

to, their verbatim transcription to the printed page does not always work well. A large fraction of the lectures centered around Knuth's study of selected verses from the Bible, but the written version comes across as repetitious, with many uninteresting details. Knuth's analysis of the verses is not deep and not particularly informed by a scientific sensibility. And too many of the questions in the question-and-answer sessions were superficial and could have been edited.

Things a Computer Scientist Rarely Talks About is a unique book. Ultimately its charm lies in the author's approach to the subject rather than what he actually finds in the end. As Knuth himself writes, in discussing the purpose of life, "The important thing to me . . . is not the destination, but the journey."

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Helium Three

▶ E. R. Dobbs
Oxford U. Press, New York, 2000.
\$165.00 (1057 pp.).
ISBN 0-19-850640-6

In the preface to *Helium Three*, E. R. Dobbs says that his aim was "to provide a book, in the spirit of [John] Wilks' monograph, covering all known properties of ^3He at low temperatures." In this Dobbs has succeeded in superb fashion. In the book's foreword, Olli Lounasmaa, author of *Experimental Principles and Methods below 1K* (Academic Press, 1974), calls *Helium Three* "a monumental piece of work." It is hard to imagine that anyone would choose to disagree with that assessment. Wilks's *The Properties of Liquid and Solid Helium* (Oxford U. Press, 1967) and William Keller's *Helium-3 and Helium-4* (Plenum Press, 1969) provided the most comprehensive coverage of helium since Willem Hendrik Keesom's *Helium* (Elsevier, 1942) and, to some extent, Kenneth Atkins's *Liquid Helium* (Cambridge U. Press, 1959). As Keesom's and Atkins's wonderful books had been to an early generation, the books by Wilks and Keller became the bibles to a more recent generation of physicists interested in the helium gases, liquids, and solids—books to which all would turn for orientation to the literature. Clearly *Helium Three* will have a similar legacy for the current generation of readers with interests in ^3He and, to some extent, ^3He - ^4He mixtures. It is a remarkable compendium and detailed guide to the literature of ^3He .

Dobbs's book begins with a brief introduction that provides an overview and an orientation to the subject of ^3He . Four major parts follow: Liquid Helium 3, Mixtures of ^3He and ^4He , Superfluid Helium 3, and Solid Helium 3. Together these take up nearly 1000 pages. Dobbs cites roughly 1500 original research publications, review articles, and books. As large as this number is, Dobbs did not try to cite all of the literature, only that extensive collection of works he considered the most important or most relevant. A few references that others might have included are missing, for example, the extensive review of ^3He on graphite by Henri Godrin and Hans Lauter in *Progress in Low Temperature Physics*, Vol. XIV, William Halperin ed. (Elsevier, 1995), but the citations are remarkably exhaustive. The author index is excellent and the subject index is extensive.

A major strength of the book is its presentation of reprints or replicas of figures from the referenced literature. These figures contain a wealth of original data, including many illustrations of experimental apparatus and figures designed to make the description of theory more transparent.

Throughout the text, the discussion is clear, at times paralleling the original literature and at other times summarizing and extracting the most relevant information. Sections, for example those on neutron scattering or spin-polarized solutions, typically begin with a brief development of the relevant concepts and basic techniques and then move quickly to an orderly presentation of various experiments, the data, and their interpretation. In all cases, the treatment is comprehensive and experimental results from various sources are brought to bear on the particular subject or issue at hand. In this regard, the book serves as a valuable guide to the original literature and at the same time as a definitive single source for what one may want to know about almost any subject relevant to liquid, solid, or low-dimensional ^3He .

The emphasis in the book is on experimental results and their interpretation and comparison to theoretical predictions. Those interested in a more thorough discussion of the theory of superfluidity in ^3He are referred by Dobbs to *The Superfluid Phases of Helium 3*, by Dieter Vollhardt and Peter Wolfe (Taylor and Francis, 1990).

Dobbs's *Helium Three* is a very impressive book, one all researchers working in the subject will want to own, and it will serve as an important reference for anyone who requires

thorough one-stop information about ^3He . Dobbs thanks many people in the preface; the community should thank him for the dedication required to create for us this remarkable book.

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