

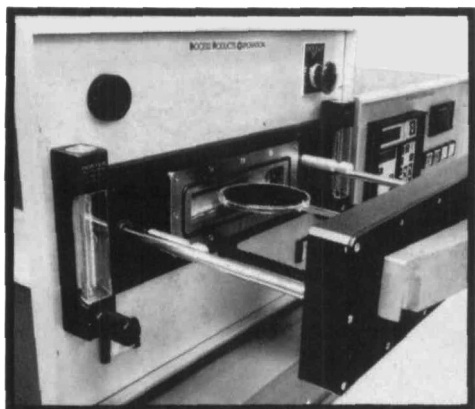
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Encyclopedia of Materials Science and Engineering Michael B. Bever, Editor-in-Chief (MIT Press and Pergamon Press, 1986)

We all possess, I think, at least a passing familiarity with encyclopedias. They are the alphabetically arranged compendia of condensed information that we discover first when in need of a dollop of fact for a grammar school essay. As a parent, I have led my own children to the encyclopedia, and have discovered that browsing through the pages in the order printed is fascinating—a surprise awaits at each turn of the page, and no topic is treated at excessive length. With these expectations then, I approached the *Encyclopedia of Materials Science and Engineering* assembled by Michael Bever and his colleagues. Would the encyclopedia format work to provide a source useful to the professional? Would the alphabetic organization permit logical access to the material? Would the encyclopedia be encyclopedic? As the review that follows attests, the *Encyclopedia of Materials Science and Engineering* wins on all accounts. Not only is it authoritative, encyclopedic, well organized, and useful, but the same unexpected pleasures found while browsing any encyclopedia are encountered here too.

The *Encyclopedia of Materials Science and Engineering* is big. Its 8 volumes occupy 13 inches of shelf space, and each volume is bound, as a reference work should be, in a substantial cover. Within the covers are 1,580 individual articles contributed by over 1,400 individual authors. Their work was overseen and coordinated by 50 Subject Editors, the Editor-in-Chief, and an Honorary Editorial Advisory Board of 26 members. The volumes are priced at \$1,950, an amount that will keep them off the shelves of most individual materials practitioners, but that should still permit ownership at the group or departmental level.

The *Encyclopedia of Materials Science and Engineering* solves the definitional problem nicely by deferring to the precedent set by the National Academy's Committee on the Survey of Materials Science and Engineering, which excludes only chemical fuels, foodstuffs, and drugs from the universe of stuff we call materials, and upon which we do materials science and engineering. The enormous number of topics that result from this broad definition are arranged in the encyclopedia according to two classifications—nature or application. Entries containing information on silicon can

be found under such headings as silicon, semiconductor devices, photovoltaic cells, amorphous semiconductors, and many more. In addition to these classifications, the encyclopedia contains general subject entries on topics such as mineral resources, mechanics of materials, and the like. This collection is completed by a group of methods-related entries such as articles on surfaces and interfaces, adhesive joining, and materials characterization techniques. In short, something for everyone.

Given the encyclopedia's scope, the test of its usefulness rests on the editors' ability to make the entries accessible to the reader whose interest is narrow. The editors succeeded admirably. All the entries are linked with comprehensive cross references so that a person interested in superconductivity, for example, will be led in succession from articles on superconductivity to others on A15 compounds, superconductivity in alloys, amorphous superconductors, superconducting materials, theory, and so on. A reader who follows all the leads provided will be exposed to an expert summary of the topic from a variety of viewpoints—a benefit not readily found elsewhere.

Having told you what the encyclopedia is, it remains to tell you what it is not. The encyclopedia is not an engineering handbook. True, there are data within the articles. Missing, however, are the charts, histograms, formulae, and tables that a practicing engineer would use to figure out, say, how to heat treat his next batch of parts. The encyclopedia serves, rather, to quickly provide the reader with a solid introduction to new topics, and provides ample references to the literature for those who would read more. In short, its most effective use will be by those who are not expert in the subject pursued.

The *Encyclopedia of Materials Science and Engineering* succeeds because it is both expert and cross-referenced. It will lose currency at the same real-time rate that all encyclopedias do, and the challenge that the editors have clearly set for themselves is to maintain the usefulness of the set by introduction of supplements that are cross-referenced to the original, and to reissue the entire set at fair intervals.

