MONDAY, JUNE 15, 1896.

The PRESIDENT (His Excellency Viscount Gormanston, K.C.M.G.), in the chair.

There was an unusually large, influential, and representative gathering on Monday at the monthly meeting of the Royal Society of Tasmania. Prior to the commencement of the meeting a handsome memorial fountain to the memory of Sir Robert Hamilton, K.C.M.G., LL.D., the late revered Governor of the colony, erected in the vestibule of the Museum, was unveiled, the ceremony being performed by His Excellency Viscount Gormanston, K.C.M.G., the present Governor.

The following gentlemen were elected Fellows :—Messrs. Cecil Anderson, A. D. Watchorn, Wilfrid Giblin, M.R.C.S., R. Templeman.

Dr. MONTGOMERY, Bishop of Tasmania, read an interesting paper on "A Night in a Petrel Rookery." On February 29 last an opportunity presented itself of enabling him to observe the habits of the sooty petrel in its breeding places, and he availed himself fully of it. Happening to be at Big Dog Island he walked down to the rookery at 2.30 a.m. under a full moon to watch the birds till they left their young for the day. A day or two later he sallied out at 9.30 p.m. and stayed till 2.30 a.m., completing, in this way, a night's observation. His experience was the same as that of residents in the locality. He was convinced that the petrels came back to their young silently. So silently that it has a ghost-like effect, in order to give as little notice as possible to their enemies, the big gulls, and to the crows. Hundreds of thousands of birds flash up from the sea and disappear into their holes just as it is becoming dark, without uttering a note. The only disagreeable characteristic of this graceful bird is its hideous cackle. For at least an hour, up to 10 p.m., the gurglings and hoarse noises continue. Then silence falls on the rookery. The young birds are digesting, and the old birds are resting. But the parents are not all in their holes. A great many come out almost immediately, and walk about amongst the warm long grass. Finally, a great many sleep in the open air. He had spent a long time in stepping about among these sleeping birds as they crouched on the ground. They do not put their heads under their wings. At times a bird would walk up to him and stop at his foot, unconscious of danger, but the slightest movement made them scuttle away like rabbits, for they were quite unable to fly off the level ground. It is wonderful how fast they can run down a track. He had seen a young fellow find it difficult to keep up with them. He saw them dance their ghostly quadrille previous to their departure seaward in the early morning. The young birds (numbering many hundred thousand) were hushed in complete silence underground. At 5.19 a.m. all the birds had disappeared to seaward. At 5.23 a.m., just 4 minutes after the last petrel had disappeared, he heard the wailing of a Pacific gull. In 20 minutes more a squadron of those great creatures, accompanied by as many crows, came reeling over his head, quaking, wailing, and quartering the ground carefully to see if any belated petrel could be discovered. If any old bird is late he makes for a hole, and does not stir out of it all day. Dr. Montgomery followed with an accurate account of the habits of the sooty petrel from the day it returns to breed in the Bass Straits to the time when it flies away, in all probability to Arctic regions. The sooty petrel returns to breed about September 17, having paired already. They commence at once to scratch out their holes, the process lasting off and on for about six weeks. One bird is always seen to be at work, but whether the work is divided is not known, though in all probability the labour is shared. They do not stay on the island in

the day time, but come and go when it is dark, because they live in constant dread of the gulls and other enemies whilst it is light. If one is caught by the daylight it retires to its hole and does not stir till nightfall. The petrels depart about November 1, and are seen only occasionally till November 20, when they come back in countless thousands to lay their eggs—one for each pair. The earliest period for the egg that he has heard of is November 18. Big Dog and Little Green islands are early islands for them. The egg is white and rather larger than a duck's egg. If the egg is taken the bird does not lay again. If some young birds are taken the old birds still return at night till the first flight for the southern latitudes commences. The eggs, if left in the hole more than three days, are not good for eating, but if secured at once they may be kept for some weeks. If the old birds, on coming back, discover that their young have been taken, they disgorge the oil meant for their offspring. During the period of incubation the parents take it in turns, sitting for a week and then exchanging. The young bird appears about June 15—that is, two months after the egg has been laid. These petrels do not live on fish as a rule, but on small sea creatures such as shrimps or the berries of kelp, also, doubtless, on very young fish. The baby petrel is in danger for a fortnight or so from snakes, and a certain number are destroyed. The holes are about 2ft. or 3ft. deep. It was asserted to him by both white and half-castes that when the feathers of the young birds are well grown (about the last days of April) and they are able to fly, their parents wholly desert them, leaving them to find the water and food themselves. When the young birds have been left for a week starvation forces them out of their holes. It is also attested by all that as soon as the young bird emerges from its hole, driven forth by hunger, it commences to swallow gravel, and it is unanimously asserted that until the young petrel has ballasted itself with gravel it can neither swim upright nor fly. A great many young birds fall victims to their enemies, yet the sea is black with them in May, and it is computed that out of 300,000 young petrels in a rookery, fully 100,000 escape in safety to join their parents somewhere near the South Pole. The birds visit our shores only to rear their offspring.

