

THERE can be no doubt that some of the polytechnic institutions in London are moving towards a higher educational status than they occupied a few years ago. The courses of study are systematised, and they are supervised by teachers who have had laboratory experience; hence they educate the mind as well as train the hand. An announcement that, in the next session (1897-98) Principal Tomlinson, F.R.S., of the South-west London Polytechnic, will establish a class for training in research, affords an instance of the higher tendency of polytechnic instruction. This research training will form part of the curriculum of the second year day electrical engineering students of the institute, but will be open to a limited number of other students provided they can show a fair knowledge of the elementary principles of physics and mathematics. The method of conducting any research will be as follows:—The Principal will first select some subject for investigation suitable for electrical engineering students. He will then fully explain to the class the various reasons which have induced him to make the selection, and will give a brief history of what has been previously done round and about the subject, and full reference thereto. He will also propound a mode or modes of attacking the research, and invite criticisms from the class. When the best mode of attack has been decided on, the class will be expected not only to take part in the experiments, but to help in preparing the required apparatus. Should the results obtained be of sufficient importance, they will be offered in the form of a paper to such societies as the Royal Society, the Physical Society, or the Institution of Electrical Engineers. From time to time during the investigations the Principal will give demonstrations or lectures on those particular branches of magnetism and electricity which bear directly on the investigation, and will illustrate them by the results obtained. The subject selected for the first research is “the effect of repeated heating on the magnetic permeability and electrical conductivity of iron and steel.”

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 13.—“On the Passage of Heat between Metal Surfaces and Liquids in contact with them.” By T. E. Stanton, M.Sc. Received April 7.

An experimental investigation was undertaken to determine the rate of transmission of heat from the walls of a heated metal pipe to colder water flowing through it. By means of the apparatus constructed for this purpose the velocity, initial and final temperatures, and pressure of the water, also the surface temperature of the pipe, could be observed; and by varying the initial temperature and velocity of the water, the effect of varying ranges of temperature and velocity of water could be experimentally studied.

The results of the experiments showed that the heat transmitted from any small surface of the pipe

- (1) was independent of the pressure of the water;
- (2) was proportional to the range of temperature between the surface and the flowing water;
- (3) was approximately proportional to the velocity of the water;
- (4) was proportional to a function of the viscosity of the water; or, putting

$$H = \text{heat transmitted,} \quad S = \text{surface of pipe,}$$

$$V = \text{velocity of water,} \quad T_0 = \text{surface temperature of pipe,}$$

$$t = \text{temperature of water,}$$

$$\text{that } \frac{dH}{dS} = k \cdot (T_0 - t) V^m (1 + \alpha T_0) (1 + \beta t)$$

$$\text{where } m = \cdot 85 \quad \alpha = \cdot 004 \quad \beta = \cdot 01.$$

It is also shown that these results are in accordance with Prof. Osborne Reynolds' theory of the convection of heat from a hot surface to water flowing over it, this theory being that the motion of heat in the pipe follows the same law as the motion of momentum, as far as convection and conduction are concerned; so that, from Prof. Reynolds' equation for the fall of pressure in a pipe, the value of the slope of temperature may be expressed, the constants in which may be determined by experiment.

In this theoretical expression for the slope of temperature it is seen that the effect of the velocity of the water is very small, which is the most remarkable fact brought out by the experimental research.

“On the Magnetisation Limit of Iron.” By Henry Wilde, F.R.S. Received April 3.

In a former paper read before the Society, “On the Influence of Temperature on the Magnetisation of Iron,” the author described a new method of determining the magnetisation limit of magnetic substances, by which, with a single pole of an electro-magnet, a more exalted degree of magnetisation was indicated, as measured by the force of traction, than had previously been attained (*Roy. Soc. Proc.*, 1891, vol. 1.). The magnetisation limit of iron, as deduced from his experiments, was 381 pounds per square inch of section, and it appeared to him at the time that the extreme limit was well within 400 pounds per square inch. The author has recently had occasion to repeat these experiments with other specimens of iron of different lengths, and has increased the magnetisation limit to 422 pounds per square inch, or 29·67 kilos. per square centimetre. He describes an experiment showing that the single-pole method of determining the magnetisation limit of magnetic substances compares favourably with the double-pole method, and that no higher degree of tractive force is to be expected from the latter than has been obtained from the former method.

