

PROCEEDINGS  
OF THE  
LINNEAN SOCIETY  
OF NEW SOUTH WALES.

1880

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WEDNESDAY, JANUARY 29<sup>TH</sup>, 1879.

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The President, Rev. J. E. Tenison-Woods, F.G.S., F.L.S., etc.,  
in the Chair.

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The President introduced to the Meeting the following gentlemen as Visitors:—The Hon. Louis Hope, W. H. Archer Esq., W. A. Haswell, Esq., M.A., B.Sc., and Dr. O'Connor, of H.M.S. "Sapphire."

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DONATION.

Compte Rendu de la Societe Entomologique de Belgique,  
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ANNUAL MEETING, WEDNESDAY, JANUARY 28<sup>TH</sup>, 1880.

The President, the Rev. J. E. Tenison-Woods, F.G.S., F.L.S., &c., in the Chair.

The Secretary having read the minutes of the last Annual Meeting, the President delivered the following address:

PRESIDENT'S ADDRESS.

In delivering to you the customary address at the close of our scientific year, I have thought it desirable to call your attention to the work which is going on in the Australian Colonies in the department of natural history. Before I do so, I wish to make

some observations on a prevalent opinion, that the natural sciences are immensely more popular in the present day than ever they have been at any previous epoch in the world's history. I question, however, if the opinion is quite correct in the ordinary sense of the word popular. If we mean that there are more students of the scientific aspect of the subject, or that such works address a larger section of the reading public, it is certainly not correct. That books on natural history are more numerous is true, and that they are cheaper and of a better class is also true. This is in keeping with the general improvement which has taken place in all departments of literature. There has grown up likewise a class of books on the subject which was unknown before the present century, or even in the beginning of it. These are what are called popular books, meant for those who have no time or no inclination for more than light reading. But the scientific students are still few, and those who interest themselves in their labours are confined to a very small circle. We find this especially the case in our efforts to advance a Society like our own, which aims at purely scientific investigation.

The sympathy and support we get is of the most limited kind. Our public journals are profuse in their references to the scientific tendencies of the age. Scarcely a meeting or a public discussion is there in which some vaunting allusion is not made to the progress of knowledge, and our intellectual achievements. This as far as it goes, is a sign of some sort of appreciation in which the labours of a few are held. But we have to be content with this. The self-sacrificing workers must find the reward for their labours in the pleasure their studies give them—a pleasure, let it be admitted which in most cases compensates them for all else. The public generally will scarcely encourage them by even an interest in their work. All this is strongly evidenced by a reference to the past volumes of this Society. We find on inspecting their tables of contents that scarcely more than a dozen contributors have supplied the investigations which are

there recorded. Each year has seen a rapid increase in the number of papers read, and the subjects treated, but this has only been by increasing the labours and studies of the few real students of nature in the Colonies. This does not surprise one so much as that the results of our work are so entirely unknown. Well, not unknown entirely, because, I suppose, there is not one of you who do not receive from time to time letters of encouragement and sympathy from the greatest living naturalist in Europe and America. But in the Colonies they are unknown, and will probably remain unknown in our generation. I do not refer to this in terms of complaint, for the remedy is out of our reach, but I do so that we may fairly estimate what is the scientific spirit of the present day. Science and scientific study are not popular. Scientific results, when they benefit mankind, are appreciated and admired, men of science, when their reputation is established hold a high and honourable position; but the labour by which all this is acquired has very few votaries indeed. It is necessary to bear this in mind when estimating what is being done amongst us in the present day in the Colonies of Australia. It may be thought that the result is very small, and in such an untrodden field, where laurels are so easily gathered, the workers are few. People are accustomed to think that we are making great strides. They point to the popular books and their elaborate get-up as a good indication of what a harvest is being gathered. Yet how few are aware of the worthless character of a large proportion of our popular scientific literature.

In one respect there is a gain. If we compare, for instance, such a book as "De Montfort's Conchology" with any modern work on the subject, how vast is the improvement. Who would think, from the rude style and almost barbarous illustrations, that De Montfort wrote barely fifty years ago. All the modern works share the improvement in externals, but here the gain begins and almost ends. With very few exceptions popular books teach nothing solidly, and a good deal very incorrectly.



