

least the merit of being exhaustive, and differs so slightly from that in common use in America that its adoption does not involve a change in, but only an addition to, the system which in some form or other is destined to supersede the binomial system now rendered inadequate by the acceptance of the theory of evolution.

As an example of the compromise I propose, I add a list of the local races of the Dipper, with their geographical ranges:—

Cinclus aquaticus melanogaster (Scandinavia).

Cinclus aquaticus melanogaster-albicollis sive *Cinclus aquaticus* (West Europe, as far north as the Carpathian and as far south as the Pyrenees).

Cinclus aquaticus albicollis (South Spain, Algiers, Italy, Greece).

Cinclus aquaticus albicollis-cashmiriensis (Asia Minor, Caucasus, Persia).

Cinclus aquaticus leucogaster (East Siberia).

Cinclus aquaticus leucogaster-cashmiriensis (Central Siberia).

Cinclus aquaticus cashmiriensis (Cashmere, South Siberia, and Mongolia).

Cinclus aquaticus cashmiriensis-sordidus (Altai Mountains).

Cinclus aquaticus sordidus (Thibet).

In this system it must be observed that wherever there is a fourth name it is always connected by a hyphen to the third name, and comprises all the intermediate forms between the two. It is somewhat cumbersome, but it provides for the contingency of any intermediate links that may occur. To express it algebraically, it provides not only for A B and B C, but also for A C. It is perhaps the only system which is theoretically perfect, but the question whether its voluminousness renders it impracticable or undesirable is one requiring careful consideration.

(To be continued.)

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

UNIVERSITY COLLEGE, BRISTOL.—A correspondent writes:—This session has been most successful, the numbers of students in attendance being considerably larger than in the two preceding years. Funds are wanted more seriously than ever to complete the building and provide additional accommodation. Nothing has yet been done towards an endowment fund. Mr. E. Buck, M.A., Lecturer in Mathematics, has resigned his position on the staff. The Demonstrator in Physics, Mr. Colman C. Starling, has also resigned his post in consequence of internal rearrangements. The Chair of Geology and Physiology, left vacant by the resignation of Prof. Sollas, has been filled by the appointment of Mr. Lloyd Morgan.

SOCIETIES AND ACADEMIES

SYDNEY

Linnean Society of New South Wales, April 30.—Dr. James C. Cox, F.L.S., vice-president, in the chair.—The Hydromedusæ of Australia, part 2, by R. von Lendenfeld, Ph.D. According to the principles set forth in part 1 of this paper, the Hydromedusæ are classified in a new manner, and the Australian representatives of the first four families in this system are described or referred to. The paper contains descriptions of several new and interesting forms, and in every case an abstract of everything known on the histology of every species is given with references. The most interesting of the new forms is *Eudendrium generale*, the male polypastyles of which show a great similarity to Medusæ. They possess four aboral tentacles in the principal radii, and on these the spermatozoa reach maturity. These tentacular appendages are therefore homologous to the radial canals of the Craspedote Medusæ. Some deductions are drawn herefrom, and the homology of the parts in Medusæ and Polyptes described differently to the views expressed by Allman and others. The Umbrella is not homologous to a web between the tentacles of the mouth, but between the generative tentacular processes at the aboral pole.—Revision of the recent Rhipidoglossate and Docoglossate Mollusca of New Zealand, by Prof. F. W. Hutton, F.G.S. The synonymy of all the species is fully given, with, in many instances, revised descriptions and notes on the dentition where known.—Notes on hybridism in the genus *Brachychiton*, by Baron Ferd. von Mueller, K.C.M.G., M.D., Ph.D., F.R.S., &c. The plant which is the subject of this paper is a beautiful tree of forty feet

in height and a stem diameter of one foot, grown at Fern Hill, near Penrith, New South Wales, and is an undoubted hybrid between *Brachychiton populneum* and *Brachychiton acerifolium*. Like most hybrids, the flowers never perfect their seed.—Mr. Macleay read a letter from the Rev. J. E. Tenison-Woods, vice-president of the Society, dated from Perak, February 27 last, giving a long and interesting account of his proceedings and experiences in the Malacca Peninsula. He had examined and reported on the rich tin mines of the settlement, and the geological features of the whole territory; and he had spent some time in the investigation of its zoological and botanical productions.

