

changes in monsoon in the Quaternary can be linked to global ice-volume variations. In the article, 'Chinese loess and the paleomonsoon', Tungsheng Liu and Zhongli Ding make succinct review of the researches carried out in this field in which most of the original papers are published in Chinese. We have a stake in these studies because India's development largely depends on a steady monsoon. We should be working with the Chinese scientists on these aspects.

Recent years have seen a much more insightful understanding of the processes of faulting and the influence of the internal structure of the fault on earthquake processes. Chris Marone's paper 'Laboratory derived friction laws and their application to seismic faulting' presents models that relate after-slip to the structure of the fault zone, using examples from the San Andreas fault. Although the models explain the absence of slip within the main rupture, the role of gouge in limiting the after-slip remains an open question. A spectrum of behaviours ranging from aseismic creep to accelerating slip or slow precursive slip prior to fully dynamic instability is governed by friction laws. However, as the author himself points out, the field observations and models need to be tested by specific laboratory studies and development of theoretical models.

Richard G. Gordon's article on 'the plate tectonic approximation' deals with basic assumptions that underlie the theory of plate tectonics. The validity of the two central assumptions on the rigidity of the plates and the narrowness of the boundaries forms the theme of this paper. Apparently, both these assumptions are contradicted by many observations, both in continents and oceans. In his reconstruction based on the strain rates and relative velocity of plates, diffuse plate boundary zones cover 15% of earth's surface. While some important issues on rigidity of the plates and misfits of plate reconstruction remain unclear, Gordon makes no effort to examine the global seismicity and stress patterns, considered as clear manifestation of plate deformation.

The metamorphic terranes of south India offer excellent type areas for studies of charnockite formation and its association with CO₂ infiltration. Researches into these aspects both by

Indian and non-Indian scientists provided a better insight into the nature of transportation during metamorphism. John M. Ferry and Martha L. Gerdes base their arguments on those findings and other work and highlight the stable isotopic, mineralogical, and chemical alterations during metamorphism as evidence for reactive fluid flow. However, the fact remains that as far as granulites are concerned, the role of reactive fluid flow continues to be controversial because transportation can be both by fluid flow (advection) and by diffusion within the fluid or the solid state. Isotopic, mineralogical and chemical data from granulite terrane of south India suggest discrete development of granulite along fractures indicating infiltration of CO₂-rich fluid. In contrast, studies in the Adirondack area record fluid-absent conditions in the granulite development. Future studies will try to resolve this by improving the database on both chemistry and mechanics of fluid flow.

There has been a significant growth in the application of advanced technologies in earth sciences. The advent of modern satellites has revolutionized the methods of data gathering and management. Two exhaustive articles in AREPS deal with use of satellite in deciphering sea floor tectonic fabric and oceanic circulation. Besides, there are papers on the study of presolar grains from meteorites which in fact is star dust (how poetic this word is!) that are ejected from supernova prior to the formation of solar system. Laboratory studies of these grains provide information on stellar evolution. Another fascinating article deals with early history of insect-plant association. In short, the 1998 AREPS volume covers a wide range of topics in earth and planetary sciences, most of them on emerging research areas. These papers not only provide an introduction to the respective research fields, but also serve as a gateway to the current literature. We have no hesitation in recommending this book to the students as well as the professionals.

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Illustrated Text Book on Sericulture. Translated from Japanese: Zukai Sangyo Dokuhon. Japan Sericulture and Agriculture Cooperative Association Confederation, Tokyo. 1967, 159 pp. Translated by Alamelu Gopal, Technical Editor, D. Mahadevappa. 1998. Mohan Primlani for Oxford & IBH Publishing Co. Pvt. Ltd, 66, Janpath, New Delhi 110 001. Price: Rs 275.

As stated by the Board of Editors (May 1967) in the Preface of the book, this is a textbook of sericulture technique(s) illustrated with detailed photographs, figures and tables. The attempt is really refreshing as the reader gets easily familiarized with the subject matter. What is, however, disappointing is that the matter presented in 1967 is being translated into English only in 1998, almost 31 years later; although the editors say that the latest information is given, the 1967 edition does not quote 'revised'. The entire subject of the textbook is exclusively applicable to Japanese sericulture only.

