

Barnard noted a star on the photographs made at the Yerkes Observatory with an annual displacement of  $10.3''$ , the largest known. This star has been found in the photographic catalogue of Algiers, and gives an annual displacement of  $10.286''$ . It is the nearest star known; its parallax corresponds to 3.26 light years. Full details of the method of reduction will appear shortly in the *Bulletin Astronomique*.—Ch. Ed. **Guillaume**: Modifications of the expansibility of invar by mechanical or thermal actions. Both in annealed and tempered invar wires drawing down causes a rapid lowering in the coefficient of expansion; the coefficient is also affected by the heat treatment. Prolonged heating to  $100^{\circ}$  C. not only renders the condition of the metal after wire-drawing stable, but gives a material with a coefficient of expansion which is practically zero under the tension used in geodesic operations, and hence eliminates temperature errors.—G. **Koenigs**: The general geometrical form of the properties of the second order of plane movements with two parameters.—M. **Mesnager**: Formula of the thin plate, with edges fixed on a plane rectangular contour.—L. **Fabry** and H. **Blondel**: The elements of the planet discovered by M. Sy at Algiers, May 26, 1916. It is proved that the elements of the Sy comet do not coincide with those of 562 Salomé. It would appear probable that this planet is new.—H. **Arctowski**: The fluctuations of the solar constant. It is shown that besides the sun-spots, other phenomena affect the solar constant in a manner sufficiently strong partially, or even totally, to mask the effect of the spots.—R. **Ledoux-Lebard** and A. **Dauvillier**: Theoretical and experimental researches on the bases of radiological estimations. In the special form of X-ray tube described by the authors, giving intense K spectra, the energy supplied (continuous current) being known, the estimation is reduced to a time measurement.—J. **Repelin**: The geology of the islands of Pomégnés and Ratonneau (Bay of Marseilles). The islands have been erroneously assumed to be a continuation of the massif of Notre Dame de la Garde, but are now shown to be constituted by Urgonian limestones arising from an accident altogether independent of this massif, and spreading out as a layer on a substratum of the upper Aptian.—A. **Boutaric**: Nocturnal radiation. A theoretical expression is developed for the nocturnal radiation, the loss of heat per minute of 1 sq. cm. of a black surface exposed to the air. Some experimental data obtained at Montpellier in 1913 and 1914 are in fair agreement with the formula, and show at least that the results of calculation and observation are of the same order of magnitude.—F. **Gérard**: Four new Ochnaceæ of Madagascar.—A. **Béclère**: The inoculability of variole in the vaccinated, but not completely immunised, calf.

#### BOOKS RECEIVED.

University of Sheffield. Calendar for the Session 1916-17. Pp. 742. (Sheffield.)

A Defence of Classical Education. By R. W. Livingstone. Pp. xi+278. (London: Macmillan and Co., Ltd.) 4s. 6d. net.

A Text-Book of Organic Chemistry for Students of Medicine and Biology. By Prof. E. V. McCollum. Pp. xiii+426. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd.) 10s. net.

The World as Imagination. By E. D. Fawcett. Series I. Pp. xlii+623. (London: Macmillan and Co., Ltd.) 15s. net.

Decennial Index of the *Analyst*. Vols. xxxi.-xl. Compiled by M. A. Baker. Pp. 733. (London: Simpkin, Marshall and Co., Ltd.)

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What is Instinct? By C. B. Newland. Pp. xv+217. (London: John Murray.) 6s. net.

The Control of Hunger in Health and Disease. By A. J. Carlson. Pp. vii+319. (Chicago: University of Chicago Press; Cambridge: At the University Press.) 9s. net.

Second-Year Mathematics for Secondary Schools. By E. R. Breslich. Pp. xx+348. (Chicago: University of Chicago Press; Cambridge: At the University Press.) 4s. net.

The High Price of Sugar and How to Reduce It. By H. H. Smith. Pp. iv+54. (London: John Bale, Ltd.) 1s. net.

Highways and Byways in Nottinghamshire. By J. B. Firth. Pp. xviii+426. (London: Macmillan and Co., Ltd.) 6s. net.

Some Questions of Phonetic Theory. By Dr. W. Perrett. Pp. vi+110. (London: University of London Press, Ltd.) 2s. 6d. net.

Charts: Their Use and Meaning. Prepared by Dr. G. H. Fowler. Pp. iv+47+charts viii. (London: J. D. Potter.) 4s.

#### DIARY OF SOCIETIES.

THURSDAY, DECEMBER 21.

CHEMICAL SOCIETY, at 8.—Studies on the Walden Inversion. V. The Kinetics and Dissociation Constant of  $\alpha$ -Bromo- $\beta$ -phenylpropionic Acid: G. Senter and G. H. Martin.—The Alcohols of the Hydroaromatic and Terpene Series. III. The Isopulegols corresponding with  $\gamma$ -Menthol and  $\gamma$ -Neomenthol: R. H. Pickard, W. Lewcock, and H. de Pennington.—Lead Sub-iodide, with Details of the Preparation of Lead Suboxide: H. G. Denham.—Note on the Solubility of Lead Iodide: H. G. Denham.—Chromium Phosphate: A. F. Joseph and W. N. Rae.  
INSTITUTION OF MINING AND METALLURGY, at 5.30.—The Economic Geology of the Insizwa Range: W. N. Goodchild.

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