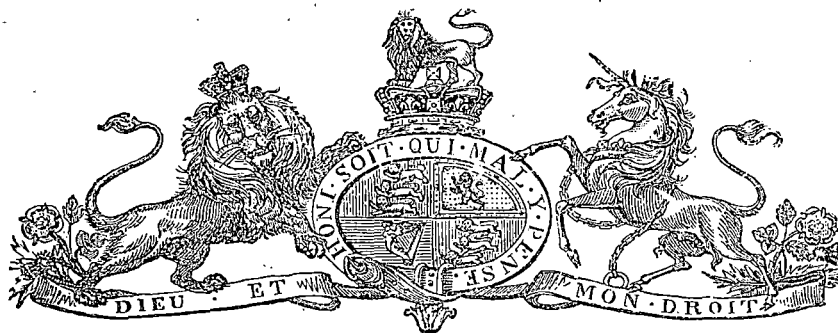
PARLIAMENT OF TASMANIA.

METROPOLITAN DRAINAGE BOARD:

OPINIONS OF THE CITY HEALTH OFFICER ON THE
PROPOSED SCHEME OF DRAINAGE.

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

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OPINIONS OF THE CITY HEALTH OFFICER ON THE PROPOSED SCHEME OF DRAINAGE.

THE following extracts from a speech recently delivered by Gregory Sprott, M.D., D.P.H., Health Officer for the City of Hobart, at a Meeting of the Metropolitan Drainage Board, with the accompanying chart, are published for the information of Honourable Members.

WATER SUPPLY.

In speaking to the Motion, I will confine my remarks to matters purely professional. I am frequently told our water supply is not sufficient for a system of sewerage, but I find that Sydney has been able to carry on a sewerage system with an amount averaging during the nine years of the existence of the Drainage Board of between 32 and 42 gallons per head. In the very driest season, I understand, we have never here been so low as that. As to the water supply of several other great cities, I may mention that at Munich the supply to the population is 33 gallons per head per day; at Brisbane, 33; London, 28; Liverpool, 19; Southampton, 35; Sheffield, 20; Edinburgh, 35; and Paris, 31; and seventy-two English and Scotch towns average 26·7 gallons per head of the population, including factories. Now in Hobart we have over 60 gallons per head. At Glasgow, the best drained city in the world, and managed on the most modern up-to-date principles, with an unlimited supply of water, they never exceed 50 gallons of water per head, and there they have closets in every house. If we had 25 gallons of water for these and domestic purposes alone, we would have sufficient. Fifteen gallons for domestic purposes only is ample.

NECESSITY OF DRAINAGE.

The necessity for a system of drainage for Hobart must be obvious to everyone whose duty calls upon him to visit the various parts and properties of the city. One finds not only a large number of properties insufficiently drained, and where drains exist they are badly constructed without any regard to ventilation or trapping. To continue the patchwork system of remedying these places is a costly affair to property owners, and is not really of permanent benefit. Nothing, in my opinion, will have the desired effect in subduing Typhoid but a comprehensive scheme which will ensure good drainage, properly constructed drains, and a better state of public health. And it will be a saving of money to the property owners in the long run. If the drains are bad, the pans and their odoriferous contents are no less disgusting. Many of the householders keep their pans in a sanitary condition, but the great majority of the people will not. The people generally are indifferent. What a difference with the W.C. system! It is then almost impossible for even careless householders to afford a menace to the health of themselves or their neighbours. The strength of the chain is its weakest link. You cannot watch these people, and you cannot make them do the things which are necessary with this disgusting pan system. The double pan system, so far as the system goes, is the best form of it, but you can never make it clean. The drainage system must be made as automatic as possible, so that the people cannot be dirty. I venture my medical opinion and reputation on this fact—that unless we get a proper sewerage system for the city the citizens can never hope to get rid of the Typhoid. It is the scourge of Hobart. There occur every year many deaths of men who leave widows and children—the support of whom has fallen upon the State—which would never have happened had preventive measures in the direction of better drainage been supplied. In a recent report to the Local Board of Health, I have drawn attention to the evil effects of soil pollution from surface gutterage, and the relationship it has to the prevalence of such diseases as Typhoid Fever, Diphtheria, &c. I have indeed no hope of ever reducing the death-rate from such diseases unless we go in for a different system of drainage from that now existing.

THE EFFECT OF DRAINAGE ON THE TYPHOID FEVER DEATH RATE.

