

course of time it will probably be discovered that there exist certain definite types of cerebral convolutions corresponding to the principal varieties of mankind. In order to discover those types much material will require to be conscientiously examined; and I hope that my investigation will induce other anatomists to work in this direction to prove or to disprove this statement, which in the present state of our knowledge can only be more or less hypothetical.

On my way from Thursday Island I let slip no opportunity of examining, measuring, and photographing the remnant of the Australian aboriginals; and hearing it stated in various quarters that there were living in the interior of Queensland certain natives described as devoid of hair, I thought the problem of a possible occurrence of a hairless stock among the aboriginals worthy of a personal investigation. I have written to Prof. Virchow of Berlin at length concerning my examination of this hairless family, which I found at Gulnarber Station, near St. George, on the Balonne River. This was made considerably easier for me by the kind assistance of Mr. G. M. Kirk of Gulnarber Station. As regards this instance of natural, and in this case hereditary *atrichia universalis* among the Australian aboriginals, I will only remark that it forms an interesting antithesis to the well-known cases of excessive hypertrichosis.

With a view of pursuing comparative anatomical researches on the brain of the marsupials, I went to Pikedale, near Stanthorpe, where I succeeded during a stay of almost six weeks in acquiring for my cerebral investigations some material which is almost impossible to obtain in the cities, such as Brisbane or Sydney, and which, as I have learnt by my own experience, cannot be obtained even in the bush with great ease and quickness. I succeeded, however, in obtaining a number of brains of some species of the genera—*Macropus*, *Osphranter*, *Halmaturus*, *Petrogale*, *Phascolarctos*, as well as a few brains of *Ornithorhynchus* and *Echidna*.

At the end of December last year, still availing myself of the kind hospitality of Mr. Donald Gunn, I went on to his other station, Clairvaux, near Glen Innes, with the intention of collecting some fossils, and without great trouble I got a series of interesting remains of *Diprotodon Australis*, *Nototherium Mitchellii*, *Phascolomys gigas*, *Macropus titan*, &c., &c.

When I received in May, 1880, in Thursday Island, a letter from my friend Mr. William Haswell, informing me that the Zoological Station in Sydney was not established, I determined not to leave Australia before the scheme had been carried out. Detained in Queensland by the work already referred to, I only arrived in Sydney in January of this year, and now, after a stay of one month, I have the pleasure to announce that I have every reason to believe that the Zoological Station at Watson's Bay will be opened in a short time. My stay in Brisbane has once more caused me to feel the necessity of such an institution for the biologist. I could expatiate at length on the advantages of a zoological station, but I content myself with remarking that, in spite of my great dislike to waste my time, I was obliged to spend many days, even weeks, in Brisbane and Sydney without the possibility of working, on account of the want of a suitable place.

I repeat again my conviction, grounded on long experience, that "the immediate need is not of apparatus or libraries, but of a place for undisturbed work."¹ I hope to be able, not later than in two months, to work in the Zoological Station in Watson's Bay. I am convinced that many men of science will avail themselves of it in future years; and I am satisfied to leave for future generations such a memento of my stay in Sydney as the first zoological station in Australia.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The Physiological Laboratory (Dr. Foster's) will be open during the Long Vacation, and a series of repetitions of lectures and demonstrations will be given by Mr. Waters, the Assistant Demonstrator, in Elementary Biology, Histology, and Physiology.

The Cavendish Laboratory will be open during July and August, and the Professor of Experimental Physics or one of the Demonstrators will attend daily.

Prof. A. C. Haddon, of the Royal College of Science, Dublin, has been nominated by the Board of Natural Science

¹ *Vide Proceedings of the Linnean Society of New South Wales*, August 26, 1878.

Studies to study at the Zoological Station at Naples during the ensuing autumn.

