their failure to consider the mutual dependence of the percentage components of a relative analysis and other factors such as variation in the net pollen production of local versus regional vegetation that have long been recognized by palynologists.

From a purely mechanical standpoint, the abundant misspellings and typographic errors, a totally arbitrary use of the hyphen, and a concertina-like opening and closing of word-spacing make this a trying book to read. Fortunately, most of the better chapters are also the least flawed in this regard. This collection, despite its serious shortcomings, reaffirms the value of megafloras in biostratigraphy, while showing that most paleobotanists have a long way to go to reach the level of sophistication of their zoological compatriots in either biostratigraphy or paleoecology.

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Poriferans

Biologie des Spongaires. Sponge Biology. Papers from a colloquium, Paris, Dec. 1978. CLAUDE LÉVI and NICOLE BOURY-ESNAULT, Eds. Editions du Centre National de la Recherche Scientifique, Paris, 1979. 534 pp., illus. Paper, 185 F. Colloques Internationaux du CNRS, No. 291.

This volume contains the 61 papers presented at an international colloquium on the biology of sponges. The papers are grouped into seven sections: developmental biology, cytology and cellular relationships, cell recognition, ecology and physiological ecology, chemistry and biochemistry, microstructure and mineralogy of the skeletons of living and fossil forms, and systematics and evolution. In each section the first paper is a relatively long review, and those following it are generally quite short reports of recent research. The reviews are mostly broad in scope and often thought-provoking. Some of the reports are summaries of studies to be published more extensively elsewhere.

Collectively, these papers contain a wealth of information, many excellent scanning and transmission electron micrographs, and a most useful set of references. Unfortunately, subject and author indexes are not provided.

The complete volume probably will be most useful to sponge specialists and invertebrate zoologists, but there are many important papers that will be of interest to developmental biologists, physiologists, benthic ecologists, organic chemists, and paleontologists as well. This reviewer found the following contributions especially noteworthy.

There are three papers on the gemmules of freshwater sponges. Rozenfeld *et al.* have found evidence to support the idea that gemmulation is effected by the attraction of amoeboid cells toward a substance diffusing from forming aggregates of these cells. Papers by Ostrom and Simpson and by Harrison *et al.* report that gemmule hatching is associated with a transfer of soluble calcium to binding sites on the cells with the gemmule, with decreasing levels of cyclic AMP, with increasing levels of cyclic GMP, and with increasing ratios of cyclic GMP to cyclic AMP.

A particularly extensive and detailed review of the structure and development of both calcareous and siliceous spicules is presented by Jones, who also contributes a paper on the production and growth rates of calcareous spicules in *Sycon* as a function of calcium concentration.

A comparative study by Bergquist *et al.* on the morphology and behavior of larvae from 33 species belonging to six demosponge orders suggests that larval characteristics are often similar among related taxa and may be important in clarifying taxonomic relationships.

A study by Fell *et al.* on the sexual periodicity of postdormant and postlarval specimens of *Halichondria* provides further evidence that, at least in some sponges, sexual reproduction is under endogenous control.

Mackie reviews signal conduction and coordination and provides some new data on conduction velocities in the hexactinellid *Staurocalyptus*.

Several authors report important new findings regarding the structure of sponges. De Vos shows that the endopinacoderm of the inhalant canals of *Ephydatia* contain many porocytes, through which nutritive particles may pass directly into the cells of the mesohyl. Reiswig notes that the choanoderm of two hexactinellid species does not consist of separate choanocytes, as in other sponges, but sets of syncytia from which collar units project.

The phenomenon of cell recognition is well represented. Van de Vyver reviews the various mechanisms by which sponges can maintain their integrity when confronted with "foreign" cells—collagen-like barriers between the growing fronts of dissimilar sponges in nature, and adhesion-inhibitory factors, phagocytosis, and cytotoxicity in experimental cell aggregates and grafts. Six reports following this review are devoted to these matters.

An excellent long-term study on the growth and mortality of shallow-water Antarctic sponges is contributed by Dayton. Jackson and Palumbi show that sponges in cryptic, coral-reef environments regenerate more rapidly than co-occurring bryozoans and suggest that this ability permits them to better withstand partial predation and to dominate substrata even though the bryozoans have much higher recruitment rates and comparable growth rates. Tunnicliffe makes the rather surprising point that boring sponges may actually benefit the coral *Acropora cervicornis* by facilitating its fragmentation, which seems to be important for asexual reproduction, dispersal, and suppressing the growth of competitors.

Sponge chemistry and chemotaxonomy are well reviewed by Bergquist and further considered by Sodano, Faulkner *et al.*, and Castiello *et al.* It is interesting that some sponges produce unusual sterols via transformations of exogenous, dietary sterols and that the predators of such sponges can be identified by the presence of these sterols in their tissues.

Among the many papers devoted to fossil calcareous sponges and their living relatives, two are especially exciting. Hartman describes a new Bahamian sclerosponge that is similar to some Mesozoic stromatoporoids and helps in interpreting the structure of these ancient organisms. Vacelet gives a very detailed account of a living sphinctozoan, *Neocoelia crypta*, and concludes that these organisms, thought to be extinct since the Cretaceous, are sponges. He also proposes a new classification for those sponges that have calcareous skeletons not composed of spicules. In another paper, Vacelet describes the spermatogenesis and embryogenesis of *Neocoelia*, showing that this sphinctozoan is similar in these respects to demosponges.

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Books Received

Adolescent-Parental Separation. Michael V. Bloom. Gardner Press, New York, 1980 (distributor, Halsted [Wiley], New York). 178 pp. $22.95.

Advances in Agronomy. Vol. 33. N. C. Brady, Ed. Academic Press, New York, 1980. xiv, 374 pp., illus. $41.50.

Advances in Catalysis. Vol. 29. D. D. Eley, Herman Pines, and Paul B. Weisz, Eds. Academic Press, New York, 1980. xvi, 368 pp., illus. $45.

Advances in Child Development and Behavior. Vol. 15. Hayne W. Reese and Lewis P. Lipsitt, Eds. Academic Press, New York, 1980. xii, 264 pp. $28.

Advances in Food Research. Vol. 26. C. O. Chich-