Some may urge that the place which the natural sciences occupy in our University education, is at least an evidence of popularity. But the place they take is a small one. The little that has to be known of these matters at matriculation, seems to me insufficient to create a taste for them, and with the exception of those whose professional studies require it, they are not followed subsequently.

The circumstances of young colonies are so peculiar and exceptional that it would not be fair to compare our literature or our studies with those of any old established country. Of course we should suffer much by the comparison. Our habits and our institutions are not those of a studious people. Men of real learning have no place amongst us, and are consequently rarely to be found. This is why, perhaps, so much of the public utterance of our speakers and writers are greatly below the standard in breadth and depth. It would be out of place for me to remark this, even casually, were it not that it trenches on the fact I am now referring to. Natural sciences have become strangely mixed up with some of the most important questions of religion and philosophy. They have been so mixed, to some extent, in every age, but never so much and so injuriously as now, and the problems are being worked out carefully and well by those who are the real masters of the points in dispute, and with a cautious yet most untiring spirit of inquiry and with a conscientious determination to record facts without prejudice or favour. Of these the most illustrious has been Dr. Charles Darwin. Differing as many of us do from the conclusions at which he has arrived, I cannot help adding my humble tribute of admiration for his philosophical methods of inquiry in which he has set so beautiful, so illustrious an example. With such methods and in such hands the interests of truth are safe in the long run. Charles Darwin has revolutionised the science of zoology more by his ingenious and conscientious methods than by his conclusions. What the ultimate conclusions will be it would be premature to predict; but how they will be established cannot

be a matter of doubt. As an instance of this, I may refer to the magnificent paper of the Rev. Professor Henslow, lately published in the Transactions of the Linnæan Society of London. The learned professor has been following up Darwin's observations on the self-fertilization of plants. It will be remembered that Dr. Darwin's observations on the varieties of the common primrose led to the discovery of certain provisions to secure cross fertilization. The facts thus revealed were so new, so startling, and at the same time so full of interest, that the field was entered upon with ardour by nearly every botanist in Europe. As a matter of course the conclusions of Dr. Darwin were pushed to the extreme. Even the most eminent naturalists were led into extravagant assertions, which, at best, were only supported by a slender array of facts, and some even roundly asserted that self-fertilization never took place. These were not men of eminence, but their opinions were eagerly seized by those whose knowledge was too slight to discriminate, and whose prejudices were too strong for caution. By no one were these excesses more deplored than Dr. Darwin, whose love of his favourite theory is great, but whose love of true science is greater. When Professor Henslow commenced his investigations he states that he adopted Dr. Darwin's views about the self-fertilization of flowers. What has induced him to abandon them is beautifully seen in the facts which a long and patient inquiry has revealed. So far as he has gone he finds self-fertilization the rule and not the exception. The whole paper is a monument to his conscientious care and industry. It is a delightful instance of the perfection of those methods of inquiry of which Dr. Darwin is the illustrious author.

In the meantime, Darwinism, or the doctrine of development or evolution, as it is variously termed, is being vigorously handled by those whose speaking and reading hardly give them time for reflection. It has also become the prey of the metaphysician. There the naturalist might well be content to leave the philosophical question which underlies the whole subject. It is out of



the reach of all the methods which he can bring to bear upon it. Those who believe, as I do, that there is a Creator of all things, visible and invisible, cannot be affected by opinions necessarily formed independently of real knowledge. If however, there is any opinion forced upon my mind by whatever study I have been able to give to nature, it is that there is almost infinite variety in everything created. The hundred thousand or more known species of plants, the bewildering multitude of forms of animal life, the countless stars, the epochs of past creations imbedded in the rocks, the metals and their combinations, the gems and their forms of crystal and colour, the amazing, the endless aspects of all matter, unite in one testimony the infinite variety of nature. There is a plan in all, a unity in all. The recognition of that plan is the daily labour of naturalists; but while they perceive this, they recognise also the endless variation of the means. No two species are made alike, no two produce their seed by exactly similar contrivances. There are plants which produce no seed, and plants whose methods of reproduction have eluded all inquiry. There are sexual distinctions in animals, and a large section where these distinctions are dispensed with. There are animals which reproduce their young according to what we call, from our limited experience, the normal condition of the fertilization of the ova, and then whole generations succeed in which all this is set aside. I might go on to much greater length in giving illustration of what is so familiar to us all, but no one will doubt that the principle which we have discovered universally prevalent in nature is unity and variety.