Linnean Society, May 6.—Dr. A. Günther, F.R.S., President, in the chair.—Prof. Ludwig Radlkofer, of Munich, was elected a Foreign Member.—Prof. Stewart, F.R.S., exhibited and made remarks on some anatomical preparations showing the different modes of attachment of the *Ligamentum nuche* in herbivorous and carnivorous mammals, as exemplified in the sheep and dog, and of the *Ligamenta subflava*. The analogous ligaments of birds were dealt with, and special attention was drawn to a preparation of the vertebral column of the python, showing *vertebra-costal fibro-cartilaginous plates* of which he could find no description and which he believed to be peculiar to the Ophidia.—The Secretary read the abstract of a paper by Messrs. W. and G. S. West, on Desmids from Singapore. These had been discovered in a small collection of Algae forwarded by Mr. H. N. Ridley from Singapore, and, in addition to seven species previously known from Sumatra, contained several which were new, and now described and figured.—Prof. Newton, F.R.S., communicated a paper by Captain F. W. Hutton, Curator of the Canterbury Museum, Christchurch, N.Z., entitled “The Problem of Utility,” in which the views of Dr. A. R. Wallace on “The Utility of Specific Characters” (*Journ. Linn. Soc. Zool.*, xxv, pp. 481-496) were criticised, chiefly as tested by the study of the fruit-pigeons (*Ptilopus*).—The Secretary gave an account of a paper by the Rev. R. Bogg Watson, on some new species of Mollusca from the Island of Madeira, prefacing his remarks with a brief *résumé* of the researches previously made in the same direction by Messrs. Lowe, Wollaston, and other conchologists.

Chemical Society, May 20.—Prof. Dewar, President, in the chair.—The following papers were read:—The theory of osmotic pressure and the hypothesis of electrolytic dissociation, by H. Crompton. It is shown that van't Hoff's view—that the osmotic pressure of a dissolved substance in dilute solution is equal to the pressure which the substance would exercise in the same volume if gaseous—holds when the dissolved substance and the solvent form normal or monomolecular liquids, and may hold when both liquids are associated, but does not hold when one only of the two liquids is associated. When either solvent or dissolved substance is associated, van't Hoff's formula for the molecular reduction of the freezing point requires modification; on working with the modified formula, it is found that the results obtained accord with the view that electrolytes are monomolecular compounds dissolved in an associated solvent, namely water. The hypothesis of electrolytic dissociation is thus unnecessary for explaining cases of this kind, and is further inconsistent with what is known of the molecular character of liquids. The cube of the association factor of a liquid is approximately proportional to its specific inductive capacity.—Molecular rotations of optically active salts, by H. Crompton. The fact that optically active salts of strong acids have the same equivalent rotations in dilute solution is generally quoted in support of the dissociation hypothesis; the author shows, however, that similar regularities are observed in the case of other salts which are certainly not electrolytically dissociated, so that it would seem that monomolecular salts containing a common optically active radicle have the same equivalent rotation.—Heats of neutralisation of acids and bases in dilute aqueous solution, by H. Crompton. The author explains the constancy

of the heat of neutralisation of an acid by a base with the aid of the views developed in the preceding papers, and thus again shows that the electrolytic dissociation hypothesis is unnecessary.—A comparative crystallographical study of the normal selenates of potassium, rubidium and cesium, by A. E. Tutton. The author is enabled, from the results of a very complete crystallographic examination of the selenates of potassium, rubidium and cesium, to extend his previous conclusions deduced from a study of the sulphates and double sulphates of these three alkali metals; he shows that the characters of the crystals of isomorphous series are functions of the atomic weight of the interchangeable elements, belonging to the same family group, which give rise to the series.—The platinum-silver alloys; their solubility in nitric acid, by J. Spiller. The usual statement that, on dissolving platinum-silver alloys in nitric acid, from 5 to 9 per cent. of platinum dissolves with the silver, seems erroneous; the author only succeeded in causing about 1 per cent. of platinum to accompany the silver into solution.—Dalton's law in solutions. The molecular depression of mixtures of non-electrolytes, by M. Wilderman.—The action of bromdiphenylmethane on ethyl sodacetate, by G. G. Henderson and M. A. Parker.

EDINBURGH.

