Return to Egypt by the Valley of the Atbara, with a Note on the Religions, Customs, &c., of Abyssinia," by A. J. Hayes; "Entomological Appendix," by Prof. E. B. Poulton, F.R.S., illustrated; and "Ellis's Demonstrations of Anatomy, being a Guide to the Knowledge of the Human Body by Dissection," edited by Dr. C. Addison, illustrated.

The list of the Society for Promoting Christian Knowledge includes:—a new edition of "Early Britain: Roman Roads in Britain," by T. Codrington.

Messrs. Swan Sonnenschein and Co., Ltd., announce:—"Physiological Psychology," by Prof. W. Wundt, a translation of the fifth and wholly re-written German edition by Prof. E. B. Titchener, in 3 vols., vol. ii., illustrated; "The History of Philosophy," by Dr. J. E. Erdmann, an English abridgment translated and edited by W. S. Hough; "Thoughts and Things: a Genetic Study of Logical Process," by Prof. M. Baldwin, vol. i., "Theory of Knowledge, Functional Logic," vol. ii., "Theory of Reality, Real Logic"; "The Needs of Man: a Book of Suggestions," by Dr. W. W. Hall; "The Student's Text-book of Zoology," by A. Sedgwick, F.R.S., vol. iii., illustrated; "The Student's Hygiene, with Special Reference to the Syllabus of the Board of Education, 1905," by E. Evans, illustrated; "The Chemistry of Common Life, with Special Reference to the Syllabus of the Board of Education, 1905," by J. B. Coppock, illustrated; "School Gardening for Little Children," by L. R. Latter; and a new edition of "Introduction to the Study of Organic Chemistry," by J. Wade, illustrated.

Among the announcements of the University Tutorial Press, Ltd., are:—"The Primary Arithmetic," part ii., (Weights and Measures, Vulgar Fractions, Practice, &c.), part iii.; "Geometry, Theoretical and Practical," by W. P. Workman and A. G. Cracknell, part i.; "Scholarship Geometry," by W. P. Workman and A. G. Cracknell; "Logarithms, and How to Use Them"; "First Stage Chemistry, Theoretical Organic," by Dr. R. A. Lyster; "Junior Chemistry," by R. H. Adie; "Technical Electricity," by Prof. H. T. Davidge and R. W. Hutchinson; "School Magnetism and Electricity," by Dr. R. H. Jude; "First Stage Physiology," by Dr. G. N. Meachen; "Practical Physics," by W. R. Bower and J. Satterly; "Properties of Matter," by C. J. L. Wagstaff; "Elementary Science of Common Life (Chemistry)," subject xxvi. of the Board of Education Science Examinations, by W. T. Boone; "Section One, Biology" (subject xv. of the Board of Education Science Examinations), by W. S. Furneaux; "Section One, Physiography" (subject xxiii. of the Board of Education Science Examinations); "Scholarship Elementary Science—Biology," for section ii.; "Principles and Methods of Education," by Dr. S. S. F. Fletcher and Prof. J. Welton; and new editions of "Chemical Analysis," by Drs. W. Briggs and R. W. Stewart; and "Inorganic Chemistry, Second Stage (Theoretical)," by Dr. G. H. Bailey.

Mr. T. Fisher Unwin gives notice of:—"Sport and Travel in Abyssinia," by Lord Hindlip, illustrated; "Siberia, a Record of Travel, Climbing, and Exploration," by S. Turner, illustrated; "Rambles on the Riviera," by Prof. E. Strasburger, illustrated; "Round About My Peking Garden," by Mrs. A. Little, illustrated; "In Search of El Dorado, a Wanderer's Experiences," by A. Macdonald, illustrated; "Recreations of a Naturalist," by J. E. Harting, illustrated; "The Nature and Origin of Living Matter," by Dr. H. C. Bastian, F.R.S., illustrated; "The Mental Traits of Sex," by H. B. Thompson; "Fishes I Have Known," by A. H. Beavan, illustrated; "The Evolution of the World and of Man," by G. E. Boxall; and "Our School Out-of-Doors," by the Hon. M. C. Leigh, illustrated.

Messrs. Whittaker and Co. promise:—"Steam Turbine Engineering," by H. M. Hobart and T. Stevens; "Wireless Telegraphy and Telephony," by D. Mazzotto, translated by S. R. Bottone; "A Pocket Book of Aëronautics," by H. W. L. Moedebeck, translated by Dr. W. M. Varley; "Armature Construction," by H. M. Hobart; "Electric Welding," by F. J. Wallis-Jones; "Electricity in Mines," by P. R. Allen; "Single-phase Commutator Motors," by F. Punga and R. F. Looser; "Household Applications of Electricity," by S. R. Bottone; "A Text-book of Botany," by M. Yates, part i., "The Anatomy of Flowering Plants"; and new editions of "Electricity in its Applications to Telegraphy," by T. E. Herbert; "The Alternating Current Circuit and Motor," by W. P. Maycock; "Whittaker's Electrical Engineers' Pocket Book," edited by K. Edgcumbe; "Central Station Electricity Supply," by A. Gay and C. H. Yeaman; "The Management of Accumulators," by Sir D. Salomons, Bart.; "The Practical Telephone Handbook," by J. Poole; "Radiography and the X-Rays," by S. R. Bottone; and "Dissections Illustrated," by C. Brodie.

