

ASTRONOMICAL NOTES

The Sun will be at the summer solstice on June 22, when it reaches its most northerly position.

Planets during June 1941. Both Mercury and Venus will be low down in the western sky at sunset; the former attains its greatest apparent distance from the Sun ($23^{\circ} 47'$ E.) on June 6 and can be easily seen as a reddish star of magnitude 0.6 during the first half of the month. Mars is in quadrature with the Sun on June 2. It is in the constellation Aquarius and will be visible as a red star very near the meridian at sunrise. Its stellar magnitude at the end of the month will be 0.4. The three planets, Jupiter, Saturn and Uranus, are all morning stars rising only a short while before the Sun and are not favourably situated for observation.

Omicron Ceti (Mira). The next maximum brightness of this interesting variable is expected to occur about June 25, when the star is likely to be of the second magnitude. The position is R.A. $2^{\text{h}} 16^{\text{m}}$, Declination $3^{\circ} 15'$ S. It is one of the best known of the long period variables, the range of variation being nearly eight magnitudes and period 331.8 days. The star is of a deep red colour, and at maximum, can be easily located as a bright second magnitude star a little to the south-west of the stars α and γ Ceti. T. P. B.

ACKNOWLEDGEMENTS

We acknowledge with thanks the receipt of the following:

"Journal of the Royal Society of Arts," Vol. 89, Nos. 4579 and 4581.

"Journal of Agricultural Research," Vol. 61, Nos. 9-11.

"Agricultural Gazette of New South Wales," Vol. 52, Part 3.

"Contributions from Boyce Thompson Institute," Vol. 11, No. 6.

"The Journal of Chemical Physics," Vol. 9, No. 3.

"Journal of the Indian Chemical Society," Vol. 18, No. 1.

"Experiment Station Record," Vol. 84, Nos. 2-3.

"Indian Forester," Vol. 67, No. 5.

"Transactions of the Faraday Society," Vol. 37, Parts 1 and 2.

"Indian Farming," Vol. 2, No. 4.

"Geological, Mining and Metallurgical Society of India" (Journal), Vol. 12, No. 3.

"The Hyderabad Academy Studies," No. 2 (1940).

"Indian Central Jute Committee" (Bulletin), Vol. 4, No. 1.

"Bulletin of the American Meteorological Society," Vol. 22, No. 1.

"The Indian Medical Gazette," Vol. 76, No. 4.

"Journal of Nutrition," Vol. 21, No. 3.

"American Museum of Natural History," Vol. 47, No. 3.

"Nature," Vol. 147, Nos. 3716-18, 3720, 3721 and 3724.

"Indian Journal of Physics," Vol. 16, Part 6.

"Journal of Research" (National Bureau of Standards), Vol. 26, Nos. 1-2.

"Sky," Vol. 5, No. 6.

"Science and Culture," Vol. 6, No. 11.

"Sankhya," Vol. 5, No. 2.

"Indian Trade Journal," Vol. 140, Nos. 1816-20.

BOOKS

"The Chemical Action of Ultra-Violet Rays," by Carleton Ellis and Alfred A. Wells. (Reinhold Publishing Co., N.Y.), 1941. Pp. 961. Price \$12.00.

"Handbook of Economic Entomology for South India," by T. V. Ramakrishna Iyer. (Government Press, Madras), 1940. Pp. xviii + 528. Price Rs. 4-12.

"Canning Practice and Control," by Osman Jones and T. W. Jones. (Chapman & Hall, Ltd., London), 1941. Pp. xiv + 300. Price 32s.

ACADEMIES AND SOCIETIES

Indian Academy of Sciences:
(Proceedings)

April 1941, SECTION A.-II. J. BHABHA: Note on the correspondence between the classical and quantum theories of neutral mesons. K. RANGANATHA RAO AND T. R. SESHADRI: Synthesis of 7-hydroxy-5-methylcoumarin. R. VENKATARAMAN: The kinetics of the olefin-bromine reaction. Part III. A note on the influence of different catalysts on the reaction. P. BHASKARA RAMA MURTI: A study of the chemical components of the roots of *Decalepis Hamiltonii* (Makali Veru). Part II. A note on the preparation of inositol by solvent extraction. S. BHAGAVANTAM AND J. BHIMASENACHAR: Modified reflection of X-rays: Naphthalene. Modified X-ray reflections due to (001), (002), and (201) planes of naphthalene have been record-

ed only when the crystal setting is very near that of the critical setting in each case. For orientations which differ appreciably from the above settings, the intensity of the modified spots appears to be very low. R. V. BHAR: Adaptation of the micro-Kjeldahl method to the estimation of nitrogen in organic compounds containing nitro and azo groups. (LATE) N. W. HIRWE AND B. V. PATIL: Studies in chloral amides. Part VII. Reactivity of the α -OH group in chloral bromo salicylamides and their methyl ethers. (LATE) N. W. HIRWE AND J. S. DESHPANDE: Studies in chloral amides. Part VIII. Condensation of toluic amides with chloral. (LATE) N. W. HIRWE AND J. S. DESHPANDE: Studies in chloral amides. Part IX. Reactivity of α -chlorine in α -chloro-chloral toluic amides. K. G. KRISHNAN: Dispersion of ultrasonic velocity in organic liquids. With seventeen organic liquids over the range 3500 kc to 8000 kc no

