

Suggested reading

The following are synopses of recent books that should be of interest to the readers of the *IBM Systems Journal*. Inquiries should be directed to the publishers cited.

An Introduction to Database Systems, Volume I, Fourth Edition, C. J. Date, Addison-Wesley Publishing Company, Reading, MA, 1986. 639 pp. (ISBN 0-201-14201-5). This volume has been revised extensively, and it differs greatly from previous editions of this work. Much new material has been added, and there has been a major reorganization of the way in which the material is presented. The book presents the fundamentals of data base technology, and being primarily tutorial, it serves well as a textbook. It has six parts, which are divided into chapters. Most chapters end with a set of exercises, and in many cases the answers are also provided. The headings of the six parts are basic concepts, a sample relational system, relational data base management, the data base environment, nonrelational systems, and some current developments. Part 5 is the only section that discusses the major data base implementations that are not relational—inverted list, hierarchic, and network—since the book emphasizes the relational approach. This emphasis is one of the biggest changes from earlier editions. Greater coverage is given to relational data base systems because “it is a fact that almost all modern products are relational” and “almost all current research and development is based on relational ideas.” The book is part of the Addison-Wesley Systems Programming Series.

IBM's Early Computers, Charles J. Bashe, Lyle R. Johnson, John H. Palmer, and Emerson W. Pugh, The MIT Press, Cambridge, MA, 1986. 717 pp. (ISBN 0-262-02225-7). This book chronicles the products of the hands and minds of individuals who brought IBM data processing equipment from punched card processing products to those that just preceded the IBM computers of today.

The first chapter traces the roots and development of IBM punched card equipment from the innovations of Hollerith to the completion of the Harvard Mark I. Chapter 2 presents the introduction of electron tubes into punched card processing equipment to achieve higher speeds than were possible with relays. A key product of this line of invention was the Card-Programmed Calculator (CPC). Although designed primarily for engineering applications, the CPC presaged a machine for ordinary business. That development, which is the subject of Chapter 3, resulted in the IBM Type 650 Magnetic Drum Calculator.

The beginnings of true computer technology—the Defense Calculator or IBM 707, as it was later designated—are treated in Chapter 4. What the authors call first-generation IBM computers, from the Defense Calculator to the IBM 705, are discussed in Chapter 5. The story of three lines of research and development—magnetic tape, ferrite core memories, and disk storage—is told in Chapters 6, 7, and 8. In Chapter 9, the authors discuss the FORTRAN language and compiler.

The development of the transistor and its application to computers are presented in Chapter 10. The transistor and magnetic storage made possible great advances in computer design. A strenuous effort to advance the design of IBM computers was appropriately termed Project Stretch. The technical and human drama of Project Stretch unfolds in Chapter 11.

The process of development began to accelerate following Project Stretch. Two of the many developments discussed by the authors in Chapter 12 are teleprocessing and the SABRE airline reservation system, precursors of today's interactive systems.

The origins and early history of IBM research are presented in Chapter 13. Philosophical and business underpinnings of the development of IBM's early computers are summarized in Chapter 14, the last. The authors provide extensive references and notes and a good and useful index.

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