I can well believe that there is much truth in evolution. If to-morrow the evidence of its occurrence were established on indubitable grounds, it would be one more beautiful illustration of the plan of nature. But to say that it takes place, or has taken place in every case because we find it true in many, is an assertion which we need not trouble ourselves to discuss. And this I think will be the upshot of what we see so hotly contested

in our own day. As in the case of most schools of thought, the truth will be found to lie between the two extremes. The grand truth looming in the future seems to be development through the most varied means, one of which may be evolution. But we cannot help deploring that questions on which the vital interests of modern society certainly hang, should have been prejudiced so much by ignorance of the natural sciences. The hottest disputants have been men whose knowledge was derived from very imperfect sources. Sweeping assertions, unjustifiable conclusions, false inferences, and an unfair use of facts, have all been used as weapons under the banner of a pretender miscalled science. This could not have happened were the general public more acquainted with the subject—nor, indeed, we may be sure, would such a standard ever be raised. Can we hope that such a consummation will be reached, if not in our own time, at least at some future day? Perhaps the existence and success of our little Society is an earnest that we can. Still I would remind our members that a good deal rests with ourselves. We can do much to make the natural sciences a little more popular. We can influence, we can encourage those outside—and, above all, we can help each other. I hope it will not be considered an impertinence if I refer to two things which rest with ourselves. It is somewhat sad to think how much science is delayed by the jealousies and bitterness of scientific men. I would not refer to this if I had not in my mind a keen recollection of the opposition and rebuffs I met with myself in early days. It is therefore with the most pleasant feelings I glance over the history of this Society, and see how smooth and untroubled has been its current during that history. I trust this will be one of its constant traditions. The other point to which I refer is the helping hand which we can extend to the students of science, especially to beginners, and to the public generally. There are, I am convinced, a great number of lovers of nature through the length and breadth of this land who would be its students could they but see a way to begin.



I am sure, also, that most valuable observations are made and would be recorded, but are now lost. The work that we can do for science by encouragement, and by taking a little trouble for those who wish to be observers, would be more than what our own observations would effect. I am fully aware of the great extent to which this has been done already, but I would venture to suggest that it should take a more systematic form. If we were to form a special committee, to whom all enquiries should be referred, and then let it be widely known that any specimens forwarded to our secretary for examination would be attended to and information returned to the sender. We have amongst our working members enough of specialists to do this work, and on whom we could rely, will appear more plainly as I proceed. Thus I am sure we should gather an immense amount of observations, and what is more important would awaken a wide-spread interest in the natural sciences, and tend to make them truly popular. The educational value of our Society would be increased, and no doubt we should, in consequence, be able to count upon an increased support and sympathy both from the Government and public.

I turn now to review what is actually being done amongst us at the present time. We have, I am happy to say, a fair proportion of naturalists in all the various colonies, and the different special departments seem to be pretty equally divided amongst them. The increase in their numbers of late years has been very great. Previous to twenty years ago they might be counted on the fingers, and whatever they did was scattered through the scientific serials of Europe, or attached as appendices to works on the Colonies. A few Government papers contain some valuable early records, and a few more occur in long forgotten works. How few for instance, have seen Dr. Lindley's papers on the flora of West Australia or Stutchbury's remarks on the Natural History of Port Jackson. Would any library in Australia be likely to contain the proceedings of the Natural

