SCIENCE NOTES AND NEWS

Award of Research Degrees

M.S. University of Baroda has awarded the Ph.D. degree in Biochemistry to Shri M. G. Karmarkar for his thesis entitled "Fat, Protein and Amino-Acid Composition of Breast Milk in Relation to Dietary Intake".

Andhra University has awarded the D.Sc. degree in Technology to Shri M. S. Krishna for his thesis entitled "Ionic Mass Transfer in Packed Beds".

Symposium on Nucleic Acids

A symposium on 'Nucleic Acids (Structure, Biosynthesis and Function)' will be held during 16–23 January 1964 at the Regional Research Laboratory, Hyderabad. The symposium is expected to be attended by a number of invited participants from India and abroad. The proceedings of the symposium will be published by the Council of Scientific and Industrial Research, New Delhi. Further details about the symposium may be obtained from Dr. P. M. Bhargava, Regional Research Laboratory, Hyderabad-9 (India).

Pyrodynamics—Journal of Applied Thermal Processes

Gordon and Breach, Science Publishers, Inc., 150 Fifth Avenue, New York 11, New York, announce the publication of the new Quarterly Journal *Pyrodynamics*, the first issue of which will appear this Fall. The primary purpose of the journal is to bridge the gap between pure science and pure technology in the field of applied thermal processes. The Journal will present original research papers dealing with applied kinetic theory, thermodynamics, chemical kinetics, combustion processes, plasma science, energy conversion, etc.

Bibliography of Indian Zoology

In the earlier years of the Zoological Survey of India it was a feature of the department's activity to issue as supplements to their Journal, the *Records of the Indian Museum*, bibliography of papers on Indian Zoology from time to time. This practice was discontinued for some reason or other after 1931. The revival of this feature with the help of the newly created Documentation Unit of the department will be widely welcomed by zoologists in India and also elsewhere.

The first two numbers, issued for April 1963 and August 1963, contain references published in the years 1958 and 1959 respectively. Nearly a thousand references are listed in each of these numbers. Besides, they contain a brief review of progress in Zoology in India for the year concerned and also a list of new genera and species of the fauna of the Indian region described during the year.

The issues are in cyclostyled printing, foolscap size, paper bound and unpriced. They are issued by the Director, Zoological Survey of India, 34 Chittaranjan Avenue, Calcutta-12.

A Giant Plant of *Rauvolfia serpentina*

Shri K. N. Kaul, National Botanic Gardens, Lucknow, writes :

Recently, at the invitation of an ascetic, I visited his village in Jaunpur to see a *Rauvolfia serpentina* (Sarpgandha) which had grown to a height of about 9 feet. On examination it was found to be a natural polyploid. Attempts are being made to multiply the plant by vegetative means as most of the seeds were found to be sterile. A few seedlings found growing near the mother plant have been transplanted at the National Botanic Gardens for further observations.

Name Change for *Didymodon obtusifolius* Card. ex Dix. *et* P. Vard.

B. M. Wadhwa and J. N. Vohra, Botanical Survey of India, 14, Madan Street, Calcutta-13, write :

In the *Index Muscorum* 2 (D-H), 122, 1962, we find *Didymodon obtusifolius* Schkuhr and *Didymodon obtusifolius* Card. ex Dix. *et* P. Vard., as two distinct species based on two different types from Europe and India respectively. In the former the leaves are lanceolate from a widely ovate base, acuminate, margin distinctly involute; cells faintly papillose and almost distinct; while in the latter the leaves are ligulate from an obovate base, margin slightly involute above; cells densely and minutely papillose and obscure.

According to Article 64 of *International Code of Botanical Nomenclature* (1961 ed.) *Didymodon obtusifolius* Card. ex Dix. *et* P. Vard., published

in *Arch. Bot.*, 1 (8-9): 167, t. 3, f. 6, 1927, is a later homonym and therefore illegitimate and must be rejected. It does duplicate the name previously and validly published by Schkuhr in *Syll. Pl. Nov.* 2 : 138, 1828.

The authors, therefore, propose a new name for *Didymodon obtusifolius* Card. ex Dix. *et* P. Vard., which is *Didymodon dixonii* nom. nov. The specific epithet is given after the late H. N. Dixon, who gave the description of the above-named taxon.

Didymodon dixonii WADHWA & VOHRA NOM. NOV.

Didymodon obtusifolius Card. ex Dix. *et* P. Vard. in *Arch. Bot.* 1 (8-9): 167, t. 3, f. 6, 1927 (non Schkuhr, 1828).

Fusarium semitectum Berk. and Rav. on *Anona squamosa* L. (A New Host Record)

S. S. Prasad and R. P. Verma, Department of Botany, Bihar University, Muzaffarpur, write :

Fusarium semitectum Berk. and Rav. was first observed in the months of December to March, 1961-62, on the living leaves of *Anona squamosa* L. The pathogenicity of the organism was established by isolating it from the infected leaves of the host and by reinoculating the same on the latter. The artificial inoculations were found to produce symptoms of the disease similar to those found in nature. The infected leaves of *Anona squamosa* L. are characterised by the appearance of greyish necrotic areas at the tips of the leaves spreading downwards along both the margins of the lamina. Occasionally isolated lesions are also seen at the leaf margins.

The conidia are subclavate and swollen in the middle. They are 3-5-septate, orange-pink in colour, measured $23{\cdot}4$–$31{\cdot}2\,\mu \times 2{\cdot}6$–$3{\cdot}9\,\mu$ with an average size of $27{\cdot}4 \times 2{\cdot}9\,\mu$.

Fusarium semitectum Berk. and Rav. has been reported on few host plants in India, but it is reported here on the leaves of *Anona squamosa* L. The specimen has been deposited in the herbaria of the Commonwealth Mycological Institute, Kew, England (No. 92927).