Royal Society, May 17.—Sir Arthur Mitchell, K.C.B., in the chair.—An obituary notice of the late Dr. E. Sang was read by J. Bruce Peebles, Esq., in which he emphasised the desirability of the purchase by Government, or some learned Society, of Dr. Sang's invaluable logarithmic tables.—Dschâbir Ben Hayyân, and the chemical writings ascribed to him. Part ii., by Prof. John Ferguson.—A communication was read by Percy H. Grimshaw, on some type specimens of Lepidoptera and Coleoptera in the Edinburgh Museum of Science and Art. The paper dealt with 52 species of butterflies and 19 of beetles, the type specimens of which had been discovered by the author in a collection purchased by Edinburgh University from M. Dufresne, of Paris, in 1819, and afterwards transferred to the museum. The most important results embodied in the paper are as follows. One of the beetles has been found to be the type of a new genus, the specimen in question being probably unique; it has been found necessary to re-name one species of butterfly and one beetle; errors have been corrected in synonymy, &c., in the case of 19 species; and 8 species hitherto wrongly placed have been referred to their proper genera. The type specimens, together with coloured drawings, by Mr. Grimshaw, of the more important, were exhibited at the meeting. The same author read a short account of a melanic specimen of *Hestina nama*, Doubleday, which had been found in a small collection of butterflies purchased by the museum in 1890. The specimen described is very close, indeed to the aberration named by Oberthür *melanina* ("Études d'Entomologie," xx. 1896, p. 30, tab. 10, No. 177), but differs in several particulars, being generally of a darker tint, the inner series of white markings on the fore wing, and the ferruginous border of the hind wing being absent. The specimen and a coloured drawing of the same were exhibited.

PARIS.

Academy of Sciences, May 31.—M. A. Chatin in the chair.—New studies concerning the history of the lunar surface, by MM. Lœwy and Puiseux.—On the disaggregation of comets. Effect of Jupiter upon short-period comets, by M. O. Callandrea. Regarding a comet as consisting of a swarm of particles of spherical form, the density either being constant or varying only with the distance from the centre of the swarm, an expression is theoretically deduced giving the relations which should exist between the distance from the sun, the velocity, the ratio of the product of the masses of the sun and comet to the attraction constant, and the limiting radius of the orbit of an external particle. Under certain conditions the combined effect upon the disaggregation of the comet of the sun and Jupiter, near aphelion, may exceed that of the sun near perihelion.—Gradual flow of liquids in channels of large section. Fundamental equations, by M. J. Boussinesq.—On the liquefaction of fluorine, by MM. H. Moissan and J. Dewar (see p. 126).—On the function of humic materials in the fertility of soils, by M. Armand Gautier.—Physiological researches on the *sphincter ani* muscle, peculiarity shown by its reflex innervation and contraction, by MM. S. Arloing and Edouard Chantre.—M. Bouquet de la Grye announced to the

