

Depositional Sedimentary Environments

Carl L. Amos

Volume 3, numéro 4, novembre 1976

URI : https://id.erudit.org/iderudit/geocan03_04rv08

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Éditeur(s)

The Geological Association of Canada

ISSN

0315-0941 (imprimé)
unknown (numérique)

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Citer ce compte rendu

Amos, C. L. (1976). Compte rendu de [Depositional Sedimentary Environments].
Geoscience Canada, 3(4), 315–316.

different sizes and in different ways. Numbering of the illustrations is consecutive but some are with the text, some are separate in the pocket. With plates numbered separately, four of the illustrations carry the designation "Figure 1".

This is all most regrettable since if engineers, architects and planners are to be persuaded to use guides to local geology – as they must be – a first requirement is that the guides must be attractive to them and easy to handle, certainly with no more than one of two folded maps, preferable none. A well printed, concise publication, large in page size if necessary, that will lie flat on a desk or drafting board (such as the *Saskatoon Folio* and Spence Taylor's *Atlas*, to mention just two local examples) is the ideal.

Format, however, is not the only poor feature of this much-needed publication. The authors seem to have little idea of how to present geological information to the layman. Their text is such that they need a seven-page glossary of geological terms, some in common usage, many not. There is no geological section of Edmonton's subsurface in the text; such sections are essential for ensuring that non-geologists do appreciate the three-dimensional nature of geological studies.

A clue to these unfortunate features is provided by the list of references given by the authors. Of 43 publications listed, all but seven are Albertan, either published in the province (25) or descriptions of some aspect of provincial geology (18). This is an example of provincial loyalty carried to a really remarkable degree. The prowess of Alberta in many fields is known and respected but even its most ardent admirers would hesitate to suggest that the province is the repository of all necessary knowledge on urban geology.

The *Saskatoon Folio* – pioneer Canadian publication in this field, from the adjacent province – is not even mentioned. The seven "foreign" references are: the *Concrete Manual* of the U.S. Bureau of Reclamation, a reprint from the *Canada Year Book on Climate*, Selwyn's 1874 Report, three papers on refuse disposal sites, and a review paper on geology and planning from the *Quarterly of the Colorado School of Mines*.

In view of the vast amount of work that has clearly gone into the preparation of the Bulletin, it is not pleasant to have to point out these shortcomings. But this publication is a dis-service to the cause of developing a wider appreciation of geology in urban development, that is so vitally necessary. If the authors would do some general reading, they could usefully present the essential parts of the information they have assembled in an entirely different form that could make a real contribution to that wider understanding of the importance of urban geology which they so clearly have at heart.

References

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- Christiansen, E. A., ed. 1970, *Physical Environment of Saskatoon, Canada: Saskatchewan Research Council with National Research Council, 68 p.*
- Spence Taylor, R., 1971, *Atlas: Coal mine workings of the Edmonton area: Privately published by author, 33 p.*

MS received July 29, 1976

Depositional Sedimentary Environments

By H. E. Reineck, and I. S. Singh
Springer-Verlag, 439 p., 1973.
 \$47.85 (Hardcover)

Reviewed by Carl L. Amos
*Atlantic Geoscience Centre
 Bedford Institute of Oceanography
 Dartmouth, Nova Scotia*

Depositional Sedimentary Environments is a text-book of descriptive sedimentology. It is a well-written, well-illustrated compendium of sedimentary structures and textures which occur in a wide variety of depositional environments.

The catholic scope and in-depth description of the various sections of this book make it a useful source of reference to the professional as well as being of general interest to any "enthusiasts".

The first part of the book contains a comprehensive compilation of physical and biological, primary sedimentary structures. The genesis of these structures are discussed and the characteristic features demonstrated by means of one or more of the 579 illustrations or plates. In many cases, actual field examples are presented. In defining each structure, Drs. Reineck and Singh describe the micro-features such as grain shape, size, and internal laminations, through to macro-features such as lithological units and regional settings where the described features are considered to evolve.

Classifications of the sedimentary structures are presented, and ambiguities arising from contrasting terminologies between North American and European researchers are clarified.

The second part of this book is devoted to descriptions of sedimentary features as they occur within varying modern environments such as: aeolian, lacustrine, brackish, nearshore marine, continental shelf-slope, and deep-sea. The examples of depositional environments presented cover such climatic settings as: glacial, temperate, mediterranean, arid and tropical. Though virtually every climatic and physical setting is described, the book's forte is in the description of nearshore

sediments from temperate coastal environments, for which purpose, Dr. Reineck draws freely from his 49 quoted papers.