Royal Society of New South Wales, May 7.—Annual Meeting.—Hon. Prof. Smith, C.M.G., president, in the chair.—The Report of the Council stated that thirty new members had been elected during the year, and the total number on the roll, April 30, was 494. M. Louis Pasteur, M.D., of the French Academy of Sciences, had been elected an honorary member in the place of the late Dr. Charles Darwin, and Ottokar Feistmantel, M.D., Palæontologist to the Geological Survey of India, had been elected a corresponding member.—The Clarke Medal for the year 1884 had been awarded to Alfred R. C. Selwyn, LL.D., F.R.S., in recognition of his scientific labours in Great Britain and as Director of the Geological Surveys of Canada and of Victoria.—During the year the Society held nine meetings, at which the following papers were read, viz.:—Presidential Address by Chr. Rolleston, C.M.G.—On the aborigines inhabiting the great lacustrine and riverine depression of the Lower Murray, Lower Murrumbidgee, Lower Lachlan, and Lower Darling, by P. Beveridge.—On the Waranamatta shales, by the Rev. J. E. Tenison-Woods, F.G.S., F.L.S.—Further remarks on Australian Strophalosia, and description of a new species of Aucella from the Cretaceous rocks of North-East Australia, by R. Etheridge, jun., F.G.S.—On plants used by the natives of North Queensland, Flinders, and Mitchell Rivers, for food, medicine, &c., by E. Palmer (M.L.A. Queensland).—Notes on the genus *Macrozamia*, with descriptions of some new species, by Charles Moore, F.L.S., V.P.—A list of double-stars, by H. C. Russell, B.A., F.R.A.S.—Some facts connected with irrigation, by the same.—On the discoloration of white bricks made from certain clays in the neighbourhood of Sydney, by E. H. Rennie, M.A.—On the roots of the sugar-cane, by Henry Ling Roth, F.M.S.—On irrigation in Upper India, by H. G. McKinney, A.M.I.C.E.—On tanks and wells of New South Wales; water-supply and irrigation, by A. Peypys Wood.—Additions to the census of the genera of plants hitherto known as indigenous to Australia, by Baron F. von Mueller, K.C.M.G., F.R.S., &c.—The Medical and Microscopical Sections held regular monthly meetings. At the preliminary meeting of the Medical Section this year, the Chairman stated that never during the history of the Section had its meetings been so numerous attended, and that the value of the papers read before it was attested by the fact that so many of them had been reprinted in the Home journals.—The Council has issued the following list of subjects, with the offer of the Society's bronze medal and a prize of 25*l.* for each of the best researches, if of sufficient merit:—Series III. To be sent in not later than September 30, 1884. No. 9. Origin and mode of occurrence of gold-bearing veins and of the associated minerals. No. 10. Influence of the Australian climate in producing modifications of diseases. No. 11. On the Infusoria peculiar to Australia. No. 12. On water-supply in the interior of New South Wales. Series IV. To be sent in not later than May 1, 1885. No. 13. Anatomy and life history of the Echidna and Platypus. No. 14. Anatomy and life-history of Mollusca peculiar to Australia. No. 15. The chemical composition of the products from the so-called kerosene shale of New South Wales. Series V. To be sent in not later than May 1, 1886. No. 16. On the chemistry of the Australian gums and resins.—The Chairman read the Presidential Address, and the officers and Council were elected for the ensuing year.

PARIS

Academy of Sciences, June 30.—M. Rolland, President, in the chair.—Remarks on the hygrometric reports from nearly a hundred French stations, yearly published by M. Mascart in the *Annales du Bureau météorologique de France*, by M. J. Jamin.—On the use of formene in the production of very low temperatures, by M. L. Cailletet. The author finds that, when slightly condensed and cooled in boiling ethylene under atmospheric

