

both in the London and provincial colleges, in view of the increased cost of scientific education and the necessity of making it as cheap as possible to the students. It is the Government aid in Germany and elsewhere on the continent which enables the great teaching institutions there to compete at such advantage with the universities and colleges of this country, and to outdistance them in scientific and industrial products."

STUDENTS of the Royal College of Science, South Kensington, have reason to be proud of the heritage to which they have succeeded. Huxley took the greatest interest in the College, with which he was connected until his death; and there he introduced the system of teaching which has revolutionised the methods of training in biology. Prof. J. W. Judd dwelt upon this fact in the course of an address delivered to the students of the College on Wednesday in last week, and his words should make them all feel that they are connected with a great institution, whose interests they should watch over, and whose position they should endeavour to sustain, by keeping the aims and work of their late noble Dean in view. Five years has yet to elapse before the College celebrates its first jubilee. Nevertheless, if the students remember how recent has been the recognition of that culture in which scientific training takes a leading part, as distinguished from that derived from purely literary pursuits, they may indeed be proud of the position which the College occupies. The prizes and medals won in the College this year were distributed as follows:—Royal Scholarships: First year's, J. W. Barker, C. E. Goodyear, E. R. Verity, and E. T. Thomas; second year's, W. H. White and E. Smith. The Edward Forbes' Medal for Biology, E. C. Horrell; the Murchison Medal for Geology, E. E. L. Dixon; Tyndall Prize for Physics, E. T. Harrison; Bessemer Medal for Mining, J. Crowther; and Frank Hatton Prize for Chemistry, G. T. Morgan.

THE Technical Education Board of the London County Council are evidently determined to provide instruction for all the sorts and conditions of men and women in the metropolis. We are glad to see the completeness of the arrangements they have made for the present winter. The most exacting critic will surely find it difficult to point to any class of the community which has been forgotten. The perusal of recent numbers of the *Technical Education Gazette* shows that the workers of London can have the benefit of instruction from the leading professors of the metropolitan colleges at merely nominal fees—for nothing indeed, in not a few cases. At the Central School of Arts and Crafts, the teaching will be specially adapted to those employed in the different parts of the building trades, for workers in glass, bronze, and lead, enamellers, and the various branches of the gold and silver trades. No attempt will, however, be made, to meet the requirements of the amateur. It must be noted that there is no lack of attention to the necessity of providing a sound scientific foundation on which to build up a particular technical knowledge. The advanced evening science classes, which are being held both at University and King's Colleges, will be of immense value, and it will be a cause for the profoundest regret, if these courses are not well attended. It will soon be impossible to find any part of London where there is no thoroughly equipped and properly staffed technical school, and such a fact speaks volumes for the energy and wisdom of the Board's advisers.

SCIENTIFIC SERIALS.

Symons's Monthly Meteorological Magazine, September.—The first daily weather map, sold in the Great Exhibition of 1851. Mr. Symons publishes a reduced copy of a series of such maps issued daily from August 8 to October 11, 1851, Sundays excepted, indicating the conditions of the atmosphere in several parts of Great Britain at 9h. a.m. Twelve years later, in September 1863, M. Le Verrier issued his weather maps from the Paris Observatory, which are now continued in an extended form by the Paris Meteorological Office.—Dry periods. On August 1, Mr. Symons wrote to the *Times*, pointing out that at Camden Square, London, the rainfall of the first seven months of this year (8.27 inches) is only 60 per cent. of the average for the thirty-seven years 1859–95; during the ten years 1887–96 the average for the same period was only 11.65 inches, while for the twenty-eight years 1859–86 it was 14.24 inches. Commenting on this, Mr. J. M. Fraser, of Lochmaddy, Hebrides, states that the average rainfall for the first eight months of the twelve years 1884–95 is 27.78 inches, and the average for the same period in

1890–95 was 30.11 inches, while this year the total for the first eight months is 34.86 inches. It is noteworthy that the deficiency in the south of England should be made up by a heavy yearly increase in the opposite extreme of the kingdom.

The papers of most general interest in the numbers of the *Journal of Botany* for August, September, and October are:—On the new genus of Commelynaceæ (*Spatholirion*), from the Malay Peninsula, by Mr. H. N. Ridley, with a plate; on the displacement of species in New Zealand, by Mr. T. Kirk, especially the crowding out of native species by naturalised plants, and the changes caused by cultivation, the introduction of parasitic diseases, and other human agencies; on Algæ from Central Africa, by MM. W. and G. S. West, with illustrations, and diagnoses of several new species of desmids; on new or critical marine Algæ, by Mr. E. A. L. Batters; a revised list of the British Caryophyllaceæ, by Mr. F. N. Williams; with continuations of Mr. Rendle's paper on African Acanthaceæ, including diagnoses of many new species, and of a new genus *Lindauea*; and of Dr. Schlechter's on African Asclepiadæ.

SOCIETIES AND ACADEMIES.

MANCHESTER.

