years after the war, the pace of activity quickened. More and more laboratories set up facilities to experiment at liquid-helium temperatures, and the development of quantum mechanics provided a better understanding of solid-state theory. Dahl charts this progress with particularly thorough treatment of the history of one of the most important landmarks, the Meissner effect, by reference to many original papers from the Meissner and other archives. Further landmarks were the phenomenological theory of the brothers Fritz and Heinz London, the experimental study of the small penetration depth of a magnetic field into a superconductor, the study of how superconductors react to high-frequency electromagnetic fields, and the isotope effect, which was the final clue leading to the violation of Bloch's 'theorem' and the successful development of the BCS theory. All this is well presented, but it is a pity that Dahl omits altogether the discovery of Josephson tunnelling, one of the most important landmarks since the BCS theory. This omission is strange in view of the technical potentialities of the Josephson effect and of Dahl's emphasis in the rest of the book on other technical applications of superconductivity, particularly magnet technology.

The rest of the book is devoted mostly to superconducting magnets and their application to the development of ever larger accelerators for studying elementary particle physics. This topic is introduced by an interesting account of the development of the special 'type II' superconducting alloys from which high-field magnets can be wound. But the chapter on how the magnets can be used in the design of accelerators is far from clear to the uninitiated. It assumes far too much specialized knowledge, not only of machine design but also of the devious politics of the struggles between the proponents of the various rival schemes. Perhaps it is because this is Dahl's own field that he assumes that his labyrinth of acronyms and technical jargon will be transparent to others.

The book is somewhat marred by misprints and misspellings of names, usually merely irritating to a pedantic reader, but occasionally actually misleading, such as in the attribution of work by Lorenz to Lorentz (although the name index does correctly distinguish between them). Dahl is also sometimes fallible when there is a Russian context. He might well be forgiven for not knowing that L. V. Shubnikov, a pioneer of type II superconductivity, was executed in 1937 rather than dying from heart failure in 1943, as this information was revealed only in 1992. But his puzzlement and speculation as to why A. A. Abrikosov should not have referred to Shubnikov's work until after 1957 is a little naïve. He credits me with a three-year stay in Moscow (it was actually a year), quoting E. L. Andronikashvili's amusing but not altogether reliable autobiography, and he refers more than once to Landau's Institute, when in fact he means Kapitza's Institute for Physical Problems (of which Landau and his group formed a part); the Landau Institute came into being only after Landau's death. And a final example: he speculates on why the publication of an important letter to *Nature* from Shalnikov (in Kapitza's Institute) should have taken over a year to appear in print. In fact, the letter, which I myself put into English, was submitted on 27 April 1938 and appeared on 9 July 1938.

But despite its shortcomings, the book will be found to be a good read not only by those, like myself, who have sentimental memories of the early days, but also by those who have entered the field more recently and would like to know something of the personalities and the events behind the tidied-up results that they are likely to meet today. So do read it, but read with caution and beware of accepting everything as gospel. □

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Zeroing in on the cold

A. J. Leggett

Low Temperature Physics: An Introduction for Scientists and Engineers. By P. V. E. McClintock, D. Meredith and J. K. Wigmore. *Blackie: 1992. Pp. 296. £65.*

THE intended readership of this book is well conveyed by its subtitle: people who have a reasonable general background in physics or a related subject at the level, say, of an undergraduate degree in the United Kingdom or first-year graduate course in the United States, but little previous acquaintance with low-temperature physics as such. After an introduction which, *inter alia*, emphasizes the general importance of low temperatures and previews some of the more striking phenomena peculiar to this regime, the authors give accounts of the low-temperature behaviour of normal crystalline solids, superconductors (including the recently discovered copper oxide materials, which, with transition temperatures up to 125 K, strain the traditional definition of 'low' temperature phenomena somewhat), superfluid helium-4 and the normal and superfluid phases of liquid helium-3. The book is completed by a chapter on experimental methods at low temperatures and one on applications (chiefly the use of superconductors to generate high currents and magnetic fields, and Josephson electronics).

The treatment is largely descriptive, and the authors for the most part quote theoretical results without detailed derivation. The exception is the chapter on superfluid helium-4, where they derive both the phenomenon of Bose condensation and the propagation of first and second sound in some detail. (Given this, I was a little surprised that in the chapter on superconductivity they did not find it worthwhile to reproduce Cooper's simple argument on the formation of a bound state in a Fermi system with arbitrarily weak attraction, which is certainly no more complicated.) Generally, the account, qualitative as it necessarily is, of current theoretical ideas about superconductivity, superfluidity and so on is clear and up to date (although I personally regret the emphasis, in the explanation of superfluidity in general, on the so-called Landau criterion, which in my opinion explains the critical velocity observed for ions in superfluid helium and very little else).

I have a few minor criticisms: although the exposition is in general careful and readable, there are a few places where the text is liable to confuse or mislead the reader (such as in the discussion of phonon thermal conductivity on page 47, and of magnetic resonance in superfluid ^{3}He, on pages 207–8), and in adapting figures from the published literature the authors have not always taken sufficient care to make the notation consistent (Fig. 4.2) or the caption self-contained (Fig. 2.4). But on the whole, the book will serve its intended readership well. □

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Correction

In B. Oakley's review of *Hard Drive* (*Nature* **359**, 25; 1992), the artist Vanessa Bell, a member of the legendary Bloomsbury Group, is mistakenly credited as President Roosevelt's science adviser, and with the idea of the personal computer, instead, of course, of Vannevar Bush.