pressure, this gas is resolved into an extremely volatile colourless fluid, which, in again passing to the gaseous state, yields a degree of cold sufficient immediately to liquefy oxygen. Under these conditions the liquefaction of oxygen becomes one of the simplest operations of the laboratory.—Remarks on the project of creating a so-called inland sea in Algeria and Tunisia, by M. E. Cosson. The author regards as chimerical Dr. Rouire's scheme for converting the Shott Melghir into a marine basin by means of a canal, 145 miles long, communicating with the Mediterranean.—Note on the development of the graphic method of representation by means of photography, by M. Marey.—On a new species of Sirenian discovered in the Paris basin, by M. Albert Gaudry.—Observations on the new planet, 237 Palisa, made at the Paris Observatory (equatorial of the west tower), by M. G. Bigourdan.—On the effects of mutual forces: determination of a function represented by a simple curve involving most of the laws of general physics (one illustration), by M. P. Berthot.—Researches on the laws of diffraction of light in the shadow of an opaque screen with rectilinear edge, by M. Gouy. In this paper the author's remarks are restricted to rays diffracted in the geometrical shadow, the edge of the screen being normal to the plane of diffraction containing the incident ray and the diffracted rays.—On certain chemical compounds obtained by means of a gas pile, and of appliances for subjecting the gases to electric effluvia, with tabulated results, by M. A. Figuier.—A method of transforming liquid to dry electric piles, by M. Onimus.—Further researches on the coagulation of colloidal substances, by M. E. Grimaux. Here the author deals first with substances whose coagulation is checked by dilution, secondly with those whose dilution stimulates coagulation.—Researches on the preparation of hydrated chromic acid, and on some new properties of anhydrous chromic acid, by M. H. Moissan.—On the production of the neutral orthophosphate of aluminium in the anhydrous and crystallised state, by M. A. de Schulten.—On a new alcohol derived from the birdlime prepared from the inner bark of the *Ilex aquifolium*; note on a process of the late J. Personne, by M. J. Personne, jun.—Complementary observations on colchicine and colchicine, by M. S. Zeisel.—On the various processes employed for determining the phosphoric acid in the superphosphates of commerce, by M. E. Aubin.—On the efficacy of vinous yeast artificially prepared, by M. Alph. Rommier.—On the theoretical figures of certain simple substances (lithium, sodium, potassium, rubidium, caesium) forming a series, by M. L. Hugo.—On a new type of the leech family infesting crocodiles in the Senegambian rivers, by MM. Poirier and A. T. de Rochebrune.—On the fossil cones of the genus *Sigillaria* in the Carboniferous flora, by M. R. Zeiller.—Note on the assimilation of maltose in the animal system, by MM. A. Dastre and E. Bourquelot.—On the dyspepsia of liquids, by M. V. Audhoui.—Note on a meteorite observed at Concarneau on June 28, 1884, by M. G. Pouchet.—On a meteorite observed at the Trocadéro Observatory on the same night, by M. L. Jaubert.

BERLIN

Physiological Society, June 20.—Prof. du Bois Reymond showed a rabbit with highly-deformed incisors, which had been reared in the Institute. The two lower incisors were several times their natural length, projecting deeply as they did into the nostrils, and were gladiate above and crooked behind. In the upper jaw only one incisor was of about the same size as either of the two under ones. Interiorly it was curved in the form of a semicircle, and rested in a furrow of the under jaw. Mastication, which was rendered difficult by the deformation of the incisors, was effected by lateral movements of the jaws.—Prof. Christiani spoke on the physiology of the brain, connecting his remarks with his former experiments, by which he had demonstrated the existence of two respiratory centres above the medulla oblongata, one of which, situate at the base of the third ventricle, was a centre for inspiration, the other located in the fossa sylvii for expiration. These two centres exercised an influence also on the heart, the one under moderate stimulation producing cessation in systole and retardation of pulsation, the other cessation in diastole and acceleration of pulsation. By the side of the inspiratory centre, and in association with it, Prof. Christiani found a co-ordinatory centre for collective combined movements of the body. On the excision of the brain of a rabbit, if these three centres were left uninjured, and if all considerable bleeding that might prejudicially affect the pre-

served parts of the brain were avoided, the animal acted entirely as in a normal state: it was able to walk, to run, to spring, to avoid objects in its way, to respond to impressions of seeing and hearing. If, on the other hand, the co-ordinatory centres were injured, these movements all failed: the animal lay on its side, and occasionally showed epileptiform convulsions. Prof. Christiani, having further communicated a series of detailed observations gathered from his experiments with disbrained rabbits, developed the hypothesis he had conceived for himself respecting the function of the brain. According to this hypothesis a large number of energies acted on the brain, in part directly, in part by the medium of the nerves, which, in the ganglia at the base of the brain, were transformed into reflex movements. To this primary circuit the cerebrum formed a kind of secondary circuit into which were derived a large number of the advancing energies, and there hoarded up. If the cerebrum were removed, then all energy was transposed into reflex movement, and consequently disbrained and decapitated animals manifested much stronger reflex movements than did such animals as possessed this secondary derivation. In the higher animals the energy distributed into the cerebrum formed ideas and consciousness, the quality of which might vary, even when the operative sensuous stimulations were completely equal, according to the relative activity of the particular parts of the cerebrum which were stimulated, and according to their configuration. With this conception of the function of the cerebrum Prof. Christiani could not accept the doctrine, advocated quite recently by Hitzig, Ferrier, and Munk, regarding the localisation of the activity of the cerebrum, and in support of his conception he adduced the highly contradictory data that had been accumulated on the sphere of vision. As was known, one portion of the observers, after removal of the sphere of vision, had found blindness to be the result, while another portion, after such an operation, had found that the animals operated on were yet able to see. These contradictions Prof. Christiani sought to reconcile by the assumption that the removal of the sphere of vision produced a stimulation which interfered with those derived from the sensuous organ, and so presented the appearance of the failure of the function.

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