Evidently cost has not been a major consideration, because the whole work is printed on heavy art paper (offset enamel), presumably because of the extensive illustrations in part one. It weighs over four and a half pounds. The printing is excellent, the reproduction of the colour plates generally successful, and there are few printing errors.

What market this expensively produced local flora will have is difficult to say. It is clearly intended to be a prestige publication, and while it is a delightful flora to possess, I suspect that most potential users will hope that they will be fortunate enough to receive a complimentary copy and not have to expend twenty Canadian dollars for it. V. H. HEYWOOD

Applied Sciences

HYDROLOGY FOR ENGINEERS

Engineering Hydrology

By E. M. Wilson. (Macmillan Civil Engineering Hydraulics.) Pp. ix+182. (Macmillan: London, January 1969.) 55*s*.

A RECENT article by W. E. Price and L. A. Heindl (*Transactions of the American Geophysical Union*, **49**, 529) posed the question "What is hydrology?". Those authors examined thirty-one definitions selected from literature covering the past 100 years, but were unable to suggest one sufficiently comprehensive to cover all aspects of the subject. Hydrologists tend to take a highly personal view of their professional activities.

As his title suggests, the author has approached the subject from the position of a chartered engineer, and has written this book with the needs of final-year civil engineering undergraduates in mind. A certain imbalance is apparent on reading the book. Nearly half the text is contained in chapters six to eight, which deal essentially with the analysis of rainfall and streamflow records. The problems involved in acquiring the necessary data, an awareness of which is surely as important to the interpretation of results as an understanding of analytical techniques, are sketchily treated by comparison. Chapter two, "Meteorological Data", therefore shows some surprising omissions. For example, the section dealing with rainfall intensity/duration/frequency relationships does not contain any reference to the work of Bilham, and is illustrated by data from the United States. Chapter three, "Evaporation and Transpiration", contains what for undergraduates is a much too detailed derivation of the Penman formula, which does not incorporate the adjustments to the equations for incoming solar radiation and back radiation recommended in *Ministry of Agriculture, Fisheries and Food Technical Bulletin No. 16*. The practice of calculating evapotranspiration from open-water evaporation using seasonal factors, described in section 3.4, has also been discontinued.

The treatment of the subject matter from chapter five onwards is much more comprehensive. The groundwater chapter is reasonably well balanced for an undergraduate readership. In contrast with the first fifty pages, chapter seven covers classical unit hydrograph theory very thoroughly, but beyond the requirements of a first degree course. The more recent "instantaneous unit hydrograph" is introduced, but its use is not developed. Chapter nine contains a brief introduction to hydrometeorology, but is devoted chiefly to frequency analysis. The principal distributions are outlined, but the thorny problem of plotting positions is mentioned only briefly; the student is entitled to an explanation of why Hazen's formula gives twice the return period of the California formula.

In general, the author has made a welcome attempt to find data from the British Isles to illustrate some of his material. The lecturer concerned with the teaching of hydrology to undergraduates will find the framework for his course in this book, although I wonder whether a student with a limited book allowance will be quite so enthusiastic. M. J. HALL

MACHINE TOOLS

Automatic Machine Tools

By H. C. Town. Pp. viii+346. (Iliffe: London, December 1968.) 75*s*.

THE author needs no introduction in the field of machine tools, and one of the notable features about his book is the comprehensive nature of its content. It is, however, in this very feature that the weakness of this work lies, because it turns out to be a hotch-potch of lecture-type notes on the various devices for machine control and the variety of ways in which a particular effect may be achieved. One feels that there is a lack of the fundamental approach to the understanding of the various mechanisms mentioned.

In spite of this, however, it is a book that can be used as a reference for initial ideas by people engaged in machine tool design. It would have been more useful as a source of information if more references had been given. Nevertheless, the presentation is clean and lively, and it is possible to glean an enormous amount of information from a quick appraisal.

Turning to detail, the chapter on control systems and electrical control gear could have been omitted because ample information is available elsewhere in much more comprehensive form. The same remarks could well apply to the chapter on programming and numerical controlled machining. The remaining chapters giving details of unit construction of machine tools, the development of automatic lines and the linking of machining operations form an important part of the book and the information is presented in a clear, logical manner.

The chapter on the design and construction of linear and radial transfer machines explains the basic requirements and outlines methods of overcoming some of the traditional problems. Unaccountably, there appears half-way through the book a chapter on the preparation of shafts and billets which explains this process quite well enough. The remaining chapters on hopper feeding and automatic work loading and on the mechanisms of machine tools are informative, although they are very limited in scope.

In essence, the book appears to be a useful document to newcomers to the field of automatic machines and its chief merit lies in the presentation of a sufficiently broad outline picture to enable the newcomer to get into the subject. M. F. MADIGAN

ELECTRONIC DEVICES

Applied Electronics

By J. F. Young. Pp. 346. (Iliffe: London, 1968.) 65*s* boards; 37*s* 6*d* paper.

THIS book is written as an introductory text for practising engineers and students in the second and final years of electrical engineering courses. The author deliberately restricts himself to "linear" aspects of device applications.