Book Reviews

GLOBAL BIO-EVENTS: A CRITICAL APPROACH. Otto H. Walliser (Ed.). Lecture Notes in Earth Sciences, No. 8, Springer-Verlag. 442 pages (1986).

The volume contains contributions presented at the First International Meeting of the IGCP Project 216: 'Global Biological Events in Earth History', held at Gottingen, Federal Republic of Germany between 21–24 May 1986 and forms a state of art review of prevailing theories about the causes of bio-events.

Walliser in his introduction lists the principle objectives of the IGCP project as 1) study of abiotic (geologic) processes and events which cause global biological events, 2) reconstruction of effects of the geological events on the biosphere, 3) evaluation of the influence of global events on evolution and evolutionary mechanism and 4) refining of stratigraphic scales and of correlation methods.

Probable causes for global bio-events could be cosmic (impact events) or Earth-borne (biological as well as geological, like sea-level changes, changes in climate, etc.). The task of evaluating the causes is of an interdisciplinary nature and the study forms one of the most fascinating branch of Earth sciences today.

Ecostratigraphic criteria for evaluating the magnitude, character and duration of bioevents is discussed in an introductory paper by Boucot. The periodicity of global bioevents, new data on extinction of marine animal genera, displaying a high degree of periodicity in Mesozoic and Cainozoic (26 Ma periodicity in extinction events over the last 250 Ma is claimed): Relation of extinction events to changes in ocean chemistry; review of available evidences of life in the Proterozoic; global biological events in the late Precambrian; abrupt disappearance of stromatolites and appearance and expansion of Metazoa in late Precambrian; geological and evolutionary events across the Precambrian-Cambrian boundary—these are some of the most fascinating aspects considered in this book. Other boundary events described are those of Ordovician-Silurian, Silurian-Permian, Triassic-Jurassic and Cretaceous-Tertiary.

Of particular interest to Indian readers is the account of Deccan trap in relation to Cretaceous-Tertiary boundary events by French group of scientists in collaboration with Ashok Sahni from Chandigarh. The authors point out that Deccan trap contributed to the events of the Cretaceous-Tertiary transition, iridium enrichment and other physico-chemical anomalies. Reliable K-Ar ages and palaeomagnetic data seem to point out a duration of about 5 m.y. only for the Deccan trap activity. Palaeonotological data too appear to indicate that the main part of the Deccan trap was emplaced during the Cretaceous-Tertiary transition and was of a short duration. The study of this boundary problem with its multidisciplinary ramifications is a most exciting field in which rapid advances in our knowledge appear possible.

The book covers a wide variety of topics and all students of Earth Science are sure to gain fresh insights into geological problems and their effect on evolution of life forms. The book is also a valuable source book for references on boundary problems in geology.

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