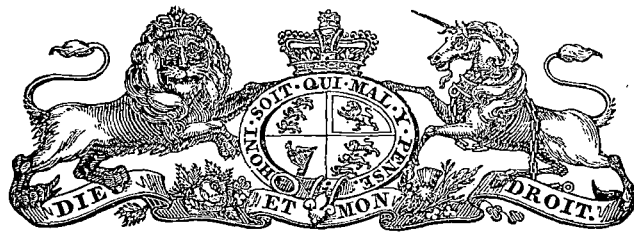


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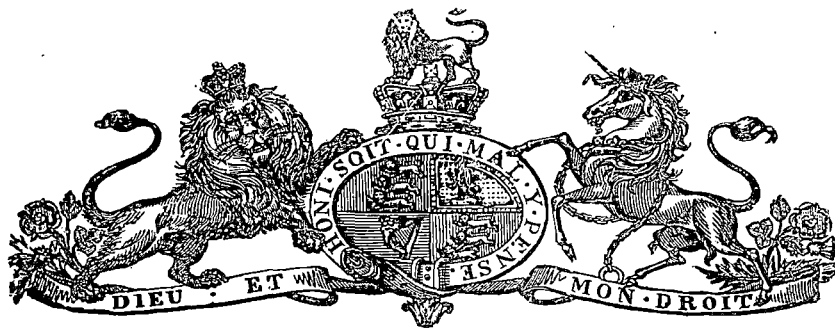
1887.

PARLIAMENT OF TASMANIA.

GOVERNMENT ANALYST:

REPORT FOR 1886.

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



REPORT of the Government Analyst for the Year 1886.

Government Laboratory, Hobart, 25th June, 1887.

SIR,

I HAVE the honor to enclose herewith a tabular statement of the examinations made in this Laboratory during the year 1886, with notes on some of the more important results obtained.

Much inconvenience, necessarily attended by delay, is still caused by the imperfect character of the present temporary Laboratory, and for this reason alone I would urge the erection of the permanent building for which provision was made by Parliament during the Session of 1885.

This building, at my earnest request, was, however, also to be adapted for teaching the Elements of Chemistry and allied branches of Science, both theoretically and practically, this being the usual first step in "Technical Education;" but the question was unnecessarily complicated and so delayed by a scheme for diverting the vote from its first purpose in order to found a Trade School—a very different matter, and one which should have run parallel with, and not counter to, my original proposal—for the scope of which I desire to refer to previous correspondence on the subject, commencing in September, 1885.

I have the honor to be,

Sir,

Your obedient Servant,

W. F. WARD,

*Associate Royal School of Mines,
Government Analyst.*

The Hon. the Chief Secretary.

STATEMENT showing Number of Analyses and Examinations made in the Government Laboratory during the Year 1886.

| <i>Substances examined.</i> | <i>For the Government.</i> | <i>For Municipal Districts.</i> | <i>For Private Individuals.</i> | <i>TOTAL.</i> |
|-----------------------------|----------------------------|---------------------------------|---------------------------------|---------------|
| Tea | 389 | ... | ... | 389 |
| Milk..... | ... | 2 | ... | 2 |
| Spirits, &c. | 9 | 1 | 9 | 19 |
| Tobacco | 1 | ... | ... | 1 |
| Water | 4 | 3 | 1 | 8 |
| Oatmeal | 1 | ... | ... | 1 |
| Salt | 6 | ... | ... | 6 |
| Lozenges | ... | ... | 2 | 2 |
| Raspberry Vinegar, &c..... | 1 | ... | 1 | 2 |
| Kerosene | 148 | ... | ... | 148 |
| Colouring matter | 5 | ... | 1 | 6 |
| Coal..... | 1 | ... | 9 | 10 |
| Minerals | 13 | ... | 28 | 41 |
| Gold and Silver | 6 | ... | 2 | 8 |
| Cement..... | 1 | ... | ... | 1 |
| Bone Dust | 1 | ... | ... | 1 |
| Gunpowder..... | ... | ... | 1 | 1 |
| Meat | ... | 1 | ... | 1 |
| Sundry, for Poison..... | 6 | ... | 1 | 7 |
| Clothing, &c. | 9 | ... | ... | 9 |
| Sundry | 3 | ... | 3 | 6 |
| TOTAL | 604 | 7 | 58 | 669 |

[NOTE.—Figures in brackets show the number of examinations made of each substance.]

TEA. (389.)

These samples were taken from shipments on arrival at the various Ports, and forwarded by the Collector of Customs. No fewer than fifty-three of these having been found to be more or less seriously adulterated, it was recommended that the consignments represented by them should not be permitted to pass into consumption in this Colony.

The Chief adulteration was, as usual, found to be the addition of partially exhausted leaves; but "Lie tea," excessive quantities of twigs (up to 16 per cent.), broken up and purposely blackened in order to render them less conspicuous, and the presence of much mineral and other matter suggesting tea-warehouse sweepings, were also detected. A change which greatly relieved the congestion in the work of the Laboratory, caused by the multitude of samples of this substance, was made in the month of May, the preliminary examinations being made by a tea-taster, and only the doubtful specimens being forwarded for further examination.

MILK. (2.)

One found to have been watered.

SPIRITS, &c. (19.)

Some spirits of wine was examined in connection with a prosecution for working an illicit still, and a "temperance drink" for the Collector of Beer Duties. Seven spirits of various kinds were referred by the Collector of Customs for determination as to the precise class in which they should pay duty, and some methylated spirit was found to be mixed with an insufficient quantity of wood spirits.

WATER. (8.)

Of four waters examined at the instance of the Central Board of Health, three were found to be foul, and the fourth of very doubtful character.