History Society of Metz, with Arthur Morellet's descriptions, or how difficult it would be to obtain Menke's Latin pamphlet on the Mollusca of New Holland, published in Hanover. A valuable pamphlet of Menge's on the Mineralogy of South Australia is as difficult to meet with as an Elzevir Sallust. I have never been able to meet with Leschenault de la Tor's Notice of the vegetation of New Holland (Paris, 1824), and I don't think a copy of Meinicke's *Das Festland Australien* (Prenzlau, 1837) is to be found in Australia. But now our workers are amongst ourselves, and our work for the most part is to be found in Australian publications which are easily accessible. Time will not permit me to refer at any length to the learned Societies of the various Colonies, but I cannot help specially noticing the advance and improvement of two. Just as Professor Liversidge has infused new life into the Royal Society of New South Wales, so Professor Tate has done for the almost defunct Philosophical Society of South Australia. The Tasmanian Royal Society has improved remarkably within the last few years in the number and value of its original papers. In Melbourne the very useful Microscopical Society, which had lapsed into inactivity, has been re-organized, and rendered most effective and serviceable by the energy of its secretary, Mr. Goldstein. This gentleman has long been known to me as one of the most painstaking and conscientious observers in marine zoology. His especial province has been on the animals of our *Polyzoa*, a completely untrodden field. In conjunction with Mr. Maplestone, of Portland, Victoria, he has observed and drawn a considerable number of the forms inhabiting the cells of *Catenicellida*, about which nothing was previously known. Altogether the "Proceedings of the Melbourne Microscopical Society," which are now published, form a valuable and interesting addition to our colonial scientific annals. The Royal Society of Victoria still keeps up a certain position in the scientific annals of the Colony. It is much to be regretted that the scientific men in Victoria do not take a more active interest in a Society which



might assist them so materially, for it has large resources, and a valuable property. Up to this the greater part of the burden of sustaining it devolves upon Mr. Ellery, F.R.S., the Government Astronomer, and some few other gentlemen.

In referring to the labours of scientific men in the Colonies, Baron von Müller's efforts are too well known to need comment. During the last year he has published the following works:—  
 1. Four decades of "Eucalyptographia," a descriptive atlas of the *Eucalypts* of Australia &c. 2. "Forest resources of Western Australia," with illustrations. 3. "The native plants of Victoria," succinctly defined. 4. Continuation of "Fragmenta Phytographia" for Vol. II. 5. "Suggestions on Forests." 6. "On Vegetable Fossils of Auriferous Drifts." His work on the *Eucalypts* will be one of the most beautiful and lasting monuments to his industry and genius. It will help to clear up a portion of our floral classification, which is confessedly obscure. It may not do all that is to be done, but it will be a wonderful step in the advancement of our knowledge. It is pretty certain, however, that the number of our *Eucalypts* will, like our 300 species of *Acacia*, need considerable reduction. As an instance of what climate will effect in varying the species I may mention that the *Eucalyptus citriodora*, with the powerfully lemon-scented leaves, and which grows on the arid ridges of tropical North-east Australia, is no other than the common spotted gum of the neighbourhood of Port Jackson. Mr. Bailey, F.L.S., of Brisbane, was the first who drew my attention to this remarkable instance of variation, which I have been able to confirm by recent observations in North Australia.

In our own colony Dr. Woolls is continually seconding the labours of Baron von Müller. We must, all of us, wish that he would turn his accurate and extensive knowledge of the New South Wales flora to something more immediately benefitting the Colony. I am sure I only echo the desire of every botanist on this side of the continent, that he would give us a flora of New South Wales, or a census of the flora of any locality with which

he is acquainted. It would be a most valuable record, which no one is more qualified to give. Mr. R. D. Fitzgerald's work on the Australian Orchids still continues to give the public the fruits of his careful and industrious observations, and the beautiful illustrations from his graceful and artistic drawing.

The labours of F. M. Bailey, F.L.S., are not so generally known, and on that account are deserving of some detailed mention. Residing in Queensland, he has for many years devoted himself to the flora of that colony. It is now some six years since he published an excellent illustrated handbook of Queensland Ferns, a work, apparently, of unpretending character, but full of the most important and valuable observations. Of late years Mr. Bailey has devoted himself to the elucidation of our Australian Fungi, Lichens, and mosses, seconded by the most eminent specialists of Great Britain, and including Messrs. Berkeley, Broome, Stirton Leighton, and Mitten. As there has been little or nothing known of these several departments, it will not surprise us to learn that a large number of new species are being discovered. Some of these were described last year in the transactions of the Linnæan Society of London, by Messrs. Berkeley and Broome. I may mention that Mr. Bailey and myself have been engaged during the past year in preparing a census of the Fungi of all Australia. In making this examination we have found that while in the tropics there are many indigenous species, a considerable proportion are identical with those of India. Outside the tropics the indigenous species increase, but there is also a marked proportion of European species. In all the three divisions of Lichens, Mosses, and Fungi, we find a much larger resemblance to the flora of remote countries than in more highly organized members of the vegetable kingdom. This is in accordance with what is gradually being recognized as a principle or law throughout nature. The more simple the organism, the more ancient its life history, and the more universally distributed over the surface of the globe. I am not sure that every naturalist would formulate