The first chapter, mainly devoted to mulberry cultivation (65 pages), is justifiable because the culture of mulberry (moriculture) forms the basic foundation of sericulture. Mulberry leaves form the sole food material of commercial silk producing silkworm *Bombyx mori*. L. The success of sericulture industry is mostly dependent on good quality mulberry leaves. The relationship of leaf quantity and yield to number of branches and unit branch length is well discussed with tabular representations. Detailed information about mulberry varieties is compiled. Planning of mulberry fields and their establishment with respect to young age and late age silkworm rearing are neatly presented. Easy and simple methods to determine the planting distance are shown. An account of various methods of training and harvesting of mulberry for silkworms of different maturity (young and adult) is beautifully illustrated. There are photographs depicting mechanization of mulberry field management.

The diseases and pests of mulberry and their management are covered in detail. This is an important aspect of mulberry cultivation. But many shortcomings are noticed. To cite a few: the photographs do not clearly show the

disease symptoms as they are in 'black and white'. The author could have used glossy colour prints for clarity. The causal agents of diseases are not mentioned. The labelling pattern is not uniform. For example, if (A), (B), (C), etc. are used in the text, in figures legend (a), (b), (c), etc. are used. Although minor, such mistakes can confuse the reader. There are also a few serious technical mistakes. Under powdery mildew disease, the ascocarp is a cleistothecium and not perithecium (p. 50). The white root-rot pathogen is an ascomycetous fungus *Rosellinia necatrix*. The legend for figures is wrongly written as Bacidiospore (p. 52). These are formed only in Basidiomycetous fungi and in ascomycetous fungi, ascospores are produced. Also, the term bacidiospore is used without any discretion. For example, the macro- and microconidia are wrongly labelled as Conidiospores and Bacidiospores, respectively (p. 53).

The life cycle of different insect pests of mulberry is well covered. However, one is not sure whether BHC is still not banned in Japan as it is advocated under chemical method of controlling mulberry small weevils as well as uzi fly menace. The safety period to be followed after chemical sprays is not mentioned.

The second chapter is on silkworm rearing (pp. 66–112). The life cycle of silkworm, its morphology, physiology and embryology is illustrated in a simple manner. Silkworm egg production, artificial hatching methods, incubation schedules and rearing plans are all ap-

propriately described. A detailed account of different types of disinfection methods is given. An easy method of selecting and cutting the mulberry for young silkworms during different seasons (summer and autumn) is nicely illustrated (p. 80). Rearing methodology for young silkworms and co-operative rearing – merits and demerits, requirements are briefly explained. Useful information is provided for outdoor rearing of grown-up silkworms. Mechanization of rearing is also covered.

Under diseases of silkworm, except 'Aspergillosis', the causative agent(s) is not mentioned here also. However, the information provided under fungus (Muscardine) disease of silkworm and the relationship with other insects in the field is interesting and useful. The legend (A, B, C, D) used for photographs is not indicated in the text. One may find it difficult to identify them correctly unless one is an entomologist. The electron microscope photographs of virus particles although good do not mention the magnification.

The third chapter is on management (pp. 113–128). Several features of sericulture farms such as profitability of sericulture compared to other agricultural crops are worked out in a simple way. Useful tips are provided regarding management improvement with minimum labour. The chapter also contains useful information on the operational efficiency of sericulture in terms of mulberry cultivation and silkworm rearing. Productivity of sericulture from 1960 to 1965 in 10 prefectures is calculated. Details of expenditure on cocoon

production are illustrated by taking the average of 974 farms all over Japan.

The fourth and the last chapter gives general information (pp. 129–145). A map of world sericulture indicates the cocoon and raw silk quantities produced in various countries. A good compilation of sericulture-related authorities, agencies and organizations is presented (pp. 131–132). While dealing with the sericulture of Japan, 'present status' referring to data as old as 32 years (1966) should have been updated. The entire technological aspects of 'silk' are drastically condensed and given in a nutshell. Sale of cocoons and methods of fixing cocoon price as followed in Japan are outlined briefly. The different steps involved from cocoon to production of raw silk fibre are picturized and oversimplified. This particular aspect needs details from the point of view of a student, particularly because this book is titled as text. It is nowhere clear whether the contents of this textbook pertain to the syllabus of any course/study in Japan.

Despite several short-comings, simplicity of presentation makes it a good reading material worth possessing. It is particularly useful for beginners as it is beautifully illustrated.

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