Literary and Philosophical Society, October 6.—Prof. Osborne Reynolds, F.R.S., Vice-President, in the chair.—Prof. F. E. Weiss communicated a paper on *Rachiopteris cylindrica*, by the late Mr. Thomas Hick. The name of *Rachiopteris* was given by Williamson to some plant remains from the Lower Coal Measures of Halifax, which he thought might be true ferns, and described in the *Philosophical Transactions*, 1878. Mr. Hick describes in detail some further specimens, partly belonging to the Cash Collection at Manchester Museum. In considering the cortical tissues, special reference is made to the presence of small black bodies within the cortical cells, the presence of which is characteristic for *Rachiopteris*, but the nature of which is still very doubtful. Considerable attention is paid to the division of the stele, as indicating the dichotomous manner of branching; and mention is made of the presence at the points of bifurcation of endogenous organs, probably of the nature of roots. From the knowledge of the anatomical details, Mr. Hick concludes that *Rachiopteris* cannot possibly be a root, but is probably a stem or leaf structure of a plant having more affinity with the Filices than with the Lycopodiaceæ.—On the structure and contents of the tubers of *Anthoceros tuberosus*, by J. H. Ashworth. The tubers of *Anthoceros tuberosus* are described in Gottsche's "Synopsis Hepaticarum" as oval bodies containing a farinaceous mass within a deeply-coloured envelope. The author finds that these tubers, which lie beneath the thallus, and are connected to it by a stalk, have a wall formed of three or four layers of corky cells, some of which are produced into hair-like processes. Within these protective layers lie closely-packed cells containing granules and fluid oil drops. The granules are not starch, but give all the reactions for proteids, and appear to be aleurone grains. Besides these stalked tubers there are similar tuberous masses formed in the thallus, which have not been previously described. These, which are rather smaller in size than the tubers, are formed between the upper and lower layers of the thallus, and are composed of cells exactly like the inner cells of the stalked tubers. The tubers may be regarded as gemmæ, in which the inner cells have become stored with food material, and are protected by the corky layers against being dried up, *Anthoceros tuberosus* being found on the banks of the Swan River in Western Australia, where it is exposed to severe drought.

PARIS.

Academy of Sciences, October 5.—M. A. Chatin in the chair.—Researches on the explosive properties of acetylene, by MM. Berthelot and Vieille. Details of experiments carried out with a view of seeing what precautions, if any, are necessary in the preparation, compression, and storage of acetylene for commercial uses. It has been known for some time that the decomposition of acetylene by a heated wire, by mercury fulminate, or by the electric spark, is not propagated any considerable distance if the gas is under atmospheric pressure. At pressures of two atmospheres and over, however, the decomposition is complete, the explosive pressure produced rising so rapidly with the initial compression, that the effects produced by detonation of the liquefied gas resemble those of ordinary explosives.—Remarks

on an experiment of M. Birkeland, by M. H. Poincaré. A mathematical study of the deflection of the kathode rays by means of a magnet.—On the infections caused by the bacilli of the *Proteus* group, and on the agglutinating properties of the serum in these cases, by MM. Lannelongue and Acharid.—The truffles of Greece: *Terfezia Gennadii*, by M. Ad. Chatin. Three specific types have been found in Greece: *Terfezia Claveryi*, *Terfezia Gennadii*, and *Terfezia Leonis*.—Correction to a preceding note on the homogeneity of argon and helium, by Profs. W. Ramsay and J. N. Collie. (See NATURE, October 8, p. 546).—The cave of La Mouthe, by M. E. Rivière. This note, the fifth on this subject, deals with the drawings on the sides of the cave. There seems to be no doubt of the great antiquity of these drawings, many being covered up with stalagmitic deposits.—On algebraic systems, and their relations with certain systems of partial differential equations, by M. H. E. Delassus.—On the region within which a summation of Taylor's series is possible, by M. E. Borel.—Anti-staphylococic serotherapy, by M. Capman. With the filtered toxins from staphylococcus cultures, dogs were successfully rendered immune; the serum from these dogs, taken about three weeks after the injection, amply protected the rabbit and the guinea-pig against a toxic injection. The curious fact was established, that shortly after injection in the dog there was a temporary increase in toxicity, the serum taken two days after the commencement of the fever being five times the toxic strength of the toxine inoculated.—On beans, by M. Ballard. A study of the physical and chemical properties of beans of various origins. Analyses are given showing the composition of the whole bean, the skin, and the cotyledons with the germ.—Neuro-psychosis, by M. Bouketeiff.

NEW SOUTH WALES.

