

OTAGO INSTITUTE.

ANNUAL GENERAL MEETING. 7th February, 1876.

J. S. Webb, President, in the chair.

New Member.—Dr. R. Martin.

ABSTRACT OF ANNUAL REPORT.

The Council can again congratulate the members on the continued progress of the Institute. During the past year ten general meetings have been held, which have been well attended. At these meetings 15 papers have been read by 12 different authors, all residents in the Province, four of whom are contributors for the first time. Of these papers, four relate to Zoology, two to Geology, two to Physics, and seven to Miscellaneous subjects.

Since the last annual meeting 67 new members have joined us, while one has died, and five have resigned: thus bringing our number up to 226 members. One member has become a life-member.

Several scientific periodicals are now taken, and are placed in the Library of the new Museum, where they are accessible to all members.

The balance-sheet showed the receipts for the year (including a balance of £6 13s. 7d. from last year) to be £177 16s. 7d. The expenditure amounted to £152 17s. 1d., leaving a balance in the Treasurer's hands of £24 19s 6d.

ELECTION OF OFFICERS FOR 1876.—*President*—R. Gillies; *Vice-presidents*—J. S. Webb, H. Skey; *Council*—W. N. Blair, C.E., A. Bathgate, Professor Coughtrey, M.D., J. Mc Kerrow, G. M. Thomson, J. T. Thomson, F.R.G.S., P. Thomson; *Auditor*—A. D. Lubecki; *Hon. Secretary and Treasurer*—F. W. Hutton, F.G.S.

The retiring President read his

ANNUAL ADDRESS.

My first duty this evening is to tender my thanks to those of my fellow-members who, by their contributions of papers to our proceedings and by their animated discussion of the subjects of many of those papers, have made it proper for me to say that the session of the Institute during which it has been my privilege to preside over our meetings, has been more interesting and more important than any that has preceded it. The time of weakness and struggle is, I think, now past for the Otago Institute; and those who joined with me in its origination will readily understand the feeling of something like exultation which I have experienced whilst watching the course of the past session.

I see that it is becoming a custom with the Presidents of kindred Societies in New Zealand to use the opportunity of their retiring addresses for a review of the work of the preceding year. I shall gladly fall into this fashion, since other engagements disable me

from preparing an address upon any particular subject. There are two subjects, each of great interest, on which our scientific men are at present greatly divided in opinion. These are the cause and date of glacial action in New Zealand, and the date of the extinction of the *Moa*. Amongst the papers which have been read here during the past session, there are contributions to the literature of both these controversies.

The evidences which exist of a former great extension of glacial action in this island have formed the subject of several papers, which have been read before you in former years. These papers, however, did not deal, unless perhaps in an incidental manner, with the controverted points; and I am inclined to think, from what I heard of the discussion on the subject at our May and July meetings, that the latter are not quite familiar to a majority of the members of the Society. Captain Hutton's paper "On the Cause of the former great Extension of the Glaciers in New Zealand," would otherwise, probably, have been more fully discussed. Noticing this, I had purposed to take this opportunity of explaining, to the best of my ability, the views which had been put forward by those whose acquaintance with the subject from actual observation entitled their opinions to respect. This has been rendered unnecessary. The seventh volume of the "Transactions of the New Zealand Institute" contains an address by Dr. Knight to the Wellington Philosophical Society, and a paper by Mr. Dobson, "On the Date of the Glacial Period." From these a pretty full idea can be gleaned of the nature of the argument which our leading geologists are carrying on, and in both of them matters are stated with a clearness which I could not hope to emulate. One main point on which there are two schools of opinion is the cause of that great extension of ice which has left its traces in so many localities. Captain Hutton and others attribute it to a considerable elevation of the land above its present level. Dr. Haast, with whom hold amongst ourselves Mr. Thomson and Mr. Beal, believes that a change of climate occurred which brought the snow line down to the sea level, and rendered the whole of the land we now inhabit an icebound region of storms and desolation like that which now exists 2,000 miles to the south of us. A decided majority of those best acquainted with the subject are, in regard to this point, on the side on which Captain Hutton has ranged himself. He denies the existence of adequate evidence that New Zealand passed through any period parallel in its character to that known as the glacial era of Europe and North America, and maintains that all the known phenomena are explainable under the hypothesis of an elevation of the existing land to an extent not necessarily greater than 3,000 feet. With all deference to the able observer who was my immediate predecessor in this chair, I feel bound to say that this hypothesis accords so admirably with all that is known of the tertiary fauna and flora of these islands, and suggests so ready an explanation of the affinities of existing living forms here and in those outlying islands which any considerable elevation of a wide area would unite with New Zealand, that the few facts and the many theoretical conceptions (borrowed from a geological literature which is dominated by deductions from observations made chiefly in the opposite hemisphere), which induce others to refuse to accept it, have no weight with my mind. Geology has been going through its own glacial period of late years, and has been overrun with ice theories which I take leave to think have all left disfiguring striæ on many a fair treatise. All that Captain Hutton has written on this subject, including his admirable paper "On the Geographical Relations of the New Zealand Fauna," gives valuable support to the reaction which has now set in against the widely prevalent theory that the earth was at some not very remote period subjected to cosmical influences which for a time greatly reduced its surface temperature. Conjecture, and the manufacture of hypotheses on this subject, may be said to have reached a

