SOME ACCOUNT OF THE WORK AND WORKERS OF THE TASMANIAN SOCIETY AND THE ROYAL SOCIETY OF TASMANIA, FROM THE YEAR 1840 TO THE CLOSE OF 1900.

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When the Scientific History of Australasia shall come to be written, it will be seen how large a share Tasmania has taken in the world of Science, and how valuable have been her contributions to its knowledge. Very early in the history of the British Settlement in Tasmania, a systematic attempt was made to classify its Flora, with the special object of discovering what edible roots or fruits were to be obtained; and this, though perhaps undertaken with a view rather to the utilitarian than the purely scientific results, was of use to the investigators who followed in the same line.

The scattered work of individual observers was first focussed in a Society, founded by Sir John Franklin in 1841, which was called at first the Philosophical, and soon afterwards the Tasmanian Society. The meetings were held at Government House, then the most central place in the city, and the roll of names on its list of members contained such names as Sturt, Leichhardt, Sir Thomas Mitchell, Captains Ross and Crozier, and many others well known to fame. In the first volume of proceedings I find the name of Dr. (now Sir) James Agnew, with Port Phillip as his address. Ever since then his name has been identified with the work of scientific societies in Hobart, and his liberality in connection with them is too well known for me to do more than allude to it here in passing.

The four departments of Zoology, Botany, Geology, and Meteorology, were the first to receive the attention of the Society, while Geography, in the face of the new discoveries being made daily, soon claimed a large share of attention.

The first Journal, published in 1843, has compressed in its pages so much that has gone to the making of history, as to make one wonder if the times seemed as remarkable to those who lived in them, as they do to us now.

John Gould, then in Sydney preparing for his great work on the "Birds of Australia," contributed a paper on the habits of the brush turkey, which had been studied, apparently to little effect, before he turned his attention to its classification.

An article by Dr. Hooker on the fossil wood found at Macquarie Plains reminds us that the eminent surgeon was even then preparing to give the world the results of his examination of the Flora of Tasmania.

The catalogue of edible fruits and roots, compiled by Mr. James Backhouse, finds its place here, considerably added to by Mr. Ronald Gunn, whose work has left scarcely anything to be done in this direction. There are descriptions of the birds and some of the fish of Tasmania, an article or two on the advantages of irrigation in the colony, and a list of native words compiled from documents in the Colonial Secretary's office by that remarkable adventurer, Jorgen Jorgenson, the Convict King.

A battle between the observers of the Ornithorhyncus as to whether that extraordinary specimen were to be classed as oviparous or viviparous was then at its height, and a careful paper in this journal gives all the reasons for preferring to believe it viviparous, but no dawn of belief that it might yet be found to have some of the characteristics of both seemed to have visited the mind of anyone. A legendary tale of the Australian Blacks, one of those collected by Mrs. Parker, shows that the Aborigines, untroubled by scientific considerations, had decided that it was a cross between the kangaroo rat and the duck, laying its eggs like the duck, and then caring for them like a kangaroo rat.

Perhaps of even greater interest to us at the present time is the fact that the return of the ships Erebus and Terror from their expedition to the Antarctic regions is recorded in this volume, with a report of the work done by Captains Ross and Crozier and those associated with them. Lieut. Kay, of the Terror, remained here in charge of the meteorological station, and did a great deal of work in connection with the magnetic survey of Tasmania. Both subjects—that of Antarctic exploration and the magnetic survey of Tasmania—have been very much shelved subjects from that time until the last year or two.

The late Mr. James Barnard was one of the earliest members of the Society, and though, perhaps not a specialist in any particular subject, was devoted to furthering the aims of all the workers, and continued his interest in this Society until its dissolution, and was a member of the Royal Society until his death.

The Rev. T. J. Ewing early made a list of the birds of Tasmania, and was one of the most useful members.

Dr. Richardson began the classification of the fishes in Tasmanian waters, which has since been carried on by other workers, and completed by Mr. R. M. Johnston.

That brilliant scholar and eminent divine, the Rev. Dr. Lillie, contributed an introductory paper to the first volume of the proceedings, and took a keen interest in the work of the various branches, into which the energies of members were directed. He was for a time Hon. Secretary of the Royal Society, and did much while in that position to further its highest aims.

The famous geologist, Count Strzelecki, who walked a distance of 7,000 miles in investigating the geological conditions of Australia and Tasmania, gave some account of his journeyings to this Society, and described many little known parts of the island. The Count examined a natural mineral water found near Circular Head, and observes, among other things, that it is sufficiently nauseous to be of medicinal value! Count Strzelecki, in 1845, published the first systematic sketch of the geology and general physical character of Australia and Tasmania.

