that he had invented a climate-controlled baby tender that would revolutionize child-rearing, published *Walden Two* (1948), a utopian novel describing the better world to come through proper community design, confronted the educational establishment with claims for the efficacy of programmed learning, and challenged all Americans in *Beyond Freedom and Dignity* (1971), which seemed to dismiss the intellectual legacy of William James and John Dewey.

While Bjork provides a fascinating description of the career of this controversial "social inventor," he does not have a strong interest in the sociology of knowledge, and he tends to accept without challenge Skinner's perception of himself as a pure scientist who gazed at nature without flinching. Those who want guidebooks to the critical analysis of the academic culture in which Skinner flourished may turn to the different history of psychology provided in Kurt Danziger's *Constructing the Subject: Historical Origins of Psychological Research* (1990), John M. O'Donnell's *The Origins of Behaviorism: American Psychology, 1870–1920* (1985), *The Rise of Experimentation in American Psychology* (1988), edited by Jill G. Morawski, or *Metaphors in the History of Psychology* (1990), edited by David E. Leary. Bjork's traditional biography is a welcome introduction to B. F. Skinner, the man and the scientist.

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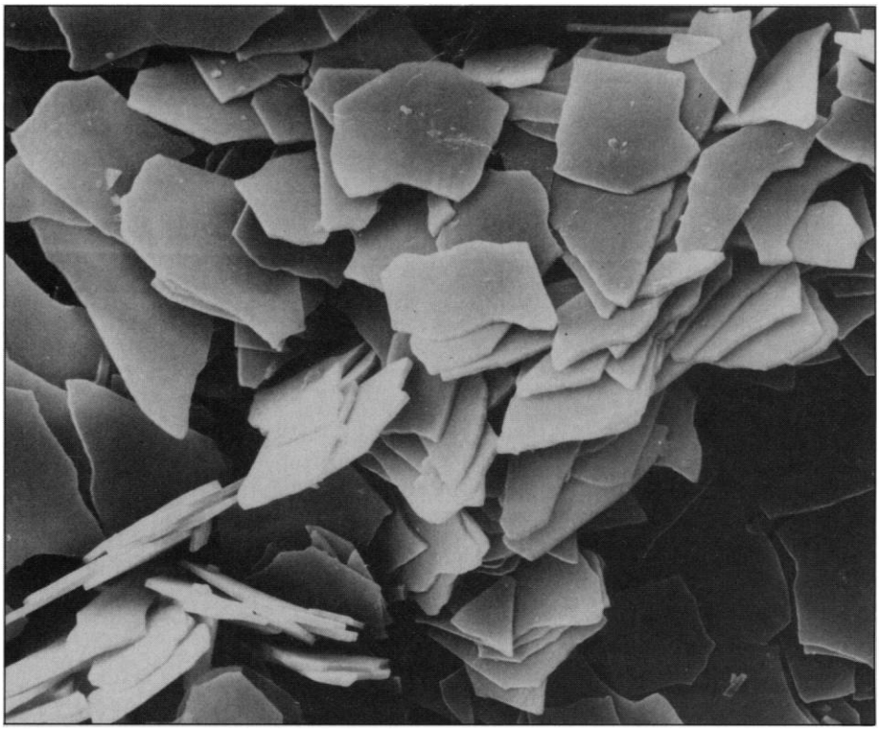
Molecular Materials

Inorganic Materials. DUNCAN W. BRUCE and DERMOT O'HARE, Eds. Wiley, New York, 1992. xiv, 543 pp., illus. $99 or £58.



Scanning electron micrograph of the nacreous surface of the mollusk *Atrina*. Magnification, ×2000. [Courtesy of Jon Didymus, University of Bath, United Kingdom]

To many scientists the term "inorganic materials" refers to solids such as ceramics and metals that typically are prepared at high temperatures and exhibit low solubility in conventional solvents. The increasing interest in molecule-based chemistry has led to the development of a plethora of new materials, many of which are described in depth in *Inorganic Materials*. The volume covers the technologically important class of materials with "cooperative" properties, that is, properties that are consequences of the entire solid, not of its individual components. Such materials are extremely rare in molecule-based systems, but some organometallic and metal-coordination complexes as well as organic materials prepared by the methodologies of organic chemistry do exist. The book includes substantial chapters on superconductivity (Cassoux and Valade), ferromagnetism (Kahn, Pei, and Journaux), and nonlinear optics (Marder) that offer the reader a state-of-the-art view of these areas of research.

The marriage of molecular organic chemistry and classical inorganic materials has produced the hybrid area of intercalation compounds. O'Hare's chapter on the intercalation of layered materials ranging from metal dichalcogenides to clays provides a fine overview of this fascinating chemistry. Intercalation involves the interleaving of molecular species with layered solids or the filling of voids in framework structures. Intercalation materials can exhibit a wide array of properties including superconductivity, metallic conductivity, semiconductivity, ion exchange, and catalytic behavior. Catalytic behavior is emphasized in McCabe's chapter on clay chemistry, which includes a survey of clay-mediated organic reactions.

Electroactive metal-containing polymers, including metal-like conducting polymers with and without metal ions, are covered by Kellogg and Gaudiello, who provide a succinct discussion of characterization methods for their physical (but not mechanical) properties that complements the chapters on intercalation and superconducting materials. The only polymer characterized by molecular weights is covered in Bruce's comprehensive chapter on liquid crystals that contain metal ions, which includes an informative survey of organic liquid crystals and methods of characterization.

An especially thought-provoking chapter on biomaterials, emphasizing their low-temperature crystal growth (biomineralization), has been contributed by Mann. Here a myriad of biominerals that contain calcium or iron are profiled, leading one to envision many possible new materials. Success in mimicking the in vivo crystal growth of these minerals undoubtedly will lead to new generations of materials with specifically engineered properties.

The use of metal-containing volatile compounds as precursors to elemental and binary, and to some extent ternary, semiconductors as well as oxides such as superconductors is the basis of O'Brien's contribution, which clarifies the requirements for precursors, especially single-molecule precursors. Many illustrative examples are provided.

This collection unfortunately lacks cohesiveness and could have benefited from an epilogue tying the subject matter together and placing inorganic materials in the context of materials in general. Nonetheless, the individual reviews are timely, self-contained, and up-to-date and will be of value to researchers in chemistry, physics, and materials science.

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