

**Technical Publications—Their Purpose, Preparation and Production.** By C. Baker. (Chapman & Hall), 1955. Pp. xiii + 302. Price 36 sh.

**Integers and Theory of Numbers.** (Scripta Mathematica Studies, No. 5). By Abraham A. Fraenkel (Scripta Mathematica, 186th Street, Amsterdam Avenue, New York 33, N.Y.), 1955. Pp. 102. Price \$ 2.75

**Introductory Applied Physics.** By Norman C. Harris and Edwin M. Hemmerling. (McGraw-Hill), 1955. Pp. viii + 729. Price \$ 6.75

**Some Beautiful Indian Trees.** By E. Blatter, Water S. Millard and W. I. Stearn. (Bombay Natural History Society, 114, Appollo Street, Bombay), 1954. Pp. xv + 165. Price Rs. 20 or 30 sh.

**Aromatic Compounds—Chemistry of Carbon Compounds, Vol. III.** Edited by E. H. Rodd. (Elsevier Publishing Co.), 1954. Pp. xxiv + 686. Price not given.

**Advances in Geophysics, Vol. 2.** Edited by H. E. Landsberg (Academic Press, Inc.), 1955. Pp. x + 286. Price \$ 7.50

## SCIENCE NOTES AND NEWS

### Preservation of Palm Juice

P. S. Murthi and C. J. Dasa Rao, Department of Chemical Technology, Andhra University, in the course of a communication to the J.S.I.R. (1955, 14 A, 250) observe that the usual method followed by the tapper consists in adding lime to the earthen pots before they are used for collecting the juice and after 12 hr., the juice is removed from the pot for further processing. The juice collected usually starts fermenting after an hour or two. The amount of lime employed by the tapper varies from 0.04 to 0.12% of CaO on the weight of juice. With a view to determine the optimum amount of lime to be employed, experiments were carried out using different concentrations of lime. It was found that addition of lime in a concentration of 0.55% CaO on the weight of fresh juice prevented it from fermenting. The juice remained sweet for 40 hr. and there was no fall in its sucrose content. Higher concentrations of lime had no additional advantage.

### Polyspory in *Lantana camara* L.

S. L. Tandon and P. N. Bali, Department of Botany, University of Delhi, writes as follows.

In addition to the normal tetrads, 5-10 spores per pollen mother cell were also present in the naturally existing triploid of *Lantana camara* L. Polyspory in this case has been found to be due to irregularity in chromosome distribution and the occurrence of lagging chromosomes resulting in a high degree of sterility. The environmental factor as the cause of polyspory has been ruled out as the diploid in which the distribution of chromosomes was regular and which did not show

polyspory was growing just by the side of the triploid showing polyspory.

### Models of Molecular Structure

Many research workers have been aware of the value of the space-filling atomic models developed by G. S. Hartley and C. Robinson at the Maidenhead Laboratory of Courtaulds, Ltd. These models are now available commercially from the firm of Griffin and Tatlock (Kemble Street, Kingsway, London, W.C.2). Primarily designed for research, where accurately made models are required from which quantitative deductions of molecular geometry can be made, the models are also eminently suitable for lecturing purposes. Important contributions to peptide and protein chemistry have already been made with the aid of these models. It is likely that their application in other fields will be equally fruitful.

### Occurrence of *Cistanche* Species on *Salvadora persica*

R. A. Patel and R. M. Patel, Institute of Agriculture, Anand, Bombay, state that besides the occurrence of the root parasites *Crenata*, *Schweinfurthii* and *Ramose* on the cultivated as well as on wild plants, recently a parasite *Cistanche tubulosa* Wight has been observed by the authors on the roots of *Salvadora persica* trees in the Kaira District of Bombay State. This would appear to be the first record of its occurrence in that locality.