A series of very interesting articles, by Captain Cotton, on irrigation, and one on a newly discovered steam digging machine, remind us that then, as now, there were not wanting those who saw the advantages that would accrue to Tasmania if a more enterprising spirit were manifested by the residents.

It is difficult, in looking over volumes in which every word is of historic interest, to leave out any item, but that would need so much more time than I have at my disposal that I must be content to make a selection, not perhaps the best that could be made, but one that is possible to compress into the limit of time available. For a like reason, while there are many names of useful workers left out of this short chronicle, it is not to be supposed that they were not worthy to be all on the roll of honour, but the inexorable demands of time forbid.

The second volume contains a fuller account of the Antarctic Expedition, and of the landing in two places, and taking possession in the name of Her Majesty the Queen, of the whole Antarctic Continent. It has not yet become a summer resort!

We are reminded that in the time of Sir John Franklin the "Beagle," with Darwin on Board, called at Hobart, and the great man had opportunities of observing the many interesting things in so new a country. One of the things that filled him with surprise was, that the steamer in which he went to Kangaroo Point had been entirely built in the colony.

A paper contributed by Dr. Agnew, on the poison of snakes, marks not his first membership, but his first

active work for the society. His name appears in the first list of members, with residence :—Port Phillip. His first paper was written from Saltwater River, Tasman Peninsula, where as medical officer to the government he had leisure to observe the poisonous apparatus of the venomous reptiles of that country retreat. Some very useful remarks on the nomenclature and classification of rocks in new countries, by the English geologist, Mr. J. B. Jukes, set forth clearly the grouping on which geologists should found their method of classification.

The Rev. T. J. Ewing, whose list of birds is contained in the first volume, is represented in the second by a paper on the statistics of Tasmania, from which it may be of interest to make a few extracts. The three years under review are from 1838 to 1841. The revenue from the customs increased during the three years from £70,000 to £85,000, an increase of 21 per cent. The post office revenue rose from £4,300 to £6,500, or 25 per cent. The total revenue, including sales of Crown lands, rose from £144,562 to £237,381. The average value for the three years of the imports was £665,535, for a population which, including convicts, only numbered 50,000 souls. The sheep in 1841 amounted to 1,167,737 ; the horses numbered 12,000 ; horned cattle, 90,000. There were 1287 marriages during the period.

The Rev W. Colenso, an enthusiastic naturalist, contributed valuable notes of a trip in New Zealand, during which he collected more than 1000 specimens of natural history.

The picturesque museum at Ancanthe, built by Lady Franklin, contained not only specimens of natural history, but a good library containing books classified as follows:— *(a)* Works illustrative of Tasmania and the neighbouring colonies; (*b*) Works written by persons who had been, or were then, residents of Tasmania; (*c*) Works written and published in Tasmania, provided they were of such a character as would not be objected to by the Trustees. The collection contained besides many other interesting books, some of the volumes of the splendid work Gould's Birds of Australia, Mr. Westgarth in a paper on Port Phillip, then little known, describes its geological formation, but gives no hint of the alluvial richness that, in a few years, so transformed that country.

In the summer of 1838 the Rev. W. Colenso, whose papers on New Zealand form a most interesting part of this second volume, was fascinated by the description given by the Maories of the gigantic bird they called the Moa. They insisted that it lived in a cavern on the side of a mountain, that it subsisted on air, that it was guarded by two immense reptiles, and that if anyone ventured near it he would be

trampled on and killed by the monster. Mr. Colenso procured some bones, and after careful examination he concluded that it was an extinct species. His paper is a piece of clear and almost convincing piece of reasoning, but was disagreed with by Professor Owen, who thought the bones, after examination, to be so recent that he expressed the hope that the animal might yet be seen striding about in the "Zoo." The Wellington Valley in New South Wales was just then attracting considerable attention on account of the fossil bones of a giant extinct animal, a Mastonodontoid pachyderm, which Professor Owen describes in this volume. This discovery was especially of interest as suggesting a more humid climate than that now common to Australia, for these creatures were frequenters of marshes, swamps, and lakes. The Aborigines of Tasmania were studied by several members, and Archdeacon Davies wrote of their ways in a careful paper or two.

This was, *par excellence*, the time for exploration. The vast new country, with untold wealth and unknown natural resources, attracted the attention of all those adventurous spirits who love to have the pleasure of treading where no foot of civilised man has before trodden. At this time Leichhardt was in the north exploring the country between Moreton Bay and Port Essington before that last journey of his, the plan of which was sketched with such sanguine anticipation of success, but from which no whisper has yet come to tell us whether it is well with him.