climax, when, in 1868, Mr. Croll contributed to the *Philosophical Magazine* his celebrated paper on "Geological Time." Of this theory, and of some of the patent objections to it, Captain Hutton was so good as to give us an account during the discussion on his paper which Mr. Beal opened. A good account of it, given by Dr. Knight in the address before alluded to, is no doubt also familiar to you. As I have said, a reaction has naturally followed upon this and other extravagances of learned men, and evidence that no great change of climate has been universal at one time even in the northern hemisphere has been sedulously collected. One of the latest contributions in support of this view is in a paper on the former climate of the polar regions, which appears in the November number of the *Geological Magazine*, a perusal of which sent me back again to read with renewed interest Captain Hutton's paper on the New Zealand Fauna. I cannot help avowing the belief that the influence of general speculations about the causes of the northern glacial era, and especially of sundry chapters in that fascinating book, Campbell's "Frost and Fire," have given a warp to the ideas which some of my fellow-members express on the subject of the former glaciation of this island.

On the subject of the most recent remains of the Moa, and whether the birds were or were not contemporaries of former generations of the present native population of New Zealand, I hope we shall yet have a great many more papers. Although, in common with, I think, all my fellow-members of this Society, I believe that the extinction of the latest forms of these strange birds is a thing of very recent date, I am not insensible to the fact, that the evidence we accept as sufficient has not yet brought conviction to the minds of able men elsewhere. In this connection, it is greatly to be regretted that the admission of a paper by Mr. McKay into the "Transactions of the New Zealand Institute" against the protest of Dr. von Haast, has caused that gentleman to withhold from publication the account of his recent researches, and a statement of his latest formed opinions as to the identity or otherwise of the Moa-hunters with the Maori race. An impression prevails that his opinions on the subject have been greatly modified by the results of the exploration of the Sumner Caves, and also by the facts and arguments relied on by the opponents of his theory. I am bound to say, that a recent conversation I enjoyed with Dr. Haast led me to no such conclusion, and I sincerely hope he will reconsider his refusal to contribute further to the "Transactions of the Institute," and let us hear what he has to say about a matter which interests a large section of the public as much as it does his fellow-members of the Institute. All who take an interest in the subject will be glad to hear from him a reply to all that has been advanced against his idea of a palæolithic man who hunted and extirpated the Moa in a remote age. For though we have all our opinions, I think that both here and elsewhere Dr. Haast will find his fellow-members ready to consider with deference whatever he may bring forward. That this is so here, was evidenced during the discussion on Captain Hutton's paper on the "Maori Kitchen Middens at Shag Point," by the unanimous approval which greeted Professor Coughtrey's remark, that the subject on hand was one as to which we "should work and wait, and record our observations without at present drawing what might prove rash conclusions from them." Although Captain Hutton's paper supported the view of the subject which we in Otago have expressed, it is impossible to read it in conjunction with that to which it is virtually a reply, without feeling that Dr. Haast went to the mouth of the Shag River with one theory in his head, and that Captain Hutton and Mr. Booth followed his footsteps with another, and without wondering what would have been seen and concluded by some one who should have gone there without either of these spectacles on his eyes. And this I say without wishing to disparage the work of either

