

VOTE OF THANKS.

Mr. J. McC. BROWNE moved a vote of thanks to the donors of the various presentations, and the gentlemen who had contributed papers; and said he had it as the opinion of a person in Melbourne, who was used to cattle generally, that the so-called cancer was not prejudicial to human life and health, nor was it regarded with so much apprehension as pleuro-pneumonia.

The ACTING CHIEF JUSTICE seconded the motion, for the purpose of saying that the Minister of Lands was entitled to some recognition from the society for the promptness with which he had shown his regard for the opinion of the society, as to what should be done for the preservation of ferns on the mountain. One remark he wished to add was that in Hobart they had two great advantages, the mountain and the river—the mountain on the one side, which they could enjoy at will, and the river on the other, which they could enjoy also, but which they could not enter to have a bath without paying for it. It seemed to him as if it was throwing away one of the greatest advantages which nature had given them. He saw the Minister was in favour of granting a new boating club a site for a shed, and he trusted the hon. gentleman would add to that another shed or hoarding, so that a swim or a wash could be had at any time free of charge, as the possession of such an advantage would be the means of adding to the health and manliness of the rising generation.

The motion was carried by acclamation, and the proceedings terminated.

SEPTEMBER, 1884.

The monthly meeting of the Royal Society of Tasmania was held on Monday evening, September 8. His Honor, the Acting Chief Justice, Mr. Justice Dobson, F.L.S., occupied the chair. There was an unusually large attendance of Fellows and visitors, the latter, including about 20 ladies, the Premier (the Hon. Adye Douglas), the Minister of Lands (the Hon. N. J. Brown), and other prominent gentlemen.

The following gentlemen having been previously nominated by the council, were duly elected as Fellows of the Society:—Rev. Geo. Clarke, Messrs. T. R. Atkinson, Leonard Rodway, P. Oakley Fysh, jun., Alfred Mault, Geo. P. Fitzgerald, W. P. Little, W. L. Boyes.

RETURNS, ETC.

The Hon. Secretary brought forward the usual returns, viz.:—

1. Number of visitors to the Museum.—August—Week days, 1,140; Sundays, 1,065. Total, 2,205.

2. Number of visitors to Gardens, 4,851.

3. Plants and seeds received at the Royal Society's Gardens during the month of August.

From the Botanic Gardens, Wellington, N.Z., 17 packets seed.

From Messrs. Heyne, Adelaide, 36 packets seeds.

From Baron Ferd. Von. Mueller, Victoria, roots *Nymphaea Gigantea*, etc.

From the Botanic Gardens, Rome (Lady Dry), 46 packets seeds.

From Mr. James Grant, Queensland, 18 packets seeds.

From Mr. J. Smith, Riddell's Creek, Victoria, 20 plants.

From the Botanic Gardens, Melbourne, 39 plants, 30 packets seeds.

4. Time of leafing, flowering, and fruiting of a few standard plants in the Royal Society's Gardens during August, 1884.

Library.

5. List of additions to the Library for the month of September.

Official introduction to Bahamas Fisheries, with a description of the Islands, by "Rebus."

Fishing and hunting on Russian waters, by Dr. C. Grimm.—From the Tasmanian Fisheries Commission.

Special catalogue of the Chinese collection exhibits for the International Fisheries Exhibition, London, 1883.—From the Tasmanian Fisheries Commission.

New Zealand Meteorological Report, 1883, including returns for 1880-81-82.—New Zealand Meteorological Observations. From James Hector, M.D.C.M.G.

Melbourne monthly record Meteorological Observations. From the Government Astronomer.

Statistical Register of the colony of Victoria for the year 1883, part ii. (Population). From the Government Statistician.

Results of Rain and River Observations made in New South Wales, by H. C. Russell, from the author.

New South Wales Physical Geography and Climate, by H. C. Russell, B.A., from the author.

The Victorian Naturalist, July, from the Society.