Sir Thomas Mitchell was continuing his investigations in the region of the Darling and the Bogan, while Captain Sturt was battling with heat, drought, and scurvy, in heroic efforts to penetrate the secrets of the central part of the dark continent. The account of his work, given in this volume, is pathetic reading.

One member whese name appears very often in the proceedings, is Mr. Ronald C. Gunn, of Launceston, whose work for the Society was of a very extensive character. He was made a Fellow of the Royal Society, London, an honour never since bestowed on a Tasmanian. He was an indefatigable worker, and did much for the scientific development of his adopted country. He and Dr. Grant were the first to send to London live specimens of the Tasmanian Tiger, a notice of which appeared in the London *Times* of May, 1850.

In the third volume of the Tasmanian Journal the name of the Rev. W. B. Clarke appears for the first time. This eminent geologist, the first in Australia to predict the finding of gold, wrote to this Journal on the subject of the fossils of the silurian age in New South Wales. Incidentally he

mentions that his collection of N.S.W. fossils exceed 1,000. When we remember the difficulty of collection we can appreciate the labour involved in gathering so many specimens. Two quotations from the minutes of the Society will give a good idea of the thrilling interest of some of the meetings.

March 24, 1847. — Read (*inter alia*) Sir T. Mitchell's account of his journey into the N.W. interior of New South Wales.

April 7, 1847.—Read Captain Sturt's journal of his exploration in the interior of New Holland from South Australia.

The difference between these two narratives is widely marked, one, that of Sir Thomas Mitchell, being a cheerful story of pleasant wanderings over fine country, while that of Captain Sturt is a brave man's description of tragic battling with heat, want of water, and sickness. In one place the thermometer, graduated to 127, burst in the shade, while at the breath of the hot wind the leaves fell off the trees.

The Society also published an account of Leichhardt's overland journey to Port Essington, and a sketch of the plan of the unfortunate traveller's last journey. For that expedition a sum exceeding £1,500 was raised by public subscription, and supplemented by a grant of £1,000 from the Government of N.S.W.

Dr. Leichhardt started on this expedition with the warmest wishes of the Australian community. It makes one sorrowful, even now, to think that the heroic band stepped out of sight in the silence of the great lone land, and no seeking has ever been rewarded with even a fragment of knowledge of how they all met their deaths.

That good friend of the Society, Sir Joseph Hooker, contributes some papers on the conifere of the island, and credits Mr. R. C. Gunn with the discovery of more than half of the conifere of the whole colony. A most exhaustive paper on the Microscopic life found at the ocean washing the South Pole, was given by Professor Ehrenberg, in Berlin, and then sent by him to the Tasmanian Society, a little incident showing that the Society was well and favourably known in the scientific centres of the world.

A name which was long and honourably associated with the Society was that of Dr. Milligan. The third volume contains a paper by him on the fossils of the country between Hobart and Launceston. All his contributions were marked by much care to obtain scientific accuracy. In 1849 the Tasmanian Society lost its separate existence and became

merged in that which is represented here to-night. Exit, therefore, the Tasmanian Society, having honourably fulfilled its mission.

On the 14th Oct., 1843, the Royal Society of Van Diemen's Land for Horticulture, Botany, and the Study of Science, was formed with the help of Sir Eardley-Willmot, Bart. Its first work was the holding of two Horticultural Shows, which were very successful, but a Horticultural Society being after that formed by the professional gardeners of Hobart, the shows were discontinued, and exhibits were instead sent to the shows of the new society. HerMajesty the Queen became the patron of the Society; the Government placed a large part of the garden in the Domain at the disposal of the members, and made a grant of £400 a year, for the purpose of paying its officers and promoting its objects generally. At the end of 1845 the Secretary resigned, and Sir Eardley Wilmot, then Lieut.-Governor, fought strenuously to raise the Society from a horticultural to a more scientific one, as being more in accord with the idea of a Royal Society, to which Her Majesty had given her patronage. He opposed the appointment of any secretary who should be a mere clerk, and said the Secretary of a Royal Society should not only be able to meet the members on terms of equality, but should be a man who could be on a par with men of science anywhere. As a suitable man was not at the moment to be found, one of the vice-presidents, the Rev. Dr. Lillie, undertook the duties gratuitously for a time, and eventually Dr. Milligan was appointed, whose devotion and attainments made the Society what it has since remained—an honour to Tasmania and Australasia.

