with REAL and INTEGER*2 arrays. In the latter case the DIMENSION statement above is replaced by:

INTEGER*2 IBUF(N)

While we do not claim that this method is in any way original it does seem to us to be a facility which is not generally appreciated and which can, in certain circumstances, lead to considerable savings in CPU time. Also, although more efficient machine code subroutines can be, and no doubt have been, devised, the simplicity of the approach suggested here is extremely advantageous.

Yours faithfully,

P. J. HATHAWAY, D. VAN VLIET
The Department of Planning and Transportation
The Greater London Council
County Hall
London SE1 7PH

Book reviews

Computer Data Security, by H. Katzan, Jr., 1974; 223 pages. (*Van Nostrand Reinhold Company*, £6·00)

The intention of this book is to provide a guide to questions of data security usable by almost anybody. In consequence there is a great deal of background information, as well as some technical details. The rather curious result is that there is probably nobody who can with profit read the whole of the book. If you require to read Chapters 2, 3 and 4 on Computer Systems, Computer Software, and Data Management and Communications, then you will have a hard time with Chapters 6, 7 and 8. On the other hand, if you can read Chapters 6, 7 and 8, you will have wasted your money buying 2, 3 and 4. The serious subject matter of the book lies in the later chapters, and these must be the principal ones to be considered. Individual topics are quite clearly expounded, but the relationship between them is not at all well brought out. Much of this part of the book consists in effect of abstracts of various papers and manuals, many of which are good examples of the abstracter's art. Sometimes things go a bit astray; the description on page 121 of Lampson's paper 'Dynamic Protection Structures' can raise but little of the flavour of the original to one who is familiar with it, and would, I fear, convey nothing at all to anybody who had not read the original. The final chapter, concerned with enhancing data security by encipherment, would I suspect appear superficial to an expert in that subject.

In an organisation which is just realising it has data security problems, for somebody to spend a day reading this book would be worthwhile. He would however have to spend a considerably greater time in following up references and pursuing real details before he would be in a position to give any useful advice.

R. NEEDHAM (Cambridge)

Information Systems in Management, by R. J. Radford, 1973; 181 pages. (*Reston Publishing Co., Virginia; Prentice-Hall, London*, £6·25)

Professor Radford has attempted in 171 pages to provide a review of management processes, decision making, the nature of the data that the information system can process and to outline a methodology for the implementation of a management information system. The review and the outline is then followed by consideration of a case in which the particular techniques described in the book were used.

An important virtue of this book is its brevity combined with the coverage given of the subject normally dealt with in large tomes.

Nevertheless the book has a number of unfortunate features. In places the language, particularly in Chapter 2, is jargon-ridden and sometimes incomprehensible. Thus on page 19 we have the prescription that:

'The inputs of an element should vary with changes in the level of the output, but not necessarily proportionally'.

In Chapter 3 (page 40) the author describes as *decision taking* the action of computing a man's pay, and goes on to stress the importance of such decisions within an organisation. But to most people the word 'decision' implies a choice amongst alternatives. In terms of systems design there are crucial differences between a deterministic non-choice process, such as pay calculation, and the setting-up (as in the author's next example) of a linear-programming system for the *allocation* of resources.

Some of the author's statements are confusing. In Chapter 6 (page 75) the author refers to the difficulty in preparing a document such as that shown in Figure 6.1. Since Figure 6.1. does not seem to present any great difficulty, the author may be referring to some of the documents cited in *Table* 6.1.

The author insists that the computer can be used for completely specified decision processes, but not for those involving personalistic intervention. In practice the dividing line between such processes is seldom clear. In any case the interaction between the intuitive manager and the rule following machine, provides one of the most striking capabilities of a computer-based management information system.

The methodology outline in Chapter 6 suffers from the author's rigid adherence to the existence of completely specified decision processes. Further, it implies a sequence of suitable projects for implementation which does not take account of real needs, but an apparent logical succession.

In summary, the book contains much interesting material but it is possible to quarrel with many of the author's detailed points. The book could well be read in conjunction with other works on the subject. It is likely to be more useful for those who can detect its shortcomings, than by undergraduates undergoing a course in management. The price of £6·25 even in these days is outrageous.

F. F. LAND (London)

Data Transmission, by M. D. Bacon and G. M. Bull, 1973; 135 pages. (*MacDonald/American Elsevier Computer Monographs*, £2·50)

This book gives a basic, non-mathematical approach to some concepts in the representation and transmission of data, relevant to an undergraduate course in computer science. There are sections on encoding, modulation processes, including a summary of Fourier transforms, and on the hardware and software required for low and medium speed data transmission over common carrier facilities. For my part I found the absence of any proper discussion of the physics of transmission lines or waveguides a serious omission; such a discussion would be relevant both to a course on data transmission and as a link in discussing inter-connection technology within a digital system. I also found the absence of examples regrettable, though as one who has sought unsuccessfully for problems in this subject area which are realistic and yet still capable of solution by students I have every sympathy with the authors.

The descriptive sections dealing with communications hardware and software in a communications processor are very well done. Inevitably they describe a specific system, yet manage to convey many of the underlying principles.

In summary, a useful addition to the monographs, and one which I shall put on my reading lists for students.

M. WELLS (Leeds)