the law precisely in these terms, but all would readily admit the facts upon which it is based. It is for this reason that Mr. Bailey's researches into the "lower orders" of our Australian flora are replete with interest. The Cryptogamic flora is also included in his investigations, and he is just now engaged in the publication of a work on the Queensland Ferns. I may mention that he is employed by the Government as keeper of a Herbarium which gives him special opportunities for observation. Though the Government of Queensland does very little for science, yet this is an extremely valuable exception.

It is very much to be regretted that we have no complete Herbarium for New South Wales, the oldest colony of all, and the one where it is most needed as a record. While the collections of Cunningham, of Foster, of Solander, and Robert Brown are to be found in Kew, we have not a single good public collection of our native plants in this colony. It should be remembered that as a record of what has been done by our great botanists, such a collection is invaluable, and the time for giving it the greatest interest and importance is rapidly passing away. There are good herbaria now in Queensland, Victoria, and Tasmania, but in this respect the colony of New South Wales is behind them all.

In connection with botanical observations, I must mention the labours of Dr. Bancroft, F.L.S., of Brisbane. This most industrious observer is labouring amidst very many difficulties to discover the useful medicinal qualities of our plants. His success in the case of *Duboisia myoporides* is well known. This is a plant of the *Solanum* family, which possesses in its extract a property far superior to belladonna for diseases of the eye. It also contains many other valuable medicinal properties which are being worked out. It is now known that the opiate used by the natives of the interior is the dried leaves of another species of *Duboisia*, *D. Hopwoodii*, or Pituri. Dr. Bancroft has pursued his inquiries with such vigour, that he has now a long list of colonial drugs at his disposal. *Alstonia constricta* is at present a marketable

commodity in Europe. It is a bitter bark with tonic properties superior to almost any in use, and perfectly safe. This is all the more strange, as *Alstonia* belongs to the so-called dogbanes, one of the most poisonous families of plants, though an Indian species of the same genus is used in India as a tonic. This Queensland tree grows rather abundantly on the Darling Downs on the edge of the Acacia scrubs. The same observer finds in the native pepper of Queensland (*Piper Novæ Hollandiæ*) an aromatic extract which in large doses produces the symptoms of narcotic poisoning on the lower animals. He has also discovered very curious properties in *Xanthium strumarium*, a weed so nearly allied to the Bathurst burr as to be easily mistaken for it, and having all the destructive characteristics of its congener. An extract from this plant is deadly poison, and produces all the symptoms exhibited by the administration of strychnine. Amongst other useful drugs Dr. Bancroft finds in the Queensland cassia an excellent substitute for senna, in ironbark gum a very useful astringent, and in sassafras bark a valuable aromatic. But the most interesting of all Dr. Bancroft's observations are those which he has made on some of the animal parasites affecting the human subject in Queensland. This department of medical science is all the more interesting and important when it is remembered how fearfully some parts of the Colonies of South Australia and Victoria have been scourged by hydatids, and how the influx of Chinese has awakened such just apprehensions of the spread of leprosy. I will give Dr. Bancroft's discovery in his own words:—"Another parasitic disease spreading in the colony is the blood worm, *Filaria sanguinis*, of Lewis, known now to be associated with a numerous list of morbid conditions. This is an embryonic worm about 100th of an inch long. The parent of it is located on lymphatic vessels or in cysts measuring from three to four inches long and about as thick as a coarse hair. It was first discovered in Brisbane and was named by Professor Cobbold, *Filaria Bancrofti*. It is now considered to be the cause of the elephant