Hamycin—A New Antibiotic Produced in India

The Hindustan Antibiotics Ltd. at Pimpri, India, has discovered and put on market a new antibiotic called *Hamycin*. The credit of the discovery goes to Dr. M. J. Thirumalachar and his research associates in the Factory. Hamycin is a product of a new species of actinomycetous mold isolated from the soils at Pimpri, and derives its name from the golden-yellow colour of the product and the mycelium.

Hamycin is a heptaene antifungal antibiotic belonging to the group polyenes, and is active against a wide range of fungi and, therefore, effective against a large number of fungal infections of the skin, nails and scalp in humans. It is particularly effective in candida infections commonly called oral thrush, in children and newborn babies. The various properities of the antibiotic have been repeatedly confirmed in the successful treatment of numerous clinical cases and in carefully controlled experiments carried out at the Sassoon group of hospitals in Poona.

Currently Hamycin is being released to the market in two formulations as insertion tablets and glycerine suspension.—(News release from the Hindustan Antibiotics Ltd., Pimpri, Poona).

Oscillations in Magnetostriction

In a note to *Physics Letters* B. S. Chandrasekhar has pointed out that the quantisation of the electronic energy levels in a magnetic field which leads to the De Haas-Van Alphen effect also produces an oscillatory magnetostriction in metals and semimetals. Such an oscillatory magnetostriction not only provides an interesting new technique for the study of the electronic structure of such metals and semimetals, but also can play a vital role, hitherto overlooked, in the analysis of other oscillatory phenomena such as oscillations of acoustic velocity in a magnetic field.

There has been so far a paucity of mangetostriction experiments, particularly at low temperatures, on non-ferromagnetic materials. However there exist some good data, even though not at temperatures of interest for the present purpose, for that classic De Haas-Van Alphen element bismuth. These are the excellent measurements of Kapitza on the magnetostriction of single crystals of bismuth down to 87° K. An analysis of these data indicates that a fruitful search for observing the magnetostriction oscillations will be to study bismuth at liquid helium temperatures ; and quantitative measurements are possible with the improved modern techniques.—(*Physics Letters*, 1963, **6**, 27.)

Synthesis of Adenine

Adenine is one of the four repeating subunits of the nucleic acids DNA and RNA. It is also a sub unit of compounds involved in the energy-yielding reactions of the cell, namely adenosine triphosphate (ATP), triphosphopyridine nucleotide (TPN) and coenzyme A. Because of its importance as a key constituent of the genetic

material the synthesis of adenine has been attracting interest among the scientists. Recently a group of workers at the University of California, Berkeley, have reported their success in this experiment. The compound has been synthesized by bombarding a mixture of gases with electrons from a 4·5 million volt linear accelerator. The gaseous mixture irradiated contained methane, ammonia, hydrogen and water vapour—all gases believed to be present in the primitive atmosphere. Chromatographic and other analytical techniques confirmed the appearance of adenine in the irradiated mixture. This result of formation of a genetically important molecule from original atmospheric gases of the primitive earth is significant in that it fills a gap in our efforts to reconstruct the origin of life.—(*Scientific American* : *August* 1963, p. 521.)

Interplanetary Magnetic Fields and Comet Tails

It has been generally recognized recently that the historic explanation that comet tails are formed as a result of solar radiation pressure is inadequate. Solar light pressure has been found to be insufficient by several orders of magnitude. Also processes like Coulomb collisions or acceleration coupled with charge transfer by protons in the solar wind are grossly insufficient to account for comet tails streaming within a cylinder of small diameter and great length away from the sun. In a communication to *Nature* (August 10, 1963), D. B. Beard and M. P. Nakada of the National Aeronautics and Space Administration, have pointed out the role of the interplanetary magnetic field in coupling the cometary gas to the solar wind.

A comet head may be regarded as a densely ionized plasma essentially stationary in a high-pressure solar wind containing a low-pressure magnetic field moving with wind. The stream pressure of the solar wind is the overwhelmingly dominant pressure in space, being two orders of magnitude larger than the free space magnetic pressure. Hence, the interplanetary magnetic field is compressed against any obstacle such as the stationary plasma provided by the comet coma. This increases the magnetic pressure to approximate equality with the stream pressure. If the interplanetary field is parallel to the solar wind velocity, the compressed field tails off parallel to the solar wind in a cylindrical shape for a large distance downstream from comet coma confining the comet plasma within this volume.—(*Nature*, 1963, **199**, 580.)

Indian Beetles to be Used to Destroy Australian Plant Pest

Noogoora burr (*Xanthium chinense*) is a destructive plant, with a detachable spiry growth, which has grown wild in Australia and causes great damage to her wool industry. The burr, which is indigenous to North America, is supposed to have been introduced into Australia with cotton-seed. It is poisonous in the seedling stage and has caused mortality among sheep, cattle and pigs, but the nature of the toxin is not yet understood. The mature growth tangles in wool and depreciates the value of the chip.

According to Mr. J. Mann, Director of the Biological Section of the Queensland Lands Department, tests under caged conditions, conducted during the years since 1957, have shown that the Indian beetle *Nupferha antennata* will be an effective remedy against this plant pest. *Nupferha antennata* is a stem-boring bettle which destroys the burr, or reduce it sufficiently to enable control methods to become effective.

20,000 beetles will be imported from India as larvæ in the roots of Noogoora burr, and held under quarantine in the Queensland Lands Department's biological laboratories pending their emergence in the summer of 1964 when they will be released in the field following permission by the Federal Department of Health. This Project is regarded as a positive approach to tackle the problem of Noogoora burr.—(*Australian News and Information.*)

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