"Oils, Fats, Waxes, and Allied Materials, and the Manufacture therefrom of Candles, Soaps, and other Products," by C. R. Alder Wright, D.Sc., F.R.S., with numerous illustrations; "Painters' Colours, Oils, and Varnishes" (a practical Manual), by Geo. H. Hurst, with illustrations; "Applied Mechanics" (an Elementary Manual of), for first year students, by Prof. A. Jamieson, F.R.S.E., with very numerous illustrations; and "Griffin's Electrical Price-Book," for the use of electrical, civil, marine, and borough engineers, local authorities, architects, railway contractors, &c., edited by H. J. Dowsing.

MESSRS. SWAN SONNENSCHEIN AND CO.'S list contains:—"Text Book of Embryology: Man and Mammals," by Dr. Oscar Hertwig, translated and edited from the third German edition by Dr. E. L. Mark, fully illustrated; "Text-Book of Embryology: Invertebrates," by Drs. Korschelt and Heider, translated and edited by Dr. E. L. Mark and Dr. W. M. Woodworth, fully illustrated; "Text-Book of Comparative Geology," adapted from the work of Dr. Kayser, by Philip Lake, fully illustrated; "Text-Book of Palæontology for Zoological Students," by Theodore T. Groom, fully illustrated; "Text-Book of Petrology," by F. H. Hatch, D.Sc., a revised and enlarged edition of "An Introduction to the Study of Petrology," with 86 illustrations; "Handbook of Systematic Botany," by Dr. E. Warming, translated and edited by M. C. Potter, fully illustrated; "Practical Bacteriology," by Dr. Migula, translated and edited by H. J. Campbell, M.D.; "The Geographical Distribution of Disease in England and Wales," by Alfred Haviland, M.D., with several coloured maps; "A Treatise on Public Hygiene and its applications in different European Countries," by Dr. Albert Palmberg, translated, and the English portion edited and revised, by Arthur Newsholme, M.D., fully illustrated; "The Photographer's Pocket-Book," by Dr. E. Vogel, translated by E. C. Conrad, illustrated; "The Recrudescence of Leprosy and the Report of the Leprosy Commission," by William Tebb; "Roaring in Horses: its Pathology and Treatment," by P. J. Cadiot, translated by Thomas J. Watt Dollar, M.R.C.V.S. "Introductory Science Text-Books": additions—Introductions to the Study of "Zoology," by B. Lindsay, illustrated; "The Amphioxus," by Dr. B. Hatschek and James Tuckey, illustrated; "Geology," by Edward B. Aveling, D.Sc. (Lond.), illustrated; "Physiological Psychology," by Dr. Th. Ziehen, adapted by Dr. Otto Beyer and C. C. Vanliew, with 21 illustrations; "Biology," by H. J. Campbell, M.D. "Young Collector Series": additions—"Flowering Plants," by James Britten, F.L.S.; "Grasses," by W. Hutchinson; "Fishes," by the Rev. H. C. Macpherson; and "Mammalia," by the Rev. H. C. Macpherson.

THE SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE has nearly ready for publication:—"Star Atlas," gives all the stars from 1 to 6·5 magnitude between the North Pole and 34° south declination and all nebulæ and star clusters which are visible in telescopes of moderate powers, translated and adapted from the German of Dr. Klein, by the Rev. E. McClure, M.A., new edition brought up to date, with eighteen charts and eighty pages illustrative letterpress. "Vegetable Wasps and Plant Worms," by M. C. Cooke, LL.D., illustrated. "Our Secret Friends and Foes," by Prof. Frankland, F.R.S.

MESSRS. LONGMANS AND CO. are preparing for publication:—"The Ruined Cities of Mashonaland: being a Record of Excavations and Explorations, 1891–92," by J. Theodore Bent, F.R.G.S., with numerous illustrations of Mashonaland, and of the author's interesting discoveries of the remains of a prehistoric people at the Zimbabwe ruins. An English translation of Wüllner's "Lehrbuch der Electricität," in 2 vols., translated and edited by G. W. de Tunzelmann, B.Sc., with 310 illustrations. The English editor has added much new matter, and by some changes of arrangement and mode of presenting the subject has endeavoured to make it a truthful representation of the present state of electrical science. "Chemical Lecture Experiments," by G. S. Newth.