Messrs. Williams and Norgate announce:—"The Evolution of Religion, an Anthropological Study," by Dr. L. R. Farnell; "Life and Matter, a Criticism of Prof. Haeckel's 'Riddle of the Universe,'" by Sir Oliver Lodge, F.R.S.; and "The Inflammation Idea in General Pathology," by Dr. W. H. Ransom, F.R.S.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The Indian forestry probationers elected last August have come into residence, and the India Office has issued a notice that thirteen more probationers will be selected at the end of October. Candidates must have passed Responsions at Oxford or the previous examination at Cambridge, or some equivalent examination, and will be expected to have some knowledge of chemistry, physics and mechanics, and to be between the age of eighteen and twenty-one years, but the selection board will have the power to relax the superior age limit in the case of candidates who have taken a university degree. Names of intending candidates must be sent to the Under-Secretary of State for India not later than October 26; forms of application can be obtained from Dr. Schlich, 29 Banbury Road, Oxford.

CAMBRIDGE.—The syndicate appointed to consider the desirability of establishing in the university a diploma in forestry is of opinion (1) that a diploma in forestry should be established; (2) that forestry should form the principal subject of the final examination for the diploma; (3) that the diploma should be granted only to graduates of the university; (4) that candidates for the diploma should show evidence of having resided for the equivalent of one year in some recognised centre of instruction in practical forestry. If these recommendations be approved by the senate, the syndicate proposes to draw up and submit to that body detailed regulations for the scope and conduct of the proposed examinations and for the courses of lectures and practical instruction to be required of candidates for the diploma.

At Emmanuel College a studentship of the value of 150*l.* is offered for the encouragement of research in any branch of study recognised by the university. The studentship is open to graduate members of the university whose age does not exceed twenty-eight on January 1, 1906. It is tenable in the first instance for one year from January 1, 1906, but the student may be re-elected for a second period of one year. The latest date for receiving applications is November 20. Further information may be obtained from the master. The student elected is not required to become a member of Emmanuel College.

Mr. J. L. Tuckett, of Trinity College, has been appointed senior demonstrator of physiology until September 29, 1908, and Mr. S. W. Cole, of the same college, will succeed Mr. Tuckett as additional demonstrator in the same subject. Dr. H. B. Roderick, of Emmanuel College, has been re-appointed demonstrator of surgery. Prof. Hopkinson has been elected to represent the board of physics and chemistry on the general board of studies. Mr. J. J. Lister has been re-elected demonstrator of comparative anatomy.

MR. JAMES MILLIKAN, who has given 180,000*l.* for the establishment of a university at Decatur, Ill., which shall bear his name, has offered, we learn from *Science*, to give a further 200,000*l.* to the institution.

A COMMITTEE has been appointed to inquire into the expenditure on public education in England and Wales from Exchequer grants, local rates, and other sources, with the view of ascertaining the various causes for the

existing diversity in the amount of rate levied for education by local authorities, and the varying relation which this amount bears to the total local rates in each area. All the members of the committee are officially connected with the Civil Service.

THE London County Council School of Marine Engineering in High Street, Poplar, has been established to enable

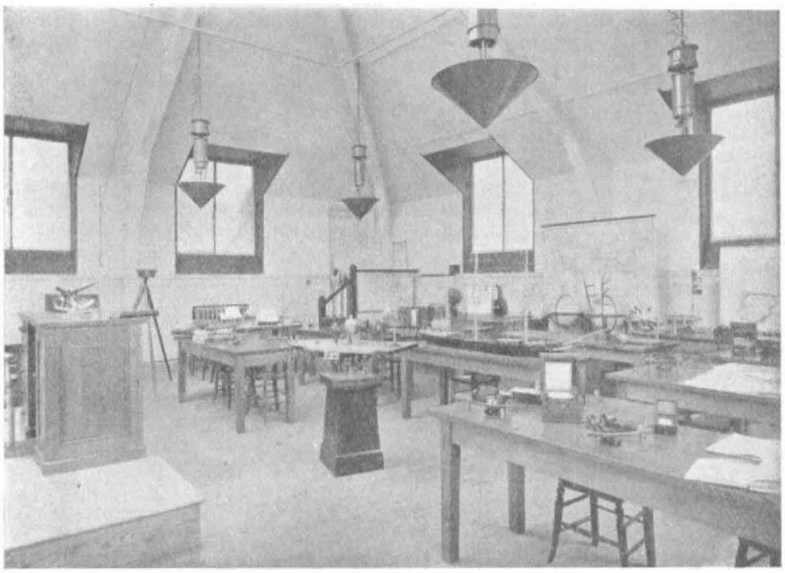

FIG. 1.—Navigation Room of the London County Council School of Marine Engineering, Poplar.