The second part of Dr. Montgomery's paper had reference to mutton-birding, a unique industry, and only carried on in the Furneaux Islands as a regular one. It is likely to assume still larger proportions. The "birding" begins on March 20. Before that date the temporary huts of the workers have been repaired, and wood and water stored. An average family attempts to catch and salt about 450 birds a day. On wet days it is impossible to work, and even in fine weather the destruction of clothing is great. A new hand finds himself almost garmentless after a few days of work, which consists of crawling about among rough bushes and lying extended upon the ground, burrowing with the arm into deep holes. Whether this industry will ever be popular on islands where there are snakes is doubtful. Babel Island, where the birds are most numerous, is virtually unvisited at present, and swarms with snakes. The regulations of the Government, the Bishop considers, are adequate for the protection of these birds. Families on Chappell Island exult in the capture of not more than about 200,000 young birds out of a possible 300,000, leaving a very fair margin. As a good many islands on the Australian shore have no water and no boat harbours, and swarm with birds, there is no prospect of their destruction. As regards the salted birds, it may be as well to point out to possible consumers that they are all young, that they have fed on nothing but oil, and have never left their holes except to die. The process called "fatting" ought to be discouraged. It is only resorted to by a few families, and the general sense of the island community is against them. The "fatter" catches his bird, empties

the oil into a can on the rookery, and brings the carcases down without any care to the boilers, into which they are thrown, and boiled down for the fat alone. It means that a family can take 1,000 birds for this process, whilst the salters can capture only 500. The flesh of these birds is nutritious, and readily finds a market, and Government has been wise in regulating it. As time goes on the rules will have to be made more stringent, but there is no need to move too fast. The time is coming when the number of hands birding on Chappell Island will have to be restricted. The number of families grows as the half-castes increase, and probably the limit of the workers has already been reached. This island has always been looked upon as a sort of perquisite for the half-castes, and rightly so in his (Dr. Montgomery's) opinion ; but the number of half-caste workers must soon be restricted in their own interests, and he was glad to note that the older men have this year been suggesting that younger families should go to Babel Island, on the east coast of Flinders. It is much to be desired that the old birds should be protected whilst they are feeding their young. At the present time it is the custom in February and March to catch the old birds at night for consumption till the breeding season commences. It is feared that many thousands of these parent birds are thus caught. Doubtless it would be better to protect all the eggs, but inasmuch as they are not now permitted to be sold, and as they are only fit to eat for two or three days after they are laid, and are supposed to be eaten on the spot, no great amount of harm can be done. He imagined that the capacity of a half-caste cannot equal that of the Tasmanian pure aboriginal, one of whom, it is said, was seen to consume 52 eggs in one day.

Several views, by the aid of a lantern, were then thrown on the screen, whereby Dr. Montgomery illustrated the islands, the mutton birds, half-castes, etc., and which proved very interesting.

The discussion on Mr. Johnston's paper on the health of Hobart was then opened by Mr. MAULT, who spoke of it as a singularly able paper. The speaker claimed that the general reduction in the number of cases of disease was due to the passing of a Health Act in each of the Australian colonies and its administration. The statistics given by Mr. Johnston showed that the cases of typhoid fever should be fewer in such an otherwise extremely healthy city. Sydney was in advance of Hobart in that respect. He referred to how sanitation had reduced the number of cases of fever in the old country, and insisted that if improved results were obtained elsewhere, why not in Hobart? As regards phthisis, emphasis should be given to the fact of Hobart's freedom from it. The number of cases stood the lowest in the list of all the cities instanced in all parts of the world. In respect to all diseases connected with the lungs Hobart was the lowest of any of the many towns he had mentioned, and the place should prove a very fitting one for a sanatorium for consumptive cases.

