times, such as Brongniart and Sternberg, or to geographic regions, such as Central Europe or Scandinavia and the Arctic, or to topics, such as seeds and fruits.

The chapter on Brongniart and Sternberg, often called the "fathers of scientific paleobotany," typifies the approach of the book. Andrews discusses the state of paleobotany when these men's great works were being published, 1820–1838. He includes the critical work of William Smith, the British geologist, who wrote *Strata Identified by Organized Fossils* (1816–1819). He compares Brongniart's excellent classification of plants with Sternberg's more comprehensive, better-illustrated work that is the official starting point for nomenclature. He emphasizes the importance of Schlotheim's *Die Petrefaktenkunde* (1820) and the possibility that it, rather than Sternberg's work, might have been selected as the starting point. He writes of the men's travels, of the colleagues they knew, and of the political climate in which they lived.

Here one will find tributes to great anatomists, such as Williamson and Scott; to compilers, Seward, Berry, Krystofovich; to many women in paleobotany, Maria Neuberg, Marie Stopes, Eleanor Reid, Marjorie Chandler, Hanna Czecott, Suzanne Leclercq; to splendid lecturer-teachers, Solms-Laubach and Buckland; to the physically handicapped Nathorst and Lesquereux, who were deaf; to some who were outstanding in their manipulating of techniques, Witham, Nathorst, Halle, Florin, Leclercq; to those whose work was done under unfavorable conditions, Renault and Long; to outstanding collectors such as James Hutton; to self-made men such as E. W. Binney; to great intellects, Robert Hooke and Nicolaus Steno.

There are innumerable stories of interest: Solms-Laubach and the parrot who ate with him at the table; D. H. Scott, who allowed women to attend his lectures; L. F. Ward, who first used the term "paleobotany" and who left the field for a career in sociology; Jongmans, whose lectures drove students away; Gardner, who (1844) admonished workers to "collect while the collecting is possible"; Bowerbank, who founded the "London Clay Club"; Zalessky, from interior Russia, who reveled in the seaweeds along the British seacoast; Brongniart and Williamson, who disputed the significance of the cambium in arborescent lycopods; Bertrand and Renault, who supported the algal origin of boghead coal against the interpretation of Jeffrey and Thiessen that spores were the primary contributors to its formation; Carruthers and Dawson, who disputed the nature of *Prototaxites*.

It should be obvious that this book will appeal to a far broader audience than paleobotanists. Historians of science, botanists in general, and many geologists will find much of value here.

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Hybridoma Technology

Monoclonal Antibodies. Hybridomas: A New Dimension in Biological Analyses. ROGER H. KENNETT, THOMAS J. MCKEARN, and KATHLEEN B. BECHTOL, Eds. Plenum, New York, 1980. xxii, 424 pp., illus. $29.50.

The discovery in 1975 by Köhler and Milstein of means of producing monoclonal antibodies in continuously proliferating cells (hybridomas) is a landmark in biology. The availability of unlimited quantities of pure monospecific antibodies directed against virtually any antigenic substance has already begun to revolutionize the treatment and analysis of biological materials studied in such diverse fields as immunology, developmental biology, histology, toxicology, oncology, and pharmacology. *Monoclonal Antibodies* is an account of the first generation of the production and analysis of these reagents and specialized uses to which they have been put.

The volume is a compendium of anecdotal accounts of scientists' experiences with this technology, and it covers virtually all that has been published in the scientific literature. A section on the analysis of immunoglobulin structure describes the uses of hybridoma technology for studying the chemical basis of idiotypic determinants and analyzing the antibody repertoire. There are several papers employing the hybridoma products for genetic analysis of the antigens they recognize.

The most interesting and informative sections of the book deal with materials for which monoclonal antibodies have been the only viable means of study. These sections include analyses of viruses and their genetic variants and descriptions of newly discovered surface antigens on normal and neoplastic cells. A paper reporting early studies of the use of monoclonal antibodies for immunotherapy of leukemia in mice is perhaps the most novel contribution. The results reported for this and other systems would suggest that some optimism is warranted at this stage. Each contribution contains information or references to the literature on the methodology for the production and analysis of the hybridoma products used.

The quality of the papers is variable. Some papers are little more than synopses of previously published work, and others are full of new information that gives the reader new insights into the use of these reagents. Though there is little or no critical appraisal of the papers and readers are left to ferret out the important information for themselves, this is an impressive collection. It has the freshness and enthusiasm of original work presented by scientists at the bench.

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