Book Reviews

THOMAS A. RULLO (ED.)
Advances in Data Processing Management—Vol. 1
Heyden, London, 1980. 207 pp. £14.50.

This is a first volume allied to Data Processing Management with others planned for annual publication. It is one of a series addressing the EDP area. The content of this first volume includes one or more chapters on acquisition, planning, systems development, security, management and future trends. Each chapter is written by a different author, so a wide variety of experience and style is evident. The book is generally not one for reading, but can provide useful introductory ideas and reference material. A manager prepared to look for his references might be better served by going to other source material specific to finance, costing, decision theory, management by objectives or whatever, as the relevance to an individual's span of control should be evident to the manager without necessarily recourse to a chapter linking the technique to his own environment.

This book does include chapters which are data processing specific such as computer centre floor planning, environment planning, computer security, resource scheduling, system development, software packages and future computers. It is the last chapter, which questions the future and the impact of Data Processing Management, that is well worth reading. The chapter reviews changes in computing and data processing and the impact of new technology and data communications leading to the 'Information Revolution'. The author, E. C. Joseph, questions whether the individual data processing manager is one who can grow and assume a broader institutional 'information management' role or whether the role will diminish to that of managing some operational aspect of office automation. This chapter is thought-provoking and challenges the individual to review his present and future role.

A. H. WISE
Leicester

PERLIS, SAYWARD AND SHAW (EDS)
Software Metrics
MIT Press, Massachusetts, 1981. 404 pp. £17.50.

What is meant by 'software metrics'? Well, we are told it is the quantifiable measurement used by Software Engineers. This may be true and it may be useful to have such yardsticks but, although encouraging, the book does not provide such measures or 'metrics'.

What it does provide is a series of position papers from a range of eminent computer professions given at a conference, so, as you would expect, following each paper there is a discussion. Because of the format, the book is very readable and should be thought-provoking, though I suspect too many professionals may pass it by due to the narrative style.

To all this, a 129 page annotated bibliography has been added which contains many useful references.

P. A. BENNETT
Brigg

E. B. FERNANDEZ, R. C. SUMMERS AND C. WOOD
Database Security and Integrity
Addison-Wesley, Reading, Massachusetts, 1981. 320pp. £10.80.

This publication is a detailed analysis of software techniques with particular respect to data held in volume and by database management software. It is well researched and contains numerous aspects applicable to many DBMSs. Aspects of Security and Integrity covered include User Authentication, Transaction Axcess Checking, Definition of Authorization Rules, Request Validation, Semantic Integrity Checking, Logging of Axcesses, Audit Trail, Operating System Checking, Hardware Checking, Physical Volume Detection, Concurrency Control, Recovery, Statistical Database Security, and Distributed Database Security. DBMSs mentioned include IDMS, IMS, INGRES, SYSTEM R, CAPS, CODASYL, DB1, QBE, KSOS, LASC, MITRE, MULTICS, RACF, QUEL, QBE, RACF, SCOMP, SECURATE, SHRINK/2, SQL, UNIX. References are numerous—383—some annotated. This book is an excellent analysis of software options available to secure and maintain the integrity of one's data.

GEOFFREY J. BAKER
London

A. G. KONHEIM
Cryptography: A Primer
Wiley, Chichester, 1981. 432 pp. £23.50.

Cryptography: A Primer by A. G. Konheim is a book for the serious student and a useful reference for all professionally engaged in cryptography. The reader will usefully have a background in statistics and probability theory and will need to be orientated towards the mathematical notation. An introduction to probability theory is contained in the appendix.

The first chapters discuss cryptographic systems and the tools of cryptoanalysis. Monoalphabetic and polyalphabetic systems (including their implementation by rotor systems) are analysed in detail. Statistical analysis of the Data Encryption Standard system DES is considered at length and the security of its various components is analysed. Transposition systems are omitted.

The applications of cryptography to information processing systems are the subject of the remaining chapters beginning with Key Management. A chapter is devoted to public key systems in their various forms and subsequently the question of authentication by digital signatures is considered. File security measures follow with particular reference to the IBM information protection system IPS.

In conclusion, this is not an easy book to read but it is evident that it is thorough in its treatment of cryptography.

DERRICK GROVER
Haywards Heath

T. ANDERSON AND P. A. LEE
Fault Tolerance: Principles and Practice
Prentice-Hall, Englewood Cliffs, New Jersey, 1981. 369 pp. £16.95.

Would you like to know more about the fault tolerance on the Space Shuttle or is it that you are concerned that your systems are not fail-safe and do not know what to do about it?

If the answer to either of these questions is 'yes' then I strongly recommend this rather weighty hardback which springs from research work being carried out by the University of Newcastle. Whilst some may find the detail difficult to follow or too involved, the time spent understanding the points being made would be well spent since between the covers of this handsomely produced book is a wealth of information. For the real believer in fault tolerance there is a fine reference list included.

The style of drawing upon experiences, like the Space Shuttle, to illustrate a point made it absorbing reading and worthwhile.

P. A. BENNETT
Brigg

JAMES MARTIN
An End-User's Guide to Data Base
Prentice-Hall, New York, 1981. 144pp. $21.95.

According to the author, 'this book was written with no technical words except where they are unavoidable and clearly explained'. In this, James Martin has succeeded to a better extent than other authors have. This book is an extremely well written introduction to database principles and as such it lives up to its title. It is also a good detailed introduction to database techniques for all data processing managers, systems development managers and data administrators. For the latter it is also an excellent check list of all the tasks that they are supposed to be doing.

In this publication, James Martin's departure from IBM is apparent, and a fairly unbiased analysis of database is presented. In terms of analysis it does, however, present James Martin's views and does not represent the entity-relationship approach which has a large following in Europe, although he does mention entities. Emphasis is given to data analysis and the use of data dictionary, including examples of MSP's Datamanager. Consideration is given to ownership of data, privacy and end-user database languages. It is probably unfortunate that no indication is given of the costs and difficulties of implementing database, and that the implication of such is a long term commitment. References are limited to 21 of which half are James Martin or IBM sources.

This is the only book of this type at this time that I can truly recommend should be in all data administrators libraries.

GEOFFREY J. BAKER
London

Continued on p. 396