The Board of Mathematical Studies has issued a report showing that in the last Mathematical Tripos the total of marks was 33,541, of which the first ten wranglers averaged 8582. In the last five days 11,753 marks were assigned to riders, and 7770 to problems; of which the first ten wranglers averaged 2388 and 936 respectively. The additional examiner stated his satisfaction with the answering; and he considered that much of the time formerly occupied by the study of astronomy, including the Lunar and Planetary Theories, Figure of the Earth, and Precession of Nutation, was now devoted to Heat, Electricity, and Magnetism. Comparing the progressive nature of the latter subjects with the stationary nature of the former, the latter afford the best means of testing the mathematical ability of the candidates.

Prof. Cayley will lecture in Michaelmas Term on Abel's Theorem; Dr. Ferrers (Master of Caius) on the Theory of the Potential; Mr. Niven (Trinity) on Electrostatics; Mr. Glaisher (Trinity) on Definite Integrals and Differential Equations; Mr. Hobson (Christ's) on Rigid Dynamics; Mr. Stearn (King's) on Conduction of Heat and Electricity; Mr. Allen (St. Peter's) on Magnetism; Mr. Dickson on Dynamics of a Particle.

The annual report of Prof. Adams to the Observatory Syndicate states that, notwithstanding the exceptionally unfavourable weather for observing, there had been made 2834 determinations of Right Ascension and North Polar Distance with the transit circle, including 2151 observations of zone stars which were made on eighty nights. Satisfactory observations of the partial solar eclipse, December 31, 1880, were obtained with the Northumberland equatorial, employing the wire micrometer. The observations with the transit circle for nadir point and level have been facilitated and rendered much more satisfactory by an alteration in the mode of illumination of the wires through the Bohnenberger eyepiece. Instead of placing a small hand-lamp on a stand close to the eyepiece, which gave an uncertain image at the best, the illumination is now effected by means of a paraffin lamp placed on a platform at the requisite elevation about ten feet from the eyepiece. The rays for the lamp are rendered parallel by passing through the system of lenses intended for the illumination of the microscopes of the eastern circle, which is not in ordinary use. There is now no difficulty in getting the light properly directed, and the images both of the Right Ascension and Declination wires are dark and very distinct. The observations of standard stars are completely reduced in R.A. and N.P.D. to the end of 1879 and part of 1880, as to the zone stars, the true R.A. and N.P.D. are obtained to the end of 1878, the approximate N.P.D. to the end of 1879. The calculation of reduction of apparent place to mean is completed to the end of 1876, and is far advanced for 1877. Meteorological observations are regularly made. A third assistant in the Observatory is urgently needed.

The following awards have been made by the Master and Seniors of St. John's College for proficiency in Natural Sciences:—To Samways, a Wright's Prize, with 100*l.* for the year; to Weldon, Edmunds, Love, T. Roberts, Foundation Scholarships; to Pagan, Goodman, Exhibitions. The Open Natural Science Exhibition was awarded to H. Wilson of the Leys School, and another Open Exhibition to J. Kerr of Manchester Grammar School.

SCIENTIFIC SERIALS

Trimen's Journal of Botany, June, 1881, contains:—Notes on *Carex flava*, L., by F. Townsend, M.A.—A revision of the Indian species of *Leea*, by C. B. Clarke, M.A.—Notes on Irish plants, by H. C. Hart, B.A.—Short notes.—Extracts and notices of books and memoirs.—Botanical notes.

The American Naturalist, June, 1881, contains:—The archæology of Vermont, by Prof. Geo. H. Perkins.—On the larval habits of the Bombyliidae, by C. V. Riley (with a coloured plate).—On the late explorations in the Gaboon, by H. von Kopenfels.—On the Pueblo pottery, by Edwin A. Barber.

Kosmos, Jahrgang v. Heft 2, contains:—Prof. Dr. Fritz Schultze, on the relations of sceptical naturalism to modern natural science, with especial reference to the evolution theory (conclusion).—Henry Potonié, on the relations of morphology to physiology.—Dr. Fritz Müller, *Atyoida Potimirim*, a mud-eating fresh-water shrimp (with twenty woodcuts).

Revue Internationale des Sciences, May, 1881.—M. Debierre, on physical dynamism and biological dynamism (concluded).—A. Charpentier, on the examination of the powers of vision, from a general medical point of view.—J. Morton, the city of Gheel, in Belgium, and its asylums.—H. Müller, on the pretended refutation of Boumer of the theory of flowers (translated from *Kosmos*).

