

other educational bodies have been invited to attend the conference by the National Association for the Promotion of Technical and Secondary Education.

IN connection with the seventeenth annual Exhibition of Arts, Crafts and Industries, which will be opened on May 4 in the Town Hall, Hammersmith, by the Duchess of Argyll, a special "nature-study" section has been organised by Mr. W. M. Webb. Prizes and certificates are offered to pupils in schools in Hammersmith for exhibits illustrating, among other subjects, rambles or visits to a park, nature-study diaries, pea plants grown in pots with descriptions of their growth, drawings of living plants or animals, the life-history of any animal (in the wide sense of the word) from personal observation, and nature-study photographs.

THE committee of the Bombay University, appointed to consider the recommendations of the recent Universities Commission, has, we learn from the *Pioneer Mail*, come to the conclusion that both the Senate and the Syndicate work satisfactorily and need not be changed; second-grade colleges should not be disaffiliated; a limit of age and minimum fees should not be fixed, and the study of law should not be concentrated in a central college. Moreover, the Senate objects to interference from outside with the courses of study, and considers that the University should be allowed to control such matters in its own way.

THE Johnston Laboratory at University College, Liverpool, built and equipped by Mr. William Johnston, of Bromborough, will be opened by the President of the Local Government Board on May 9. The laboratory will contain the following departments:—Bio-chemistry, under the direction of Prof. Benjamin Moore; tropical medicine, directed by Prof. Ronald Ross, F.R.S.; experimental medicine and comparative pathology, directed by Dr. A. S. Grünbaum, who will also have charge of the cancer research, for which, as we have already announced, Mr. T. Sutton Timmis recently provided a gift of 10,000*l.* Mr. Johnston has also endowed the professorship of bio-chemistry and three fellowships in various branches of medical research.

SIR OWEN ROBERTS distributed the prizes and certificates to the students of the South-Western Polytechnic on February 23. The report of the principal, Mr. Herbert Tomlinson, F.R.S., was read, and showed the number of adult students in the institute to be rapidly increasing, so much so, indeed, that the volume of work as estimated by the student hours has in the last four years been doubled. During last session upwards of 600 students entered the day colleges for men and women, and nearly 1800 the evening classes. Two years ago large additions, costing 12,000*l.*, were made to the buildings, but these proving insufficient, a still further sum of 13,000*l.*, provided, like the former sum, by the Trustees of the London Parochial Charities and the London County Council, is now being expended in providing a large hall and further workshop and laboratory accommodation. The long list of successes of students shows that the number of certificates gained during last session was above 150 more than in the previous year, but, as was pointed out by the principal, the proper function of the institute is not merely to prepare students for examinations, but to fit them to earn a living, and the institute owes a good deal of its popularity to the recognition of this by the management.

THE address on science workshops for schools and colleges delivered by Prof. H. E. Armstrong, F.R.S., to the Royal Institute of British Architects last month is printed in full in the *Journal of the Institute* (vol. x. No. 6). Prof. Armstrong illustrated his arguments by reference to the new buildings at Horsham for Christ's Hospital School, of which he is a governor. The science buildings occupy practically one side of the quadrangle, and the floor area of the rooms they contain is 10,326 square feet, while that of the ordinary class rooms of the school only reaches 15,482 square feet. The four chief rooms in the science block are called science "workshops," and are distinguished by the names of Cavendish, Dalton, Davy and Faraday, and to each of these are attached certain subsidiary rooms. No lecture room is provided, since it is desired to discourage didactic teaching—a demonstration bench in the workshop amply provides for any such teaching as is necessary. No special balance room has been introduced, but instead a balance bench—a long

narrow table covered by a glazed case for the protection of balances, and arranged at right angles to the working benches. A store or stock room is attached to each of the workshops. There are two kinds of working benches, those for ordinary work and those at which work involving the use of water may be done. The former have teak tops, and the latter are covered with lead. In the rooms on the upper floor, all sinks have been placed near to the walls, and the waste is carried down to the floor below in pipes fixed in chases in the walls. On the basement floor, cross channels have been avoided as much as possible. In three rooms an arrangement has been adopted which provides both a gas service and upright supports to which rings, &c., can be clamped. The space below the bench-top is fitted with two tiers of small cupboards; inside each cupboard is a small drawer. Each bench has four such cupboards, so that four pupils may occupy the place in succession, and each have a cupboard. Prof. Armstrong also gives invaluable hints as to the construction of sinks, drains and ventilation hoods, and describes some special appliances which are in use at Christ's Hospital School. The address concludes with a plea for the simplification of school workshops, and the recommendations are well summed up in Prof. Armstrong's own words, "in designing science workshops the architect . . . should have three S's in mind—Sense, Simplicity and Space."

SCIENTIFIC SERIAL.

American Journal of Science, February.—Good seeing, by S. P. Langley. A study of the conditions necessary to the formation of a tranquil image in a telescope (see p. 400).—Native arsenic from Montreal, by N. N. Evans. The native arsenic was found in a vein of nepheline syenite at the Corporation Quarry, near Montreal. On analysis it proved to contain 98.14 per cent. of arsenic, 1.65 per cent. of antimony, with traces of sulphur.—Electromotive force in plants, by A. B. Plowman. The experiments described show that the functional activities of a plant give rise to differences of electrical potential in its parts, the intensity and relative sign of these differences depending upon the physiological condition of the plant, as well as upon its electrical conductivity.—The ionisation of water nuclei, by C. Barus.—The morphogenesis of *Platytophia*. A study of the evolution of a Palaeozoic Brachiopod, by E. R. Cumings.—Note on the condition of platinum in the nickel-copper ores from Sudbury, by C. W. Dickson. An account of the isolation of sperrylite, platinum arsenide, from chalcopyrite.—Lecture experiment on surface tension and surface viscosity, by J. E. Burbank.—*Mylagaulodon*, a new rodent from Oregon, by W. J. Sinclair.—Studies in the Cyperaceæ, by T. Holm. On *Carex fusca* and *Carex bipartita*.

SOCIETIES AND ACADEMIES.

LONDON.

Physical Society, February 27.—Dr. R. T. Glazebrook, F.R.S., president, in the chair.—A paper by Prof. Fleming and Mr. Clinton, on the measurement of small capacities and inductances, was read by Prof. Fleming. The measurement of small capacities and inductances has become important in connection with Hertzian wave wireless telegraphy. The authors have designed a rotating commutator which renders the measurement of small capacities a matter as easy as the measurement of resistance on a Wheatstone bridge. The appliance is described in the paper, and the authors claim that they have worked out a thoroughly satisfactory form of rotating commutator, designed more from the point of view of an engineer than an electrical instrument maker. For use with the instrument a moving-coil differential galvanometer has been designed. The authors have made a number of experiments upon the capacity of aerial wires, such as are used in Hertzian wave telegraphy, and have also investigated the laws governing the capacity of such wires when grouped together in certain ways and verified experimentally, as far as possible, the formulæ for the capacity of insulated wires in various positions in regard to the earth. The experiments are given at length in