Science of Human Society," by Dr. J. H. W. Stuckenberg; "Psychology and Common Life, a Survey of the Present Results of Psychical Research, with Special Reference to their Bearings upon the Interests of Everyday Life," by F. S. Hoffman; "Christopher Columbus," by J. B. Thacher, 3 vols., illustrated; and a new edition of "Thinking, Feeling, Doing," by Dr. E. W. Scripture.

Mr. Grant Richards promises:—"The Law of Evolution: its True Philosophical Basis," by J. Scouller; and a new illustrated edition of "Pioneers of Evolution," by E. Clodd.

Messrs. Rivingtons' list contains:—"Arithmetical Types and Examples," by W. G. Borchardt; and Rivingtons' Junior Mathematics, by H. G. Willis, "Arithmetic," part ii.

In the list of Messrs. George Routledge and Sons, Ltd., are to be found:—"The Management of Infancy and Childhood in Health and Disease," by Dr. H. Barratt; "Tube, Train, Tram, and Car, a non-Technical Description of Electric Locomotion," by A. H. Beavan; "Nature Study Readers," edited by J. C. Medd; "Electric Locomotion," by Sir W. Preece, K.C.B., F.R.S.; and a new edition of Morris's "British Butterflies."

The Sanitary Publishing Co., Ltd., announce:—"The Zymotic Enquiry Book," by J. Storey; "The Full Solution of the Sewage Problem, being the Presidential Address to the Association of Managers of Sewage Disposal Works at Carshalton, March 28, 1903," by W. D. Scott Moncrieff; "The *Sanitary Record* Diary and Year-Book"; "The *Sanitary Record* and Journal of Sanitary and Municipal Engineering, &c.," by Dr. W. Robertson; and new editions of "Disinfection and the Preservation of Food, together with an Account of the Chemical Substances used as Antiseptics and Preservatives," by Dr. S. Rideal; and "The Purification of Sewage and Water," by W. J. Dibden.

The Walter Scott Publishing Company, Ltd., are adding to their "Contemporary Science Series":—"Morals: a Treatise on the Psycho-Sociological Bases of Ethics," which is a translation, by W. J. Greenstreet, of Duprat's "La Morale"; "Consumption, its Nature, Causes, Prevention, and Cure," by Dr. S. de Plauzoles; "Indigestion, its Prevention and Cure," by Dr. F. H. Alderson; and a new edition of "An Introduction to Comparative Psychology," by Prof. C. Lloyd Morgan, F.R.S.

Messrs. Smith, Elder and Co., give notice of:—"A Naturalist in the Guianas," by E. André, illustrated; "Doctors and their Work, or Medicine, Quackery, and Disease," by R. Brudenell Carter.

The announcements of Messrs. Swan Sonnenschein and Co., Ltd., include:—"A History of Contemporary Philosophy," by Prof. M. Heinze, translated by Prof. W. Hammond; "Physiological Psychology," by Prof. W. Wundt. A translation of the fifth and wholly rewritten (1902–3) German edition, by Prof. E. B. Titchener, in three volumes, vols. i. and ii., illustrated; "The Philosophy of Auguste Comte," by Prof. L. L. Bruhl, translated with notes and index by the Hon. Mrs. de Beaumont-Klein; "Some Popular Philosophy," by G. H. Long; "The Student's Text-book of Zoology," by A. Sedgwick, F.R.S., vol. ii., illustrated; "The Fourth Dimension," by C. H. Hinton, illustrated; "Fatigue," by Dr. Mosso, translated by W. B. Drummond, illustrated; "Cancer: Nature's Own and Only Remedy," by Dr. C. Carillo; "Specimens of Bushman Folklore," by Dr. W. H. J. Bleek and Miss L. C. Lloyd; and a new edition of "Introduction to the Study of Organic Chemistry," by J. Wade, illustrated.

The list of the University Tutorial Press, Ltd., comprises:—"Modern Navigation," by Rev. W. Hall; "The Shilling Arithmetic"; "The Key to the New Matriculation Algebra"; "The School Arithmetic," by W. P. Workman; "Advanced Botany," by J. M. Lowson; "Graphical Representation of Algebraic Functions," by C. H. French and G. Osborn; and new editions of "The Tutorial Dynamics" and "The Tutorial Statics," by Dr. W. Briggs and Prof. G. H. Bryan, F.R.S.; "Advanced Magnetism and Electricity," by Dr. R. W. Stewart; "First Stage Magnetism and Electricity," by Dr. R. H. Jude; "Advanced Mechanics," vol. i., Dynamics; vol. ii., Statics, by Dr. W. Briggs and Prof. G. H. Bryan, F.R.S.; and "A Higher Text-book of Magnetism and Electricity," by Dr. R. W. Stewart.

