as steel, concrete, copper, &c. We want oil, gas and steam engines, and refrigerators, as well as dynamos and all sorts of electrical apparatus." As an inducement to manufacturers and others to give generously, Prof. Smith said :—"We will house your gifts and keep your samples running and in good condition. We will show your present and future customers the merits of your machines, and we will advertise your goods in the centre of the greatest market of the near future." There seems every likelihood that Prof. Smith will be successful in his efforts to secure well-equipped laboratories of a modern type. Already, we understand, the Chloride Electrical Storage Co., Ltd., of Manchester, has decided to present to the University of Hong Kong a complete battery of their chloride accumulators for use in the electrical laboratory. It may be hoped that ere long each of the pieces of apparatus in the list needed at the new University, which has been circulated widely by Prof. Smith, will be secured.

SOCIETIES AND ACADEMIES.

LONDON.

Mathematical Society, January 9.—Prof. A. E. H. Love, president, and temporarily Sir Joseph Larmor, treasurer, in the chair.—J. C. **Fields** : Proofs of certain general theorems relating to orders of coincidence.—W. E. H. **Berwick** : The reduction of ideal numbers.—A. E. H. **Love** : Notes on the dynamical theory of the tides.—W. H. **Young** : Uniform oscillation of the first and second kind.—H. **Bateman** : Some definite integrals occurring in the harmonic analysis connected with a circular disc.

Royal Astronomical Society, January 10.—Dr. F. W. Dyson, F.R.S., president, in the chair.—Dr. S. S. **Hough** : The periodic errors in the right ascensions of standard catalogues. In giving an account of this paper, Sir D. Gill explained in detail the method adopted at the Cape Observatory for obtaining great accuracy in meridian observations, notwithstanding some instability in the foundations of the instruments.—Prof. **Douglass** spoke on the records of solar radiation made in Arizona.—H. E. **Wood** : Work at Union Observatory, Transvaal, and photographs of Gale's comet. The comet had two straight tails, one of them of considerable length.—Rev. A. L. **Cortie** : Sun-spots and terrestrial magnetic phenomena, 1898-1911. Second paper, the greater magnetic storms. It was concluded that while a general state of sun-spot activity corresponds with a general state of terrestrial magnetic activity, it requires the advent of a large spot, the influence of which extends in all directions, or a spot favourably situated in heliographic latitude, to disturb the equilibrium by the precipitation of a magnetic storm.—Prof. H. C. **Plummer** : The motions and distances of the brighter stars of the type B–B5, being a continuation of previous researches on stellar motions. The whole of the stars of the first type appear to be at about 200 light-years' distance, and to be very uniformly distributed in a plane, their motions being parallel to the Milky Way. The author considered that there were two star streams.—Mr. Eddington pointed out that the motions of the B-type stars were very small, and that they might be moving in a direction perpendicular to the Milky Way.—C. **Martin** and H. C. **Plummer** : The short-period variable SU Cygni. Prof. Plummer showed a diagram of the interesting light-curve of the star.

PARIS.

Academy of Sciences, December 30, 1912.—M. Lippmann in the chair.—H. **Deslandres** : The general magnetic field of the upper layers of the solar atmosphere. New verifications. Regarding the upper solar layer

as strongly ionised, the behaviour of the ions in a magnetic field offers a simple explanation of the phenomena hitherto observed. Further experimental proofs are given.—A. **Haller** and Edouard **Bauer** : The formation of dimethylstyrolene, starting with phenyl-dimethylethyl alcohol. The alcohol was obtained by the reduction of phenyldimethylacetamide with sodium and absolute alcohol. Various by-products of the reaction are described.—The secretary announced the death of Paul Gordan, correspondant for the section of geometry.—J. **Guillaume** : Observations of the sun made at the Observatory of Lyons during the third quarter of 1912. The results of observations made on seventy-two days are given in tabular form.—M. **Luizet** : Elements of the orbit of the variable star RR Lion (BD+24·2183°).—Ch. **Gallisot** : The influence of the colour and magnitude in sudden variations of brightness of a stellar image. An account of a repetition of some experiments of Broca and Sulzer, for the case of luminous points.—Georges **Remoundos** : The theory of M. Picard and algebroid functions.—J. **Taffanel** and H. **Dautriche** : The detonation of dynamite No. 1.—G. **Eiffel** : The resistance of spheres in air in motion. An experimental study of the causes of the divergence of the author's results and those obtained at the aërodynamical laboratory at Göttingen. In the expression, $R=KSV^2$, in which R is the total resistance, S the diametral surface, V the velocity of the air, and K a constant, K is only really constant after a certain critical value of V has been reached. In the Göttingen experiments V was below this critical value. The existence of this critical velocity is of practical importance, and must be taken into account in apparatus used to measure the velocity of the wind, or of aeroplanes.—René **Arnoux** : A new method of steering aeroplanes by means of the motor. —Gustave **Plaisant** : A mode of cycloidal attack of the air.—A. **Korn** : The potentials of an attracting volume the density of which satisfies the Laplace equation.—F. **Croze** : New observations relating to the Zeeman phenomenon in the hydrogen spectrum. The author's experimental results are not in accord with those recently published by Paschen and Back. An account is given of further experiments on the cause of these discrepancies.—Guillaume de **Fontenay** : The action of inks on the photographic plate. The action is complicated, and varies greatly with the method of working.—Ch. **Boulanger** and G. **Urbain** : The theory of efflorescence. The influence of the magnitude of the crystal. An expression is given for the rates of loss of moisture of two crystals of different masses of the same material, and this is submitted to experimental confirmation with a special form of micro-balance.—Andre **Brochet** : The relation between the conductivity of acids and their absorption by hide powder. The acid absorption is a general phenomenon, and is due to a chemical combination, since whatever acid is employed the amount absorbed is sensibly proportional to the chemical equivalent.—Jean **Bielecki** and Victor **Henri** : The quantitative study of the absorption of the ultra-violet rays by fatty acids and their isomeric esters. The absorption of ultra-violet rays by acids and esters is not determined by their empirical formula. It depends on the constitution of the molecule.—H. **Labbe** : The influence of alkaline salts on the elimination of urinary ammonia in normal dogs.—Michel **Cohendy** and D. M. **Bertrand** : Living sensibilated antistaphylococcus vaccine.—A. **Trillat** and F. **Mallein** : Study of the action of the filtrate or distillate of a fresh culture of *B. proteus* on the evolution of the disease caused by pneumococcus in mice.—E. L. **Trouessart** : Migrating and sedentary forms in the ornithological fauna of Europe.—Louis **Besson** : A periodic element in the variations of the barometer.