ROYAL SOCIETY.

APRIL, 1889.

A meeting of the Royal Society of Tasmania was held at the Tasmanian Museum on April 16th. The President, His Excellency Sir Robt. G. C. Hamilton, K.C.B., presided, and there was a large attendance of Fellows and ladies, including Lady Hamilton.

The secretary laid on the table the following additions to the library :—

Annual Report of the Curator of the Museum of Comparative Zoology at Howard College for 1887-8.—From the Department.

Boletem da Sociedade de Geographia de Lisboa, 7A serie. No. 9, 10.—From the Society.

Bolelin Mensual, Mexico. Tomo 1. Nos. 8 to 10.—From the Department.

Bollettino della Societa Geographica Italiana, Serie III., Vol. 1, Fase IX. XII.—From the Society.

Bulletin de la Société Impériale des Naturalistes de Moscow, No. 3, Moscow.—From the Department.

Bulletin de la Société D'Ethnographie, Paris.—From the Society.

Bulletin of the Museum of Comparative Zoology at Howard College, whole series vol. XVI , Nos. 2 and 3, " On the geology of the Cambrian, District of Bristol, County Mass. By N. S. Shaler.

" Fossil Plants collected at Golden, Colorado." By Leo Lesquerliex.

Bulletin de la Société Académique Indo-Chinoise de France. Deuxiéme Série—Tome Deuxieme.—From the Society.

Descriptive Catalogue of the Sponges in the Australian Museum, Sydney. By K. Von Lendenfeld, P L.D.—From the Trustees.

Flora of British India, The. By Sir J. D. Hooker, C.B. Part XV.—From the Department.

Indian Meteorological Memoirs. Vol. III., parts III., IV.; Vol. IV., part 5.—From the Department.

Journal of the Royal Microscopical Society. Current numbers.—From the Society.

Key to the system of Victorian Plants, Dichotomous arrangements of the orders, genera and species of the native plants, with annotations of primary distinctions and supporting characteristics. Parts 1 and 2, 1887-8. By Baron Müeller.—From the Author.

Meteorologische Bebbachtunjen, Moscow.—From the Department.

Meteorological Report of New Zealand for 1885.—From the Department.

The Mineral Wealth of Queensland. By R. L. Jack, F.G.S.—From the author.

Monthly Notices of the Royal Astronomical Society. Current Numbers.—From the Society.

Monthly Weather Report, Canada.—From the Department.

Vol. XVII., No. 2, on the lateral canal system of the Selachia and Holœphold. By Samuel Green.—From the Department.

Proceedings of the Canadian Institute, Toronto, October 1888.—From the Society.

Proceedings of the Linnean Society of New South Wales, vol. III., part 3rd.—From the Society.

Prodromus of the Zoology of Victoria, Decade XVII. By Prof. F. McCoy, C.M.G.—From the Department.

Proceedings of the Royal Society of Queensland, 1887, vol. IV.; 1888, vols. III. IV. V.—From the Society.

Psyche, a journal of Entomology, vol. 5, Nos. 149 to 153.—From the Society.

Report of the Mount Morgan gold deposits, Queensland, 1889. By R. L. Jack, Government Geologist.—From the Author.

Scottish Geographical Magazine. Current Numbers.—From the Department.

Select Extra-Tropical Plants, readily eligible for Industrial Culture or Naturalisation, with indications of their native countries, and some of their uses. By Baron F. Von Müeller. From the Author.

Systematic Account of the Geology of Tasmania. By R. M. Johnston, F.L.S.—From the Government.

Tabular list of all the Australian birds at present known to the author, showing the distribution of the species over the continent of Australia and adjacent islands. By E. P. Ramsay, LL.D., etc.—From the Trustees Australian Museum.

Transactions of the Asiatic Society of Japan. Vol. X.V.I., Part II.—From the Society.

Transactions and Proceedings of the Royal Geographical Society of Australasia (Victorian Branch). Part II., Vol. VI.—From the Society.

Verhandlungen des naturhistorischen, Vereines des preussischen Rheinlande, Westfalens und des Reg. Bezirks Osnabrück.—From the Society.

Verhanalungen der Gesellschaft Für, Erdkunde Band, XV., Nos. 7, 8, 10. From the Society, Berlin.