Mr. T. Fisher Unwin gives notice of:—"Big Game Shooting and Travel in South and East Africa," by F. R. H. Findlay, illustrated; "The Mystics, Ascetics and Saints of India," by J. C. Oman, illustrated; "Bird Life in Wild Wales," by J. A. W. Bond, illustrated.

Messrs. Whittaker and Co. will issue:—"Electric Traction, a Practical Handbook on the Application of Electricity as a Locomotive Power," by J. H. Rider; "Electric Lighting and Power Distribution," by W. P. Maycock, vol. ii.; "Friction and its Reduction," by G. U. Wheeler; and new editions of "The Dynamo," by C. C. Hawkins and F. Wallis; "Electricity in its Application to Telegraphy," by T. E. Herbert; and "The Alternating Current Circuit and Motor," by W. P. Maycock.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The election of a professor of physiology in succession to Sir Michael Foster will take place on November 6, and the election to the chair of mechanism and applied mechanics, vacant by the resignation of Prof. Ewing, on November 14. Candidates are requested to communicate with the Vice-Chancellor.

Mr. J. M. Dodds, Peterhouse, and Mr. E. W. Barnes, Trinity, have been appointed moderators, and Mr. A. Berry, King's, and Mr. A. S. Ramsey, Magdalene, examiners for the mathematical tripos, 1904.

Mr. J. E. Wright, senior wrangler 1900 and Smith's prizeman 1902, and Mr. H. A. Webb, third wrangler 1902, have been elected to fellowships at Trinity College.

THE Duke of Norfolk has contributed 8000*l.* towards the endowment of a university in Sheffield, if the charter be granted. Sir F. Mappin, Sir H. Stephenson, and the Sheffield Corporation Tramways committee have also each given 5000*l.*

IN some American colleges there is a system by means of which the work done throughout the various terms of the college course is taken into account in awarding a student a degree. The plan adopted is known as the credit system. Thus in the current "Year Book" of the Michigan College of Mines, there is published an outline list of courses of instruction arranged in order of sequence, and under each main subject is given the number of attendances which must be made at the classes in different branches of that subject in order to secure certain credits. To take two instances, under the heading mathematics we find "spherical trigonometry, six times a week, five weeks; to count as three-tenths of a credit." Or, under physics, "light, six hours a week, twelve weeks; to count as two-tenths of a credit," and so on. By some such plan in this country regularity of attendance by students at their classes would be quite assured.

MR. S. D. CHALMERS has been appointed head of the new department of technical optics at the Northampton Institute, Clerkenwell. Evening classes in technical optics were started at the Northampton Institute as part of the work of the Applied Physics Department in the session 1898–99. In the first session the students largely consisted of those who desired to take the examinations of the Spectacle Makers' Company, and the work was confined to lectures and laboratory work. In the following session an optical workshop was added, and an increasing number of students engaged, professionally or otherwise, in optical work have in recent years been enrolled as students. Owing to the assistance of the London Technical Education Board, it has now become possible to separate the department of technical optics from that of applied physics, and place it in charge of a responsible head who can devote his whole time to its organisation and development.

THE following entrance scholarships in connection with medical schools have been awarded:—St. Mary's Hospital Medical School—natural science scholarship, 145*l.*, G. E. Oates, St. Paul's School; natural science scholarships, 78*l.* 15*s.*, (1) J. E. L. Johnston, Epsom College and St. Mary's Hospital, (2) W. E. Haigh, Bradford Technical College; natural science scholarship, 52*l.* 10*s.*, D. W. Daniels, Wyggeston Schools, Leicester; university scholar-

ships, 63*l*., (1) W. A. E. Dobbin, University College, Cardiff, (2) E. Beaton, Portsmouth Grammar School and Caius College, Cambridge. London Hospital Medical College—first prize, entrance science scholarship, 120*l*., W. H. Palmer; second prize, entrance science scholarship, 60*l*., J. E. Scudamore; third prize, entrance science scholarship, 35*l*., J. P. Johnson; anatomy and physiology prize, scholarship open to students of Oxford and Cambridge, scholarship, 60*l*., H. S. Souttar, University of Oxford. King's College, London (Faculty of Medicine)—medical entrance, 50*l*., W. T. Briscoe and W. D. Sturrock (equal); Sambrooke (science), 100*l*., E. Gauntlett; Warneford (arts), 100*l*., O. J. W. Adamson.