For a time the principal interest centred round the Gardens, but in 1846 it was decided to begin a collection of natural history specimens for a museum. A room in the Legislative Council Chambers held the beginnings of this museum, and in 1849 the Government granted a sum of £100 towards its support, from which time the Museum was formally recognised, and its usefulness has grown apace, until the very popular institution of which I have the honour to be Curator holds a firm place in the affections of the people of Tasmania. The first Journal of the Proceedings of the Royal Society was published in 1851, and the statistics of the colony, dealt with by Mr. James Barnard, afford interesting data for comparison with those of to-day, especially those of education. The Church of England had 35 schools on the penny-a-day system, the Roman Catholics 4, and in these denominational schools 1812 children were educated. In the Government Board Schools 1,080 children were taught, and 194 in infant schools; while 460 children attended the

Queen's Orphan Schools, of whom 396 were the offspring of convicts, and were taught at the expense of the British Government; 64 were the children of free parents, and were paid for by the Tasmanian Government. It was estimated that, including those taught in private schools, the number of children under instruction amounted to 6,214, a number which may be considered as fairly satisfactory. There was then no daily newspaper published in Tasmania, but four were published in Hobart twice weekly, and two once a week. Three were published in Launceston. The total imports exceeded the exports by 17½ per cent.

The introduction of salmon into Tasmanian waters afforded some discussion, and was introduced in a paper by Captain Stanley, in which the opinion of Mr. Young, the manager of the Duke of Sutherland Salmon Fisheries, is quoted, and his advice given. Mr. Young says :—"I hope that you will get a suitable vessel, so that you can with safety carry the young salmon, but in case you should not succeed in getting it in every respect fitted for their safety, I would not advise you to proceed with it at all. Were you to make an ill-prepared job of it and not succeed, it would deter yourself and others from the attempt for a long time (for, assuredly, it will at some time be done successfully)." Mr. P. S. Seager has, with much trouble, written a history of the salmon experiments in Tasmania, which has been read before this Society, and will, perhaps, be familiar to most of you; but it ought to be mentioned, in passing, that the last and very successful shipment in the year 1888 was brought out at the sole expense of Sir James Agnew, by Sir Thomas Brady, then Inspector of Fisheries in Ireland.

That perennial subject, the weather, of course came up for discussion, and some valuable statistics were forthcoming on this interesting topic. There were 14 days in 1847 on which a hot wind blew, and on two days especially the air was like a heated furnace. The thermometer registered 103deg. in the shade, and later 100deg. The next year was remarkable for intense cold in the months of November and December.

At this time coal was being discovered in every direction—at Schouten Island, Port Arthur, Mersey and Don Rivers, and many other places; and Dr. Milligan was requested by the Government to report on them. This first volume has some of these reports, and specimens were sent to the Museum of Practical Geology, London, for analysis by Sir H. De La Beche. Though he did not think so highly of them as Dr. Milligan did, yet the discovery of coal in so many parts of Tasmania was a matter of the highest importance to the future of the colony. Even then, with four

steam vessels on the Rivers Derwent and Tamar, it was a great consideration to obtain coal at a cheaper rate than it could be imported from Newcastle, England.

The Bridgewater Causeway and Bridge were the subject of an article by the Director of Public Works, Mr. W. P. Kay. The work of making the Causeway occupied nine years, at an average expenditure of £4,500 per annum, and the cost of the bridge was £7,580. The solid contents of the causeway filled into the river was computed at 560,000 cubic yards, and must have cost about 1s. 5½d. per cubic yard. The cost of convict labour does not seem to have been less than that of free, if the money spent on the Causeway may be taken as a criterion. We, in these more prosaic times, when the more important discoveries in botany and natural history have all been made, can hardly realise the great interest of those early meetings, when so much was new and sometimes with no parallel in the old.

Various kinds of manna were found on many of the trees in the new world, and one was discovered by Mr. Robert Kay which differed from all known kinds, and was considered to be an exudation from the mallee (Eucalyptus Dumosa). The aborigines in the North-west of Australia, where this manna was found, believed that Bhami, their hero-god, who had been taken by the spirits to the land of fadeless flowers, had sent this manna as a substitute for the honey that, owing to the drought and the absence of flowers, had for some seasons failed them.

Sir William Denison, whose practical engineering skill was of the greatest use to the colonists during his governorship, contributed among many others, an interesting paper on the construction of dams, with a view to irrigation. It is a little remarkable, when we remember how often the necessity of irrigation was pressed on the attention of the people in those early days, that no more impression was apparantly made on the minds of those to whom such a system would have meant riches. We have abundant proof that Tasmania was not, on the whole, unprogressive at this time, but the people were slow to realise that science in agriculture is of the first importance.