party. The observation, that we see most readily that which we expect to see, and are apt to overlook that which we are not beforehand prepared to find, is too old and trite an aphorism not to have long ago secured their assent to it; and none probably would be more glad than themselves if some one who knew nothing of either view could be got to repeat their investigations independently, and decide between them.

Mr. Blair's papers "On the Building Materials of Otago" have won for him from many quarters a praise which I can but echo. They are of extreme interest, and must remain for a long time the standard sources of information on the subject to which they relate. I wish that every man whose official position gives him opportunities of amassing information useful to his fellow-men, would turn them to as good account. It would be presumptuous on my part to offer any remarks on the subject-matter of these papers, since nearly all I know about it I have learnt from Mr. Blair. We all, I am sure, look forward with great interest to the remaining papers of the series. These, as they will treat, amongst other things, of our timbers, will be of the widest value, because, notwithstanding the slight differences which climate may make in the character of some species, the information which Mr. Blair has amassed will be as good for all parts of the colony as for Otago. Since Mr. Balfour made a report on New Zealand timbers for the Commissioners of the New Zealand Exhibition, in 1865, a great deal may have been learnt by individuals as to the comparative and absolute merits of our native woods, but scarcely anything has been published. No one can read that report without coming to the conclusion, that on all those points as to which the results of observation extending over a number of years are required, the information which Mr. Balfour found available was too scanty to admit of any really reliable conclusions being drawn. I trust that a lapse of ten years has provided for Mr. Blair a more ample range of information to supplement and afford comparisons with his own observations.

Another paper of a highly practical character which has been read before you, is Mr. Connell's, "On New Zealand Surveys." Certain circumstances, to which I need not allude, rendered this contribution to our "Transactions" very opportune, but it must not on that account be supposed that it is a paper of ephemeral interest. When published in our annual volume, it will, I have no doubt, be read far beyond the limits of the colony, and I have equally no doubt that it will be found useful to those engaged in survey work under circumstances analogous to those which exist here in all parts of the world. Neither Mr. Thomson nor those who have served under him have any longer need to attempt a defence of the methods they have pursued, since, wherever they have come to be understood, they have been heartily approved. To anyone who has failed to apprehend their character and special adaptability to the circumstances which prevail in most new countries, Mr. Connell's paper affords an exposition which is certainly clear, and should be convincing.

Mr. Skey has, I think, excelled all his former ingenious contrivances and suggestions by the simple and thoroughly sound invention which he described in his paper "On a New Direct Vision Solar Eye-piece." I cannot help repeating about this what has been said of so many good ideas—its great merit is, that it is so simple that we cannot help wondering that no one has discovered it before.

Mr. J. T. Thomson's paper "On the Longitude of Wellington," was evoked by some remarks made by Dr. Hector in a communication read before the Wellington Philosophical Society. For my part, I am very sorry that my good friend should have made those remarks, since they were not needed for his own justification or in explanation of