Nyt Magazin for Naturvidenskaberne, Christiania, 1880-1881. Band 26, Heft 1.—Herr Leonhard Stejneger continues his contributions to the ornithology of Madagascar, and describes a new *Tylas*, which appears to be closely allied to the *T. madagasc.* of Grandidier.—L. Meinich gives the result of his examination of the quartz and sandstone formations of the Trysilfeld near Kongsberg, Norway, and Herr H. Rensch, editor of *Naturen*, describes the geological character of the strangely dislocated and fissured fjeld known as the Torghattee, on an island off the Heligoland coast. The same writer occupies nearly all the pages of Heft 2, first in giving the remainder of his observations of the Torghatten caverns and rocks, and next in a comprehensive and elaborate description of the character of the conglomerate sandstones and metamorphosed schists in the Nordfjord and Göndfjord districts near Berglun, to which he adds the analyses and histological results obtained from the examinations of these rocks in the Leipzig mineralogical laboratory. These numbers of the magazine contain, however, some specially interesting communications by Herren Daniellssen and Koren of the various new forms of Gephyrea and Echinodermata obtained in the Norwegian Arctic Expedition. These observers describe a form of Bonellia, to which they have given the name of *Hamingia Arctica*, which approximates closely to *Bonellia viridis*, first found in the northern seas about forty years ago by Herr Koren. Only one specimen was obtained of *Hamingia*. In regard to echinoderms the expedition has proved more fortunate, and Herren Daniellssen and Koren describe several new forms of Asterias, Solaster, and Asterina.

SOCIETIES AND ACADEMIES

LONDON

Mathematical Society, June 9.—S. Roberts, F.R.S., president, in the chair.—Prof. Mannheim and Mr. T. Craig (United States Coast Survey) were admitted into the Society, and Mr. G. R. Dick, Professor of Mathematics in the Royal College, Mauritius, was elected a member.—Much interest was excited at the meeting by the fact that one of the Society's Foreign Members was present, and proposed to read a paper. M. Mannheim is well known in this country to be a most elegant cultivator of the modern geometry on the lines of Poncelet and Chasles. He has more especially worked at the following subjects:—(1) The method of geometrical transformation, following out in this direction Poncelet's researches in the theory of reciprocal polars; (2) the plane representation of certain space-figures; (3) the wave surface (his early papers form the subject of an article in the *Quarterly Journal* for 1878 by Prof. C. Niven, F.R.S.); but lastly, he has been more particularly engaged upon the study of properties relative to the displacement of figures in space; to this he has given the name of "Géométrie Cinématique" (Dr. Ball in his "Theory of Screws" says, "To M. Mannheim belongs the credit of having been the first to study geometrically the kinematics of a constrained body from a perfectly general point of view");—his recent work with this title has obtained a warm recognition *propter merita* in this country—on this occasion Prof. Mannheim communicated a paper "Sur les surfaces parallèles," which was characterised by all the clearness and power of exposition so well known to belong to mathematicians of the French school. Dr. Hirst, F.R.S., in proposing a vote of thanks, lightly touched upon the novelties of the communication, and expressed the pleasure it gave him and the meeting to see his fellow-student and friend present in the Society's rooms. A cordial vote of thanks having been carried, M. Mannheim briefly thanked the members present for their kind reception of him.—Other communications were:—On certain symbolic operators, by Mr. J. W. L. Glaisher, F.R.S.—On a system of co-ordinates, by Prof. Genese.—Note on a system of Cartesian ovals passing through four points on a circle, by Mr. R. A. Roberts.—On the Gaussian theory of surfaces, by Prof. Cayley, F.R.S.—On a theorem in the calculus of operations, by Mr. J. J. Walker.—On spherical quartics, with a quadruple cyclic arc and a triple focus, by Mr. H. M. Jeffery, F.R.S.—Note on the wave surface, by Prof. Mannheim.