### Penetrometer

A new instrument which provides a method of measuring the compactness of underwater sediments without disturbing them has been developed at the University of Rhode Island

under contract with the Office of Naval Research and the Navy Hydrographic Office. The new instrument, a penetrometer, consists of a steel tube with a probe on the end which is driven through a hollow shaft into the bottom by a motor and a mechanism which measures and makes a permanent record of resistance at depths up to 200'. The working mechanism is mounted on a 5-foot frame resembling a bell buoy. It weighs 145 lb without the lead weights which hold it in position under water. The motor which drives the probe is equipped with a water-tight cover which can be pressurized. In addition to probing the ocean bottom, the penetrometer may be used on land as a soil-mechanics instrument for highway planning and foundations.

#### U.S. Atomic Energy Reports on Microcards

All unclassified reports of the United States Atomic Energy Commission are being put on microcards and made available as widely as possible. Some 9,500 unclassified reports have been published since the beginning of the Commission's operation, and more are being issued at the rate of 1,800 reports a year.

Most of the Commission's reports fit on one card, and it is estimated that the cost of each card will be about 20 cents. To subscribe for all the reports published to date, therefore, would cost approximately \$2,000. Reports issued currently, about 1,800 per year, would cost \$400 yearly. Orders will be accepted for reports on specific subjects, as well as for individual reports, but the latter will cost about 50 cents per microcard, due to the extra handling costs involved.

#### Symposium on *Rauwolfia serpentina*

A symposium on *Rauwolfia* will be held under the auspices of the Pharmaceuticals and Drugs Research Committee in September 1955. The venue of the symposium will be announced later. The following aspects of *Rauwolfia* will be discussed: (i) Botany and Pharmacognosy, (ii) Chemistry of active principles, (iii) Pharmacological action of active principles, (iv) Therapeutic uses, and (v) Manufacture and standardization of *Rauwolfia* preparations.

#### A Marine Bacteriophage

One of the main difficulties in the study of marine bacteria, and particularly of those types which constitute the flora of fresh and spoiling fish, is that of identification and classification. This is due to the negative results given by these bacteria in most common biochemical tests. In the course of a

communication in *Nature* (1955, 175, 690), R. Spencer describes the use of a bacteriophage which might help with this difficulty. Attempts were made to isolate bacteriophages active against certain marine bacteria associated with fish, and particularly against certain luminous bacteria probably identical with *Photobacterium phosphoreum* (*Bacterium phosphoreum* Bergey). These luminous bacteria have been shown by various workers to constitute a considerable part of the flora of many species of fish.

#### Height of Mount Everest

The height of Mount Everest has long been a subject of much discussion. Its accepted height is 29,002', but several other values have also been quoted from time to time. *Technical Paper No. 8* of the Survey of India deals with the work undertaken by the Geological Survey of India during 1952-54 for determining the height of Mount Everest accurately. The new value for the height of the peak, obtained on analysis and reductions of new data from these investigations, is 29,029' which, it is hoped, is not likely to be in error by more than 10'.

#### Pole of Rotation of Venus

It is reported by Gerard P. Kuiper, associated with the University of Chicago's Yerkes Observatory (Wis.) and the McDonald Observatory (Tex.), that the pole of rotation of Venus is tipped at an angle of 32° to its path, compared with the earth's 23.5°. Further, Kuiper's observations indicate that a day on Venus, one rotation upon its axis, is not almost a year of earthly time, as some text-books estimate, but probably not more than a few weeks. He believes that this rapid rotation is shown by the daily changes that occur in the dark and light bands with which the planet is covered. The bands, usually three bright ones and three dark ones, are thought to be parallel to the equator of Venus.

#### Dr. K. S. Krishnan

Dr. K. S. Krishnan, Director, N.P.L., New Delhi, who presided over the deliberations of the International Advisory Committee for Scientific Research—the programme of Natural Sciences (UNESCO) at Pallanza, has been elected the Chairman of this Committee.

