

riser with large angle and large displacement are given.

The last sub-section B(iii) includes three papers on static calculation of cable mooring arrays for offshore structures, computer simulation as a tool in marine and offshore operation and a model for loadout analysis and its programming implementation.

In this volume 48 papers are presented and discussed, covering very important fields in the application of computer aided design, computer aided engineering and computer aided analysis. The recent trends using computer graphics for ship design problem are also presented. This volume would be a ready reference for engineers and scientists engaged in the analysis and design of ships and offshore structures and helps to get a deep insight into the reality of applications of computers to the varied areas. With the recent growth of micro computers, their use for applications in ships and offshore structures for design, manufacture and production is increasing day by day and this volume would be quite useful for engineers and scientists engaged in this task.

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**Contaminated sediments**, by U. Forstner, (Lecture notes in earth sciences, Vol. 21) (Springer - Verlag : Berlin), 1989, pp. v + 157, 245 g, soft cover, DM 32 [ISBN 3-540-51076-1]

Particles are ubiquitous in the earth system and play an important role in biogeochemical cycles of substances. The increase in dumping of wastes into the major reservoirs of the earth such as atmosphere, hydrosphere and geosphere, threatens the alteration of natural cycling of materials since the adsorbed wastes transform the original nature of the particle surfaces. The author has drawn the essence from voluminous information distributed over wide number of periodicals and put into this publication. The appealing presentation and approach force the readers' mind to go ahead. Appearance of this book at the right time, not only warns indirectly of the accumulating pollutants in sediments but also enables students and researchers to acquire a comprehensive understanding of processes responsible for the deposition.

This book has been divided into 7 chapters. Chapter 1 signifies sediments as reflectors of pollution intensity while outlining the information in the following chapters. Under 'Priority pollutants' (chapter 2), historical development and aspects on important pollutants such as heavy metals and organic chemicals have been dealt with. Readers' awareness has easily been

achieved through discussion on historical variations in pollutant parameters in sediment cores where their concentrations increase towards the present. For instance, phosphorus in recent sediments is not only increasing rapidly because of the anthropogenic inputs but also with the decrease in natural apatite formation in western basin of the Lake Erie. Chapter 3 on 'Assessment methods', starts with objectives for and strategies of data collection. The sampling section is exhaustive with varieties of instruments and modes of collection for suspended, settled sediment and pore water collection. Readers attention has been drawn to the generally unnoticed grain size effect in pollution assessment along with methods for rectifying it. In the section on 'Assessment of critical pools of pollutants in sediments', various techniques of extraction, including sequential leaching methods, have been explained. This is followed by case studies on solid speciation in river sediments along with the implications involved.

Chapter 4 on 'Particle association' deals with various processes influencing suspended matter in natural aquatic reservoirs. Partition patterns of pollutants between solid and solution, and factors such as sample preparation, grain size, particle concentration, sorption kinetic processes and biogenic accumulation affecting their coefficients have been detailed, followed by global variabilities in partition parameters and case studies. 'Transfer processes' (chapter 5), explains the processes affecting the cycling of pollutants in aquatic bodies followed by pollutant mobilization due to acidity, redox variations, etc. This chapter also deals with aspects relating to transfer of metals between organic and inorganic substrates. Information on metal transfer to biological matter, which generally does not find place in a book of this kind, is also given.

Under 'Environmental impact' (chapter 6) bioassay tests have been briefed to indicate pollutant impact on biological systems. Indices of pollution and risk assessment factors are valuable as rightly advocated by the author. Methods to be adopted to study long term effects of pollutants on ground water and quality criteria for sediments, including biological and numerical criteria, form the subsequent sections.

The last chapter is on 'Dredged materials' and their impact on aquatic ecosystems. Environmental perturbation due to dredging operations and dumping of dredged material on land and sea have been dealt with, followed by means of treatment for sludge material prior to dumping.