The bibliography cites 1118 of the major papers in sedimentology (many of which are in other languages) and is therefore, a useful source of reference to the earth science student as well as the specialist.

A limitation of the book is the lack of information on the dynamics of the depositional environments. It is unfortunate that only the first six pages of the book is dedicated to the principles of general hydrodynamics and to how these principles are related to associated sedimentary deposits. This topic is fundamentally important to any environmental reconstruction, prediction, or classification, and is all too often, poorly understood by the earth scientist.

As specified in the preface, very little of this book is devoted to the method of sediment identification and analysis. Many methods of presentation have been discussed including aerial photography, seismic geophysical records, echograms, radiographs and micrographs. Having stimulated the reader with such excellent results, one can only remain frustrated by the lack of specifications on the instrumentation and procedure to reproduce these results.

In conclusion, notwithstanding those limitations cited above, this text book justifies its position as the second most popular book of sedimentology in the Springer-Verlag series. It is certainly a useful addition to any collection if you can afford the price.

MS received July 26, 1976

Tidal Deposits

Edited by Robert N. Ginsburg
Springer-Verlag, N.Y., 428 p., 1975.
\$34.80

Reviewed by G. V. Middleton
Department of Geology
McMaster University
Hamilton, Ontario L8S 4M1

The subtitle of the book, "a casebook of Recent Examples and Fossil Counterparts", well describes the purpose of this unique book: to bring together brief descriptions of modern and ancient tidal deposits, prepared according to a standard format. Ten modern siliciclastic examples are followed by 12 ancient siliciclastic examples (ranging in age from the late Precambrian to the Pliocene), and four modern carbonate examples are followed by seven ancient ones that display typical laminated and stromatolitic features. The book ends with eight somewhat more general carbonate examples, an epilogue by George deVries Klein, and a brief annotated bibliography by Hans-Erich Reineck and Robert N. Ginsburg.

The book, therefore, does not set out to be a comprehensive discussion of tidal sedimentation, but focusses narrowly and effectively on a single problem: how do the various modern examples of tidal deposits compare with each other and with various (interpreted) ancient examples? To make possible comparison of ancient with modern examples, emphasis has been placed on careful description of typical vertical successions of facies produced by shifting through time of the different depositional environments. There has been no attempt to synthesize the various examples into a complete facies model, but the book does contain the basic data upon which such models must be based. Fittingly, the book is dedicated to the memory of Rudolf Richter (1881-1957) the German paleontologist-sedimentologist who founded the Senckenberg-am-Meer, an institute established for the express purpose of comparing modern and ancient sediments and organisms.

As though to illustrate how it should be done, the paper by Ginsburg and L. A. Hardie on the Andros Island carbonate tidal flats seems to me the best of the lot. The Persian Gulf flats are described too briefly, considering the scientific and economic importance of this example. There are two papers on Shark Bay, our third major area of modern carbonate intertidal deposits, but neither seems to pack in quite as much information as Ginsburg and Hardie manage in their eight pages.

Of the modern siliciclastic papers the most informative are by Graham Evans on the Wash, and by Claude Larssonneur on Mont Saint-Michel; there are also useful papers on the German flats, the Dutch inshore subtidal, the Colorado delta and Laguna Madre (Texas).

The Canadian contribution is strong and includes papers by John Knight and Bob Dalrymple on the modern macrotidal deposits of Cobequid Bay (N.S.); by Roger Walker and John Harms on the Devonian Catskill delta; by Lubomir Jansa on the Monkman, an Ordovician quartzite from B.C.; by Paul Hoffman on the cyclic, stromatolytic Rocknest, in the Proterozoic of the Coronation geosyncline; by Frank Beales and G. P. Lozej on a most unusual Ordovician example from the Brent meteorite crater; by Paul Schenk on the Windsor Group in the Maritimes; and by Eric Mountjoy on tidal deposits in Devonian buildups in Alberta. This list well displays the Canadian strength in ancient and relative weakness in modern sediment studies, though the organizers might have added a paper from the U.B.C. group that has studied tidal deposits in the Fraser delta. Are there any Archean tidal deposits ("tidalites")? At any rate, not in this book.

The book is beautifully illustrated and well-edited both scientifically and technically. Buy a copy, and see if you can find an Archean tidalite!

MS received August 24, 1976