Victorian Year Book for 1887-8.—From the Government Statist.

His Excellency stated that there were two interesting papers to be read, and a number of equally interesting ones were promised during the session. Many of the subjects brought forward did not lend themselves readily to discussion, but he would like to see the Fellows of the Society intimate with any subject laid before them to give them the benefit of their opinions. This would make their meetings more lively and interesting, and also gave an opportunity to those who had read papers to correct any misunderstandings or wrong impressions that may have arisen from the reading of those papers. He trusted, therefore, that they would have freer and fuller discussions than they had had during previous sessions.

PAPERS.

THE "IRON BLOW" AT THE LINDA GOLDFIELD.

Mr. Alex. Morton, F.L.S., read a paper by Mr. Gustav Thureau, F.G.S., on "The 'Iron Blow' at the Linda Goldfield." In it the writer gave his opinion that this unique gold formation was due to volcanic agency, and not as Mr. R. M. Johnston contended, to local decomposition, especially as far as the dark-coloured and pulverulent masses are concerned. Decomposition, he believed, was a chemical process by which the destruction of one or more substances leads to the substitution and depositing of quite different matters, thereby bringing about the re-arrangement of the former original substances in quite different forms. The analyses of Mr. Ward conclusively proved the almost total absence of gold in the pyrites veins or beds, which are very dense and excessively solid, and which have undoubtedly resisted both decomposition and dissolution for ages, therefore he asked how it was possible that these almost non-auriferous vein bi-sulphides produced on their supposed (inert) decomposition that peculiar purple mineral, assaying,

as reported, considerably above 170oz. of gold to the ton. Again, those very solid pyrites contain no barytes, which latter minerals he first discovered as the necessary adjunct to the gold. Supposing, however, as Mr. Johnston had stated, that the "Iron Blow is the result of oxidation of pyrites similar to that now so largely associated with it," it would be necessary to bear in mind that as proved from analysis they had first to deal with a nearly non-auriferous bi sulphide of iron, containing no baryta to speak of, and, secondly, that water is assumed to have produced the rich pulverulent gold rock by means of the decomposition of the former, and contemporaneously or subsequently by means of infiltration filled the fissure, and that small disseminated particles of baryta appeared either before or during the process of oxidation. In his (Mr. Thureau's) opinion everything points to a more drastic process of origination than simple and quiescent decomposition, and to him it becomes clear to the close and careful observer of these unique gold deposits *in situ* that dynamical geology can alone account for these strictly speaking volcanic products. Having had opportunities for examining active "mad volcanoes" in the United States, and as the process observable there in active progress assimilates a great deal to what can be seen in its "dead state" at the "Iron Blow" of baryta is substituted for silica, as matrix in the latter case, the question of origin as to both metalliferous deposits is not only in his opinion, very suggestive, but forms the only possible true solution of the case.

In consequence of the absence of Messrs. Johnston and Ward it was decided to postpone discussion until next meeting.

TIDE OBSERVATIONS AT HOBART.

Mr. A. Mault read a paper on "Some tide observations taken at Hobart during February and March, 1889," in which he stated that with a wish, firstly, to obtain information connected with the drainage of Hobart, and, secondly, to fix the mean sea level for geodetic and engineering matters to get a series of tidal observations, he had arranged with Captain Oldham, of H.M.S. Egeria, that observations be taken at the New Wharf by the automatic tide gauge belonging to that boat, and the result briefly was as follows:—1. The tides are subject to a large diurnal inequality, the highest high water being followed by the lowest low water. The tide then rises to a lesser high water and falls to a lesser low water. 2. With the moon's declination north the higher high water follows the superior transit of the moon; with the moon's declination south the higher high water succeeds the inferior transit. 3. The greatest range of tide appears to occur about two days after the moon has reached its greatest north or south declination: the least range when the declination is zero. 4. H.W.F. and C. occurs at Hobart at 8h. 15m. Springs rise 3¾ft. to 4½ft. and 2ft., neaps 2½ft. In the letter to him from Captain Oldham the following words occur:—"From these observations the mean tide level is 8ft. 2·7in. on the gauge or 35·255ft. below the datum mark on the Town Hall." In the letter it was also stated that, as these observations were only for one month and as probably the mean tide level varies at different seasons, to get a satisfactory result a year's observation should be obtained." He (Mr. Mault) was glad to say that the Hobart Marine Board were obtaining an automatic gauge, so that the observation could be continued. For the purpose of more readily comprehending the information contained in those observations, he had prepared diagrams showing the occurrence of springs at greatest declination, and not at new and full moon, and that there is no "age of the tide" at Hobart. Diagrams were also appended, showing, for comparison, a fortnight's tide curves at Hobart, and a fortnight's at Bombay, and another representing a normal curve of lunitidal intervals. The irregularities which appeared by these