I have taken some figures from various centres showing the effect of drainage on the prevalence of Typhoid Fever, which will be better seen on a chart now produced. In 1869 the deaths from Typhoid Fever were taken by the Registrar-General of England from amongst Fevers and classified as a separate disease.

The following Table shows the diminution in the death-rate of Typhoid Fever since that year in England and Wales:—

England and Wales.	
Years.	Average Annual Death-rate of Typhoid Fever per 10,000 living.
1869.....	3·9
1870.....	3·8
1871-1875	3·7
1876-1880	2·7
1881-1885	2·1
1886-1890	1·7
1891-1895	1·7

The effect of sanitary work on reducing the death-rate of Typhoid in England and Wales was well brought out in a report by the late Sir George Buchanan, medical officer of the Local Government Board. He took 25 towns in which such works had been carried out, and showed that in nine there was a reduction exceeding 50 per cent. in typhoid cases, and in 10 others a reduction between 33 and 50 per cent. Following up this report I have taken three important towns—Cardiff, Leicester, and Bristol—where the work was then just completed, but where the drainage system has since been perfected. The death-rate from Typhoid was as follows per 10,000 persons living :—

Typhoid Fever, Death-rate per 10,000 living.			
Period of Years.	1847-1854.	1859-1866.	1884-1888.
Cardiff	17·5	10·5	4·0
Leicester.....	14·5	7·7	2·2
Bristol	10·5	6·5	1·4

And you must not only look at the saving of life, but at the enormous amount of saving of sickness that is involved. For every one death from typhoid, 10 to 15 people are lying sick, and sick for three months. Over that time the bread-winner is very often laid up, and unable to earn anything, or to obtain the extra nourishment which should be provided to enable him to reach convalescence again; this point is important, and frequently lost sight of.

Leaving England, let us see the effect of drainage on the Typhoid death-rate in a Continental City—Munich—which has a population of over 400,000.

This Table will show the effect of drainage on the Typhoid Fever death-rate, more markedly than even the English Statistics—

City of Munich (400,000 population.)	
Years.	Average Annual Death-rate from Typhoid Fever per 10,000 living.
1851-1860	20·2
1861-1870	14·7
1871-1880	11·6
1881-1890	1·6
1891-1895	0·5
1896	0·3

Munich was a cesspit city till 1858; then all cesspits were made water-tight. From 1858 to '78 the soil was still polluted with household slops. In 1878 drainage was started, and since then the city has been gradually sewered, and water-closets have replaced the water-tight cesspits.

Now, let us look at Sydney with its sewerage system, and compare it with Hobart with its pan system and surface drainage for the past 10 years. Hobart is in a better position than Sydney naturally, with a temperature much lower, much better facilities for draining, and with a climate more favourable to health. Yet we find that taking Typhoid death rate for the two cities the returns are as follow per 10,000 persons:—

	Sydney.	Hobart.
1886	9.0	3.0
1887	5.8	22.0
1888	5.1	11.8
1889	5.5	12.8
1890	3.6	5.1
1891	2.8	16.7
1892	1.9	5.7
1893	1.8	2.5
1894	2.9	4.8
1895	1.9	5.8

So you see, since Sydney has been drained, the Typhoid rate has become gradually reduced from 9.0 to 1.9. But in Hobart it has been continually going up and down. These figures speak for themselves, and are a guide to what we in Hobart may reasonably expect by the introduction of a drainage system.

EFFECT ON CITIZENS AND VISITORS.

I have alluded to the deaths and sickness among families; you have also to consider the terrible bereavements and loss of affectionate fathers and mothers that nothing in this world will replace, caused by the preventible Typhoid. I believe the citizens in general are in favour of a system of drainage, and if you can make Hobart clean, thousands more people will flock here every summer. I can state publicly that when H.M.S. *Wallaroo* arrived the surgeon came to me before he would allow anybody to land, to ask my opinion if it was safe to allow the men to come ashore, having been told in Sydney that Hobart was a plague-stricken place. I said "Yes, certainly, let them come in; I see no particular danger." Then he came to me when he went away, and said he never had a man sick in Hobart all the time he was here. But that shows you what a bad name Hobart is getting on the other side of the water, and who can tell how many people have been deterred from coming here to spend their holidays and money during the last few years by these exaggerated reports of the state of things existing here.

RIVER POLLUTION.