Chemical Society, June 2.—Prof. Roscoe, president, in the chair.—It was announced that a ballot for the election of Fellows would take place at the next meeting of the Society (June 16).—The following papers were read:—Experimental researches on the amalgamation of silver ores, by C. Rammelsberg.—On the action of solvents on saponified oils and waxes, by A. H. Allen and W. Thomson. The authors have made many experiments with a view of discovering a correct method for the analysis of mixtures of hydrocarbons with animal and vegetable fatty matters. Two methods are suggested. In both, the sample is boiled with a solution of caustic soda in alcohol, which is, in one case, diluted with water, and then shaken up with ether, to dissolve out the unsaponifiable matter, leaving the soap in the solution; in the other method alcohol is added to the mixture, and then some sodium bicarbonate and ignited sand; the whole is dried and extracted by petroleum spirit in a Soxhlet apparatus. Some analyses are given in the paper; good results were obtained.—On the sulphides of copper and a determination of their molecular weight, by S. U. Pickering. The author has heated cupric sulphide alone, in a current of hydrogen and in a current of carbonic acid, and concludes that the sulphur is given off in two separate and equal portions at totally different temperatures; therefore the molecule contains two atoms of sulphur. Hydrogen reduced the sulphide to the metallic state.—Chemical examination of the Buxton thermal water, by J. C. Thresh. The author has disproved the extraordinary statements of Playfair and Muspratt that one gallon of this water contains 206 and 504 cubic inches of nitrogen. The water really contains 22.98 c.c. of nitrogen per litre. He points out how the error originated. A complete analysis of the mineral constituents is given; amongst them are molybdic acid, cobalt oxide, &c.—On potable waters; determination of total solids, by E. J. Mills. This determination is made by carefully noting the time required by a glass bulb to rise a given distance through the water.—On the estimation of the value of zinc powder and on a gauge for measuring the volume of gases without calculation for temperature and pressure, by J. Barnes.

Zoological Society, June 7.—Prof. W. H. Flower, LL.D., F.R.S., president, in the chair.—The Secretary called the attention of the meeting to the opening of the Insectarium in the Society's Gardens, which had taken place on April 25, and read a report on the insects that had been reared and exhibited there, drawn up by Mr. W. Watkins, the Superintending Entomologist.—Mr. F. M. Balfour, F.Z.S., read a paper on the development of the skeleton of the paired fins of Elasmobranchs considered in relation to its bearings on the nature of the limbs of the Vertebrata. The object of the investigations recorded in this paper was explained by the author to be twofold—viz., on the one hand to test how far the study of the development of the skeleton of the fins supported the view which had previously been arrived at by the author, to the effect that the paired fins were the specialised and highly-developed remnants of a once continuous lateral fin on each side, and on the other to decide between the views of Gegenbaur and Huxley and Thacker and Mivart as to the primitive type of fin-skeleton. The author pointed out that the results of his researches were entirely favourable to the view that the paired fins were structures of the same nature as the unpaired, and that they gave a general support to the views of Thacker and Mivart. They clearly showed that the pelvic fins retain more primitive character than the pectoral. Conclusions were drawn somewhat adverse to the views recently put forward on the structure of the fin by Gegenbaur and Huxley, both of whom considered the primitive type of fin to be most nearly retained in *Ceratodus*, and to consist of a central multisegmented axis with numerous rays on its two sides. It appeared, in fact, that the development of the skeleton demonstrates that a biserial type of fin like that of *Ceratodus* could not have been primitive, but that it must have been secondarily derived from a uniserial type, by the primitive bar along the base of the fin (the *basipterygium*) being rotated outwards, and a second set of rays being developed on its posterior border.—Mr. W. T. Blanford, F.Z.S., read some notes on a collection of Persian reptiles recently added to the British Museum, amongst which was an example of a new species of lizard, proposed to be called *Agama Persica*.—A communication was read from the Rev. O. P. Cambridge, C.M.Z.S., on a new spider of the family Theraphosidae. The chief interest attaching to this spider was the fact that it had lived in the Gardens of the Society from March to October, 1880. Mr. Cambridge proposed to name the species *Homocomma Stradlingii*, after Dr. Stradling, who had brought the specimen