The remarks of Dr. Agnew on the snakes of Tasmania, mentioned in connection with the Tasmanian Society, had stirred the observing power of several others, and a number of experiments were made on the relative virulence of various species of snakes, the results of which were communicated to the Royal Society by Major Cotton.

On 18th September, 1848, Dr. Nixon, Bishop of Tasmania, was elected a Fellow, and the first contribution I notice from

him is one on the productiveness of Mummy wheat. From one ear received from Lady Franklin more than 7,000 ears had been taken the next season.

Obsidian buttons have lately been the cause of some speculation at the meetings of the Society; and it will interest some to know that as early as December, 1851, a specimen of this curious substance was exhibited by Dr. Officer. The report says:—"Dr. Officer showed an obsidian looking substance, having much the form of a common bung of a cask, or cork of a wide-mouthed bottle, flattened and rounded on the top and bottom (where it betrays the action of weather), and having a number of well-defined impressions round the sides, as if so compressed or pinched in while semi-fluid. This remarkable substance is said to be found on the natural surface of the pasture lands of Victoria; inquiries have been set on foot by Dr. Officer to trace, if possible, its origin."

An announcement is made at the annual meeting in January, 1853, of the removal of the Museum and Library, as well as the meetings of the members, from the rooms forming part of the Legislative Council Chambers to a hall in Harrington-street (now the Athenæum Club). This was an expensive undertaking, as formerly the rooms had been obtained rent free, while the rent of the new building was £60 per annum, with rates and taxes. The inconvenience, however, only had the effect of stimulating the members to renewed exertions in the direction of obtaining a permanent home for the increasing collection. The report of the Council says:—"The Council consider that the first step should be to apply to the Crown for a grant of a suitable piece of ground as a site, upon which, as a basis, then to proceed to raise by public subscription or otherwise a sum of money adequate to the speedy execution of so much of the plan of an extended edifice as the immediate and not very remote exigencies of the case may demand." A site was granted by the Government for the erection of a Museum, about £2,000 were raised by subscription, and the first part of a fine building erected, which contained three rooms, of which only two were then used, one for a library, another for the Museum collection. There was no lack of public spirit in those days: The facilities of communication were increasing in both Hobart and Launceston. Many ships were put on the berth to load produce for California. There were several steamers employed on the Derwent and Tamar, one of them the redoubtable Kangaroo, and a steam service between Hobart and Launceston was being seriously discussed. There were 14 stage coaches running on the main and branch roads of the colony, eight of which started from Hobart, five from

Launceston. Sir William Denison, whose interest in the society was very great, was responsible for many papers on agricultural subjects, and had some experimental plots prepared in the paddock in front of the present Government House to determine the best way to sow potatoes for large crops. He also had some observations on the best way to grow turnips, which seemed to be full of practical common sense.

When one remembers that from 1849 to 1854 the period of unrest and excitement in consequence of the discovery of gold were at their height, one can the better appreciate the devotion shown by those who remained at their ordinary avocations, and gave so much in time and money to further the cause of science and education in the land of their adoption. It was, however, impossible that the Royal Society should not feel some reflex of the tide of excitement which was turning the heads of so many in the community. Yet their work seems neither to have been left undone, or done badly, in the stress of the times. Every subject that was at all likely to educate the people, either in agriculture or engineering, in social science, or in manufactures, was taken up in a spirit of readiness and helpfulness, that must have been of the greatest use in a new community, and that marked it as an educative force in all directions. Natural History was, of course, not neglected. The discoveries of giant extinct marsupials, whether in New South Wales or elsewhere, were reported to the Journals of the Society, and aroused much intelligent interest. Reverting for a moment to the gold discovery, I am reminded that gold was discovered in California in 1847, but in 1846 Sir R. Murchison, who two years before that stated that no gold had been discovered in Australia, though he expected it would eventually be found there, received from New South Wales a small parcel containing gold in quartz, as a proof that his expectation had been realised. Some Cornish miners were advised by him to go and seek for gold in the alluvial of New South Wales, and in 1848 he interviewed Earl Grey, then Minister for the Colonies, informing him of the strong ground he had for believing in the existence of large bodies of gold ore, in quartz, at that remote spot; but Earl Grey took no steps in the matter, as he thought that the discovery of gold would be very embarassing to the interests of a wool country. He had yet to learn how adaptable a wool country may be to other forms of industry.

A medical paper was contributed by Dr. Bedford on the treatment of Scarlet Fever, which attained the dimensions of an epidemic during the years 1852-3. His recommendation

of Belladonna, as a preventive and cure, is interesting, but I do not know whether subsequent experiments in its use modified the opinion of its efficacy.