Academy the loss it had sustained by the death of M. Léopold Manen, Correspondant for the Section of Geography and Navigation.—Report on the precautions necessary in the installation of electric conductors in the neighbourhood of powder magazines. The Committee report that no distinction can be drawn between telephone or telegraph wires and electric light mains. A distance of 10 metres would appear to be sufficient to avoid all risk with underground wires. The same distance is necessary in the case of water and gas pipes, as under certain conditions of leakage from neighbouring conductors they may become dangerous. For overhead lines a much greater distance is advisable, at least 20 metres.—Action of zinc and other metals upon the photographic plate, by M. R. Colson.—On partial differential equations of the second order the two systems of characteristics of which are confused, by M. E. von Weber.—On systems of complex numbers, by M. E. Cartan.—On the convergence of uniform substitutions, by M. E. M. Lémeray.—On the small periodic movements of systems, by M. P. Painlevé.—On the efficiency of gears, by M. L. Lecornu.—On a means of recognising a good cryoscopic method, by M. Ponsot.—On the purification of cerium, by MM. Wyruboff and A. Verneuil. The oxides arising from the ignition of the oxalates are dissolved in nitric acid, and ammonium nitrate added in certain proportions to the warm solution. The whole of the cerium existing as Ce_2O_4 is precipitated as a basic nitrate which contains neither didymium, lanthanum, nor yttrium earths.—Remarks by M. Moissan on the preceding paper. By fractionally dissolving impure cerium carbide in dilute acids, the solution obtained furnished on simple calcination a perfectly white oxide of cerium.—On the alloys of the silver-copper group, by M. F. Osmond.—The phosphorescence of strontium sulphide, by M. José Rodriguez Mourels.—Contribution to the study of the preparation of ordinary ether, by M. L. Prunier. The presence of sulphur dioxide among the usual products of the crude ether distillate, is accounted for by the formation of ethyl isethionate, $CH_3.OH.CH_2.SO_2.OC_2H_5$, which splits up at 140° into SO_2 and alcohol.—On some combinations of phenylhydrazine with metallic chlorides, by MM. J. Ville and J. Moitessier.—Apparatus for the commercial analysis of gases, by M. Léo Vignon. The apparatus is of the Orsat type; but calculations are given, taking into account the effects of the dead space, so considerable in this class of instrument.—On the products of decomposition of calcium carbide, and on its employment as a phylloxericide, by M. E. Chuard. After the acetylene has been produced by the action of water, ammonia continues to be slowly given off. By preparing a carbide rich in phosphide, a phosphocarbide is produced possessing exceptionally powerful insecticidal properties.—New order of insectivora of the middle Miocene at Grive-Saint-Alban (Isère), by M. Claude Gaillard.—A self-recording balance, by M. G. Weiss. Designed more especially for physiological purposes.—Remarks on the preceding paper, by M. Bouchard.—On the umbilical vesicle of the Cheiroptera, by M. Mathias Duval.—Medical statistics of the army of occupation at Cochin China, by M. Bonnafy.—On cases of radiographic erythema of the hands, by MM. Paul Richer and Albert Londe.—On the application of photography to the registration of effluvia given off by living beings in both normal and pathological states, by MM. Luys and David.—On aurora borealis, by M. E. M. Pozzi.—On a general equation of fluids, by M. G. Perry.

NEW SOUTH WALES.

Linnean Society, March 31.—The President, Mr. Henry Deane, in the chair.—The President delivered the annual address. The special subject of the address was an expansion of matters treated of in that of the previous year, namely, a consideration of the relations of the fauna and flora of Australia to those of other parts of the Southern Hemisphere. The affinities of the floras of the Cape of Good Hope and of West Australia; of South-eastern Australia and New Zealand, and of South America; and the discovery of fossil marsupials of an Australoid type in La Plata and Patagonia were passed in review; and the important bearing of evidence of this kind on the question of former possible land-connections between these countries where now deep seas are believed to exist, was discussed. Other cognate subjects touched upon were the moot subject of the permanence of ocean basins and continental areas; the present state of knowledge of the rigidity of the earth; and the causes of extreme changes of climate in past geological ages. The address concluded with some references to the earliest known dicotyledonous plants in

Australia and Europe.—Prof. J. T. Wilson was elected President for the current year.

Monthly Meeting.—Prof. Wilson, President, in the chair.—Descriptions of new Australian Lepidoptera, with notes on synonymy, by Oswald B. Lower. Twenty-six species referable to the sections Bombycina, Geometrina, Noctuina, Pyralidina and Tineina, were described as new.—Studies in Australian entomology, No. 8. Descriptions of two new Tiger-beetles, by T. G. Sloane. A new species of *Megacephala* from West Australia and of *Tetracha* from Barrow Creek, Northern Territory of South Australia, were described.—Notes on Australian fungi, by D. McAlpine. Ten species were added to the cryptogamic flora of New South Wales, of which six were described as new, and four were recorded for the first time, one of them in association with a new host.

DIARY OF SOCIETIES.

THURSDAY, JUNE 10.

MATHEMATICAL SOCIETY, at 8.—Models of the Regular Convex and Star Solids: W. W. Taylor.—The Calculus of Equivalent Statements (Sixth Paper): H. MacColl.—On the Primitive Substitution Groups of Degree Fifteen: Dr. G. A. Miller.—A Generalised Form of the Binomial Theorem: Rev. F. H. Jackson.

FRIDAY, JUNE 11.

