

SOCIETIES AND ACADEMIES.

EDINBURGH.

Royal Society, July 17.—The Hon. John Abercromby in the chair.—The Keith prize for the period 1895–97 was awarded to Dr. Thomas Muir, for his valuable mathematical papers published in the *Transactions* and *Proceedings*. The Makdougall-Brisbane prize for the period 1896–98 was awarded to Dr. William Peddie, for his experimental researches on the torsion of wires, his discussion of a unique case of colour-blindness, and other investigations in physical science. The Neill prize for 1895–98 was awarded to Prof. Cossar Ewart, for his important investigations bearing on the theory of heredity.—A paper by Lord Kelvin, on magnetism and molecular rotation, was communicated, the main conclusion of which was that a gyrostatic molecule could not in a strong magnetic field give the Zeeman effect. Only a broadening of the lines, not a splitting, could occur. This agreed with Larmor's statement; and the probability was that Lorentz's theory was essentially true.—Sir John Murray and Mr. F. P. Pullar read a first instalment of their account of a bathymetrical survey of the Scottish fresh-water lochs. These could be divided into two great classes, the deep and the shallow. The shallow lochs varied considerably in temperature throughout the year—a fact which had an important bearing on the forms of animal life frequenting these lochs. The lochs discussed were Lochs Katrine, Arklet, Achray, Vennacher, Drunkie, Voil, Doine, and Lubnaig. 2422 soundings had been taken. The greatest depth observed in Loch Katrine was 495 feet; and about one square mile of the bottom of this loch was below sea level. The portable sounding machine used had been designed by Mr. Pullar.—Dr. Hepburn exhibited a new osteometric board, the idea of which was to keep the vertical sliding piece always perfectly parallel to itself. This was effected by means of two brass rods parallel to each other and parallel to the graduated board. These passed through holes in the vertical sliding piece. By this simple device all irregularities in successive measurements of the same bone were quite done away with.

PARIS.

Academy of Sciences, August 14—M. Maurice Lévy in the chair.—Researches on the metallic derivatives of acetylene, by MM. Berthelot and Delépine. Thermochemical experiments on the compounds of acetylene with silver, silver nitrate, silver sulphate, silver chloride and iodide. Dry silver acetylides, Ag_2C_2 , detonates when heated in a vacuum with production of a reddish flame. The authors discuss the nature of this explosion, since the products being solids, silver and carbon, no flame would be expected. The conclusion is arrived at that the temperature of the reaction is sufficient to volatilise the carbon, and that the flame is gaseous carbon at a very high temperature approaching 4000°C .—Reaction of argon and nitrogen with mercury alkyls, by M. Berthelot. Mercury methyl, $\text{Hg}(\text{CH}_3)_2$, submitted in an atmosphere of argon to the action of the silent electric discharge, forms no compound with argon, although when the argon is replaced by nitrogen the latter is readily absorbed. With mercury phenyl, $\text{Hg}(\text{C}_6\text{H}_5)_2$, a slight absorption of argon is noticeable, amounting to about 5 per cent. in twenty-three hours.—Observations of Tempel's Comet (1873 II.), made at the Observatory of Paris (with the 30.5 centimetre equatorial), by M. G. Fayet. The observations were carried out on the nights of July 31, August 9 and 10. The comet was at its brightest on July 31, although very low down on the horizon.—Observations of the Perseids of 1899, by Mlle. D. Klumpke. These observations were made under very favourable conditions of sky between August 9 and 13.—On the shower of shooting stars (Perseids) at Lyons, and a remarkable meteor, by M. Ch. André. The August showers of shooting stars were relatively small in number at Lyons. On the evening of the 11th a remarkable meteor was seen starting at about 10.43 p.m. from the constellation of Hercules. It was bluish-white at first, changing abruptly in colour to an orange-red. It was under observation for four seconds.—On the correspondence between right lines and spheres, by M. O. E. Lovett.—On the black pottery earths, by M. H. Le Chatelier. The property of producing black ware by the action of air charged with tar vapour at a high temperature is found to be intimately related with the presence of iron in the earth; in the absence of iron, a greyish coloration at the most is produced in the interior, nearly all the

carbon remaining in the outside crust. The most satisfactory results were obtained by acting with acetylene for a quarter of an hour at 450° to 480° upon an earth containing about 2 per cent. of iron oxide. The objects are then removed to a furnace and baked at about 1200° , the hardness thus obtained being comparable with that of porcelain.—On Egyptian porcelain, by M. H. Le Chatelier.—Action of sodammonium and potassammonium upon tellurium and sulphur, by M. C. Hugot. With the alkali in excess the products were Na_2S , K_2S , Na_2Te , K_2Te , all white amorphous substances, soluble in water, but insoluble in liquid ammonia, and incapable of absorbing ammonia. With the sulphur or tellurium in excess, the products are Na_2S_5 , K_2S_5 , Na_2Te_3 , K_2Te_3 , all crystalline, soluble in water and in liquid ammonia, and capable of absorbing ammonia gas.—On the composition of the albumen of the seed of the carob tree, by MM. Em. Bourquelot and H. Hérissey. It has been shown in a previous paper by the authors that a mixture of mannose and galactose results from the careful hydrolysis of the albumen from carob seeds. It is now found that four-fifths of this albumen is constituted by a mixture of the anhydrides of mannose and galactose (mannane and galactane). The carob seed is a very advantageous source of crystallised mannose.—Detection and estimation of free phosphorus in oils and fatty bodies, by M. E. Louise. The oil or fat is dissolved in twenty times its volume of ordinary acetone, and a concentrated solution of silver nitrate added. The silver produced is assumed to be proportional to the amount of free phosphorus present.—On the coloration of the Tunicates and the mobility of their pigmentary granules, by M. Antoine Pizon.—Action of different luminous radiations upon silkworms in different stages, by M. C. Flammarion.

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