Tasmanian Statutes, Vols. 1 and 2.

Tasmanian House of Assembly Journals, Vols. 44, 45, from the Government Printer.

Tasmanian House of Assembly Papers, from Mr. F. A. Packer.

The Gardeners' Chronicle.

The Agriculturist.

The American Agriculturist.

The History of Tasmania, by J. Fenton.

An illustrated introduction to Lamarck's Conchology, London, 1827, by the author, E. A. Crouch, F.L.S.

Proceedings of the Linnean Society of New South Wales, Vol. IX., part 2nd, August, 1884, from the Society.

Catalogues.

Dulau and Co.'s catalogue of French books.

Dulau and Co.'s catalogue of medical works.

Dulau and Co.'s catalogue of botanical works.

Dulau and Co.'s Tourists' Guide Book.

Bibliotheca Geographica et Historia.

Catalogue of the library of the late Hon. John Macgregor, Melbourne.

Museum.

List of presentations to the Museum :—

Mammals.

A Tasmanian Tiger, *Thylacinus cynocephalus*, Mr. Wm. Turvey.

A Tasmanian Tiger, *Thylacinus cynocephalus*, Mr. J. R. Green.

Fishes.

A Parrot Fish, *Labrichthys* sp., Mr. W. L. Boyes.

Aliport's Perch, *Callanthias Allportii*, Mr. W. L. Boyes.

N.S.W. and N. Z. Trumpeter, *Latris ciliaris*, Mr. W. L. Boyes.

Birds.

1 Jameson's Gull, *Larus Jamesoni*.

2 Brush Wattle Birds, *Anellobia lunulata*.

2 Diamond Bird *Pardalotus punctatus*.

2 *Acanthiza diemenensis*.

1 Striated Calamanthus, *Calamanthus fuliginosus*

- 1 Ephthianura albifrons.
 1 Meliornis novæ-hollandiæ.
 1 Selby's Thrush, *Colluricincla Selbii*, by Mr. H. L. Swift.
 1 Firetail Finch, *Estrela bellus*.
 1 Striated Calamanthus, *Calamanthus fuliginosus*.
 1 Yellow-throated honeyeater, *Ptilotis flavigula*.
 1 Dusky Robin, *Petroica fusca*.
 1 Pink breasted Robin, *Erythrodryas rhodinogaster*.
 1 Flame breasted Robin, *Petroca phœnicea*.
 1 Blackcapped honeyeater, *melithreptus melanocephalus*, by Mr. F. P. Wilson.
 A collection of Tasmanian Birds' Nests, Mr. J. R. McClymont, M.A.

Mollusca.

Tasmanian Shells, Mr. E. D. Swan.

Ethnology.

A Fijian Native Basket, Mr. E. D. Swan.

SUBMARINE CABLES.

The HON. SECRETARY (Hon. Dr. Agnew) announced that Mr. Robt. Henry, jun., Superintendent of Telegraphs in Tasmania, had promised to deliver a lecture on "Submarine Cables," giving a practical illustration of the means by which the localities of breaks or faults in the cable are determined.

