

Structure and Classification of Paleocommunities

Alan Logan

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Structure and Classification of Paleocommunities

Edited by Robert W. Scott and Ronald W. West
Dowden, Hutchinson and Ross, Inc.
 (Halsted Press) 291 p., 1976.
 \$25.00

Reviewed by Alan Logan
Department of Geology
University of New Brunswick
Saint John, New Brunswick

This volume contains 11 papers which originally formed part of a Paleontological Society symposium on "Structure and Classification of Ancient Communities" held in Miami in 1974. These papers, in one way or another, all review the problems of applying the community concept to fossil suites and attempt to demonstrate that communities *can* be interpreted and predicted from preserved paleobiological and paleoecological data.

The editors have arranged the papers in logical sequence, beginning with broad theoretical discussions and progressing to case histories. The first paper is by E. G. Kauffman and R. W. Scott, who discuss basic concepts of community ecology and paleoecology, define terms precisely and advocate the use of the dynamic holistic concept of the community, wherever possible. While the paper forms an excellent background to the ones that follow, it is slightly marred by over-use of such terms as "conceptual", "interface", "interaction", etc. Scott then proposes a trophic classification of benthic communities using well-documented examples from the Cretaceous of southwestern USA. R. H. Parker, on the other hand, favours a geomorphologic classification of communities, recognizing also the important role of radiant, kinetic and chemical energy input and utilization in the ecosystem. K. B. Macdonald addresses himself to the problem of "confidence limits" on the accuracy of paleocommunity reconstructions by citing studies on comparisons of living and dead shell assemblages from present-day environments. He concludes that protected, low-energy, shallow-water

environments show a strong correlation, in terms of structural community characteristics, of living shelled communities with nearby shelly thanatocoenoses, whereas postmortem faunal mixing prevails in higher energy areas. The papers by J. E. Warne *et al.* and R. J. Stanton are in similar vein. Warne and his co-authors maintain that close correlation of living and dead molluscs and foraminifera in modern environments indicates minimal postmortem transportation. Stanton would agree, in terms of distribution patterns, but demonstrates from his studies on modern macrofaunal shelf communities off southern California that the oft-held paleoecologic assumption that the original biocoenotic trophic structure is preserved in the fossil community is, in fact, invalid: a most important conclusion.

The last five papers are more or less case histories. R. R. West compares seven lingulid communities from Ordovician to Holocene in age. M. D. Brondos and R. L. Kaesler measure and analyze diversity of late Paleozoic ostracode assemblages, while K. H. Lister does the same for Pleistocene lacustrine ostracodes. Finally, J. H. Hanley and T. W. Broadhead offer detailed community studies on Tertiary non-marine molluscs and Carboniferous marine benthic communities, respectively.

This book is not for the "old-fashioned" paleontologist, but should be required reading for the new breed of graduate paleoecologists with a strong background in theoretical, experimental and observational ecology. The editors hope the book will help answer the question "Whither goest paleoecology?" I think this volume goes a long way towards doing so.

MS received December 1, 1976

Terre—Lune—Planète

A. Cailleux
Masson - Fides, 1975, 346 p.

Revu par M. Kugler-Gagnon
Département de Géographie
& d'Aménagement régional
78, rue Laurier Est
Ottawa, Ontario K1N 6N5

A. Cailleux nous présente une introduction à la géologie très bien documentée et simple, sans jamais être simpliste. De 346 pages ce livre est divisé en 13 chapitres couvrant tous les aspects de la géologie, y compris celle de la lune et des planètes. L'illustration est abondante et le format très pratique. Seule remarque négative, certains schémas auraient gagné en clarté s'ils avaient eu une échelle.

Le premier chapitre se consacre à la revue des méthodes des sciences de la terre brochant à grand trait une introduction aux méthodes de datation, de travail de terrain, de géochimie et de télédétection. Vient ensuite le chapitre sur le globe terrestre en général. L'auteur sort des descriptions habituelles des traités de géologie, telles la composition chimique, la topographie, la structure interne et l'isostasie, pour aborder les problèmes des ressources non renouvelables et le bilan énergétique. Le troisième chapitre constitue une introduction très complète à la minéralogie et aux méthodes d'études des minéraux. Les chapitres 4, 5, 6 et 7 sont consacrés à la pétrographie. Les nombreux exemples du Québec rendent ce livre encore plus utile à l'enseignant canadien. Le chapitre sur les roches sédimentaires est le plus long, et particulièrement intéressant. L'auteur s'éloigne de la classification trop simple - biotique versus abiotique - pour présenter des roches d'origine mixte déjà connues et des hypothèses de recherches très intéressantes. Le chapitre 8 est consacré aux fossiles et à leur évolution. Le problème est exposé de façon très nouvelle: les grands biômes actuels, l'origine de la vie sur terre, les grands traits de l'étude quantitative et qualitative de l'évolution. Le chapitre 9 serait aussi bien à sa place dans un traité de géomorphologie. Il parle des