dispersion has been recorded. P. G. N. NAYAR: *Temperature variation of the Raman frequency of diamond.* Over the range of temperature -190°C. to 860°C. the characteristic Raman line varies from 1333.8 cm.^{-1} to 1316 cm.^{-1} . From the thermodynamical relation between the thermal expansion of the crystal and the variation of the characteristic frequency, it has been found that the change observed is greater than that expressed. R. NORRIS: *The Raman spectrum and the specific heat of crystalline sulphur.* D. NARAYANAMURTI AND V. RANGANATHAN: *The thermal conductivity of Indian timbers. Part I. Variation of conductivity with density in the air-dry condition at ordinary temperature.* S. RINGASWAMI, T. R. SESHADRI AND V. VENKATESWARLU: *The remarkable fluorescence of certain coumarin derivatives.*

SECTION B.—T. S. RAGHAVAN AND V. K. SRINIVASAN: *Morphological and cytological studies in the scrophulariaceæ. Part IV. The development of the embryo-sac and endosperm in Scoparia dulcis Linn.* T. S. RAGHAVAN AND K. R. VENKATASUBBAN: *Studies in the cappariaceæ. VIII. The floral morphology of Crataeva religiosa Forst.* B. R. SESHACHAR: *The interstitial cells in the testis of Ichthyophis glutinosus Linn.* H. CHAUDHURI AND A. R. QURAIHI: *A study of the fungal endophyte of some Anthoceros erectus Kashyap.* M. SRINIVASAN, S. RAMASWAMY AND M. SREENIVASAYA: *A rapid method of determining peroxidase activity.*

Indian Association for the Cultivation of Science: (Proceedings)

December 1940.—G. N. BHATTACHARYA: *Specific heat of lac.* K. R. RAO AND M. G. SASTRY: *The first-spark spectrum of tellurium.* M. G. SASTRY: *Interferometric measurements of certain lines in the spectrum of bromine.* S. D. CHATTERJEE: *Study of thermal neutrons in the atmosphere.* L. D. MAHAJAN: *Adsorption of moisture from the moist air by the soils.* A. C. DEB: *Penetration of thin ionospheric layers.* B. N. SINGH: *Joule-Thomson and Joule effects for Bose-Einstein and Fermi-Dirac gas.* M. GHOSH: *Dynamics of the pianoforte string and the hammer. Part IV (Study of duration of impact).* M. GHOSH: *Dynamics of the pianoforte string and the hammer. Part V (Some special theories).*

Meteorological Office Colloquium, Poona:

March 11, 1941.—B. N. DESAI: *Variation of lapse rate of temperature near the ground at Drigh Road, Karachi.*

March 18, 1941.—K. R. RAMANATHAN: *Atmospheric visibility.*

March 25, 1941.—P. R. CHIDAMBARA IYER: *Sunspots and prominences.*

Botanical Society of Bengal:

March 26, 1941.—G. P. MAJUMDAR: *On the origin of medullation in Selaginella.* A. K. GHOSH: *On the theoretical significance of bi-sporangiate sporophyll in Lycopodium phlegmaria Linn.*

Tin and Its Uses

The latest issue of the Tin Research Institute's Quarterly Review (No. 8) gives details of some improved pewter alloys containing over 90 per cent. of tin, which have all the merits of malleability and attractive sheen associated with the usual pewter alloys, but are substantially stronger. Spinning and other fabricating operations are as easily carried out as with ordinary pewter, but when finished articles of the new pewter are given a simple heat treatment; they develop 70 to 80 per cent. greater strength, and this strength is permanently retained in service conditions.

An announcement is made of the Institute's new booklet on Hot-Tinning (Publication 102), which describes the process as applied to cast iron, steels and alloy steels, copper and copper alloys, and shows how to overcome the difficulties which may arise.

An article on electro-tinning contrasts the old-fashioned stannous chloride bath with modern plating baths; it is shown that the former bath is of value only for producing very thin tin coatings of bright appearance, but modern baths will give tin coatings of any thickness desired, and so are of particular value for food processing equipment.

An article on opacifiers for vitreous enamels indicates that the special qualities of tin oxide have enabled it to maintain its position in the enamelling industry.

An example of the value of tin as a protective coating on steel is provided by its use in connection with the nitriding process, in which surfaces to be kept in an unhardened state are protected by a layer of tin. Nitriding is applied to cylinders, crankshafts, gears, shacklepins and valve sleeves for aero, automobile and Diesel engines as well as to textile, cement and plastic-moulding machinery.

Among the examples of the Institute's free Technical Service are particulars of a simple but sensitive chemical test for identifying tin in white-metal scrap, and of special tin solders which have higher melting points and greater strength than the usual tin-lead alloys.

ERRATA

Vol. 10, No. 4, April 1941:—

Contribution entitled "Cinchona Cultivation in India", page 223, para 2, line 8, for "21,00 lbs." read "210,000 lbs."

Note entitled "Modified Equations for Adsorption and Base-Exchange in Soils", page

203, Table II, column 4, for $x = \frac{BU}{I+C}$ read

$$x = \frac{BI}{I+C};$$

Table II, column 5, the last but one value for 1.123 read 1.213.