

human brain), Dr. Walter Rosenhain (inner structure of alloys), Sir Frederick Keeble (the plant commonwealth and its government), Prof. Hugh Maclean (insulin), Sir Ernest Rutherford (the nucleus of the atom), Prof. Jocelyn Thorpe (colours, stains, and dyes). The complete programme of discourses and lectures can be obtained from the assistant-secretary, Royal Institution of Great Britain, 21 Albemarle Street, W.1.

THE following awards have been made for papers read before or published by the Society of Engineers (Inc.) during 1923: President's gold medal to Mr. J. W. Gordon for his paper on "Railway Surveying by Photography"; Bessemer premium to Mr. Mauciere for his paper on "The Pneumatic Handling of Petrol and other Inflammable Liquids"; Nursey premium to Mr. A. Hiley for his paper on "The Impact of Imperfectly Elastic Bodies, with particular reference to the Effect of the Hammer Blow in Pile-driving"; Bernays premium to Mr. A. Ferguson for his paper on "A new entirely automatic Machine for the Mass Production of Glass Bottles"; Society premium to Mr. A. S. E. Ackermann for his paper on "The Physical Properties of Clay (fifth paper) and the Dynamics of Pile-driving"; Clarke premium to Mr. R. C. Hill for his paper on "Work Beneath the Waves" read before the Gloucestershire Engineering Society, associated with the Society of Engineers; and Geen premium to Mr. H. F. Jones for his paper on "Boilers" read before the Crystal Palace Engineering Society, associated with the Society of Engineers.

THE fourth report of the National Institute of Agricultural Botany, for 1922-23, shows steady

progress since the founding of the station. The first series of field trials has been completed and a new series begun with improved methods in the light of the experience gained. The volume and importance of the results of the scientific and practical work has justified the establishment of an Institute Journal, of which the first number has already appeared. A decision has had to be made as to the relative importance of trial and distribution of seed in the work of the station, and it is proposed to concentrate for the next few years on the elaboration and improvement of methods of trial, in order that eventually it may be possible to issue authoritative reports on the yield and quality of different forms of farm plants and their suitability for different climates and soils. The work of the Official Seed Testing Station goes on steadily, though there has been a decline in 1922-23 in the number of samples tested owing to seasonal and trade conditions. A second course of instruction in seed testing was given. The financial position of the Institute is such that at present sufficient funds are available for the fulfilment of the present programme. Any extension of this, however, is impossible unless adequate outside assistance is forthcoming from the general public, and an appeal is made by the Council to all who are interested to assist either by becoming fellows of the Institute or by making donations to the general funds.

WE are informed by Dr. N. A. F. Moos, late director of Bombay and Alibag Observatories, that the selection of disturbed Bombay magnetic curves mentioned in our issue of October 20, p. 603, was prepared by him, and that he had hoped it might have been possible to include introductory matter and a discussion in the publication.

Our Astronomical Column.

COMETS.—D'Arrest's Comet was observed by M. P. Chofardet at Besançon on Dec. 6^d 6^h 27^m 36^s G.M.T., its apparent place being 22^h 53^m 56.30^s, South Decl. 24° 8' 41.2". It was estimated to be of magnitude 12½ to 13; it appeared as a small, ill-defined nebulosity, at most 20" in diameter, without definite nucleus. The observation was difficult owing to low altitude and the presence of mist near the horizon; it is very creditable to have obtained an observation under these conditions.

Dr. Baade of Bergedorf Observatory is still keeping his comet of October 1922 under photographic observation. It is now well outside the orbit of Jupiter, and its magnitude is less than 15. The long arc of observation will enable the orbit to be calculated precisely and reveal any departure from a parabola that may be present.

STELLAR PHOTOMETRY AT YALE OBSERVATORY.—It was found that the stellar images on photographs obtained with the Loomis Memorial telescope at Yale were unsuitable for purposes of exact measurement of position, and it was accordingly decided to use the instrument for stellar photometry, measuring by means of a Hartmann wedge photometer the density of extra-focal star images. The calibration of the wedge to star-magnitude was determined from some Pleiades plates, using Hertzsprung's standard photographic magnitudes.

Vol. 3, Part II., of the Observatory Transactions contains an investigation of the light curves of the

Cepheid RR Ceti and the Algol-variable VV Orionis. The curve of the former differs in two respects from the visual curves of Ichinohe and Pračka: (1) the light range is 0.9 mag. visual, 1.2 mag. photographic, indicating that the star gets redder at minimum; (2) the pause midway in the descent is not shown in the photographic curve, which has, however, a slight hump just before the minimum.

VV Orionis has a curve with two minima, indicating that both stars are luminous, but the brighter star gives nine times the light of the fainter one, which it totally eclipses at secondary minimum. Only one spectrum is seen, so the mass ratio cannot be determined. Assuming that it is 2 to 1, the masses in terms of the sun are 6.9, 3.4, and the diameters 5.3, 2.5.

PARALLAX AND PROPER MOTION OF RR LYRÆ.—Many researches have lately been carried out on the parallaxes of variable stars. *Astr. Nachr.* No. 5260 contains a photographic investigation by H. Fuss of that of RR Lyræ, the period of which is 0.567 days, the spectral type varying from B9 at maximum to F2 at minimum.

A very small value for the parallax, 0.0003" ± 0.0038", is found; Van Maanen had found 0.006" ± 0.006", so there is no doubt that the star is very remote. In spite of this it has the considerable annual proper motion of -0.0098^{sec}, and -0.202" in R.A. and Decl. respectively, so that its linear velocity must be large.