when they were opposite, together with an equally marked minimum frequency at the full when the declinations were the same, and at the new when they were opposite. At the quarters the frequency is about average; at the times of minimum the frequency is about one-third, and at the maximum about five-thirds, of the average. The magnitude, no less than the fact that it is continuously recognisable throughout the record, shows that the variation is a real one, and it is difficult to find any other cause than the effect of the stresses set up by the gravitational attraction of the sun and the moon.—A. F. **Dufton** : A new apparatus for drawing conic curves. With the apparatus described in this paper the conic is drawn as the polar reciprocal of a circle. A four-bar linkage constrains a pen to trace the locus of the pole of a fixed straight line enveloping a circle upon paper pinned to a rotating drawing-board. The instrument draws conics with precision. It traces the curves at one sweep, and is applicable to all conics.—Capt. J. W. **Bispham** : An experimental determination of the distribution of the partial correlation coefficient in samples of 30. The distributions are described of the observed values of the partial and total correlations from 1000 samples of 30 each. The three attributes of the sampled (artificial) population are uncorrelated, so that observed values of the correlations are departures from the true value, which is zero in each case. The three groups of 1000 total correlations observed are shown to be nearly Gaussian in form, and to be in very close accord with the distributions predicted in general form by R. A. Fisher, and evaluated in detail in an important co-operative study described in *Biometrika.* The distribution of partial correlations is compared with the Gaussian, the Pearson Type II., and the theoretical distribution of *total* correlations referred to above. It is found to be closely fitted by the latter, and not to show significantly higher dispersion than is indicated by the usual expression for the standard deviation of total correlations, viz. $1 - \rho^2 / \sqrt{n-1}$. Some important practical bearings of the result are indicated.

PARIS.

Academy of Sciences, March 1.—M. Henri Deslandres in the chair.—G. **Humbert** : The number of classes of positive quadratic forms of Hermite, of given discriminant, in an imaginary quadratic body.—Em. **Bourquelot** and M. **Bridel** : A new glucoside capable of hydrolysis by emulsin, scabiosine. This glucoside was extracted from the root of *Scabiosa succisa* (devil's bit scabious). Details of its isolation and hydrolysis by dilute sulphuric acid and by emulsin are given.— A. **Rateau** : The flight altitude which corresponds to a minimum consumption of petrol per kilometre, and the calculation of the best propeller for a given aeroplane.—A. **Righi** : The experimental bases of the theory of relativity.—A. Mesnager was elected a member of the section of mechanics in succession to the late Marcel Deprez, and A. Fowler a correspondant for the section of astronomy in succession to the late Edmund Weiss.—N. E. **Nörlund** : The convergence of certain series.—A. **Rosenblatt** : A theorem of A. Liapounoff.—M. T. **Huber** : A rational theory of pugging in reinforced concrete, considered as thin plates.—Ch. **Fremont** : The resistance of steels to cutting by tools. It is well known that steels possessing the same resistance to fracture by tension may differ greatly in the ease with which they can be cut by tools. Instead of the usual calculation, maximum load divided by initial cross-section, the author proposes the term "final resistance," obtained by dividing the maximum load by the actual cross-section of the broken test piece.—J. **Guyot** and L. J.

Simon : The combustion of methyl esters with a mixture of sulphuric and chromic acids. Analytical figures are given for the wet combustion of sixteen methyl compounds of different types, and the carbon dioxide produced is shown to be practically theoretical.— A. **Mailhe** and F. **de Godon** : The preparation of fatty acids by the catalytic oxidation of the primary alcohols. With reduced copper as catalyst, and at temperatures between 260° C. and 270° C., the primary alcohols with air give substantial yields of the corresponding acids. Aldehydes are always produced at the same time, and in some cases more aldehyde than acid is produced.—C. **Schlumberger** : Attempts at the electrical prospecting of the subsoil.—Mme. Z. **Gruzewska** : Contribution to the study of laminarine from *Laminaria flexicaulis.* Laminarine cannot be considered as belonging to the dextrin group, having regard to its lævorotatory power and its resistance to the action of acids and alkalis. Its digestibility by the plant diastases shows it to be a reserve material in the marine algæ.—A. **Sartory** : A new fungus of the genus Aspergillus isolated from a case of onychomycosis.—H. **Piéron** : The variation of energy as a function of the time of stimulation for foveal vision.—A. **Vernes** and R. **Douris** : The action of certain precipitates on the solution of the red blood corpuscles.—R. **Anthony** : The exorchidia of Mesoplodon and the re-ascent of the testicles in the course of the phylogeny of the Cetaceans.—J. L. **Lichtenstein** : The parasitism of *Aphiochaeta (Phora) fasciata.* —E. F. **Galiano** : Some histological details of the arterial heart of *Sepia officinalis.*—G. **Riquoir** : Colloidal complexes and sera. A preliminary injection of a colloid, followed after an interval by an injection of a curative serum, may produce beneficial effects in cases where the serum injection alone has proved to be without effect. Several examples are detailed.— A. **Trillat** : The influence of the variation of the barometric pressure on the microbial droplets in suspension in the atmosphere.

Books Received.

A Geographical Bibliography of British Ornithology. By W. H. Mullens, H. Kirke Swann, and Rev. F. C. R. Jourdain. Part iii. Pp. 193-288. (London : Witherby and Co.) 6s. net.

Aristotle. By Dr. A. E. Taylor. Revised edition. Pp. 126. (London and Edinburgh : T. C. and E. C. Jack, Ltd.) 1s. 3d. net.

Wireless Telegraphy and Telephony. By H. M. Dowsett. Pp xxxi + 331. (London : The Wireless Press, Ltd.) 9s.

Wireless Transmission of Photographs. By M. J. Martin. Second edition. Pp. xv + 143. (London : The Wireless Press, Ltd.) 5s.

Selected Studies in Elementary Physics. By E. Blake. Pp. viii + 176. (London : The Wireless Press, Ltd.) 5s.

Volumetric Analysis. By J. B. Coppock. Revised and enlarged edition. Pp. 100. (London : Sir I. Pitman and Sons, Ltd.) 3s. 6d. net.

A Map of the World (on Mercator's Projection), having Special Reference to Forest Regions and the Geographical Distribution of Timber Trees. Prepared by J. H. Davies. (Edinburgh : W. and A. K. Johnston, Ltd.; London : Macmillan and Co., Ltd.) 8s. net.

A Foundation Course in Chemistry. By J. W. Dodgson and J. A. Murray. Second edition. Pp. xii + 240 + Answers. (London : Hodder and Stoughton, Ltd.) 6s. 6d. net.