diagrams showed that no time of high water on the day of new or full moon could be fixed, although Captain Oldham mentions 8h. 15min. He pressed on the Society the need of co-operating with the Marine Board in the taking of observations. The force and direction of the wind also had an influence that must be noted. The highest tides occurred with the wind blowing from north and north-easterly points. The barometer also should be noted, as a fall of 1in. in the barometer meant a rise of 20in. in the sea level. He also suggested that the Marine Board be asked to get their lighthousekeepers to keep a register of the high and low water times.

A DESIRABLE CHANGE.

Mr. W. Benson read a paper in which he pointed out that the work of the Society had and was rendering practical and substantial benefits to the colony at large, but was of opinion that it might be made of still greater interest and value. There were two classes amongst the members, first savants or specialists, and secondly those who had not thoroughly studied any special subject. So far as the meetings of the Society were intended for the interchange of notes upon new discoveries, the reading of papers prepared by savants and specialists was natural and proper, though he doubted whether those who merely heard them read could gain as full a knowledge of their contents as they could by studying them in the Society's printed proceedings. Opportunities for self-instruction in all local branches of science—local geology, botany, natural history, and the like—were very few compared with what had been provided for English students. Here text books hardly existed, and English works were in many cases unsuitable. He would therefore ask the Society to consider whether means could not be devised for affording instruction of a more elementary and general kind, and he did not know of any other organisation so well qualified to do the work. He wished the rising generation to become more interested in the physical history of their native land, its fauna, flora, and so forth. The taste for such studies when once acquired rarely left a man, and developed afterwards along the lines of his peculiar preference, and thus the whole field of scientific enquiry became gradually occupied. He proposed for consideration the desirability of initiating courses of popular lectures on scientific subjects, under the auspices of the Society, not restricted to members, but open to all. He would like to see the Museum made use of on all occasions where its cabinets could be used as illustrations. Another thing which might be attempted in connection with the Society, was the formation of a Field Naturalists' Club. One other matter which might well interest the Society was the introduction of local science primers for school use. His chief desire was to supplement rather than subvert the work of the Society. For years science stood apart, its affairs were assumed to be above the popular understanding, but that had all been changed, and in Huxley, Tyndall, and many others they saw men of the highest scientific rank taking the lead in bringing their chosen studies home to the minds of the masses; consequently the Society need not fear that anything it might do would be *infra dig.* He hoped the love of science for its own sake would suffice to induce one or more of their savants to lecture, and permit the experiment to be tried. If the Council of the Society could keep an open eye for any opportunity that might arise to interest the public, and especially the young, he had faith that good results would follow.

NOTES AND EXHIBITS.

The Secretary drew attention to a rare bird that had lately been shot near Muddy Plains. It was commonly known in Australia as the

"nankeen kestrel," *Tinnunculus cinhceroides*. Mr. Morton stated that it was a singular coincidence that in April 1875, two specimens now in the Museum, were shot at Sorell. On dissection the bird now exhibited proved to be a female. The habitat of this bird, as recorded in Dr. Ramsay's list, was N.W. Australia, Queensland, and Victoria.

Another specimen, "the golden plover," *Charadrius fulvus*, shot at the Great Lake by Mr. T. Clarke, as also a grebe, *Podiceps Australis*, shot by the same gentleman, was shown, having been shot at the Great Lake.

The SECRETARY also drew attention to a valuable collection of minerals from the great Broken Hill Mine that had been kindly presented to the Museum by Mr. F. Back, General Manager Tasmanian Government Railways.

Mr. J. R. McCLYMONT, M.A., stated he had much pleasure in placing on record a new bird to the lists of birds at Tasman's Peninsula, the brown quail, *Synoicus Australis*. He also exhibited a specimen of native bread, with a peculiar fungus growing from the bread.