

of a model lecture to exhibit methods of dealing with the subject, adapted for science teachers and teachers in Board schools who, having some knowledge of the subject, desire to receive instruction in the scientific construction and use of experimental apparatus and the improvements of methods of teaching. A course of ten lectures with demonstrations on advanced graphical statics as applied to girders and arches will be delivered by Prof. Karl Pearson. A course of twenty lectures on physiology will be delivered by Prof. Halliburton. Some of the meetings of the class will be devoted to the performance by the students themselves of the fundamental experiments in connection with the microscope and the methods of chemically testing substances of physiological importance, such as foods, the air, &c. A course of ten lectures on elementary physical measurements, each lecture followed by a class for practical work, will be given by Miss Edith Aitken at Bedford College. The Technical Education Board is doing very valuable work by thus assisting to extend the knowledge of the principles of rational science teaching.

SCIENTIFIC SERIAL.

Bollettino della Società Sismologica Italiana, vol. iv. No. 1. —The new volume begins with the rules of the Society and a list of the Fellows, there being forty-four Italian and nine foreign members. —Dr. Papavasiliou continues his list of earthquakes observed in Greece in 1897; during the last half of the year sixty-four shocks were recorded, fifty-two of which were felt in Zante. —Vesuvian notes for the year 1897, by G. Mercalli. —The Indian earthquake of June 12, 1897, by G. Agamennone; a summary of several preliminary notices in NATURE and elsewhere. —Notices of earthquakes observed in Italy (July 1-27, 1897), by G. Agamennone, the most important being the Garganic earthquakes of July 3 and 24, earthquakes in Alessandria on July 6, Carniola on July 15, and Pisa on July 27, and distant earthquakes on July 22 and 27.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, August 1. —M. Wolf in the chair. —Further researches on the metal-backed glass mirrors of antiquity, by M. Berthelot. The three mirrors described were originally discovered in Thrace and Egypt. The metal backing consists of almost pure lead, which, in the molten state, appears to have been poured on the concave surface of discs cut from balloons of blown glass. —On the theory of the abacus of alignment, by M. Ernest Duporcq. —On the theory of reed-pipes, by M. A. Aignan. Remarks and experiments on the production of sound in pipes with free and beating reeds. —Action of pure hydrogen phosphide upon cupric sulphate, by M. E. Rubénovitch. The results obtained by previous experimenters seem to show that the product of the action of hydrogen phosphide upon salts of copper is of variable composition. The author, however, by working with pure hydrogen phosphide obtained by the dissociation of phosphonium chloride, and by taking precautions to exclude air or oxygen from the apparatus employed, finds that a well-defined copper phosphide of the formula $P_2Cu_5H_2O$ is produced. This is a black substance, which, on heating to $150^\circ C.$, loses all its water and becomes of a reddish brown colour. It oxidises slowly in the air, and dissolves in sulphuric acid with liberation of hydrogen phosphide, whilst excess of oxygen during its preparation gives rise to rapid decomposition with formation of metallic copper and phosphoric acid. —Action of bromine upon normal propyl bromide in presence of anhydrous aluminium bromide, by M. A. Mouneyrat. It has been shown, in a preceding note, that by treating ethyl bromide with bromine in presence of aluminium bromide, the hydrogen atoms may be successively replaced by bromine, the final product being hexabromethane, C_2Br_6 . The present paper describes a series of similar experiments with normal propyl bromide, the highest brominated derivative yet obtained being pentabromopropane, $CHBr_2-CHBr-CHBr_2$. In the reactions involved the aluminium bromide abstracts the elements of hydrobromic acid from the alkyl bromide and the ethylenic derivative, thus temporarily formed, immediately takes up two atoms of