ROYAL INSTITUTION, at 9.—Diamonds: W. Crookes, F.R.S.
ROYAL ASTRONOMICAL SOCIETY, at 8.—Theory of the Motion of the Moon: Note on the Mean Motions of the Lunar Perigee and Node: Prof. E. W. Brown.—Elements of Comet Perine (*f*) 1896 November 2: C. J. Merfield.—Nebula H I. 43 Virginis: Prof. K. D. Naegamala.—The Shower of Leonids in 1897: W. F. Denning.—Results of Double Star Measures with the 8-inch Equatorial at Windsor, New South Wales, in 1896: John Tebbutt.—*Probable Papers*: Notes on the Reduction of Stellar Photographs: A. A. Rambaut.—Photographic Observation of Comet *b*, 1896: A. A. Rambaut.

PHYSICAL SOCIETY, at 5.—The Effect of Sea-water on Induction Telegraphy: C. S. Whitehead.—A New Definition of Focal Length, and an Instrument for its Determination: Thomas H. Blakesley.—On the Decomposition of Silver Salts under Pressure: Dr. J. E. Myers and Dr. F. Braun.—On a New Way of determining Hysteresis in Straight Strips: Dr. Fleming, F.R.S.

MALACOLOGICAL SOCIETY, at 8.

SATURDAY, JUNE 12.

ROYAL BOTANIC SOCIETY, at 4.
LONDON GEOLOGICAL FIELD CLASS.—Excursion—Coulston to Mersham. Lower Chalk. Leave Cannon Street, 2.17; arrive Coulston, 2.50.

MONDAY, JUNE 14.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—Note on a Possible Danger from Fire involved in the Transport of Barium Peroxide in Wooden Barrels: Dr. A. Dupré, F.R.S.—The Valuation of Commercial Nitrate of Soda: Dr. Pauli.—Recent Improvements in Smokeless Compounds and in Processes of Manufacture: Hudson Maxim.—Comparative Experiments on the Estimation of Phosphoric Acid: Alexander Cameron.—The Strength of Commercial Formaldehyde Solutions: W. A. Davis.

TUESDAY, JUNE 15.

ZOOLOGICAL SOCIETY, at 8.30.—On the Mammals obtained by Mr. John Whitehead during his Recent Expedition to the Philippines. With Field-Notes by the Collector: Oldfield Thomas.—On the Presence of Ribs in *Polyodon (Spatularia) folium*: Prof. T. W. Bridge.—On the Spiders of the Family *Theraphosidae (Mygalidae)* from the Ethiopian Region, contained in the Collection of the British Museum: R. I. Pocock.

ROYAL PHOTOGRAPHIC SOCIETY, at 8.

WEDNESDAY, JUNE 16.

ROYAL METEOROLOGICAL SOCIETY (Burlington House), at 4.30.—The Non-Instrumental Meteorology of London, 1713–1896: R. C. Mossman.—Hailstorm in the South-West of London, April 27, 1897: Charles Harding.

ROYAL MICROSCOPICAL SOCIETY, at 7.30.—Exhibition of Palates of Molluscs from a Collection recently presented by Mr. C. Rousset.

THURSDAY, JUNE 17.

ROYAL SOCIETY, at 4.30.
LINNEAN SOCIETY, at 8.—On the Distribution of *Primula elatior*, Jacq.: Miller Christy.—On the Acari collected by Mr. H. Fisher, Naturalist of the Jackson-Harmsworth Polar Expedition, at Cape Flora, Northbrook Island, Franz-Josef Archipelago, in 1896: A. D. Michael.—Further Observations on Stipules: Sir John Lubbock, Bart., F.R.S.—On Minor Tension Lines between Plant Formations: Prof. Conway Macmillan.

CHEMICAL SOCIETY, at 8.—Ballot for the Election of Fellows.—The Reduction of Perthiocyanoic Acid: F. D. Chattaway and H. P. Stevens.—Molecular Refraction of Dissolved Salts and Acids, Part II.: Dr. J. H. Gladstone, F.R.S., and W. Hibbert.—On a Space Formula for Benzene: Prof. J. Norman Collie, F.R.S.—On the Production of some Nitro- and Amido-oxypicolines: Dr. A. Lapworth and Prof. J. Norman Collie, F.R.S.—The so-called Hydrates of Iso-propyl Alcohol: Dr. T. E. Thorpe, F.R.S.—The Carbohydrates of the Cereal Straws: C. F. Cross, E. J. Bevan, and C. Smith.—Further Experiments on the Absorption of Moisture by Deliquescent Substances: H. Wilson Hake.

