PHYSICAL PRINCIPLES OF SEDIMENTOLOGY. A readable text book for beginners and experts by Kenneth J. Hsu, Springer-Verlag, 1989, 232 pp., DM 42.00.

The book mainly discusses the principles of physics and chemistry underlying many physical catastrophic sedimentation and chemical sedimentology. A proper understanding of these principles leads to a correct interpretation of sedimentological phenomena, relating theory to observational facts.

The author argues that geology has traditionally followed Hutton-Lyell natural history approach and this has stood the test of time. The logic is essentially inductive reasoning. Though this procedure, necessary in some situations, is insufficient and one needs to know the physics and chemistry of the processes involved for 'what seems likely may be physically impossible. What seems improbable may be the only physically viable explanation. This is physical science approach to geology.'

The book in its 232 pages has fourteen chapters, two appendices, references and an index. Highly commendable. The chapters are, (1) Introduction, (2) Sorting out and Mixing, (3) Grains Settle, (4) Sediments are Moved, (5) Rock Fall, (6) Suspensions Flow, (7) Sand Waves Migrate, (8) Oceans are Ventilated, (9) Ground Water Circulates, (10) Components Equilibrate, (11) Evaporation Pumps, (12) Isotopes Fractionate, (13) Basins Subside, (14) Why Creativity in Geology. The style of presentation is that of a professor of sedimentology teaching his students sedimentology and instill in them the skill to view earth science phenomena as physical and chemical processes. Each chapter starts with an inunciation of the physical or chemical principles involved in a phenomenon, derives logical conclusions from it and checks the conclusions arrived at by various workers as an interpretative explanation of the observed record.

It is worthwhile to record what the author says about the functions of a text book. He says, 'a picture may be better than 10,000 words, but the art of writing is to use a few well chosen words in place of a picture. I often wonder if Darwin's success with his 'Origin of Species' may be traced to the fact that the book is readable because it is virtually devoid of illustrations'. The author has done well in limiting himself to a minimum of 64 figures, most needed to illustrate his readable text.

The last chapter in the book is a philosophical enquiry into the approaches available in geological research. The chapter propounds that inductive logic in geological reasoning is necessary, but what is more important is *deductive* reasoning. After assembling facts, making correlations, and analysing data, one must answer the question as to what is the outcome of all these and what it means in terms of practical applications in the development of human society. The author closes his book with an epitaph 'Deduction is science, not speculation, and there is no substitute for creative thinking.'

The book, as the author claims, is highly readable but to understand the book, a student or a reader must have at least first year college knowledge of physics, chemistry and mathematics with rudimentary ideas of differential and integral calculus. Without these, the book becomes partly unreadable.

The book is recommended for all students of sedimentology, learners, teachers, and professionals included.

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