

engineering, by Prof. Robinson, beginning Monday, October 5; architecture, by Prof. Banister Fletcher, beginning on Wednesday, October 7; experimental and practical physics, beginning on Monday, October 5, under the direction of Prof. Adams, F.R.S.; pure mathematics—higher mathematics—by Prof. Hudson, beginning on Tuesday, October 6; and a free Saturday morning class for elementary teachers—strength of materials and theory of machines—by Prof. Capper, beginning Saturday, October 17. Application to join any of the above classes should be made, as soon as possible, to the Professors who will conduct the courses. The formation of the classes is a new feature of the work of the London Technical Education Board, and it is one which will advance technical education in the right direction.

### SCIENTIFIC SERIALS.

*Wiedemann's Annalen der Physik und Chemie*, No. 9.—Effect of light on spark discharges, by E. Warburg. This effect is not a direct action, but is the consequence of the shortening of a process preceding the spark discharge, and this shortening is brought about by illumination. The author studied the shortening by applying the difference of potential more or less rapidly, and finding the lowest difference of potential capable of producing discharge within five minutes, this being the greatest delay observed. The discharge potential thus found he calls the static discharge potential, to distinguish it from the dynamic discharge potential producing sparks when the current surges to and fro. The experiments made by the author show that the static discharge potential is not materially influenced by illumination. But when a difference of potential nearly seven times as high is applied for a few thousandths of a second only, it always produces discharge when the kathode is illuminated by an arc lamp, and not in the dark. The range of potentials at which discharge only takes place occasionally is very small in the case of illumination, but large in the dark. This explains why a telephone connected with an illuminated spark gap gives a purer note than when it is not illuminated.—Electric refractive indices of water and aqueous solutions, by P. Drude. For oscillations of the frequency of  $4 \times 10^8$  per second the square of the electric index of refraction at  $17^\circ \text{C}$ . is  $81.67$ . Water possesses slight normal dispersion, since the square is  $80.60$  for a frequency of  $1.5 \times 10^8$ , and  $83.6$  for  $8 \times 10^8$ . Between  $0^\circ$  and  $26^\circ$  the change of  $n^2$  is proportional to the temperature. It decreases by  $0.367$  per degree. At higher temperatures the decrease is slower. The refractive indices of dilute aqueous solutions are very nearly the same as those of water.—Dilute ferromagnetic amalgams, by H. Nagaoka. In fields of less than 20 C.G.S. units the magnetisation of iron amalgams shows a discontinuity at the melting-point. On heating an amalgam containing 1.78 per cent. of iron, produced by electrolysis, up to its melting-point ( $-38^\circ \text{C}$ .), the intensity of magnetisation in a field of 16 units gradually increased. It suddenly attained a maximum on melting, and gradually diminished on further heating.—Influence of pulling and pushing forces upon magnetic properties, by G. S. Meyer. Cobalt also shows the effect discovered in iron by Villari of a maximum of magnetic intensity when under a certain force. In nickel and cobalt tension produces an E.M.F. identical in direction with that produced by longitudinal magnetisation.—An attempt to liquefy helium, by K. Olszewski. (See p. 377.) Helium cannot be liquefied by the most powerful methods yet available. It is more permanent than hydrogen, probably owing to its monatomic structure, and is on that account valuable as a thermometric substance at very low temperatures. A comparison of a helium and a hydrogen thermometer shows, however, that hydrogen has normal expansion as far as  $-234.5^\circ \text{C}$ ., its critical temperature, and is therefore available for thermometric use down to that point.

*Bollettino della Società Sismologica Italiana*, vol. ii., 1896, No. 3.—On the Benevento earthquake of March 14, 1702, by M. Baratta. A discussion of the earthquake founded on three old documents recently discovered, and of its relations to the Benevento earthquakes of June 1688 and September 1885.—Present state of the endogenous phenomena in the Eolian islands, by A. Riccò.—Considerations on recording seismic apparatus and modification of the two-component microseismograph, by G. Vicentini and G. Pacher. A reprint of a paper already noticed in NATURE.—Summary of the principal eruptive phenomena in Sicily and the adjacent islands during the six months January to June, 1896, by S. Arcidiacono.

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### SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, September 21.—M. A. Cornu in the chair.—The President announced the loss that the Academy had sustained in the death of M. Fizeau, and the meeting was adjourned in consequence.

NEW SOUTH WALES.

Linnean Society, July 29.—Mr. Henry Deane, President, in the chair.—Appendix to the Australian *Clivinides* (fam. *Carabidae*), by Thomas G. Sloane. Since his paper was read (at the June meeting) the author has had the opportunity of examining the *Clivinides* of King's Sound, W.A., and its vicinity, in the Macleay Museum. The collection comprises sixteen species, of which two are described as new.—Descriptions of new species of Australian Coleoptera, by Arthur M. Lea. Two genera and thirty-four species belonging to the families *Tenebrionidae* and *Curculionidae* are described as new. Two very interesting species are noted—an apterous *Pterohelentis* and a Cossonid having an 8-jointed funicle.—Descriptions of some new *Araneidae* of New South Wales, No. 6, by W. J. Rainbow. Eight species, comprising representatives of the genera *Nephila*, *Epeira*, *Dolomedes*, and *Actinonops*, are described as new. The last named is specially interesting from the fact that it is the first of the genus recorded from Australia. Five of the spiders described are remarkable for their protective colouration or mimicry; in addition to these, numerous other examples are instanced. After summing up all the facts recorded, the writer concludes by dividing the *Araneidae* into two groups, viz.: (1) (a) spiders whose colouration and (b) formation is protective: and (2) spiders that mimic, (a) animate or (b) inanimate objects, and (c) whose colours are attractive.—Description of a new species of *Ablepharus* from Victoria, with critical remarks on two other Australian lizards, by A. H. S. Lucas and C. Frost. *Ablepharus rhodonoides*, sp.n., from Mildura, is allied to *A. greyi*, Gray, by the head-scaling, but in habit it resembles species like *A. muelleri*, Fischer, and *A. lineatus*, Bell, which are remarkable for the reduction in the size of the limbs, as well as in the number of the digits. *A. greyi*, described from West Australia, is recorded from the Boggabri District, N.S.W. *Hemistheriodon tasmanicum*, Lucas and Frost (Proceedings, 1893, p. 227), as the outcome of the examination of series of additional specimens, is now reduced to a variety of the very variable *Homolepida casuarinea*, D. and B.—On a new genus and three new species of mollusca from New South Wales, New Hebrides, and Western Australia, by John Brazier.

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