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ON THE OCCURRENCE OF A COLONIAL ASCIDIAN, *DIDEMNUM PSAMATHODES* (SLUITER, 1895) FROM INDIA

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THE present note deals with the colonial ascidian, *Didemnum psamathodes*. It is recorded for the first time in India at Tuticorin, Kanyakumari, Mandapam, Rameswaram, Krusadai Island and Shingle Island on the east coast and at Vizhinjam Harbour area on the west coast.

Leptoclinum maculatum Nott, 1892 *Hypugon skeati* Sollas, 1903 and Herdman, 1906 and *Leptoclinides africanus* Michaelsen, 1915 are some of the synonyms of this species.

The morphological characters of the species: Colony: thin, soft, encrusting and grey in colour—only a few spicules but abundant ovoid shaped faecal pellets in

the tunic. Zooid: height is less than 1 mm—branchial siphon with 6 lobes—4 rows of stigmata—7 stigmata per half row—presence of small lateral thoracic organs at the level of the third row of stigmata—long fixative appendage—long waist—stomach high in the abdomen, small with an angular shape—long and twisted intestine—single testis—around testis vas deferens is coiled in 7 or 8 turns—Ovary near the testis.

Larva: There are 3 long, slender adhesive discs separated by 4 pairs of papillae enlarged at their extremities.

This species is commonly seen attached to the underside of the stones and also to the weeds, iron rods, wood, etc. It has a wide distribution in all tropical shallow waters of the world.

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ASSOCIATION OF MICROBIOLOGISTS OF INDIA

Association of Microbiologists of India, Mysore Unit, in collaboration with Central Food Technological Research Institute, Mysore, will be organizing a Summer School in Microbiology "Microbiological techniques in food industries". This will be a simple course of five days duration which may be conducted during May/June 1982 for the persons working in the food industries. The main idea of this Course is to provide training in food microbiology and sanitation. The broad areas to be covered in this course are:

(a) role and significance of micro-organisms in food material; (b) enumeration of micro-organisms in food material; (c) isolation and identification of coliforms and pathogenic organisms; (d) occurrence of microbial toxins in food.

For further details, please contact: Sri J. D. Patel, Secretary-cum-Treasurer, Association of Microbiologists of India, Microbiology and Fermentation Technology, Central Food Technological Research Institute, Mysore 570 013.

REVIEWS

Annual Review of Astronomy and Astrophysics (Vol 18).

Edited by Geoffrey Burbidge, David Layzer, and John G. Phillips. (Published by Annual Review, Inc., 4139 El Camino Way, Palo-alto, California, 94306 United States of America). Pp. 529. Price \$ 20.00 and \$ 21 Outside USA.

The present volume, the eighteenth in the series begins with the autobiographical notes of the eminent Soviet-armenian astronomer V. A. Ambartsumian and ends with an enlightening theoretical review of the microwave background radiation and its relationship to cosmological problems by the noted Soviet astrophysicists Sunyaev and Zel'dovich. Between the two are packed in five hundred pages another thirteen review articles on diverse topics of current research from the infrared spectroscopy of planets, satellites and asteroids (reviewed by Harold P. Larson) to the measurements of the microwave background radiation (reviewed by Rainer Weiss).

Stars have received a great deal of attention in no less than five articles, two of which are concerned with basic data, one is on white dwarfs and the other two on the very outer layers of late-type stars. The review by A. N. Cox describes the controversy regarding the masses of cepheids that raged for about a decade and has been more or less resolved recently. Following the hydrodynamical pulsation calculations by Christy, Stobie and others, a discrepancy was found between the masses of these objects predicted by the theory of stellar evolution and those predicted by the pulsation theory. With the revision of the distance scale of galactic clusters and improved reddening corrections, the pulsation masses have increased and are now found to be quite close to the ones predicted from evolution theory. For the bump and beat cepheids, however, the problem persists and Cox has discussed at length the possibilities that may eventually lead to the solution of the problem. The mass of a star is probably the single most fundamental parameter characterising its evolution and the best source of observational data is the study of binary stars. Poper in a sequel to his review in Vol. 5 of the series, describes the current status of the data for various types of binary stars. This is a helpful progress report and should serve as the standard reference for stellar masses for some time. James Liebert, one of the 1980 Trumpler awardees of the Astronomical Society of the Pacific, has reviewed the white dwarfs. As the author himself states that there has not been an extensive

review of the properties of this very important class of stars in the last several years, his is a needed contribution and an excellent introduction to the more specialised reviews of different aspects of degenerate stars that he refers to.

For stellar astrophysicists, the article by Zuckerman on the circumstellar envelopes around late-type giants and the one by Linsky on stellar chromospheres are of great interest particularly because these discuss in detail the enormous progress in our understanding of the outer layers of evolved stars that has taken place in the last few years due to information gathered in parts of electromagnetic spectrum other than the visible. The article by Linsky is indeed a delight to read in its clarity and comprehensiveness.

There are two reviews on problems directly relating to the interstellar medium and galactic chemical evolution. McKee and Hollenbach have provided, in what seems at first glance to be a useful sequel to last year's review by McCray and Snow, a detail study of the physics of interstellar shocks. This review includes discussions on Herbig-Haro objects, nebulae associated with T. Tauri stars and shocks in galactic nuclei. Wannier, in his review, has dealt mainly with the observational aspects of the isotopic abundances in the interstellar medium and has also discussed the implications on the evolution of the interstellar gas summarising the currently accepted theoretical scenario. In a fast-evolving field such as this the review has special temporal significance.

Other than these, the volume contains an article by Miley on the structure of extended radio sources, one by Catherine Cesarsky on cosmic ray confinement in the Galaxy and one by Argel and Stockman on polarization studies of active extragalactic objects. The volume is a valuable addition in a continuous record of active astrophysical research and should find its rightful place in all physical science libraries.

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How to Obtain Abundant Clean Energy. By Linda Baine McGown and John O M Boeleris. (Published by Plenum Publishing Corp., 227, West 17th Street, New York). Pp. 262. Price \$ 14.00.

The book is of topical interest in the context of the ever-increasing price of petroleum and the environ-