I am continually told that the River Derwent would be polluted by the sewage going into it. I do not believe that. The Derwent should be regarded as an arm of the sea—a great tidal water—and would not be polluted by such an amount of sewage carried into it in a state of solution. The drainage from Glasgow goes into the Clyde, which is far narrower than the Derwent, and if hereafter it should be found necessary to treat the sewage before it enters the river it can be done very inexpensively by the new bacterial treatment. And you must not forget that at present some hundreds of water-closets and the whole of the household slops are discharging into the river, and the Sandy Bay people don't complain of that. When this drainage goes into the river in solution it will not be a worse state of things than the present. All the sewage would be immediately in circulation in the great volume of water, and, as Mr. Napier Bell says, in his report, "by the time it reaches Battery Point, or Sandy Bay, it would be so diluted with sea water that it is useless to consider the question of pollution from it."

CAUSE AND PREVALENCE OF TYPHOID IN HOBART.

Extract from the Annual Report (1897) to the Local Board of Health, Hobart, of the Medical Officer of Health (GREGORY SPROTT, M.D., D.P.H.).

Looking for the cause of Typhoid Fever one is struck with the regularity with which it appears and the absence of anything like epidemicity. Beginning during the month of December, it reaches its height of intensity towards the end of January, keeping steadily about the same till the end of February; then begins, slowly at first, to decline, till at the end of July it disappears almost entirely. Although water and milk supplies are frequent sources of epidemics, as evidenced by the recent outbreaks in Maidstone and Clifton, England, and a still more recent epidemic in Adelaide, in Hobart the source is neither our milk nor water supplies—a far more likely cause is the pollution of the soil. We know in the past the soil in Hobart has been polluted to an enormous extent by the cesspool system, and although that has been replaced by the pan system, the ground is still laden with organic matter, a condition "favourable to the vitality and multiplication of the Typhoid bacillus," besides, the surface drainage of to-day allows constant percolation through the soil, and with the return of the warm weather ground emanations of noxious matters pollute the atmosphere.

Bearing on this subject, the opinion of Sir Charles Cameron, the distinguished health officer of Dublin, expressed at the Sanitary Congress of 1896, is worthy of note. He states:—"He was satisfied that Typhoid Fever is a soil disease. In Dublin the ground had been saturated with organic matter, and until the Water Carriage System had superseded every other form of filth removal there would be no great diminution of Typhoid Fever." With that opinion many sanitarians agree, and I doubt not the prevalence of Typhoid Fever with us is due to our imperfect drainage and method of removal of the night soil. With all the improvements recently made in gutters and drains, there is still a large amount of soakage and soil contamination. And in spite of every care exercised in the pan system, there is still the one great objection—that the pan with its contents must remain exposed to the air on the premises for a week at a time—a defect which, I admit, is inseparable from the system, and impossible to remedy.

That the prevalence of typhoid is due to some local sanitary defect is evident from the following comparisons:—In the year 1896 for every 10,000 persons living in Hobart, 4·0 died of typhoid; Melbourne, 3·0; Sydney, 1·9; London, 1·4; England, 1·7; Hobart and Melbourne being the two cities, at this time, with surface drainage and the pan system.

THE TWO SYSTEMS COMPARED.

The relation between the several systems of the disposal of excreta and the prevalence of Typhoid Fever has often been the subject of inquiry, but owing to the dissimilarity of other conditions of population adopting the different methods, it has been difficult to arrive at any satisfactory conclusion. A recent report by the Health Officer of Nottingham on this subject is therefore of the greatest interest and importance. In Nottingham, while other conditions are uniform, there are three classes of houses, namely, those with (1) midden privies, (2) pans, and (3) water-closets. The Health Officer takes the average number of cases for term 1887 to 1896, and he reports as follows:—There was one case of Typhoid per annum for every 37 houses with midden privies; one in every 120 houses where pans were used; and only one in 558 houses provided with water-closets. Many of the first group are stated to be houses of a good character, while the water-closets are by no means confined to superior neighbourhoods.

Such facts as these should set the minds of those who oppose deep drainage and the water-closet system thinking. I am sure everyone interested in the welfare of the city must see the urgent necessity of a better system of drainage, and nothing but a comprehensive scheme will have the desired effect, namely, the reduction in the prevalence of Typhoid Fever, Diarrhœa, Consumption, and other allied diseases.

— ANNUAL DEATH RATE OF TYPHOID FEVER —
— PER 10000 PERSONS LIVING. —

