HOLDEN, J. and WAND, I. C. (1977). Experience with the Programming Language MODULA, *Proceedings of IFAC/IFIP Real Time Programming Seminar*, Eindhoven, K. Smedema (editor), Pergamon Press.
HOLDEN, J. and WAND, I. C. (1978). An Assessment of MODULA, *Software—Practice and Experience*. In press.
JENSEN, K. and WIRTH, N. (1975). *Pascal—User Manual and Report*, Springer-Verlag.
LAMPSON, B. W., HORNING, J. J., LONDON, R. L., MICHELL, J. G. and POPEK, G. J. (1977). Report on the Programming Language Euclid, *SIGPLAN Notices*, pp. 1-79.
LEVIN, R. (1977). Program Structures for Exceptional Condition Handling, PhD Thesis, Department of Computer Science, Carnegie-Mellon University.
SCHWARTZ, J. T. and SHAW, P. (1975). A Brief Survey of the Principal Concepts of GYVE, *GYVE Newsletter*, Number 1, Computer Science Department, Courant Institute of Mathematical Sciences, New York University.
US DEPARTMENT OF DEFENSE, (1977). *Ironman: Requirements for High Order Computer Programming Languages.*
WIRTH, N. (1977a). MODULA: A Language for Modular Multiprogramming, *Software—Practice and Experience*, Vol. 7, pp. 3-35.
WIRTH, N. (1977b). The Use of MODULA, *ibid*, pp. 37-65.

Book reviews

Programming in Standard Fortran 77 by A. Balfour and D. Marwick 1979; 384 pages. (*Heinemann*, £9·50, £4·50 paper)

The authors claim in their preface that this book will serve either as a text for the novice or as a reference for the more experienced programmer. They also imply that FORTRAN is for use only by scientists and engineers; this feeling is highlighted elsewhere in the book. They state that they are going to encourage the reader to write *good* FORTRAN programs and to this end devote a large part of Chapter 3 to a quite unnecessary use of an ALGOL-like algorithmic design language even down to the bold faced type for keywords. This language emerges in a contrived way at intervals during the remainder of the book and will probably serve to confuse the beginner and annoy the reader who is using the book as a reference. Once the reader has been told on page 3 that FORTRAN is not an ideal programming language even though it is so widely used he will realise that the authors are ALGOL (Pascal?) men wearing FORTRAN hats.

It is a pity that the considerable material of FORTRAN is not presented from a FORTRAN user's viewpoint, rather than from the stance adopted. Having said this, the body of the text describes most of the features of the language very adequately in an order which is more or less the norm for FORTRAN text books. Most chapters have a number of useful exercises for which solutions appear in an appendix. Input/output is covered in three separate chapters which would probably have been better combined into two. I was surprised that Chapter 7 is not restricted to the list directed forms of the READ and PRINT statement instead of presenting simple and not so simple formats first. The coverage of further input/output later in the book is entirely adequate although no mention is made under the heading 'use of files' of the problems that will be raised by different implementations of the OPEN statement. Much of Chapter 8 (Program structures), particularly a description of statement lines and comments, could appear earlier. With the almost universal availability of terminals the three pages devoted to a program handwritten on coding sheets seems superfluous. Predictably the chapter entitled 'Control statements' follows IF-THEN-ELSE by DO and relegates such useful features as logical IF and computed GOTO to the final chapter without a forward reference. We are given a mere 13 pages entitled 'Arrays and subscripted variables' which makes the mistake of introducing arrays by means of a matrix. Many non-mathematical FORTRAN users have been perplexed by this approach over the years.

A good chapter entitled 'Procedures' is marred by the authors' conclusion that argument lists should always be used in preference to COMMON. Logical and complex facilities are well covered but the chapter on double precision facilities starts with the sweeping statement that 'the majority of programmers will seldom, if ever, require to use double precision arithmetic'. Perhaps the authors have never had cause to use the NAG library on a 16-bit mini. Character handling is given a chapter to itself although the use of more examples here would have had much to recommend it. Towards the end of the book a chapter entitled 'Case studies' discusses a number of non-trivial programs in some detail. This is a good chapter confused by the large number of different typefaces used by the printer; one is vaguely aware of the problem throughout the book but never more so than here.

There is sufficient awareness today about program portability for Chapter 21 to consist of more than 3½ pages—it is not enough merely to point the reader at a number of references, good though these sources may be. A number of 'other features' are lumped together towards the end of the book. One could perhaps justify this treatment of the arithmetic IF and assigned GOTO, but not of the logical IF and computed GOTO. The IMPLICIT statement should appear with type statements near the start of the book. The authors state that their coverage of ENTRY and alternate RETURN statements is deliberately superficial which is a pity as full coverage of these statements would have fitted logically into the chapter on procedures. Most serious of all was the statement that 'EQUIVALENCE is a facility of dubious value' and the restriction of its description to two pages. The book is concluded by appendices on conflicts with FORTRAN 66 (too brief), a summary of statements and statement order and an unnecessary copy of the syntax charts taken from the ANSI standard. Answers to exercises precede a comprehensive index which will please the reference reader.

In conclusion, certainly the best FORTRAN 77 textbook to appear so far, despite the attempts by the authors to discuss simultaneously structured programming techniques. It is good value particularly in paperback but will probably appeal more to the programmer updating to FORTRAN 77 than to the novice.

D. M. VALLANCE (Salford)

Issues in Data Base Management by Herbert Weber and Anthony I. Wasserman, 1979; 263 pages. (*North-Holland*, $34.25)

I recommend this book to anyone wanting to get up-to-date with current issues in data base management. It provides a selection of some of the particularly relevant papers and panel sessions at the Very Large Data Base conference, Berlin 1978.

To read all the papers presented at that conference would be a very daunting prospect—I know, I was present and tried! However, I believe this book to be readable, particularly if one starts with the comments by panel members prior to studying the principal survey paper of the session. The comments provide a few hooks on which to hang ideas and that is important when trying to catch up with reading late in the evening!

There are five subject areas: data base design; data base software engineering; distributed data base systems; impact of new technologies, and data base security and privacy. The survey papers present the problems and achievements in each area while the panellist's comments take up the more controversial points.

Readers should not expect to find many answers to the issues raised; what they will get is an appreciation of the factors involved and some idea of trade-offs. The fainthearted may decide to keep well away from the data base area! The more courageous reader will have plenty of ammunition to fire at the data base salesman, particularly in the distributed data base or the security field.

PETER H. PROWSE (London)