MESSRS. LAWRENCE AND BULLEN will publish:—"Matriculation Chemistry," by Temple Orme.

MESSRS. J. AND A. CHURCHILL promise "Physiology" (Student's Guide Series), by E. H. Starling, M.D.Lond., with 100 illustrations; "A Guide to the Science of Photo-micrography," by Edward C. Bousfield, second edition, with 34 woodcuts and frontispiece; "Chemical Technology: or, Chemistry in its application to Arts and Manufactures," with which is incorporated "Richardson and Watts' Chemical Technology," edited by Charles Edward Groves, F.R.S., and William Thorp, B.Sc.: vol. ii. Lighting—Sections: Stearine, by Mr. John McArthur; Candles, by Mr. Field; Oils, Oil Fields, Lamps, by Boverton Redwood; Gas, by Chas. Hunt; Electric Lighting, by Prof. Garnett; "Commercial Organic Analysis," by Alfred H. Allen, F.I.C., F.C.S. A treatise on the properties, proximate analytical examination, and modes of assaying the various organic chemicals and products employed in the arts, manufactures, medicine, &c., with concise methods for the detection and determination of their impurities, adulterations, and products of decomposition. Vol. iii., Part 2, Organic bases, cyanogen compounds, albuminoids, &c. "Wilson's Anatomy," edited by Prof. Henry E. Clark, eleventh edition, with 26 coloured plates, and 492 woodcuts; "Morris's Anatomy," a treatise by various authors: J. B. Sutton, H. Morris, J. N. Davies-Colley, W. J. Walsham, H. St. John Brooks, R. M. Gunn, A. Hensman, F. Treves, W. Anderson, and W. H. A. Jacobson, with more than 500 illustrations, many being coloured; "Ambulance Lectures," to which is added a Nursing Lecture, in accordance with the regulations of the St. John Ambulance Association, by John M. H. Martin, M.D., third edition, with 60 engravings, 142 pp.; and an English edition of Tommasi-Crudeli's well-known work on the Climate of Rome.

Mr. LEWIS'S announcements are:—"Various Forms of Hysterical or Functional Paralysis," by H. C. Charlton Bastian, M.D., F.R.S.; "Diseases of the Skin: Their Description, Pathology, Diagnosis and Treatment," by H. Radcliffe Crocker, M.D., F.R.C.P., second edition, with numerous illustrations; "A Text-book of Ophthalmology," by Dr. Ernest Fuchs, translated from the German by A. Duane, M.D., in one large octavo volume, with 178 illustrations; "Public Health Laboratory Work," by H. R. Kenwood, M.B., with illustrations; "Hygiene and Public Health," by Lucius C. Parkes, M.D., third edition, with numerous illustrations; "A Handbook of the Diseases of the Eye and their Treatment," by Henry R. Swanzy, M.B., F.R.C.S.I., fourth edition, illustrated with wood engravings, colour tests, etc.; "A Pharmacopœia for Diseases of the Skin," edited by James Startin, third edition; and "The Sanitary Inspector's Handbook and Text-book for Students preparing for the Examinations of the Sanitary Institute, London," by Albert Taylor, with illustrations.

Messrs. G. PHILIP AND SON have in the press:—"British New Guinea," a compendium of all the most recent information respecting our Papuan Possession, by J. P. Thomson, with valuable scientific appendix dealing with the Geology, Fauna, Flora, &c., illustrated with numerous engravings and photographs, and a coloured map; "Christopher Columbus," by Clements R. Markham, C.B., forming vol. vii. of the World's Great Explorers and Explorations, with 25 illustrations and numerous coloured maps; "The Development of Africa," a Study in Applied Geography, by Arthur Silva White, illustrated with a set of 14 coloured maps, specially designed by E. G. Ravenstein, F.R.G.S., second edition, revised to April 1892; "Atlas of Astronomy," a Series of Seventy-two beautifully executed Plates, with Explanatory Notes, by Sir Robert Stawell Ball, F.R.S.; "Astronomy for Every-Day Readers," and a Popular Manual of Elementary Astronomy, by B. J. Hopkins, with numerous illustrations.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, Sept. 12.—M. Duchartre in the chair.—On the heat of combustion of glycolic acid, by M. Berthelot.—Note on several new facts relating to the physiology of epilepsy, by M. Brown-Sequard. If by epilepsy is understood a group of reflex convulsive movements, it is invariably induced in guinea-pigs by cutting one of the sciatic nerves. If, however, the section has been made in the lower part of the thigh, the convulsive manifestations often are confined to the side of the lesion, and the animal retains consciousness. This is due to the regeneration of the nerve, which takes place rapidly, and which stops the development of the disease, or even cures it altogether. Generally, the greater the number of nerve fibres severed, the stronger is the tendency towards epileptic fits. A set of absolutely decisive facts have shown that a violent attack can be produced which is due to the spinal marrow alone. This epilepsy as displayed in guinea-pigs is absolutely equivalent to the idiopathic or cerebral disease in man. Clinical as