anything, or for the instruction of anyone. They have grieved Mr. Thomson very much, and they have initiated a controversy which can hardly be pleasantly conducted, and which, therefore, forms an undesirable element in the proceedings of a Society like ours. Yet place was bound to be given to what Mr. Thomson desired to say. As Dr. Hector's reply to Mr. Thomson's paper has not been communicated to this Institute, I take leave to express the hope that the "Transactions of the New Zealand Institute" will include nothing further on the subject. We shall all, I am sure, look forward with much interest to the determination which should soon be made of the difference of longitude between Sydney and Wellington by the aid of the cable now about to be laid. That made by Captain Nares gives a longitude nearer by 3.51sec. to the results obtained by our New Zealand observers—Carkeek, Jackson, and Thomson—amongst whom the nearness of agreement is very striking. I understand that Mr. Jackson has obtained from Greenwich the means of correcting the figures given by the Nautical Almanac, which were used in reducing his observations. This information will enable him to eliminate from his calculations those errors of the Lunar Tables to which Dr. Hector refers in his memorandum. For my own part, when I note the very close agreement between our three New Zealand observers, each working independently at his own observatory, I cannot refrain from expressing the belief that their work, after being corrected in the manner just alluded to, will hereafter be found to be a much closer approximation to the truth than either the longitude given in the Admiralty charts, or that suggested by Captain Nares.

I am unable to offer any remark on Mr. McNaughton's paper "On Improvements in Ships' Boats," as I was unable to be present when it was read, and was unfortunately too late in applying for perusal of it before its transmission to Wellington.

We received during the session, from our esteemed honorary member, the Rev. Mr. Wohlers, the third of his series of papers "On Maori Mythology." The stories contained in this paper do not deal with the loftier conceptions of the mythology, but to my mind they are more interesting than any which have preceded them. The opportunities which Mr. Wohlers enjoys of collecting these native fairy tales are exceptionally good, and I hope he will have a new budget ready for our next session. The stories now made known will, I think, be new to most, if not all, the students of the Maori race, and will be read with interest by every anthropologist. As it is, strange to say, still in dispute whether the Maoris have any actual references to the Moa in their songs and traditions, I listened to them anxiously to see if any of them shed a new light on this obscure subject. With some of those who were present when they were read, I strongly incline to the belief that one, at least, of the stories is founded on recollections of the way in which the more gigantic of the *Dinornidæ* were trapped by Maori hunters; but as the paper had been forwarded to Wellington before I applied for a re-perusal of it, I must defer some remarks I desired to make about this and other stories until they appear in print.

The other papers of the past session deal with Biological subjects. These are—Mr. Gillies's "On the Trap-door Spider," Professor Coughtrey's critical notes "On the New Zealand *Hydroïda*," and Captain Hutton's "Contributions to the Ichthyology of New Zealand," and "Description of the Cow-fish of the Sounds on the West Coast of Otago." The proportion which these natural history papers bear to the rest of our Transactions is much less than usual. I believe this is partly owing to the fact that the members of the Field Naturalist Club have preferred to report their work at their own meetings instead of reading papers to the Society. By this method the permanent record, which it is one of the first objects of the New Zealand Institute to secure for the original observations of local naturalists, is lost to them. The Club was formed under the wing of this

Society, and I shall be glad if it will return to its first practice, and send in annually a report of its proceedings to form part of our Transactions. I am not competent to review the contents of the papers on natural history. That by Mr. Gillies was an exhaustive one, and the interest it excited says more for it than any praise I could bestow. Such papers as this, or Captain Hutton's "On the Modifications in the Capsules of Mosses," or Professor Coughtrey "On New Zealand *Hydroïda*," are what we need above all things to stir up a greater interest in natural history amongst us, and I am sorry that they were not read to far larger audiences. For it is indeed still as true as ever it was that a large proportion of our fellow-men look upon the pursuit of natural history as mere trifling and curiosity hunting. They are willing to accord their suffrages of applause to a Spencer or a Darwin because the great generalisations in connection with which their names are known affect systems of philosophy, attack old-established notions, and impress the minds of all with the grandeur of their simplicity. At the same time they utterly forget, or rather they are for the most part ignorant of the fact, that it is only as a consequence of the unwearied industry of the humbler votaries of natural history that the mass of knowledge has been accumulated which has formed, as it were, the raw material out of which the great biological theories now passing into general acceptance have been woven. The hunter for new forms may seem to be a mere curiosity hunter. He who dissects and describes a bit of sea-weed from the shore may seem to be but a learned trifler. Nevertheless, the great doctrine of evolution, with which all the thought of the civilised world is busy, is but the direct descendant of the labours of such men. It is through their work that we have obtained our knowledge of the forms and characteristics of the world of organisms, which beforehand appeared only as a chaos of heterogeneous forms having no relation amongst themselves beyond that of preying upon and becoming the prey of one another. To some it may appear that I say nothing in honour of the work of the naturalist when I claim for it the patronage of the philosophy of the day. I know it is stigmatised as irreligious by at least half the civilised world, and looked upon with suspicion or accepted half-heartedly by a large proportion of the other half. This is the subject to which I should have liked to have devoted this address.