leg of India, and there are grounds of belief that it causes leprosy. In Amoy a very large number of Chinese are afflicted with the parasite, and the learned Dr. Manson discovered that this mosquito in sucking the blood of a diseased person swallows the embryonic worm that floats in the blood." Dr. Manson found 120 of these worms in the blood contained in one mosquito. Dr. Bancroft has never counted more than 45 in any mosquito that he was able to examine from diseased persons in Brisbane. He adds the following conclusions as to its life history:—"The mosquito swallows the blood infested with the parasite, and subsequently contaminates the water with the same in laying her eggs. Persons drink of the water containing the *filaria*, and becomes subject to one or more of the diseased conditions known to be caused by this parasite. The only protection against this frightful pest which gives a taint to the blood, and which becomes hereditary, is to drink no water which has not been boiled and filtered. The learned doctor concludes that this parasite has been introduced into Queensland by about fifty diseased Chinamen from Amoy, who between the years 1853 and 1862 were admitted into the Brisbane Hospital. The history of some of the cases were carefully recorded, and was that of leprosy. According to Dr. Manson about one-tenth of his patients had *filaria* in their blood. These interesting observations have the highest importance for the future well-being of the Colonies. Even to trace the origin of a disease is a great step towards its eradication; and all must hope for Dr. Bancroft a long career to pursue these inquiries so important to the health of our young communities. His labours form a valuable illustration of how the study of natural history may benefit mankind. As far as his observations go the learned doctor finds that blood worms are a numerous family in the neighbourhood of Brisbane. He has discovered *Filaria immitis* in the heart of dogs. This is a well-known species, which reaches ten inches in length. This disease is also common in China, but it is not known whether or no it will infest the human species, but in all probability it will.

He has also found three species in the blood of a magpie called by the natives "curwang," probably *Grallina Australis*, and another in the Regent bird, which takes up its abode in the heart. This is a field for microscopy, which should be taken up, as the blood of any animal infested with a parasite shows its state readily on examination, even with low magnifying powers. It would be of the utmost importance to find what birds are thus infested, because none of them can be safe as articles of food.

The zoology of Australia has received a very valuable addition to its literature in the Prodrum of the National History of Victoria, by Professor M'Coy, of which three decades are already published. It has been the endeavour of the distinguished author of these publications to illustrate as many genera as possible of the living fauna, and he deals at first usually with species of special interest, of which good figures do not exist, or are not easily accessible. Like all the publications issued by the Professor from the National Museum of Victoria, they are most elaborate. The drawings are in the very highest style of excellence, and the descriptions full and complete. They leave nothing to be desired except that we had more of them. While such publications do great credit to the artistic skill of the Professor and his assistants, they redound equally to the liberality of the Government of Victoria. I have already referred to the successful efforts of Professor Tate on behalf of the Philosophical Society of South Australia. He has, ever since his arrival in Adelaide, been indefatigable in trying to develop our knowledge of the zoology and geology of the country. His papers comprise contributions to most of the colonial scientific journals, and a particularly valuable monograph of the recent and fossil *marginellidae*. In his annual address before the Society he has given a notice of the general progress that has been made towards the knowledge of the Natural History of South Australia. His account is exhaustive but, to use his own words, we are brought face to face with the fact that there are still many missing pages, even chapters, in its



history, and our knowledge in many departments is mere technical barrenness. No person need plead the want of a subject either in South Australia or any other portion of the Continent, and it is a source of great consolation to those who have been long, and, as it were, singlehanded, in the field, to hail the accession of such an industrious and learned naturalist as Professor Tate. He has succeeded in enlisting the sympathies of many, and the recent papers by Messrs. O. Tepper, H. H. Hayter, G. Scouler, W. T. Bedwall, and Dr. Schomburgh are a proof of the new life he has infused into the men of science of the Adelaide Colony. I refer especially to the anniversary address of Professor Tate to the Adelaide Philosophical Society, read at the close of last year's session as a compendium of all that has been written on the geology of South Australia, incorporated with the Professor's personal observation, and with what he has been able to gather by correspondence with colonial geologists. This is an elaborate essay, of a character much like the late Rev. W. B. Clarke's "Sedimentary Rocks of New South Wales," but with especial richness of detail in paleontology, in which particular Mr. Clarke's essay was defective. Professor Tate has made an attempt to correlate all the Australian formations, but especially the tertiary ones. It is the first detailed attempt that has been made. Some of the conclusions arrived at differ from my own, at least those I had formed, and published some years ago. The learned Professor has however so thoroughly examined the subject that I believe his system will prove the beginning of the correct solution. An entirely satisfactory one must necessarily be distant but it is encouraging to think it is in such good hands. Professor Tate has also published a *Zoologica et Palæontologica Miscellanea*, containing a new genus of fossil *Mactridæ*, on the recent and fossil *Kelliadæ* (*Lepton Lasea* and *Pythina*) on some new *pulmonifera*, on a new *phyllopodous crustacean*, on the conchology of King George's Sound, and on two new *Gasteropods* from South Australia—*Trochocochelea* and *Ethalia*. He has also issued from the Press a