bromine. —On the hydrolysis of ethane-dipyrocatechin, by M. Ch. Moureu. The author has previously shown that ethane-dipyrocatechin yields, on hydrolysis with dilute sulphuric acid, pyrocatechin and a compound of the formula $C_8H_8O_4$. This latter, it is now proved, is identical with the orthohydroxyphenoxyacetic acid obtained by the interaction of monochloroacetic acid and the monosodium derivative of pyrocatechin. The mechanism of this singular reaction is discussed. —On a new *Trichophyton* productive of herpes in the horse, by MM. Matruchot and Dassonville. An epidemic of herpes among the horses of an artillery regiment was found to be due to a fungus which the authors succeeded in isolating, and the pathogenic nature of which was verified by inoculation experiments on guinea-pigs and on man. The organism is a *Trichophyton* related to, but not identical with, the species described by Sabourand and Bodin as producing herpetic affections. —Physiological function of iron in the vegetable organism, by M. Jules Stoklasa. It has long been recognised that iron is necessary for vegetable life, and microscopic observations have led to the supposition that the metal exists in organic combination in the nucleus of the cell. It is not present in chlorophyll. The author has extracted from onions and from peas a substance, containing 1.68 per cent. of iron, which closely resembles, in composition and properties, the hermatogen obtained by Bunge from yolk of egg. This compound is also contained in non-chlorophyllaceous plants, as was proved by its being obtained from moulds (*Mucor mucedo*) and fungi (*Boletus edulis*). —Fructifications of *Macrostachya*, by M. B. Renault. —On pietine, or stalk disease, in wheat, by M. Louis Mangin. This disease has been attributed by MM. Prillieux and Delacroix to the action of *Ophiobolus graminis*, but inoculation experiments carried out by the author tend to prove that the injurious effects are, for the most part, caused by *Leptosperia herpotrichoides*, although the two parasites are frequently associated.

NEW SOUTH WALES.

Linnean Society, June 29. —Prof. J. T. Wilson, President, in the chair. —Observations on the vegetation of Lord Howe Island, by J. H. Maiden. The author visited Lord Howe Island in H.M.C.S. *Thetis* in March and April last, spending nine days on the island. Hemsley's Flora of the island (*Annals of Botany*, x. p. 221, June 1896) records 206 plants and three introduced ones, total 209. The author has added 16 species and one named variety to the indigenous flora, and 17 species of introduced plants, while he has removed five species of supposed indigenous plants from Hemsley's list. So that, according to the present paper, the flora of Lord Howe Island stands at present at 217 indigenous species (being a net addition of 11), and 10 introduced ones. —Notes on *Sterculia (Brachyhiton) lurida* and *S. discolor*, by J. H. Maiden and E. Betche. The authors give reasons for believing that *Sterculia lurida* is but the young state of *S. discolor*, and cannot even rank as a distinct variety, much less as a species. —On two well-known, but hitherto undescribed, species of *Eucalyptus*, by R. T. Baker. The author shows that under *Eucalyptus Stuartiana*, F.v.M., no less than three species and one variety are included. —Descriptions of some apparently common Australian Nematodes found at Sydney or in Port Jackson, by Dr. N. A. Cobb. Nineteen species and one variety, referable to eleven genera, are described as new. With two exceptions they are marine forms.

AMSTERDAM.

Royal Academy of Sciences, June 25. —Prof. van de Sande Bakhuyzen in the chair. —Prof. H. Behrens and Mr. H. Baucke on Babbitts' antifriction metal. By slow cooling this alloy (82Sn, 9Sb, 9Cn) is really split up into compounds of different fusibility. The separation and chemical examination of these compounds have been carried out by Mr. H. Baucke, analytical chemist, of Amsterdam. By pressure between hot iron plates a metallic mother liquid was squeezed out; the remaining cakes of crystalline metal were treated with hydrochloric acid and washed with water. An alloy, containing 90Sn, 10Sb, on being thus treated, yielded the same cubic crystals as Babbitts' metal, which were found to answer to the formula $SbSn_2$ (found 33.7 Sb, calculated 33.8 Sb). With 42Sb prismatic crystal of the compounds $SbSn$ were obtained (found 50.35 Sb, calculated 50.37 Sb). In Babbitts' metal the copper forms brittle needles of whitish bronze containing no antimony. Such bronzes show less stability than the