Three samples were also forwarded by the Sanitary Officer for Launceston. One of these, a subsoil water from the Swamp, being very foul.

A well-water was received, which contained no less than one hundred and thirty-five grains of solids per gallon, a considerable proportion of these being salts of magnesia, the continued medicinal action of which would be highly injurious.

SALT. (6.)

Forwarded by the Collector of Customs. The salt was imported as manure, but was found to be sufficiently pure to admit of its being used for pickling meat and similar purposes.

LOZENGES. (2.)

These were stated to have been adulterated with plaster of Paris, but were found to be quite free from that substance.

RASPBERRY VINEGAR AND CITRIC ACID. (2.)

The raspberry vinegar was found to have been manufactured without using either of the ingredients implied by its name. The citric acid, apparently intended for the manufacture of compounds similar to this, was fortified with sulphuric acid to the extent of about nine-tenths of a pint per gallon.

KEROSENE. (148.) COLOURING MATTER. (6.)

Five samples only were found to give off inflammable vapour at a temperature below 100° F., the standard "flashing point." Kerosene flashing below this point, and consequently more dangerous, is allowed to pass through the Customs if it be first coloured red; but the character of oil so coloured does not appear to be generally understood.

The colouring matters were experimented with for the purpose of testing their suitability to this end.

COAL. (10.)

These coals yielded from sixteen to thirty-six per cent. of ash and moisture taken together. The sample containing the lowest proportion possessed a heating power only about six per cent. below that of a good Newcastle coal, but the specimen forwarded for examination was very small, and evidently carefully selected.

MINERALS FOR GOLD, TIN, &c. (41.)

Only the examination of numerous portions of the auriferous "Iron Blow" on Mount Lyell, and of somewhat similar formations in the surrounding districts, need be specified. The results, so far, indicate that gold is present only where "barytes" or "heavy spar" is found intimately associated with the peroxide of iron—a conclusion also arrived at independently by the Inspector of Mines.

CEMENT. (1.)

Forwarded by the Colonial Architect.

GUNPOWDER. (1.)

The bursting of two or three guns was attributed to this powder, which was wrongly supposed to have been mixed with some "higher explosive." Examination proved it to be of the best quality, but quick-burning on account of fineness of grain. The guns in question were probably old, and the metal of the barrels in a state of "fatigue" owing to the strains of very frequent discharges.

BONEDUST. (1.)

This manure was forwarded by the Central Board of Health, Zymotic disease having developed after, if not in consequence of, its use.

No very definite results can yet be obtained from the examination of such a substance; but the damp and putrefying condition of the sample, consisting of bone on which much flesh had been left, indicated at least the probability of its emanations possessing general, if not special noxious properties.

Neither in this nor in any other case, however, is it necessary to suppose that the disease poison can have originated afresh, whether the view be adopted that a definite species of bacterium produces its own specific disease, or the suggestion be entertained that bacteria only act as carriers of infection when they themselves have become infected.

Inability to recognise the origin or to trace the steps in the course of an epidemic is no proof that channels of communication have not existed between present and previous cases, the immense bulk of evidence hitherto collected proving with all but absolute certainty that such communication, faecal in character, must have taken place in every instance. Recent painful experience has enforced once more the lesson that filthy surroundings to dwellings, whether in town or country, are dangerous to health and life; and an epidemic of Diphtheria in an English country district may here be quoted, where "many of the cases occurred in isolated houses in elevated and airy situations, *but surrounded by nuisances*," these "nuisances" acting as hot-beds for the increase of the diphtheritic poison, which "appears to be transported some distance by wind," but would, in the absence of a suitable seed-bed, pass harmlessly by.

Referring to the recent outbreak of typhoid fever in Hobart, I would specially direct attention betimes to the following re-quotation from Mr. R. M. Johnston's masterly paper on the "Death-rate," read before the Royal Society on April 19th:—"A year of pestilence, by its clearing away feeble lives, lightens the death-rate in years immediately consequent."

We may therefore expect for a year or two comparative immunity from this disease from the above and following considerations:—

1. Persons between the ages of 15 and 35 are more especially liable to be attacked.
2. Of these many have died, while hundreds of others have been protected by attack and recovery.
3. Of the remainder many must have been exposed to the poison, and resisted its influence, and so may be considered as but slightly susceptible; or they may even have received a protective inoculation.
4. The residuum between these ages for the fever to work on is thus very considerably diminished in numbers, and these again are still further reduced if the districts specially liable to infection, and not the

town as a whole, be considered. The effect of this temporary relief would only too probably be that sanitary effort both public and private would be relaxed, but the improvement would be noted with the remark, often made in connection with the recent outbreak, that "the sanitary condition remains practically the same,"—a point, however, which it is impossible to substantiate in the case of a disease which has over and over again become epidemic from the presence of a single case at a dairy or waterworks, or from a defect in a sewer or waterpipe.

MEAT. (1.)

Taken from the carcase of a diseased animal exposed for sale in the District of Deloraine, and found to be unfit for human food.

EXAMINATIONS FOR POISON. (7.)

These included the stomachs of a human being and three animals, one of the latter being a dog poisoned to facilitate a robbery.

Several substances were also examined in connection with an attempt to poison a wife by means of strychnine in pills.

CLOTHING, &c. (9.)

These examinations were made in connection with one charge of murder, and three of criminal assault, as to nature of stains. Nine or ten days were occupied in attending various Courts to give evidence on these cases, and a charge of poisoning.

Considerable restriction and compulsory registration of sales of poisons, the necessity for which measures had been pointed out in three previous Reports for 1883-5, were provided for by Act of Parliament during the year.

W. F. WARD, *Government Analyst.*