dicted from them. The success of these predictions is the justification of the whole idea of accretion disks.

The last several chapters of the book present a concise theoreticians' description of the essential known facts of quasars and active galactic nuclei, followed by a discussion of the possible nature of the velocity fields within them and of the types of accretion disks and central masses that most probably power them. Much of this material is at the frontier of our present understanding. Part of the analysis is based on well-understood physical ideas, but other parts depend on assumed power-law dependencies, analogous to the polytropic-index stellar models of the 1930's, before all the essential ideas of the internal structure of real stars were understood.

Accretion Power in Astrophysics is an admirable summary of all this material. The concepts are clearly presented. The equations are given in a consistent notation and are well discussed. A good selection of line drawings clarifies the text. The observational data are simplified to their essentials and compared and contrasted quite understandably with the theoretical predictions. This book will be very useful for anyone who wishes to get started on theoretical research on accretion disks and on active galactic nuclei. It will make an excellent textbook for a graduate course. It will be particularly valuable for physicists and fluid dynamicists who want a quick introduction to one of the most fascinating fields of current astrophysical research.

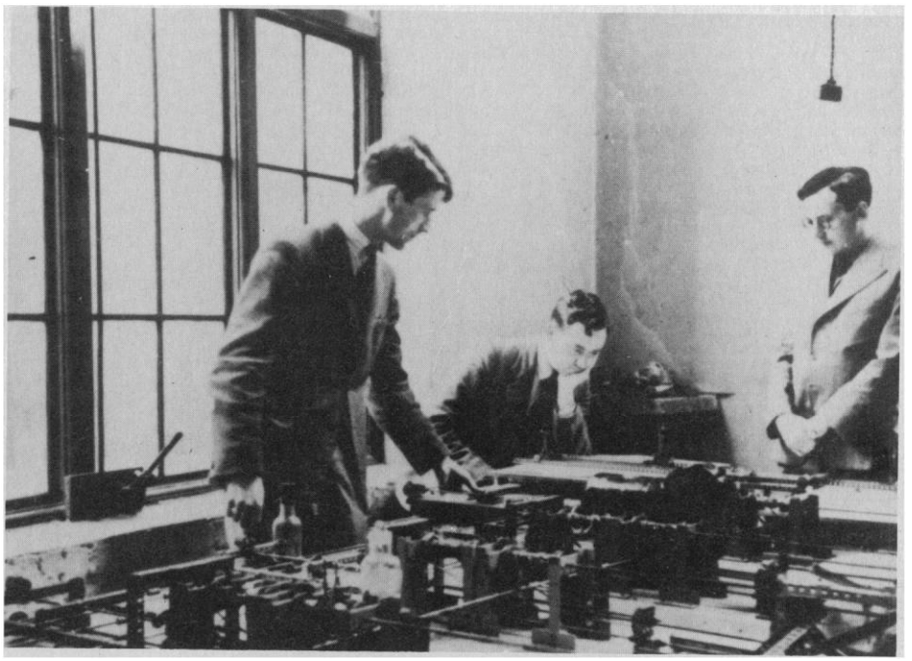
DONALD E. OSTERBROCK
Lick Observatory, Board of Studies in Astronomy and Astrophysics, University of California, Santa Cruz, CA 95064

Events Surrounding EDSAC

Memoirs of a Computer Pioneer. MAURICE V. WILKES. MIT Press, Cambridge, MA, 1985. x, 240 pp., illus. $19.95. MIT Press Series in the History of Computing.

Expecting to find a blow-by-blow account of how Maurice Wilkes managed to construct the world's first fully functional electronic stored program computer at the University of Cambridge, I was pleasantly surprised when I found that the contents of this book were far from being a simple list of achievements during the late '40's and early '50's.

The book traces Wilkes's life from his early school days, when he was just getting interested in "ham" radio, through his undergraduate and graduate experiences with radio propagation research, to his war-related exploits involving the development of radar. This account clearly shows the influences, both social and scientific, that led Wilkes into the position where he could become one of the great pioneers of the development of the computer.



"The model differential analyser in Cambridge." *Left to right*, A. F. Devonshire, J. Corner "following a curve on the input table," and M. Wilkes. [From *Memoirs of a Computer Pioneer*]

The first few chapters are full of short asides describing Wilkes's Cambridge student friends and professors, where they ended up, and what line of research they eventually adopted. Though some of this is just plain distracting from the main narrative, there are some descriptions of people who made important contributions to the development of automatic computation. Included in this set are such people as R. R. M. Mallock and D. R. Hartree, the latter being of great influence in the development of both British and American computers.

Wilkes's wartime experience in the development of radar makes up about a quarter of the book. The descriptions, apart from sometimes reading as if copied from diary entries, make an interesting tale that shows only too clearly just how fragile the British air defenses really were.

The story of Wilkes's involvement with the very early computer developments begins halfway through the book. The account of how he was invited to the famous Moore School Lectures in 1946 and, from them, developed the design for his machine is truly fascinating. In this last half of the book the names of all the great computer pioneers appear in one connection or another. Wilkes worked with, was consulted by, or exchanged visits with von Neumann, Eckert, Mauchly, Goldstine, Turing, Aiken, and many others.

The description of the building of the Cambridge EDSAC I and EDSAC II computers is well balanced, with just enough technical detail to keep the interest of the electronic engineer yet not enough to bog down the reader more interested in the human side of large research and development projects. Although any memoirs should be read with some skepticism, this story clearly shows that Wilkes had insight into the long-range impact of the computer when most of his contemporaries were still thinking of it as a mathematical research toy.

Not content with simply describing his achievements, Wilkes adds one last chapter that should be compulsory reading for all involved with the administration of research projects. In it Wilkes describes how and why he chose various projects to be the central research themes for his department and gives detailed reasons why some of them were failures.

The style of writing changes slightly from one part of the book to the next. In some places the inclusion of many small anecdotes gives a chatty feeling. In other sections, presumably where Wilkes is in his more usual academic report writing areas, the style is crisp and clean.

MICHAEL R. WILLIAMS
Department of Computer Science, University of Calgary, Calgary, Alberta T2N 1N4, Canada