

THE Breakthrough

The Race for the Superconductor

By Robert M. Hazen

Summit/Simon & Schuster, 1988,
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"The night of March 18, 1987, has been called the Woodstock of Physics, the night when an overflow crowd of American Physical Society attendants filled a N. Y. Hilton ballroom to hear the last word on superconductors. The breakthrough was the development of a material that was superconducting — i.e., losing all resistance to the flow of electric current — and not at some near absolute zero temperature, but at 90 degrees Kelvin, above the temperature of cheap, easy-to-handle liquid nitrogen.

The material that did the trick had been synthesized by a group at Huntsville, Ala., working with Paul Chu at the Univ. of Houston. The problem: Define the structure. The second problem: At least five other labs were also trying to figure out the structure. The race was on. As a participant in the race, Hazen not only tells a suspenseful story, but is becomingly fair. He documents red herrings (a misprint in Chu's manuscript, which may/may not have been accidental, sent some researchers barking up the wrong tree). He reveals the paranoia, his own misgivings, the wealth of rumor, the patent fights, the fear of being wrong. He also reveals the painstaking steps that go into X-ray diffraction analysis of an imperfect crystal too small to be seen by human eye. The work proceeded around the clock, aided by impressive automated computer programs and a growing number of people. The moment of jubilation — and aesthetic pleasure — came within weeks, when all the angles fit together to form a triple cubic crystal. Other groups reported variants on the structure that Woodstock night, but the differences were resolvable. In the aftermath, the Nobel Prize went to IBM scientists who first discovered the new class of superconductors. The work goes on. Hazen is back doing his usual thing at the lab — and playing symphonic trumpet on occasion. Altogether, an exhilarating account of one of the most exciting technological developments of the century."

— Kirkus Reviews

Superconductivity:

By Jonathan L. Mayo

The Threshold of a New Technology

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This book is designed to serve as a thorough introduction to superconductivity for readers with diverse backgrounds and interests. The full spectrum of superconductivity, from the scientific aspects to the applications to the business and financial aspects, is covered. No specific technical knowledge is required to comprehend the information contained in this book. By the time you are finished reading this book, you should have a good understanding of not only what superconductivity is but also how it is, and can be, used.

— from the preface

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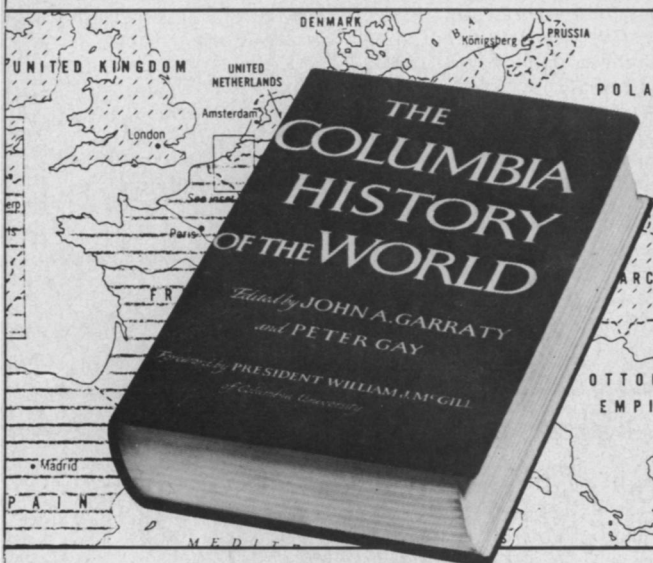
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