well as experimental facts show that epilepsy has no special seat in the brain, but that all parts of the nervous system, central or peripheral, may give rise to it.—The meadows in the dry summer of 1892, by M. A. Chatin.—Absolute positions and proper motions of circumpolar stars, by M. F. Gonnessiat.—On a problem of analysis involved in the equations of dynamics, by M. R. Liouville.—On a recurring series of pentagons inscribed in the same general curve of the third order, which can be constructed with the sole help of the straight-edge, by M. Paul Serret.—On the calorific distribution of the heat of the sun at the surface of the northern and southern hemispheres of the terrestrial globe, by M. le Goarant de Tromelin. It is sometimes thought that the fact of the sun being eight days longer in the northern hemisphere than in the southern, is the principal cause of the inequality of the distribution of heat in the two hemispheres. It can, however, be shown that the quantities of heat received by two symmetrical elements of the earth's surface, or by two caps symmetrical with respect to the earth's centre, are the same during the durations of the earth's journey comprised between two pairs of opposite vectors. Hence the total heat received by the northern hemisphere during spring and summer is equal to that received by the southern hemisphere during autumn and winter. The true cause of the difference of mean annual temperature in the two hemispheres lies in the difference of loss by radiation. By the law of cooling bodies, if two bodies have the same mean temperature, but different extremes, the one with the greatest extremes will lose most heat by radiation. Thus the southern hemisphere, which is nearer the sun in its summer and further away in its winter than the northern, will lose the greater quantity of heat.—Theory of a condenser interposed in the secondary circuit of a transformer, by M. Désiré Korda.—On the thermal variation of the electrical resistance of mercury, by M. Ch. Ed. Guillaume. The relation between temperature and conductivity was determined by comparing the resistance of a mercury standard of about one ohm at different temperatures with another standard maintained at a constant temperature, with a special arrangement to eliminate the resistances of the contacts. The formula deduced was—

$$\rho_T = \rho_0(1 + 0{\cdot}00088879T + 0{\cdot}0000010222T^2),$$

and the value of the standard mercury ohm—

$$106{\cdot}3\,\frac{\text{cm.}}{(\text{microlitre})^{\frac{3}{4}}}\,\text{Hg at } 0^\circ.$$

