

The Encyclopedia of World Regional Geology Part I: Western Hemisphere (Including Antarctica and Australia)

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Volume 3, Number 4, November 1976

URI: https://id.erudit.org/iderudit/geocan03_04rv05

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Publisher(s)

The Geological Association of Canada

ISSN

0315-0941 (print)

unknown (digital)

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Cite this review

Douglas, R. J. (1976). Review of [The Encyclopedia of World Regional Geology Part I: Western Hemisphere (Including Antarctica and Australia)]. *Geoscience Canada*, 3(4), 313–313.

The largest chapter in the book explains the action of water and dissolved salts in stones and the effects of chemical weathering especially in relation to the porosity and permeability of the material. The following topics are discussed: sources of moisture, moisture transfer mechanism in capillary systems of stones and masonry walls, and origin and behaviour of salts in capillaries. The chapter dealing with the effects of plants and animals stresses their chemical action. Interesting is the finding that weathering conditions are strikingly similar to those in urban areas.

Fire and frost action are also discussed. The processes which may produce disruption of stones due to frost action are: volume increase occurring when water changes to ice, displacement of water away from the advancing ice front, conversion of pore water into ordered water at the surface of solids, and volume increase due to the unfrozen water at temperatures below freezing. The environmental changes increase the damage and cracking of rocks due to frost action.

The book is well illustrated with photographs and graphs. The bibliographies, conveniently located at the end of each chapter include English and European literature up to 1970. The appendices contain a useful table of properties of some rock forming minerals but should mention the reaction between dolomite and high alkali portland cement. The specifications for stones published by the American Society for Testing and Materials should be updated to include the recent specification for concrete aggregates (ASTM C33-74a) which contains the concept of varying weathering conditions for different types of concrete constructions in different regions of the U.S.A. Conversion tables and a glossary of geological and technical terms are included.

MS received August 30, 1976

The Encyclopedia of World Regional Geology Part I: Western Hemisphere (Including Antarctica and Australia)

Edited by Rhodes W. Fairbridge
Dowden, Hutchinson and Ross, Inc.,
204 p., 1975.
\$40.00

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In turning to such a compendium as the Encyclopedia of World Regional Geology the reader generally would be looking for specific factual data - the age and lithology of rocks, stratigraphic relationships, tectonic settings and events, mineral deposits, or seeking references to individuals and organizations whereby he can obtain additional information. In this book he can find them in abundance, together with general reviews, geological and tectonic summaries of broad regions, geographical and physiographic descriptions, and notes on the history of exploration and development.

Part I, the Western Hemisphere, includes the Americas, Antarctica, Australia, New Zealand and Oceania - that is most of the small Pacific islands. Part II, which is to follow, will include the Eastern Hemisphere, the rest of the world. All entries are alphabetically sequential with cross-references that refer the reader to the relevant summary and adjacent countries. The lack of an index to the general summaries, and the entries each embraces, makes it difficult for the user to start with the general and continue with the detailed accounts.

Different countries and regions do not get the same treatment, but this is deliberate. The smaller countries receive a relatively more detailed and thorough treatment, a well considered approach as published information on them may be rather scarce or obscure. Some of the accounts are models of condensation of data and precise expressions of concepts that give the reader a clear understanding of the salient features of the geology and the more significant regional stratigraphic tectonic relationships or the geological

evolution of the region and country. Some others, such as parts of the United States and Canada, leave something to be desired, perhaps understandably as the volume of available data may be large and it is difficult to avoid excessive descriptive or stratigraphic detail on the one hand, or on the other, to so condense and summarize that little in the way of specific information is presented. There is some variability in the evolutionary and tectonic syntheses that reflects the current state of transition from geosynclinal to plate tectonic concepts in the analysis of geological data.

The book is well illustrated with an interesting selection of photographs, informative tables and figures showing stratigraphic and structural relationships, and numerous maps - not only generalized geological maps but several tectonic, physiographic, paleogeological and other maps. Legibility is good. Bibliographic references extend into the early 1970s. The book is well edited and attractively composed, an altogether worthwhile product.

For reference, a must.

MS received June 7, 1976