PROF. E. A. SCHÄFER, F.R.S., delivered the introductory address to the medical students at the Yorkshire College, Leeds, at the opening of the winter session on October 1. The object of the address was to offer practical suggestions with regard to the manner in which a medical curriculum might be mapped out in existing circumstances. It was appalling to think, said Prof. Schafer, that many people who passed as highly educated had absolutely no knowledge of any of the sciences except, perhaps, mathematics. He went on to say that, as a subject of general education, scientific knowledge was an absolutely essential preliminary to the study of medicine, and that because such knowledge was not imparted in our schools it had become necessary to incorporate into the medical curriculum, and in so far to burden it with, courses of preliminary science.

THE distribution of medals, prizes, and diplomas to the students of the Royal College of Science, South Kensington, took place on October 8, when Prof. J. B. Farmer, F.R.S., delivered an address, in the course of which he said it was still unfortunately true that many people of influence, while freely admitting the claims of science as a factor of ever-growing importance in the world of production and industry, nevertheless, when they said they wanted more technical education in the country, did not really want either science or education at all. What they did desire was merely some ready means of instruction that should adapt the knowledge already in sight to industrial and technical purposes. He believed in securing a more widespread and intelligent interest in the meaning of science and the modes by which knowledge might be really advanced. Chief among these was assuredly research.

IN distributing the prizes to the successful students of the Halifax Municipal Technical School last week, Mr. Bryce, while commending the study of commerce as a matter of science and philosophy, urged the authorities at Halifax to fix their attention principally to applied science. "But," he added, "our experience, and that of Germany and the United States, has shown that applied science, to be valuable, must be in connection with theoretical science, and in this country there must be ampler provision for teaching the higher branches of theoretical science if we are to make progress with those branches of science concerned with the practical arts. There is no reason in the world why England should not have as great a career in commerce and manufactures in the future as in the past. A country which wishes to keep abreast of modern trade must keep abreast of modern science. We have been falling behind in the study of science and its application to our industries in this modern world of ours. Science is king, and the commercial and industrial future is with the nations able most completely to master and apply the forces of nature in the most economical way."

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 5.—M. Albert Gaudry in the chair.—The influence of water on the structure of the aërial roots of orchids, by M. Gaston **Bonnier**. Contact with water produces an effect on the aërial roots of many orchids, either by preventing the sclerification or lignification of the tissues of the central cylinder, a result which seems natural when compared with the modifications of the roots of aquatic plants, or by provoking a reaction tissue in the pericycle, capable of protecting the rest of the cylinder against the action of water.—On a class of linear differential equations, by M. Alexander **Chessin**.—The conditions which determine the sign and the magnitude of electrification by contact, by M. Jean **Perrin**. The contact charge between a solid and a liquid can be readily studied by means of electrical osmosis, the charge being always greater when the body is a good ioniser, such as water.—The heats of combustion of organic compounds considered as additive properties; alcohols and phenols, ether-oxides, aldehydes and ketones, by M. P. **Lemoult**. By assigning definite values to certain atomic groupings it is possible to calculate the heats of combustion of organic compounds of the above-mentioned classes with considerable accuracy.—The action of phosphorous acid upon mannite; remarks on mannide, by M. P. **Carré**. The ether

$$P_2(OH)_4.O_2(CH_2)_2.(CH.OH)_4$$

is first formed, a phosphite of mannide being ultimately produced.—Derivatives and products of oxidation of nitropyromucic acid, by M. R. **Marquis**. This acid is totally destroyed by oxidation with permanganates, chromic acid or nitric acid, but with sodium peroxide gives nitrous and fumaric acids.—Researches on the formation of azo-compounds. The reduction of ortho-nitrobenzyl-methyl ether oxide, by M. P. **Freundler**.—On the affinities of the genus Oreosoma, by M. G. A. **Boulanger**.—The action of solutions of salts of the alkalis and alkaline earths on fish, by M. Michel **Siedlecki**.—On the genus Ascodesmis, by M. P. A. **Dangeard**.—Researches on the transpiration of green leaves, either the upper or lower face of the leaf being illuminated, by M. Ed. **Griffon**.—On the development of the embryo of the rush, by M. Marcellin **Laurent**.—On ægyrine granites and riebeckite in Madagascar and their contact phenomena, by M. **Lacroix**.—On the functions of the *Charriages* in the delphino-provençal Alps and of the fan-like structure of the Alps of the Briançonnais, by M. W. **Kilian**.

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