description of the Natural History of the country round the head of the Australian Bight, which he terms the Bunda Plateau. The latter paper is from the Transactions of the Adelaide Philosophical Society, but I advert to it as one of the most important publications of this year. This country has been always one of singular interest, and has never been examined by a really scientific man until visited by Professor Tate. In his paper he gives the natural divisions of the country, which he was commissioned by the South Australian Government to examine, with a view to its adaptability to the artesian well system. He made a journey with a party, all riding camels, spending six weeks in the examination of the plateau. The result was not satisfactory as far as artesian wells were concerned, but we have from the professor a very elaborate account of the geology and zoology of the district.

In Tasmania Mr. W. Legrand still labours amongst the *Mollusca*, a sub-kingdom in which he has been for years a constant and most painstaking observer. He has now two zealous coadjutors in Messrs. Petterd and Johnston. The former has just published a very creditable monograph of the land shells of Tasmania. Mr. R. M. Johnston labours in almost every department of natural history. His new observations in geology and important discoveries in Tasmanian natural history are contained in the "Proceedings of the Royal Society of Tasmania."

Turning now to the department of Geology I find that every Colony is doing much towards the development of the knowledge of our rocks and rock formations. Considering how much the mineral resources of the colony are identified with this, and how much accurate geological knowledge tends to develop these resources, no activity on the subject would be excessive. In North Queensland Mr. Jack has just completed valuable maps and reports on the geology of the Bowen coal-field, the Charter's Towers diggings, and the general geology of the North. It may



be worth while to mention an interesting fact which the examination of the Bowen coal-field has brought out; the deposition of the coal in that locality, has been followed by an extensive outpouring of volcanic rocks, and the beds of lava lying above the seams have burnt away all the carbonaceous matters, and entirely destroyed them. Mr. Jack is now away on a six months' prospecting tour between the Normandy River and Cape York. This is an entirely unexplored tract, and no doubt his investigations will result in the discovery of new fields of industry and resources for the colony of Queensland. Having just returned from a lengthened examination of the coast line and part of the interior from Trinity Bay to near Princess Charlotte's Bay, I hope to place some of my observations before the Society during the ensuing year, and some of them will, I think, be found of considerable interest. In New South Wales the geology of the colony is receiving very careful development at the hands of Mr. C. S. Wilkinson. Having had the advantage and pleasure of some excursions in company with this gentleman, I can express in the most emphatic manner my appreciation of the accuracy with which he is determining the nature, extent, position, and history of our rock formations. Since the lamented decease of the Rev. W. B. Clarke, we have no gentleman so thoroughly acquainted with the sedimentary deposits of New South Wales as the director of our Geological Survey. In Victoria, the progress reports of the geological survey still continue to give valuable knowledge of that Colony, whose geology is now probably better known than any other part of Australia. The discoveries made there of late years are replete with interest, amongst which I should specify a mineral field which is partly auriferous, at Bethanga, but which is in all respects similar to the peculiar and valuable mineral deposits at Ravenswood in tropical Queensland. Mr. Cosmo Newberry has discovered a way of separating gold from poor sulphurets of antimony, which is of great importance to fields where the ore is poor, and it reflects the greatest credit on his industry and genius. It is found that

poor sulphides (*i.e.* 6 per cent.) found with gold in excess of antimony is added a bronze like metallic alloy, which is brittle and which the amalgam will not touch. It forms into flaky crystals which even after long continued grinding retain the scale-like character and are thus easily carried away by water. Mr. Newbury roasts the ore with salt or other chloride, and when raised to a red heat exposes it to a jet of steam, by which the gold is reduced to a bright clear state, easily affected by the amalgam.