—On a ptomaine obtained from a cultivation of *Micrococcus tetragenus*, by M. A. B. Griffiths. This Micrococcus, found associated with human phthisis, gives rise to a ptomaine if cultivated on peptonised gelatine for several days. This ptomaine is a white solid, crystallizing in prismatic needles. It is soluble in water, giving a feeble alkaline reaction. It forms a chlorohydrate, a chloroaurate, and a chloroplatinate, all crystallizable. Nessler's reagent gives a green precipitate, tannic acid a brown one, slightly soluble. The formula appears to be $C_5H_6NO_2$. It is a poison, and produces death in thirty-six hours. It is undoubtedly the product of the decomposition of the albumin by the microbe.—On echinochrome, a respiratory pigment, by M. A. B. Griffiths. Mr. McMunn discovered a brown pigment in the perivisceral fluid of certain echinoderms in 1883. This was separated by desiccating the fluid and dissolving out by chloroform. The formula of echinochrome is $C_{102}H_{99}N_{12}FeS_2O_{12}$. It serves a purpose in the body of the echinoderm analogous to that of hæmoglobine in the human body, but is not so highly developed as the latter. The respiratory pigments in the lower animals not only carry oxygen to the tissues, but also retain oxygen in combination till taken up by the cellules. Hence echinochrome, like hæmocyanine, chlorocruorine, and similar bodies, is more stable than hæmoglobine.—Physiology of the pancreas, experimental dissociation of the external and internal secretions of the glands, by M. J. Thiroloix.—Influence of some deleterious gases on the progress of anthrax infection, by MM. A. Charrin and H. Roger.—Contribution towards the aseptic method in hypodermic therapeutics, by M. Barthélémy.—On the construction of a luminous fountain with automatically variable colours, by M. G. Trouvé.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—The Locomotive Engine and its Development: C. E. Stretton (Lockwood).—Universal Atlas, Part 18 (Cassell).—Life Histories of North American Birds: C. Bendire (Washington).—Traité Encyclopédique de Photographie: C. Fabre; Premier Supplément (Paris, Gauthier-Villars).—VI. Jahresbericht (1890) der Ornithologischen Beobachtungstationen im Königreiche Sachsen: A. B. Meyer u. F. Helm (Berlin, Friedländer).—Elementary Physiography: R. A. Gregory (Hughes).—Dynamometers and the Measurement of Power: J. J. Flather (New York, Wiley).—A Manual of Veterinary Physiology: Veterinary Captain F. Smith (Baillière).—Australische Reise: R. v. Lendenfeld (Innsbruck, Wagner).—Medical Microscopy: Dr. F. J. Wethered (Lewis).—A Dictionary of Terms used in Medicine, &c.: R. D. Hoblyn, 12th edition, revised by J. A. P. Price (Whittaker).—The Sea and the Rod: C. T. Paske and Dr. G. Aflalo (Chapman and Hall).—A Lecture Course in Elementary Chemistry: H. T. Lilley (Simpkin).—Modern Science in Bible Lands, popular edition, revised: Sir J. W. Dawson (Hodder).—A Handy Book for Brewers: H. E. Wright (Lockwood).—Reports from the Laboratory of the Royal College of Physicians, Edinburgh, vol. iv. (Pentland).—The Fauna and Flora of Gloucestershire: C. A. Witchell and W. B. Strugnell (Stroud, James).—Observations of Double Stars made at the U.S. Naval Observatory, Part 2, 1880-91: Prof. A. Hall (Washington).—Experimental Evolution: Dr. H. de Varigny (Macmillan).—Oriental Cicadidæ, Part 6: W. L. Distant (London).—Paraguay: Dr. E. de B. la Dardye (Philip).—Advanced Building Construction (Longmans).—Transactions and Proceedings of the New Zealand Institute, 1891, vol. xxiv. (Wellington).—Sea-sickness, Voyaging for Health, Health Resorts: Dr. T. Dutton, 3rd edition (Kimpton).—Bulles de Savon: C. V. Boys, traduit de l'Anglais par Ch. Ed. Guillaume (Paris, Gauthier-Villars).—Up the Niger: Capt. A. F. Mockler-Ferryman (Philip).—Earth Burial and Cremation: A. G. Cobb (Putnam).—A Vertebrate Fauna of Lakeland: Rev. H. A. Macpherson (Edinburgh, Douglas).—Contributions to Horticultural Literature: W. Paul (Waltham Cross, Paul).

PAMPHLETS.—Music in its Relation to the Intellect and the Emotions: J. Stainer (Novello).—Sadi Carnot et la Science de l'Énergie: M. G. Mouret (Paris, J. Carré).—Appendix to the Catalogue of the Flora of Nebraska: H. J. Webber.—Maryland's Attitude in the Struggle for Canada (Baltimore).—Memorial of J. Lovering (Cambridge, Massachusetts, Wilson).

SERIALS.—Quarterly Journal of Microscopical Science, August (Churchill).—Journal of the Royal Microscopical Society, August (Williams and Norgate).—Transactions of the Academy of Science of St. Louis, vol. v., Nos. 3 and 4 (St. Louis).—Notes from the Leyden Museum, vol. xiv. Nos. 3 and 4 (Leyden, Brill).—Economic Journal, No. 7 (Macmillan).—Journal of Morphology, vol. vi. Nos. 1 and 2 (Boston, Ginn).

CONTENTS.