#### New Director for European Centre for Nuclear Research

Dr. Felix Bloch of Stanford University, who a few months ago accepted the Directorship of

the European Centre for Nuclear Research in Geneva, has asked to be relieved of his duties there. He will be succeeded by Dr. C. J. Bakker, Professor of Physics at the University of Amsterdam, who is at present a member of the organization's directorate and a Director of the Synchrocyclotron Division.

#### Award of Research Degree

The Annamalai University has awarded the Ph.D. Degree in Zoology to Sri. Joseph Jacob for his thesis entitled "Some Aspects of Experimental and Comparative Embryology Molusca (Studies in the Cytology of Melaniidae with special reference to Parthenogenesis and Polyploidy)".

The University of Calcutta has awarded the Ph.D. Degree to Shri A. G. Datta for his thesis entitled "Action of Some Antimalarial Drugs on Enzymes of Tricarboxylic Acid Cycle" and to Shri Achintya Kamal Sen for his thesis entitled "8-Aminoquinolines as Possible Antimalarials".

#### Cell Division through Chemical Activation

A chemical that makes cells divide has been isolated in pure crystalline form by a research group at the University of Wisconsin. Carlos Miller and Folke Skoog of the Botany Department, and Malcolm von Saltza and F. M. Strong, of the Department of Biochemistry, have named the compound 'kinetin'. It has a molecular weight of only 215, and its chemical formula indicates that the molecule contains 10 atoms of carbon, 9 of hydrogen, 5 of nitrogen, and 1 of oxygen. Kinetin is obtained from desoxyribonucleic acid.

When just a trace of the new substance is added to culture mediums for plant tissue cells that are long past the growth period, the cells divide and new cells continue to be formed indefinitely so long as kinetin is in the medium. The signs of growth usually show up within 3-5 days. When the rejuvenated tissues are placed in another medium that lacks kinetin, they stop growing. In order that continuous growth occur, the hormone auxin must also be added to the medium. Similar effects of cell division have been obtained with extracts from both plant and animal sources, including herring sperm, calf thymus glands, brewer's yeast malt and coconut.

#### Hindustan Machine Tools Factory

The Hindustan Machine Tools Factory at Jalahalli near Bangalore went into production recently. The 9-crore project is the result of a technical assistance agreement signed between the Government of India and Messrs. Oerlekon Machine Tool Works, Buelrle & Co., Zurihu, in April 1949. The Swiss firms are providing the technical 'know-how' of machine tool manufacture, equipment, jigs, tools and fixtures, duplicate patterns, operation schedules, etc., and have also sent out technical experts and keymen to enable the factory to be set up.

The factory is at present engaged in the manufacture of precision type machine tools commencing from 8½" centre lathes and will gradually take up other items like large type lathes and milling machines in different stages. The target of 400 lathes per year is expected to be reached within a period of three years.

#### Organic Chemistry Symposium of the ACS

The Fourteenth National Organic Chemistry Symposium of the American Chemical Society was conducted under the auspices of the Organic Chemistry Division of the ACS, in the Purdue University, Lafayette, Indiana, starting from June 13. Over a thousand chemists from all over the U.S.A. and a few from other countries attended the symposium. The various papers presented in the symposium covered the more recent advances in organic chemistry. The subjects discussed were: Stereo-specific syntheses by Gilbert Stork, Stereo-specific and non-specific elimination reactions by Stanley Cristol, Mechanism of chromic acid oxidation of alcohols by Westheimer, New small ring compounds by John Roberts, Chemistry of medium-sized ring compounds by Aurthor Cope, Transannular nitrogen-carbonyl interactions by Nelson Leonard, Recent developments in the chemistry of free radicals in solutions, and Stereochemistry of some replacement reactions in inorganic complexes. Besides, some papers of biochemical interest such as Total synthesis of steroids, Hormones of the posterior pituitary glands, and Photosynthetic carbon cycle were also presented. Prof. Roger Adams was the guest speaker to give the "Reminiscences", and he gave a brief picture of the story of evolution of modern organic chemistry.