Reviewer: Harry J. Leamy is head of the Battery Development Department, AT&T Bell Laboratories, Murray Hill, NJ.

Editor's Note: See related article on R.W. Cahn's editorship of the supplements to this encyclopedia in Research/Researchers in this issue.

COMPARE . . .

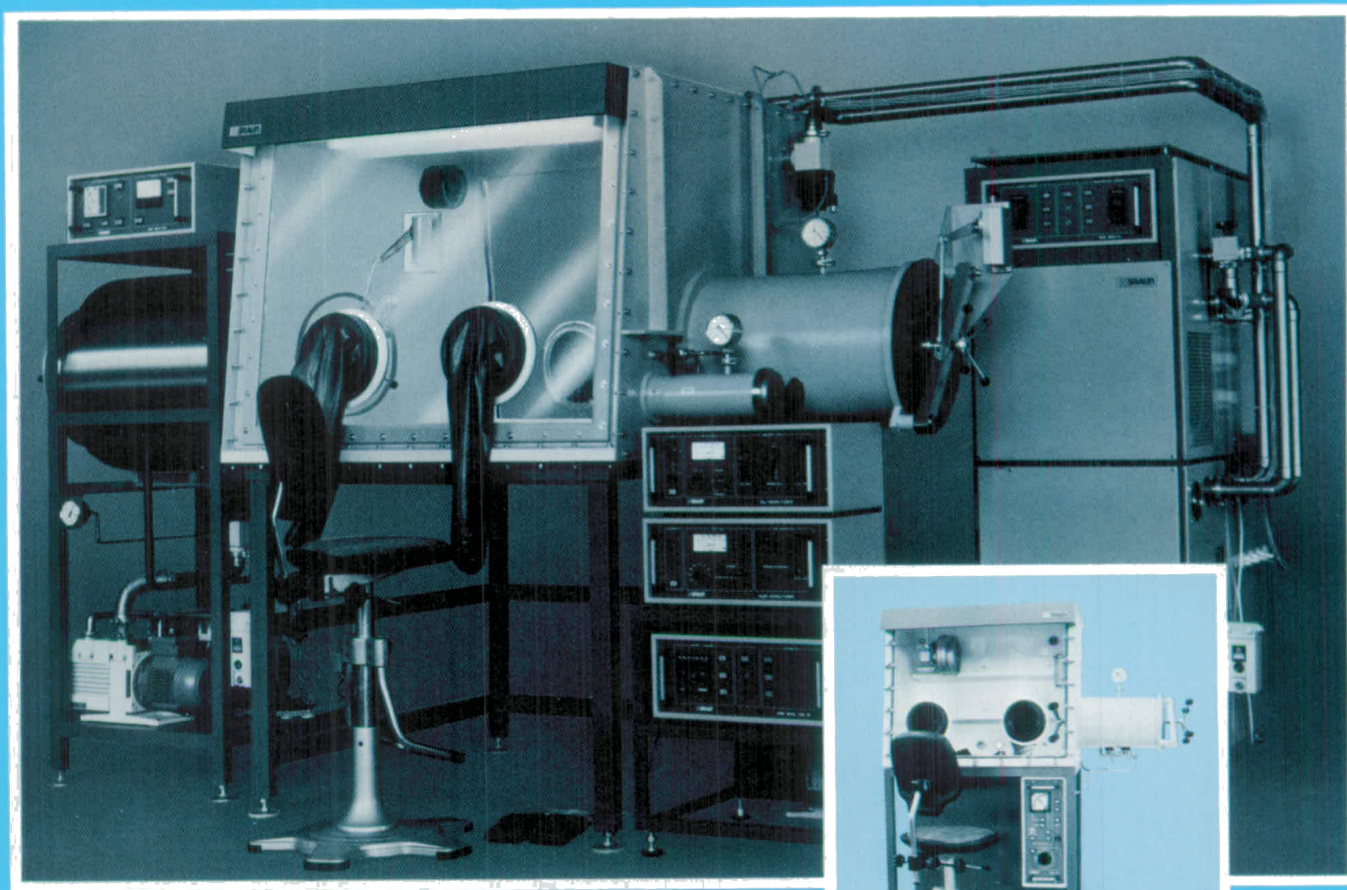
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