The important subject of drainage, which can never be properly dissociated from water supply, was discussed in a paper by Sir William Denison. One of the conclusions at present of interest, was that for a really efficient system of drainage the supply of water must be very much increased, preferably by tapping the grand supply of the upper Derwent.

The losses and gains to Tasmania in consequence of the gold rush were noted by Mr. James Barnard in a paper on the statistics, published in the proceedings for 1852.

The population loss is set down at over 8000. During the period 1851-3 inclusive, the average value of the imports, per head of the population was £18 19s. 9d., and of the exports, £19 15s. 4d.

The balance of trade, upon the calculation of the same period of three years, was £156,505 in favour of the colony; clearly denoting under the feverish and exciting conditions of the times, the healthy state of the commerce of the little island. The quantity of gold exported in the same period amounted to the large total of 212,000oz., but most of this was first brought over from Tasmania by the lucky diggers. It was valued at £714,870.

Wages rose to an enormous amount, in consequence of the scarcity of labour, painters and plumbers getting up to 16s. per day. Mr. Barnard says: "The houses uninhabited two months before the gold discoveries were 599, or five per cent of those built; the first effect of these discoveries was to create the belief that there would be a general desertion of houses by people of every grade rushing off to the diggings. House property at the onset was greatly depreciated, and sold—and that with difficulty—at a nominal price. In a short time, however, there came an unlooked for reaction. The streets of Hobart and Launceston by the end of the year began to swarm with lucky diggers and numerous visitors, the former bent upon enjoying the fruits of their success with their friends, the latter to take up their abode more or less permanently, attracted by our superior climate, and our more quiet, better protected towns. The demand for dwellings at once exceeded the supply, and soon there was not a house to be had without a scramble, rents rising 300 or 400 per cent."

At a meeting held on the 9th April, 1854, the first report of the Victorian Government Botanist, Dr. Mueller, was laid on the table. In this quiet way a name was introduced into

the annals of Tasmanian science which for many years was honoured in all the colonies as that of a man with a rare devotion to duty, a great amount of knowledge, which was always at the service of even the humblest votary of his beloved science, and a modesty and simplicity of life sufficiently uncommon as to be remarkable. All the scientific societies in Australasia owe much to his faithful work. The volume for 1853 contains the first of a large number of papers by Dr. Milligan on the Aborigines of Tasmania, their number, their traditions, and their language.

Dr. Erichsen contributes a paper on the insect fauna of Tasmania, which has particular reference to the geographical distribution of insects.

Mr. Morton Allport was one of the untiring workers whom the Society had the good fortune to number among its members. In all, he wrote 24 papers on various subjects, and was one of the most enthusiastic among those who believed that the introduction of the Salmonide into Tasmanian waters could be accomplished, and that it would be a great advantage to the colony when that had been done. His death, at the comparatively early age of 46, deprived Tasmania of a good citizen, and the Royal Society of one of its most faithful and persevering friends.

Various contributions to our knowledge of Tasmanian Botany appear under the name of Dr. Mueller. The coal seams were at this time beginning to be worked with great zeal, but unfortunately with little knowledge, and the result was in many cases disappointing. The history of a new country always contains the record of many mistakes, and they are not only in the region of science and manufacture. Among papers of interest further afield may be mentioned one on the census in the United States, which is full of facts collated in a charming manner, and one by Dr. Carpenter, read at the Royal Society of Great Britain, on the influence of suggestion in modifying and directing movements independently of the will. The vast subject of hypnotic suggestion, was even then, receiving the attention of medical students, and as a science does not seem to have advanced much since that time.

The new and fascinating method of taking sun pictures was the cause of a thoughtful paper on the subject, in which the process was explained with a clearness that must have started many an experimenter in the island on the path of the amateur photographer.

The vexed question whether the Desmidiacie were really belonging to the animal or vegetable kingdom, is discussed

with much clearness by Mr. Harrap, at a later date, and the arguments on which he differed from Professor Ehrenberg and others logically stated.

These questions of the exact position of the wonderful links between the kingdoms is at all times one of absorbing interest, and then, as now, opinion was divided about some of them. The number of these beautiful alge found in Tasmania then amounted to 38.

Dr. Downing gave some account of Norfolk Island, which was written in a chatty style, and contained a good deal of information about the climate, natural productions, and geological characteristics.

