**Acknowledgements**

Thanks are due to Dr D. Herbison-Evans of the Basser Department of Computer Science, University of Sydney, for reading the manuscript and for several helpful suggestions. The initial stages of this work were supported by a University of Sydney Postgraduate Research Studentship. Computing facilities were provided by the University of Sydney Computer Centre.

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# Book reviews

*Cluster Analysis Algorithms* by H. Spath, 1980; 226 pages. (*Ellis Horwood*, £15·50)

This is a translation of a book which first appeared in German in 1975 with a slightly revised edition in 1977. It is attractively packaged and a quick flip through reveals plenty of diagrams and FORTRAN algorithms. This 'feet on the ground' impression unfortunately does not survive closer inspection. The author is a professor of mathematics and expects his readers to know about $L_p$ norms, mappings, matrices and the like. Distance measures are introduced as formulae with little verbal back up and much more space is devoted to proving that certain measures are indeed metrics than to discussing which measures are best to use in practice. At one point we find the amazing guidance "Those [methods of scaling data] for which the clusters are particularly easy to interpret are regarded as meaningful".

The algorithms are at least clearly printed, but they are inadequately commented, insufficiently protected, use the numerically inaccurate way of calculating corrected sums of squares and are (once, at least, on p. 54) wrong. The hierarchical methods do not allow output of dendrograms. The data sets used to illustrate the various techniques are all, unfortunately, German. This is mildly inconvenient when the positions of German towns are being clustered, but when the reader is left to interpret the results of a clustering of Bavarian postal zones, this reader for one felt somewhat irritated.

The bibliography covers seven pages and includes most key references. There is, however, no mention of Wishart's CLUSTAN package, GENSTAT or the BMD programs. The only references later than 1975 are to the author's own publications.

All in all, then, this book adds very little to the literature and has little advantage over existing ones. My own favourite is *Clustering Algorithms* by J. Hartigan.

P. R. FREEMAN (Leicester)

*Programming via Pascal* by J. S. Rohl and H. J. Barrett, 1980; 327 pages. (*Cambridge University Press*, £12·50, £5·95 paper)

This book is developed from a series of lectures and is organised so that each of the 24 chapters covers enough material for one lecture, hence students using the book should find topics presented in nice bite-size chunks. The whole of the language is mentioned, although I found some of the presentation somewhat cursory. In general, language features are introduced by example of their use with syntax diagrams steadily being built up as the subject unfolds. At the end of each chapter exercises are given which not only involve writing programs, but also ask the reader to do the very important task of amending programs too. Most of the exercises have a numerical flavour but a payroll program is also developed.

Despite the title of the book, the authors do not present much in the area of program design, this they claim (and I agree) is probably best done by discussion with an instructor. However, it does limit the utility of the book for those doing self-study of the subject. There are, however, two good but short chapters on testing and efficiency. The book also misses out on the wider view of programming, only a small mention is made of data structure design and documentation is virtually ignored.

In the end, whether you like the book or not will depend on how you see programming, in my view, two vital topics which should be introduced very early in a course are records and procedures, here they are not introduced until Chapters 15 and 16, respectively. Similarly, arrays which I do not consider too important at the early stages are introduced in Chapter 8 whilst files are left until Chapter 22.

In summary, I consider the book could make useful back-up reading to first year undergraduate Pascal courses but whether it is recommended will depend (as always) on the teacher's prejudices. In my case I will stick on Laurence Atkinson's book.

D. SIMPSON (Sheffield)

*Online Searching: An Introduction* by W. M. Henry, J. A. Leigh, L. A. Tedd and P. W. Williams, 1980; 209 pages. (*Butterworth*, £12·00)

Those whose primary concern is computer science or programming will find little of direct interest here. They may, however, be fascinated by a 76 page summary of commercially asscessible bibliographic data bases which includes details of size, search cost and updating frequency of most of the collections, together with summaries of the command languages available for searching these collections on-line.

For the information officer or librarian who has not yet come to grips with automated information retrieval, or who is dissatisfied with the limited facilities he has available, this is an outstanding general introduction. It is characterised by breadth of treatment, clarity and conciseness, and obviously reflects extensive practical experience. There is just enough detail to give the reader a genuine feel for the practicalities of on-line access to bibliographic data and the environment in which it is used. Though future developments are discussed, the reader's feet are always comfortably on the ground; despite the rate of development and the rate of inflation, the authors have wisely chosen to use examples from currently operational systems and to quote financial costs. Books of this kind often outlast intended 'evergreens' which, by generalisation and prognostication, obscure rather than expound the state of the art. Regrettably, the price may put this fine scene-setting book out of the reach of most information science and librarianship students.

J. INGLIS (London)