

## Precambrian formations

*Precambrian of the Northern Hemisphere.* By L. J. Salop. Pp.ix+378. (Elsevier Scientific: Amsterdam, New York and Oxford, 1977.) Dfl.145; \$59.25.

THIS book provides an "inter-regional correlation of Precambrian formations", the subdivisions of which are based on the "natural stages in the earth's evolution". Essentially the book is a correlated list of the Precambrian formations of the northern hemisphere.

Three introductory chapters are largely concerned with methods and principles of correlation and subdivision, and the two final chapters review briefly the major features of geological evolution during the Precambrian (tectonic models and plate tectonics are avoided). The six main chapters list the principal rock groups in Salop's six subdivisions, as follows: (1) The Archaean era includes all rocks formed more than 3500 Myr ago (largely gneisses and granulites). (2) The Paleoprotozoic ("Protozoic" is Salop's new term) (3500-2600 Myr) which concerns the well-known greenstone belts. (3) The Mesoprotozoic (2600-1900 Myr) including geosynclines like Krivoi Rog, the Huronian and the Labrador Trough. (4) The Neoprotozoic (1900-1000 Myr) which deals with clastics and red beds in platforms and aulacogens (for example, Gardar and Keweenaw) and the gabbro-anorthosite-rapakivi granite-alkali syenite complexes. (5) The Epi-protozoic (1000-650 Myr) including platform and miogeosynclinal, mostly terrigenous (especially red bed) facies and the prominent tillites (for example, lower Dalradian, upper Briovarian). (6) The Eocambrian (650-570 Myr), dealing with platform clastics and the Ediacara fauna.

There are about 800 references, at least half of which relate to the USSR and China, but most date from the 1960s. A disappointing aspect of the book is the paucity of figures—only 36 with an additional four tables. Two

very useful charts in a back pocket correlate formations in 78 regions across North America and Greenland, and 78 across north-western Europe and the USSR (Britain is missing); and a large table gives a synopsis of all aspects of geological evolution.

Salop is very much better on the younger than the older Precambrian—in fact, his interpretations of some Archaean formations will raise many eyebrows. All gneissic-granulite areas have to be Archaean and their stratigraphy is sedimentary (V. R. McGregor's tectonic intercalations are not considered). Isochrons are said to indicate "rejuvenated" ages dating the period of late recrystallisation. Thus, the Fiskenaeset complex, the Scourian

and the Moldanubian are considered to have "formed" more than 3500 Myr ago, but the Isua supracrustals are included in the Paleoprotozoic. Salop's classification is so rigid that it does not allow greenstone belts to form in one region while high-grade gneisses are forming in another.

The book provides, however, for the first time in English a very valuable correlation of the main formations and rock groups throughout the USSR and China with those "in the west". This is its main contribution.

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## Modern knowledge of cyclic nucleotides

*Cyclic Nucleotides in the Nervous System.* By John Daly. Pp.401. (Plenum: New York and London, 1977.) \$39.

ONE of the first papers from Earl Sutherland's laboratory about the new nucleotide, cyclic AMP, included observations on the distribution in mammalian tissues of adenylate cyclase, the enzyme responsible for its synthesis. The highest concentration was found in the brain. Thus, it was clear from the start that Sutherland's epoch-making discovery would figure prominently in neurobiology. Development of the significance of this observation was initially due to Sutherland's co-worker, T. W. Rall, who observed that in the nervous system cyclic AMP functions as second messenger not to hormones circulating in the blood stream, but to certain neurotransmitters. Rall's work may be said to have set the stage for the tremendous expansion in the literature on cyclic nucleotides in the nervous system so extensively documented in John Daly's monograph.

Dr Daly's book is entirely orientated to the nervous system; no concessions are made to the general reader unfamiliar with the background to the subject. After a cursory introduction of no more than two pages, he launches into the first of three long chapters, entitled "Enzymatic Formation, Degradation and Action of Cyclic Nucleotides". This deals mainly with the pro-

perties and distribution of adenylate and guanylate cyclases and phosphodiesterases in brain, ganglia and cell cultures, together with a description of enzyme systems concerned in the cyclic AMP-dependent phosphorylation and dephosphorylation of tissue proteins. Next comes an extensive account of the *in vitro* accumulation of cyclic nucleotides in cell-containing preparations of brain, ganglia and other cells of neural or glial origin. The detail here is exemplary, reflecting the author's personal research interests. The final chapter deals with "Functional Roles for Cyclic Nucleotides in the Nervous System". Understandably at this stage of our knowledge it concentrates on actions and effects rather than the physiological functions, of which Dr Daly would be the first to recognise very little is known at present.

The book should prove an excellent text for researchers about to enter or already working in the field. It contains over 1,300 references and is written in a straightforward style that expounds facts and eschews speculation. Such an approach does not always make for easy reading, especially since very little effort is made to summarise or synthesise the mass of information, or indeed critically assess its relative importance. This leads to some repetition and the occasional uncritical citation of dubious work. Dr Daly's book is therefore about the 'trees' rather than the 'wood' but is nevertheless invaluable as an exhaustive source of up-to-date information on modern knowledge of cyclic nucleotides in the nervous system.

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### Erratum

● In the review of *Spectrochemical Analysis of Pure Substances* (Nature, 11 August, 268, 572, 1977) the publisher was incorrectly quoted. This should have read: Adam Hilger: Bristol; Crane, Russak: New York.