MINERALOGICAL SOCIETY, at 8.—On Blödite from the Punjab: F. R. Mallet.—On Monazite and Xenotime in European Rocks: Orville A. Derby.—On the Identity of Sundtite and Webnerite: G. T. Prior and L. J. Spencer.

FRIDAY, JUNE 18.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Sub-Oceanic Changes: Prof. John Milne, F.R.S.

SATURDAY, JUNE 19.

GEOLOGISTS' ASSOCIATION—Excursion to Leighton Buzzard. Director: A. C. G. Cameron. Leave Euston, 9.10 a.m.; arrive Leighton, 10.47 a.m.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—The Naturalist in Australia: W. Saville-Kent (Chapman).—Scientific Romances: C. H. Hinton, second series (Sonnenschein).—Waste and Repair in Modern Life: Dr. Robson Roose (Murray).—W. and A. K. Johnston's Geological Map of the British Isles, revised edition (Johnston).—Mineralogical Geology. A Synopsis for the use of Students, to accompany ditto: A. Johnstone (Johnston).—Smithsonian Institution. Annual Report to July 1895 (Washington).—U.S. Department of Agriculture. Weather Bureau. Report of the Chief of the Weather Bureau, 1895–96 (Washington).

PAMPHLETS.—Adriades: P. Pasinii (Venitius, Visentini).—The Monetary Situation in 1897: G. M. Boissevain (Macmillan).

SERIALS.—Strand Magazine, June (Newnes).—Middlesex Hospital Journal, No. 3 (London).—Journal of the Anthropological Institute, May (K. Paul).—Catalogus Mammalium, nova editio, Fasc. 2 (Berolini, Friedländer).—Bulletin de l'Académie Royale des Sciences, &c., de Belgique, 1897, No. 4 (Bruxelles).—Memoirs and Proceedings of the Manchester Literary and Philosophical Society, Vol. 41, Part 3 (Manchester).—Observatory, June (Taylor).—Himmel und Erde, May (Berlin, Paetel).—Atlantic Monthly, June (Gay).—Annals of the Astronomical Observatory of Harvard College, Vol. xxviii, Part 1 (Cambridge, Mass., Wilson).—Ditto, Vol. xxxvi. (Waterville, Me.).—Fortnightly Review, June (Chapman).

CONTENTS.

PAGE

Plant Pathology. By Prof. H. Marshall Ward, F.R.S.	121
Captain Lyons' Report on the Island of Philæ	122
Assaying in Works Laboratories	124
Our Book Shelf:—	
"Life and Letters of William Barton Rogers"	124
Righi: "L'Ottica delle Oscillazioni Elettriche."— <i>pro.</i>	125
"The Concise Knowledge Natural History."—	
L. C. M.	125
Scherren: "Through a Pocket Lens"	125
Hoffman: "The Young Beetle Collector's Handbook"	125
Waller: "Exercises in Practical Physiology"	126
"Year-Book of the Scientific and Learned Societies of Great Britain and Ireland"	126
Letters to the Editor:—	
The Trotting Horse.—Prof. C. Lloyd Morgan	126
Fire-fly Light.—Prof. Silvanus P. Thompson, F.R.S.	126
The Liquefaction of Fluorine. By Prof. H. Moissan and Prof. J. Dewar, F.R.S.	126
A New Determination of the Gravitation Constant and the Mean Density of the Earth. By J. H. P.	127
Subjective Transformations of Colour. (<i>With Diagram.</i>) By Shelford Bidwell, F.R.S.	128
International Congress on Technical Education	129
James Wyllie Rodger, A.R.C.S. By A. W. R.	129
Notes	129
Our Astronomical Column:—	
The Latitude of the Royal Catania Observatory	133
Physical and Micrometrical Observations of Venus	133
Nebulae unrecorded in Catalogues	134
Harvard College Observatory Zone Observations	134
The Royal Observatory, Greenwich	134
Insects affecting Domestic Animals. (<i>Illustrated.</i>) By E. A. O.	136
The Engwurra, or Fire Ceremony of certain Central Australian Tribes. By Prof. Baldwin Spencer and F. J. Gillen	136
Professor Newcomb on the Distances of the Stars Primitive Methods of Drilling. (<i>Illustrated.</i>) By J. D. McGuire	140
University and Educational Intelligence	141
Societies and Academies	142
Diary of Societies	144
Books, Pamphlets, and Serials Received	144