Mr. HENRY prefaced his remarks by describing the manner in which cables are constructed and the materials and process used to ensure complete insulation, not forgetting the spiral covering of brass which is sometimes necessary in Indian seas to protect the cable from the ravages of a specie of *Teredo*, which bore through the gutta-percha covering till the copper case is reached, then destroying the insulation. To illustrate his remarks on the preservation of cables, he exhibited a small section of cable cut from the break which recently occurred between Tasmania and Victoria, about 70 miles from Low Head. The present cable had been down about 15 years, and this was about the only serious break that had occurred. There had been one or two breaks previously, but they had been nearer the shore, and the causes had been apparent. At the Victorian end a reef of rock ran across the cable, and could not be avoided, and the result was that in time the cable was fretted away by the continual action of the waves. About five years ago, however, a heavier cable had been laid at the shore ends, and no trouble from that quarter had arisen since. The lecturer then proceeded to explain the different conducting properties and resisting powers of the various metals, and showed a small coil of German silver—a very bad conductor—which had a resistance equal to 50 miles of cable. He entered at length into a description of the means by which a current of electricity may be used to measure lengths of wire. There were two units of measurements, called "ohms," in general use; one, the "British Association unit," might be roughly represented by a mile of copper wire about one-quarter of an inch in diameter, and the other, "Siemen's unit," represented by a column of pure mercury about forty inches in length and 1-40th of an inch in diameter. The "ohm" must be understood to represent a standard of comparison, in the same manner as an inch in length or an ounce in weight, and it was evident that having once fixed a standard it was easy to compare results with other lengths and description of wires, and therefore made it possible to determine the resistance of any length of cable. In the resistance-box shown were a number of small coils of wire, which, though they appeared to be of the same size, represented very different values, one of them being one "ohm," and

another 4,000 "ohms." Before a cable was laid down, it was tested to find the resistance, and discover any leakage of the current, and these tests were kept for future reference. A good cable would improve in its insulation after being down a short time, and should show about the same amount of resistance and insulation as when out of the water. A certain length of cable with a conductor of a certain size should give a certain number of "ohms" of resistance to the mile. It would show no current so long as the further end of the cable was insulated, but if there were any leakage a portion of the current would come back to the station, and the resistance would, of course, be proportionately decreased. The lecturer exhibited a galvanometer, used to detect the presence of weak currents of electricity, and of so delicate a character, that it would be possible by it to read signals transmitted through the Atlantic cable from a battery, the size of an ordinary gun cap. Having described, in detail, the construction of the galvanometer, which consisted mainly of a very light and small glass mirror, having attached to the back of it a magnet, made of a piece of watch spring, and the whole suspended by a fibre of raw silk between two coils of wire; he then proceeded to give a practical illustration of the manner in which the locality of a break in the cable may be determined. Having a coil of insulated wire some 1,500 yards in length submerged in a bath of salt water, he connected it with the galvanometer and box of resistance coils, technically called a "Wheatstone bridge," and showed the resistance of the cable to be 293 "ohms." Some of the insulating covering was now removed to make a fault in the cable, and tests were again applied from either end of the cable, the resistance being in the one case 273, and in the other, 23 "ohms," making a total of 296, which showed the fault to be making nearly "dead earth," as nearly the whole of the current passed through it to earth. It was therefore apparent, supposing an "ohm" in this instance to represent a mile of cable, that the fault had occurred at a distance of about 273 miles from one station, or 23 miles from the other. Lastly, Mr. Henry described minutely the various processes required to secure an accurate test, and the elaborate calculations that have to be made to ensure any degree of certainty.

In reply to the Chairman, Mr. HENRY said it was much easier to determine the locality of a break in a cable than on land lines, the insulation in the latter case being so much more imperfect, rendering a complete test very difficult. He had recently made a test on the line between Hobart and Launceston, where a break had occurred, but he proved to be several miles out in his calculation.

The Hon. Dr. AGNEW proposed that the best thanks of the meeting be passed to Mr. Henry for the extremely interesting lecture he had given. The subject was an intricate one, and required a certain amount of preliminary knowledge before it was possible to grasp all its details as presented in the course of a single lecture. He was sure, however, everyone present felt obliged for the practical and scientific exposition of the matter with which Mr. Henry had favoured them.

The CHAIRMAN, in putting the vote, said the subject was of more than scientific interest, for it was one in which all people must take an interest. They liked to have the news of the world at their breakfast table, and were disappointed if they did not get it; and they were therefore deeply interested in the question of how a break may be found, and how it may then be mended.

The vote was carried with acclamation, and Mr. Henry briefly returned thanks.

A vote of thanks was passed to those who had forwarded donations to the library and museums, and the meeting terminated.