The researches of Mr. A. W. Howitt, F.G.S., on the microscopical characters of the diorites and granite of Victoria are of the highest interest. They show careful observation and extensive knowledge of the subject, and are made in a department of knowledge where hitherto very little has been done. Mr. Ulrich has on several occasions drawn attention to the necessity of this kind of study of our rocks. It has been shown that reefs become richer near some dykes, but not all. By the examination of carefully prepared microscopical sections he has shown that the rocks which have a good influence are of one special variety. They are *hornblende* and true *diorites*, while all the rock masses and dykes which are of *augitic diabase* have been proved to be non-auriferous as well. Until Mr. Ulrich's observations, all these rocks were classed and mapped as *diorites*, and they cannot be distinguished except in microscopical sections.

I have thus passed rapidly over the principal fields of science which are at the present moment receiving every elucidation from our colonial workers. I have purposely abstained from any reference to our own Society's work, as the journal of our proceedings is a sufficient evidence of that. But I do not think I ought to allow this address to conclude without an expression of my humble appreciation of the labours of my colleagues in this colony, from whom I have frequently received considerable aid and always much kindness and sympathy. The zeal and public



spirit of the Hon. William Macleay have made this Society what it is, while his investigations in ichthyology and among the class *reptilia* are worthy of a family that for many generations has given most distinguished votaries to science, from the founder of the Royal Linneæan Society of London to the founder of the Linnean Society which I am addressing to-day. I look with a justifiable pride on the labours of others in their various departments when I bear in mind the circumstances and remoteness of so young a Colony as ours. Mr. E. P. Ramsay, in ornithology; Mr. J. Brazier, in conchology; Dr. Alleyne, Messrs. Stephens, Haswell, Masters, Burton Bradley, Baron Macleay and Meyrick, Dr. Cox and Dr. Read, have all in their various departments helped to give a world-wide reputation to our publications. It is with the greatest regret that I refer to the loss our Society and science have sustained by the death of the Count de Castelnau, the news of whose lamented decease has just reached us. The pages of our proceedings and the pages of most of the colonial scientific serials bear testimony to the labours and attainments of this eminent man, whose life will no doubt form the subject of a lengthened notice hereafter.

I regret very much that during the past year I could not take a more active part in the business of the Society. My learned and zealous predecessor in the presidency has set me an example of assiduity, which I have not been able to follow, but I have consoled myself by knowing that Mr. Stephens has been able to effect and has effected as much as Vice-President, as he did as President, and I congratulate the Society on his continuance in office. In conclusion, let me state that I think the time is approaching when general essays may be written on the various departments of Australian natural history and the geographical distribution of our animal life. I think also that a general account of the geology of all Australia is now also a possibility with material for a tolerable accuracy of detail. Both these desiderata will reveal strange facts about Australia, and will serve to confirm

rather than remove the reputation it has ever had for its exceptional and peculiar character. Of all the zoological provinces in the world perhaps the Australian is the most interesting, the most peculiar, and, may I not add, the most beautiful. We may compare it to an edifice—a temple, the plan of which has been determined, but the details of whose structure we have not yet made out in all their fanciful originality and proportional beauty. When we have not only mastered the style and perfection of its architecture, but also have penetrated the building, and seen its perfect adaptability to the purposes for which it has been raised, we shall be well repaid for our labours, and realize the benefit which those who have helped to make it known have thus conferred upon mankind.

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At the conclusion of the address a vote of thanks was proposed by the Hon. W. Macleay, M.L.C., and seconded by W. H. Archer, Esq., and carried unanimously; and the address was ordered to be printed.

The Treasurer then presented his financial statement, from which it appeared that the receipts of the year were £521 14s.; expenditure, £400 9d. Balance £121 13s. 3d.

The Hon. W. Macleay then proposed, and R. C. Walker, Esq. seconded the re-election of the Rev. J. E. Tenison-Woods, F.G.S. etc., as President of the Society, which was carried *nem. con.*

The rest of the business of the Annual Meeting was postponed to Wednesday, February 25th.

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