Three recent discoveries, each important, mark off the year 1865 as noticeable, and they are all referred to by Dr. Hall in an address to the physical section of the Society. One was the separation of the illuminating from the heat-giving rays of the sun, discovered by Professor Tyndall, and which was the beginning of many discoveries in refraction that cannot be mentioned for want of time. The second was full of promise that has not, so far, been realised, except to a limited extent. It was the discovery of magnesium wire and its high illuminating power. It is useful, doubtless, but it has not superseded gas or electricity, as was at one time fondly hoped. The third was Baron Liebig's discovery of a substitute for mother's milk, and did much to reduce the mortality of infants during the first year of life, but if mothers more fully understood the importance of the subject it would be more used than it is at present. Even now the infant mortality is far too high for the enlightenment of the age. I mention these to show how alert the members were then, as now, to notice what was going on in the world outside Tasmania, and to utilise that knowledge for the benefit of their fellow-citizens. In May, 1865, the attention of the Society was directed to the necessity of some method of establishing a time signal which should give the time regularly so as to be available for the whole of Tasmania. The first duty of fixing a time signal was soon after undertaken by Colonel Chesney, who arranged for three guns to be fired at 4 p.m. on the first Thursday in every month, or, if that day proved wet, they were fired on the first fine day following. In 1867 the Museum, three rooms of which had been built, contained a sufficient collection to justify bringing into use the upper room, and various kind friends gave much time to the arrangement of the specimens in the best way then considered possible. One cannot speak of their labour with other than gratitude, even though the classification had been of the primitive order.

The practical aspect of every new discovery commended it or the reverse, to the notice of many of the Fellows, and the

possibility of a manufacture of paper from the Esparto grass, which, it was believed, would grow well in Tasmania, drew a discussion on the subject, and Mr. James Barnard took great pains to set before the Society all the available information on the subject, including plans and cost of machinery.

Political economy came under discussion for the first time in 1872, when Mr. E. C. Nowell read a paper on the subject with special reference to the unemployed. For the first time the colony was experiencing the fact that there is such a thing as a labour problem, and it has not left us since. Occasionally papers were read on the beetroot industry, and all the scientific and practical information necessary to start a beet factory are to be found in the records of the society; but the production of sugar from beetroot is not yet one of our established industries.

The name of the Rev. J. E. Tenison Woods appears for the first time in the reports as a contributor in1874,but the reverend geologist had then been a corresponding member for many years. His great services to the people of Australia generally and his devotion to science made him a contributor whose papers were valued, and whose personality was honoured in all the scientific societies on this side of the equator, while his name and that of the Rev. W. B. Clarke were familiar as household words in all parts of the world. In 1872 the Council acquired a large wooden building, which was I think used as a store, and all the specimens, for which there was no room in the Museum, were placed there. From this time onward the proceedings of the Society are familiar to many of the present members of the Society that a recapitulation of them would be unnecessary.

The obligations under which the Society lies to Mr. T. Stephens, Mr. R. M. Johnston, and the many members now here who were good friends of science since 1875 are known to all present, and their recapitulation would only seem fulsome, but an exception to this rule may be permitted in the case of the Hon. Sir James Agnew, whose connection with the Society dates from 1840, and who was the able and liberal hon. sec. of the Society from about 1861, almost to the present time, with the exception of a visit to England, when Mr. James Barnard well filled the gap until his return. From Sir Eardley Wilmot, who was a most interested President of the Society, to the present, the Royal Society has been fortunate in having as Governors of Tasmania, so many who were keenly alive to the advantages of a scientific society as an instrument for the elevation of the people. It has been well said that many tastes and one hobby make the condition of greatest happiness. To all who will, the Royal Society offers that choice of tastes and hobbies which will be of the

most use to the possessor, and the most beneficial to his fellow creatures. A list of the subjects dealt with during the period of the Society's existence, shows how varied was the field of its activities, and how eminently practical was much of its work.

In June, 1874, the first contribution from Lieutenant Legge was recorded in the form of a paper on the birds of Tasmania, and accompanied by 20 prepared type specimens as the beginning of a type collection of birds. Col. Legge's interest in the Society has been constant since that time, and though, during his residence in Ceylon, he gave up his spare time to the description of the birds of that tropical country, he began on his return here to take the same place in the Society as before he left, and is now one of its best friends.

The contributions of Mr. R. M. Johnston began in 1873, and have been continued ever since. Geology, paleontology, ichthyology, and economic science have all been treated in his thorough and masterly manner, and he is a worker to whom we are all very much indebted. In 1880 Mr. Johnston came to take up his residence in Hobart, and from that time the period of most active exertions in behalf of the Society commenced. The Government published Mr. R. M. Johnston's book on the Geology of Tasmania, a work which was the fruit of years of patient observation and careful study, and is an invaluable text book. His hand book of Tasmanian Botany has also been of the greatest use to students. To convey some idea of the work done to the Society by Mr. R. M. Johnston, I give a list of the subjects contributed by that gentleman:—Pisces, 14; Conchology, 9; Botany, 4; Geology, Palœontology and Mineralogy, 45; Economic Science, 12. A total of 84 papers.