Linnean Society, August 26.—P. N. Trebeck in the chair.—On the Australian *Bembidiides* referable to the genus *Tachys* (fam. *Carabidae*), with the description of a new allied genus, by Thomas G. Sloane.—Descriptions of two new species of *Prostanthera*, from New South Wales, by R. T. Baker.—Eucalypts and Loranths in their relations of host and parasite, and as food-plants, by J. J. Fletcher. The object of this paper was mainly to evoke discussion on a subject which is not devoid of interest. The propositions brought forward may be summarised as follows:—Even a cursory investigation of the relations subsisting between some of the most characteristic forms of Australian vegetation—e.g. Proteads, Acacias, and Eucalypts—and the animals (more particularly insects) to which they serve as food-plants, shows a state of affairs in harmony with Mr. Wollaston's axiom "that the most peculiar insects of a region are usually to be found either dependent on or inhabiting the same area as its most peculiar plants" (*Trans. Ent. Soc.* (3), i. 1862-64, p. 136). Among the plants mentioned, the Eucalypts, in point of both variety and number of the species dependent upon them, stand conspicuously first; being preyed upon by a goodly assemblage of forms, including phytophagous mammals, insects of almost every order—phytophagous, xylophagous, juice-feeding and gall-making, not to speak of anthophilous forms—as well as Phytoptids. Nor is it merely individual plants that suffer; for there are not wanting recorded instances in which species have been locally threatened with extinction by reason of the depredations of phalangiers, coleoptera, lepidopterous larvæ, phasmids, &c. Eucalypts have now become extensively acclimatised in other parts of the world, where, by way of contrast to the state of things sketched above, it is interesting to know that on the whole the attitude of insects towards them is one not of indifference merely, but in some cases even of positive antipathy. In cases like that of the Laurel- and Euphorbia-infesting animals referred to by Mr. Wollaston, and the Eucalyptus-infesting animals of Australia, the opinion was expressed that the adaptation of the animals to their food-plants—which contain more or less abundant stores of chemical substances ordinarily distasteful to animals—was one requiring a long period of time for its acquirement, and for the development of hereditary tastes; perhaps also the stimulus of stern necessity. As to whether, as has been supposed, the association of Loranths and Eucalypts is to be looked upon as a case of mimicry, it was pointed out that the association is at most—over and above any gain accruing from parasitism—but of partial and local benefit to the former; that in times past it was profitable; but that now, on the whole, it is a possible case of true mimicry in the later stages of becoming bankrupt and played out.

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DIARY OF SOCIETIES.

LONDON.

TUESDAY, OCTOBER 20.

ROYAL PHOTOGRAPHIC SOCIETY, at 8.—Half-tone direct from Nature: Wm. Gamble.

WEDNESDAY, OCTOBER 21.

ENTOMOLOGICAL SOCIETY, at 8.—New Hymenoptera from the Mesilla Valley, New Mexico: T. D. A. Cockerell.—A Monograph of British Braconidae, Part vii.: Rev. T. A. Marshall.

ROYAL MICROSCOPICAL SOCIETY, at 8.—Photo-micrographic Camera designed chiefly to facilitate the Study of Opaque Objects: J. Butterworth. On the Occurrence of Endocysts in the Genus *Thalassiosira*: T. Comber.—On the Measurement of the Apertures of Objectives: E. M. Nelson.

BOOKS AND SERIALS RECEIVED.

BOOKS.—A Sketch of the Natural History of Australia: F. G. Aflalo (Macmillan).—The Elements of Electro-chemistry; Prof. M. Le Blanc, translated by W. R. Whitney (Macmillan).—Notes of the Night, &c.: Dr. C. C. Abbott (Warne).—The Romance of the Sea: F. Whympster (S.P.C.K.). Peasblossom: C. Pridham (J. Heywood).—An Egyptian Reading-Book for Beginners: Dr. E. A. W. Budge (K. Paul).—Elementary Geology: Prof. G. S. Boulger (Collins).—University College, Bristol, Calendar 1896-7 (Bristol, Arrowsmith).—Die Principien der Wärmelehre: Dr. E. Mach (Leipzig, Barth).—Examples in Electrical Engineering: S. Joyce (Longmans).—Stanford's Compendium of Geography and Travel (new issue) Asia, Vol. 2, Southern and Western Asia: A. H. Keane (Stanford).—A Text-Book of Bacteriology: Prof. E. M. Crooksbank, 4th edition (Lewis).—Diagrams of Terrestrial and Astronomical Objects and Phenomena: R. A. Gregory (Chapman).

SERIALS.—Internationales Archiv für Ethnographie, Band ix., Heft 4 (Leiden, Brill).—Reliquary and Illustrated Archæologist, October (Bemrose).—Essex Institute Historical Collections, Vol. xxxii. (Salem, Mass.).—Strand Magazine, October (Newnes).—Journal of the Royal Statistical Society, September (Stanford).—Lloyd's Natural History—Birds, Parts 5 and 6; Dr. R. B. Sharpe (Lloyd).—American Journal of Science, October (New Haven).—Science Progress, October (Scientific Press).—Engineering Magazine, October (Tucker).—Zeitschrift für Wissenschaftliche Zoologie, lxvii. Band, 1 Heft (Leipzig, Engelmann).—Annals of Scottish Natural History, October (Edinburgh, Douglas).—Papers and Proceedings of the Royal Society of Tasmania for 1894-95 (Hobart).—Journal of Physical Chemistry, No. 1 (Ithaca, N.Y.; London, Gay).—American Journal of Mathematics, Vol. xviii. No. 4 (Baltimore).—Mind, October (Williams).

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