Major-General TOTTENHAM said it seemed to him that there was one other matter which required consideration as a factor in the judgment of healthiness of a place or district, whether as to natural or artificial conditions. He disclaimed any desire to decry or to fix the stigma of unhealthiness on Hobart. He came to Hobart 11 years ago hardly able to walk half a mile at a snail's pace, and his tolerably known capacity in locomotion now needed no statistics to attribute to the healthful air of Tasmania. It was a deep debt of gratitude which had impelled him to advocate so strenuously and persistently improved sanitation in Hobart, in order that the health of the city—the healthiest he had ever seen in the world, and he had seen a good many—should be rendered still healthier. What he complained of was the existence in past years of preventable disease unwarranted by

the exceptional advantages of the site, and due, in his opinion, and not in his alone, to municipal neglect of sanitary laws. Mr. Johnston had placed before them a series of tabular statements, the burden of each being a death-rate. Those tables showed undoubted statistical acumen and patient research. The "mortality of disease" was well set forth, but he (Major-General Tottenham) had searched in vain for the "prevalence of disease," as indicated by the number of cases of preventable disease occurring in each city reviewed. The exclusion of only "old age and senile decay" from preventable causes classified all other deaths amongst the possible. That, unintentionally no doubt, gave a false view as regarded "sanitary state," for diseases were due to public as well as private responsibility or neglect of such. The ordinary acceptation of the term "preventable disease" was disease by governmental or municipal decree, so to speak. There should be no municipal or government neglect in this respect. The mere death-rate of a place could not be regarded as a fully trustworthy test of its healthfulness. All the fever cases in Hobart were not notified, and the speaker gave statistics to support his contention. As Mr. Johnston had indicated, without accurate statistics they could not know, prove, or compare anything. As a soldier he could not afford to "enthuse" over statistics, the bases of which were, to say the least, of uncertain origin.

Mr. W. F. Ward (Government Analyst) considered that Mr. Johnston's paper could not fail to convince anyone who would take the trouble to read it carefully that, excluding the deaths of old people, which formed such a large proportion of the deaths, and the old must die, Hobart death-rate was lower than that of other Australasian cities. But even this was not sufficient to attract the attention of visitors, and so he suggested that the monthly statements might either be so modified as to emphasise every time the high rate from old age alone occurred, or that the vital statistics be published at longer intervals, with full details. The question, however, was not, he thought, so much one of figures as of the general health reputation of the place, and in this we had suffered somewhat, owing, in the first place, to a few conspicuous cases of diphtheria last summer, and in the second, to perhaps a greater degree, to a statement repeated again and again that the town smelt to quite an unusual extent; that bad odours were in fact "frequent and painful and free," the cause being the want of rain to wash the town. Now, the ordinary passer-by did not stop to investigate, but classed everything which offended his or her nostrils comprehensively as "drains," declaimed accordingly, and anticipated germs, although it might be no more than the powerful but harmless water in which a cabbage had been boiled. Yet the good name of the city suffered. There was no necessary connection between bad smells and infectious diseases. Human beings could often, for long periods, eat, drink, and breathe more or less filth, and be apparently not much the worse until the specific germs are somehow introduced which then increase, multiply, and spread in the congenial soil, so that typhoid and diphtheria were known as "filth diseases." It followed, therefore, that though offensive odours might in some cases be practically harmless, yet there was no reason why they should be tolerated if they could by any possibility be got rid of, and if enthusiasts had occasionally exaggerated their effects as well as the death-rate, yet enthusiasm carried most reforms, and had in this case great, if not full, justification.

Mr. Johnston, in replying on the discussion, said he was glad that the main object of his paper had been accomplished. It was his endeavour to show the distinction between the sanitation of a place and its healthfulness; that it did not necessarily follow that while the sanitary

conditions were not as complete as they might be, therefore its health was bad, for during a time being a city might be in a bad state of health, and yet have the best system of sanitation in the world. It seemed to be conceded on all sides that Hobart in the last two or three years had been in a most satisfactory condition as regards its health, but there were differences of opinion as to the causes. He had studied the subject for many years, and still believed that whilst sanitation was valuable in reducing certain diseases, such as typhoid, the great causes of such diseases were still beyond man's control. The percentages had fallen low in some years before any Health Acts were passed, although he admitted that in England typhoid fever cases had of late years been greatly reduced. Too little credit seemed to be given to the increased knowledge of medical men in the treatment of such diseases, and the improved habits of the people. He agreed with Mr. Mault that sanitary agencies were powerful influences in reducing the number of fever cases, but they were not the only ones, and they did not produce such good results as one should like to see. As to what Major General Tottenham had said about the returns supplied to and used by statisticians not being reliable, the objection cut the ground from the objector's own feet, as he had quoted such statistics himself. He would, however, be sorry if the effect of his paper would be that decreased attention would be given in Hobart or anywhere else to the importance of sanitation.

Mr. C. E. Beddome read a paper on a new variety of a *Voluta fusiformis* (Swainson), *Var. micro papillosa*, accompanied by drawings of the shells made by Mr. W. L. May, of Sandford.

Two papers, prepared by Mrs. Kenyon, of Melbourne, were read by the secretary, one on "Some Conchological Notes on Tasmanian Mollusca," and the other, "Notes on the Effects of the Atmosphere on the Shells of the Mollusca."

The meeting then terminated with the usual vote of thanks.