persons in the engineering and shipping industries of the Poplar and neighbouring districts to acquire an intimate knowledge of the principles which underlie the work on which they are engaged, instruction being given in physics, chemistry, and mathematics, as well as in the more practical subjects dealt with in the drawing offices, chart room, and engineering laboratories and workshops. The nautical day school is equipped with modern nautical instruments and seamanship models, and a portion of the roof of the building is arranged so as to form an observing terrace for meteorological and astronomical observations. Provision is also made for the thorough teaching of the principles of electrical engineering, and in the chemical laboratories students have opportunities of making investigations in connection with the calorific value of fuels, methods of purifying feed waters, and other subjects. The accompanying illustration shows the navigation room of the school.

PROF. R. MELDOLA, F.R.S., distributed, on October 11, the prizes and certificates gained during the session 1904–5 by the students of Herold's Institute, the London School of Leather Manufacture. The report of the director of the school, Dr. J. Gordon Parker, was read at the meeting, and showed that during the year a large amount of research work has been done, and the staff of the institute has contributed in no small degree to the important investigation connected with the deterioration of bookbinding leather carried out by the Society of Arts committee on bookbinding leather. Prof. Meldola, replying to a vote of thanks, reminded those present that in other countries there is a direct relationship between technical institutions and the industries. In this country, unfortunately, there is too often indifference or open hostility. Manufacturers have suffered through their unwillingness to modify old procedure and to face new sets of conditions, but it is gratifying to know that hostility to technical instruction is being overcome.

SOCIETIES AND ACADEMIES

LONDON.

Royal Society, May 11.—"On the Cytology of Apogamy and Apospory.—II. Preliminary Note on Apospory." By Miss L. **Digby.** Communicated by Prof. J. B. Farmer, F.R.S.

Apospory is the direct vegetative process which leads from the sporophyte to the gametophyte without the intervention of spores.

The fronds of *Nephrodium pseudomas*, Rich., var. *cristata apospora*, Druery, were layered in pans of earth, and soon showed aposporal growth. This arises from the surface and edge of the pinnule, and assumes prothalloid characters. These prothalli have no cushion; the embryo is a vegetative outgrowth.

The nuclear divisions of prothallus and embryo have been studied, and the calculated number of chromosomes is forty-three and forty-one respectively (see Fig.). This approximation undoubtedly proves that there is *no reduction* during the transition from the sporophyte to the gametophyte. A similar result has been obtained in *Athyrium Filix-fœmina*, var. *clarissima*, Jones.

The apogamous prothalli of *Nephrodium pseudo-mas* *cristata apospora* show no nuclear migration, whereas about 73 per cent. of those of *Nephrodium pseudo-mas*, Rich., var. *polydactyla*, Wills,[1] exhibit this phenomenon. This is easily explained. Whereas in the former the nuclei of the aposporously developed prothalli have already the full complement of somatic chromosomes, in the latter

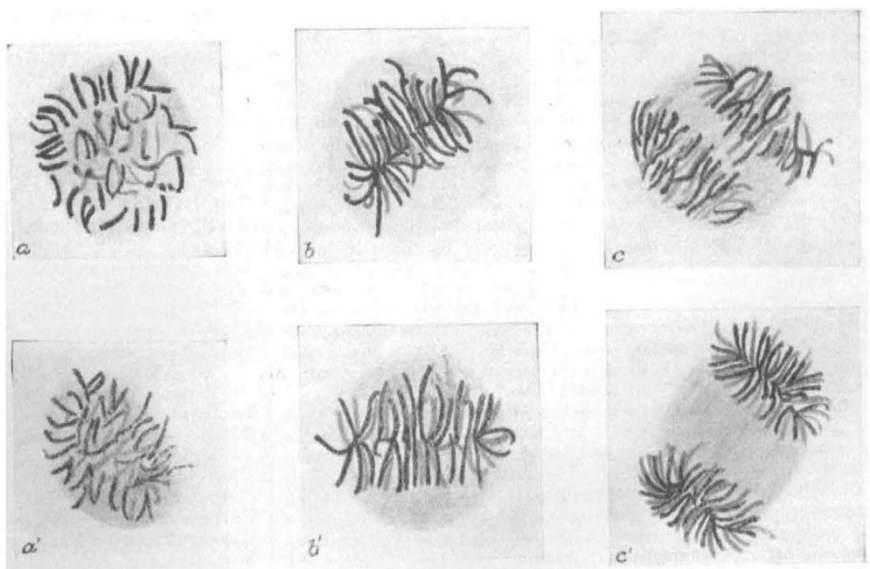

FIG. 1.—Diagrams of nuclear divisions. *a b c* in prothallus. *a' b' c'* in embryo

[1] J. B. Farmer, J. E. S. Moore, and L. Digby, "Preliminary Note on Apogamy," *Roy. Soc. Proc.*, vol. lxxi., 1903, pp. 453 to 457.