A few number of tolerable typographical errors notwithstanding, the author and the publishers are to

be commended for producing this excellent work. Bibliography is sufficient, though not exhaustive. It is covered up to 1988 and is sectionally divided for reader's convenience. Terminology has been very catchy due to bold faced typescripts. Each chapter ends with points to be pondered in the future research. This is recommended to be a very useful monograph for students and professionals dealing with environmental chemistry and geochemistry.

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**Siliceous deposits of the Tethys and Pacific regions,**  
edited by J R Hein and J Obradovic, (Springer-Verlag, Berlin), 1989, pp x + 244, 131 Figs, 825 g, Hard cover, DM 120.  
[ISBN 3-540-96704-4]

In the recent years, modern and palaeo environments under the oceans are gaining increasing attention of geologists. With the advancement of oceanography more and more facts with figures are coming to light, enriching our knowledge of ocean bottom processes and deposits. Biogenous sediment deposit is one of the important products within the ocean, formed by combined process of geology, biology and chemistry. This book deals with the geology, sedimentology, palaeontology and geochemistry of siliceous deposits of Tethys and Pacific regions. The work presented in this book is a product of selected presentations made at the Third International Conference on Siliceous Deposits held in Yugoslavia, during September 1986. The papers presented in this conference are the results of active research carried out for over 10 y between 1976 and 1986 under the International Geological Correlations Projects (115 and 187), sponsored by UNESCO.

The contributions are divided into 3 parts, viz. overview, Tethyan siliceous deposits and Pacific siliceous deposits. The authors have brought out the details of the biological origin of many siliceous deposits and the geochemical transformation in the marine environment and their occurrence in many formations around the world. The presentation has clearly established multidisciplinary approach for the study of siliceous deposits by oceanographers, palaeontologists, geochemists and geologists.

The first part consists of 2 chapters. Chapter 1 is the integration of the rest of the chapters and the chapter 2 details the use of radiolarians to study the ocean circulation patterns for the late Cretaceous to Eocene period.

The second part consists of 8 chapters (chapters 3 to 10). Chapter 3 describes radiolarians and Mesozoic palaeogeography of the Circum Mediterranean Alpine belts. The occurrence, types and age of siliceous deposits in Yugoslavia have been discussed in chapter 4. Tectonic significance of radiolarian chert in Austroalpine rifted continental margin and its origin are brought out in chapter 5. Distribution and evolution of siliceous rocks in Bulgaria have been described in chapter 6. Mineral and chemical composition, diagenesis and type of siliceous rocks are considered in describing the evolution. Chapter 7 deals with diagenetic chert in carbonate turbidites of the Senonian Flysch of Northeast Bilbao of Spain. Chapter 8 describes radiolarite sequences of the subbetic cordillera of southern Spain. Petrology and diagenetic changes in miocene marine diatomaceous deposits have been described in chapter 9. Chapter 10 deals with thermally induced siliceous transformation in pliocene diatomaceous layers from Aegean Island of Greece.

The third part consists of 4 chapters (chapter 11 to 14) on Pacific siliceous deposits. Chapter 11 deals with silicified wood from the Adoyama chert of Kuzuch, central Honshu and describes its bearing on compaction and depositional environment of radiolarian bedded chert. Palaeoenvironmental implications of Alaskan siliceous deposits have been detailed in chapter 12. Chapter 13 describes length-slow chalcedony in sedimentary rocks of the Mesozoic allochthonous terrane in central Japan. In this chapter use of chalcedony in tectonic synthesis has also been dealt with. The last chapter describes thermal alteration of chert in the ophiolite basement of southern central America.

The authors have discussed the topics concerned, with good supporting data, recent literature and clear illustrations. This book provides factual information on radiolarians and diatoms with special reference to their composition, origin and their association and their use in the tracing tectonic history and depositional palaeoenvironment. The work available on radiolarians and diatoms and the processes involved in the formation of siliceous deposits is scanty and therefore this book which provides information on these aspects with figures and facts is a contribution to our knowledge. The Editors should be commended for attempting to fulfil this longfelt need of the scientists and students, who will find it as a ready source book. To the libraries it will be a precious addition.

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