

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