Of earlier date still, are the contributions of Mr. T. Stephens, M.A., whose papers on geological subjects have been continued from time to time for more than forty years, and whose interest in the work of the Society is unabated.

Dr. Swarbreck Hall and Mr. Francis Abbott are also two contributors, whose statistical and other papers were very numerous and instructive. For some years Dr. Hall contributed papers on the relation of the climatic condition to the health statistics of the colony, and Mr. F. Abbott's Meteorological papers were looked forward to with great interest month by month. Mr. F. Abbott, jun., the present superintendent of the gardens, followed in his father's footsteps, and though of late the pressure of other duties have prevented much work of a special nature for the Society, his membership has continued unbroken.

For many years after its establishment, the Royal Society did nothing towards advancing the historic knowledge of

Tasmania, but Mr. J. R. McClymont, M.A., and Mr. J. B. Walker, F.R.G.S., took up the subject in the eighties, and while Mr. McClymont wrote on the geographical part of the subject, Mr. Walker took up the history of settlement and of discovery with much patience and ability. His delightful English, his proved accuracy, his untiring care in collecting facts in connection with the early history of his native country, and his enthusiasm for the good of the Society, made his death last year a calamity to the Society, almost every member of which was his personal friend. The historical section owes its existence principally to His Lordship the Bishop of Tasmania and to Mr. Walker, both of whom worked with great zeal in its establishment. The various papers contributed by Mr. J. B. Walker are of so much value that the Government have granted a sum of £100 to have them gathered and printed in one volume.

There are many new workers, who, during the last few years, have devoted themselves to special branches of science, and kept up interest in the meetings by timely contributions, among whom, without disparagement to other workers, may be mentioned Mr. L. Rodway, whose botanical notes and contributions to the Flora of Tasmania have been invaluable. Mr. Rodway's forthcoming work on the Botany of Tasmania is to be published by the Government, and is arranged on a most comprehensive and useful plan, whose completeness leaves nothing to be desired.

The splendid work of Mr. Petterd, who was joined afterwards by Mr. Twelvetrees in descriptions, merits more notice than can be given to it here, for their study of mineralogy has resulted in the discovery of new and rare minerals, and they have much increased the general knowledge of the subject. Mr. Petterd has also published a monograph of the Land shells of Tasmania, a most complete work, and has also written and described many new shells, in addition to his great service in the discovery and description of minerals.

The mosses were carefully worked by Mr. A. R. Bastow when he lived in Hobart, and that interesting study has since been taken up by Mr. W. A. Weymouth.

In conchology, Miss Lodder has done good service to the Society, and has classified the specimens of Tasmanian shells in the Museum, replacing from her own collection those which were in bad order.

The work of Mr. Sprent, whose explorations in the island were carried out with utter disregard for personal comfort, should be cheerfully recognised. His interest in the collection of minerals, when the mines were just beginning to be opened up, was only an earnest of what might have been done had his life not been so prematurely ended.

Mr. C. E. Beddome was also a good friend to the science of conchology, and his own specimens and studies were always available for the use of any students.

The meteorological work of Mr. A. B. Biggs, of Launceston, has been of the greatest value, and his patient record of much observation increases very much the value of the reports of the Society.

Mr. A. Montgomery, formerly Government Geologist, contributed several papers on geological subjects, and was one of the members whose careful observation was at the service of the Society on any subject lying within the scope of his studies.

Among scores of contributors and hundreds of subjects one might go on for an hour enumerating those to whom the Society is indebted in various ways, but this necessarily imperfect sketch must conclude with a list of the main subjects treated during the time under review. Remembering the many difficulties inseparable from life in a new country, and the special conditions of the population, with the upset caused by the discovery of gold, the list of papers as a partial record of work done by scientific men in Tasmania is creditable, and we may well be proud of belonging to a Society which has so splendid a record.

Taking the subjects in order the number of papers is as follows:—

Mammalia	12
Aves	27
Conchology	44
Reptilia and Amphibia	6
Pisces	53
Insecta and Crustacea	18
Vermes	3
General Zoology	18
Botany	85
Geology, Paleontology, and Mineralogy	132
Geography	45
Ethnology	19
Astronomy and Meteorology	56
Economic Science and Education	20
General Subjects	65

Total papers, not including small papers on various subjects, 606.

It is to be hoped that this record, compiled at the end of this century, may stimulate those who carry on this work in the century to come not only to do likewise, but much more abundantly.