The alleged conflict of religion and science has been the theme of a thousand addresses, but it still remains an unexhausted subject, because its aspects change from generation to generation, and even in our time, from year to year, so that what is well said to-day is useless or stale to-morrow. I need not contend before such an audience as I speak to to-night, that there is no conflict between science and religion. The constant warfare of words that is going on throughout the world lies between religious knowledge and religious ignorance. There may be persons in the world who have become irreligious, as a result of their scientific acquirements, but it may be said of them, with certainty, that the temperament which led to their being thus influenced in spite of their culture would have made them irreligious still more surely had they remained uninstructed. It is a very painful thing to see men who are utterly without instruction on the subjects they deal with standing up to condemn the most cultured and most truly religious men of the age as irreligious and dangerous teachers. Even in this out-of-the-way corner of the earth, the Ultima Thule of civilisation, we find these Prophets of the Baal of Ignorance loftily criticising and condemning a philosophy whose foundations are utterly unknown to them, whose facts they misapprehend, whose arguments they misunderstand or misapply, whose conclusions even they have not taken the pains properly to acquaint themselves with. It is my one regret on vacating this chair that I have been

unable to fulfil a long-cherished intention of endeavouring to expound from it the reasonableness of science and the piety of culture as they show themselves to my own mind.

The President then vacated the chair, which was taken by the newly-elected President (Mr. Gillies), who thanked the members for the high honour they had conferred upon him. In succeeding the late President he felt a considerable load of responsibility upon his shoulders, because never since the Society had been established was the President's chair so well filled, nor had the Society progressed to such an extent. He was afraid that during the ensuing year the Society would be a loser by the change, but he hoped to receive the cordial assistance of members in his endeavours to achieve success.

R. Gillies, President, in the chair.

“Further Remarks on some New Zealand Birds,” by Dr. Otto Finsch, Ph.D., of Bremen, Hon. Mem. N.Z.I. (*Transactions*, Vol. VIII., p. 200.)

SECOND MEETING. 9th May, 1876.

R. Gillies, President, in the chair.

New Members.—M. Joel, W. C. Smith, J. A. Miller, Dr. Batchelor.

“On the Transportation of Salmon Ova,” by Prof. Coughtrey, M.D.

THIRD MEETING. 6th June, 1876.

R. Gillies, President, in the chair.

New Member.—J. Wood.

1. The Secretary read a letter from Mr. J. Leece describing the Fall of an Aerolite, near Victoria bridge, in the Upper Clutha district.

2. “On the New Zealand Earth-worms in the Otago Museum,” by Captain F. W. Hutton, C.M.Z.S. (*Transactions*, p. 350.)

FOURTH MEETING. 4th July, 1876.

H. Skey, Vice-president, in the chair.

New Members.—H. L. Squires, A. Christophers, T. Mackenzie.

1. “On a new Fire-grate for economising the Combustion of Coals and Lignite and increasing the Radiation of Heat,” by H. Skey.

2. “Notes on the New Zealand *Delphinida*,” by Captain F. W. Hutton, C.M.Z.S. (*Transactions*, p. 349.)

3. Captain Hutton exhibited a specimen of *Diomedea cauta*, Gould, which had been obtained at Blueskin, and presented to the Museum by Mr. A. C. Purdie.

4. Professor Coughtrey explained a new mode of irrigating an object on a microscope-slide. The plan was to place a ring of blotting paper on the slide, round the covering glass, and then by a rapid movement to wet the complete ring with a camel-hair brush.