Suggested reading

Listed are synopses of recent papers and books that should be of interest to the readers of the *IBM Systems Journal*. Inquiries should be directed to the publications or publishers cited.

Early electronic computer development at IBM, Byron E. Phelps, *Annals of the History of Computing* **2,** No. 3, 253–267 (July 1980). This article traces the early beginnings of electronic computer development within IBM, starting with the 603 prototype and going up through the 701. Other industrial activity in this area at the time is briefly outlined.

Cognitive processes in design, Ashok Molhotra, John C. Thomas, John M. Carroll, and Lance A. Miller (RES Yorktown Heights, NY), *International Journal of Man-Machine Studies* **12,** No. 2, 119–140 (February 1980). This paper describes several experimental studies of the design process, with the objective of improving the design of computer software. From these studies, a model of design is developed that includes goal elaboration, design generation, and design evaluation. Using the model as a guide, a number of aids to the design process are discussed and developed.

Computer network architectures and operating experience of data networks at ICCC '78: Promise and practice, M. Clayton Andrews (DPPG White Plains, NY), *Computer Networks* **4,** No. 2, 77–85 (April 1980). This paper reviews the sessions of the International Computer Communications Conference '78 that were devoted to Computer Network Architectures and to Operating Experience of Data Networks. The growing interest in the subject of computer network architectures is reviewed along with the basic concepts of this field presented at the conference. Japanese work in network architectures is also discussed. Eight papers that discuss multiple-user data network experience are reviewed, including circuit-switched, packet-switched, and message-switched network types.

The network nation: Human communication via computer, Starr Roxanne Hiltz and Murray Turoff, Addison-Wesley Publishing Company, Reading, MA (1978). This book discusses the emerging concept of computer conferencing, a new form of communication among groups of people using computers or computer terminals as the exchange mechanism. The authors review the capabilities of computer conferencing systems, their history to date, their impact and their potential. A discussion of technical and policy issues is also included.

Classics in software engineering, Edward Nash Yourdon, Editor, Yourdon Press, New York (1979). This book is a collection of twenty-four leading papers in the field of software engineering, published between 1965 and 1978. An introduction to each paper provides some historical background and a key to the special significance of the paper. Among the topics included are structured programming, programming teams, structured design, and analysis.

Aspects of distributed computer systems, Harold Lorin (IBM Systems Research Institute, New York, NY), John Wiley & Sons, Inc., New York, 1980. 286 pp., $27.50. (ISBN 0471-08114-0). Distributed processing offers a wealth of opportunities for new approaches to computing, but also brings up a number of questions to be considered. This book, based on material the author has developed and taught at the IBM Systems Research Institute, is an investigation of the underlying concepts of this rapidly developing field of computer science. The book's intent is to study the choices and goals of distributed processing; therefore, it does not

deal specifically with computer hardware and software products but rather explores the system, organizational, and economic options presented by this environment.

The book is divided into three parts. The first part presents an overview of distributed processing and then provides several examples of implementations. The examples are particularly interesting because they go beyond "what they did" and discuss the motives involved and the rationale used to develop the approach chosen. The second section, and the most technical although quite readable, examines some of the systems concepts of distributed processing. Systems structures and shapes, the concept of distance, and a substantial section on the allocation of data and control are included. The third section contains organizational and economic topics. The book is easy to read and particularly interesting because it explores the ramifications of some of the underlying concepts of distributed processing.

Operating systems, Harold Lorin (IBM Systems Research Institute, New York, NY) and Harvey M. Deitel (Boston University, Boston, MA), Addison-Wesley Publishing Co., Inc., Reading, MA, 1981. (ISBN 0-201-14464-6). The latest book in the Systems Programming Series, an open-ended collection of text-reference books sponsored by IBM, is on the subject of operating systems. Written in an informal and nonmathematical way, the book builds from the basic concepts of operating systems into present-day technology. The book is written with exercises at the end of each chapter and with attention to basics, which makes it adaptable to the classroom environment and the new student. However, the substantial coverage of the trends and directions in current operating systems research and technology also makes the book particularly interesting to those familiar with operating systems.