

they include more information of value to the specialist rather than to the general reader. The earlier lectures, which deal with technical matters, are excellent, and some of the data given in Mr. Argyle's lecture on "Social Aspects" are of the greatest value to those concerned with planning automation. Mr. Spencer's lecture on "Administrative Applications of Automation" includes two appendixes which give the typical work of an administrative office and a simplified description of a computer, which will be valuable to managing directors planning to install computers in their firms, but the remainder of his lecture is in too general terms to be useful. The most impressive of the lectures is, I think, that of Mr. Nicholas on "The Trade Union Approach to Automation". Anyone who has taken part in discussions on automation with trade union officials will already know how sensible and realistic is the trade union approach, and this lecture is a model of reasoned exposition based on sound premises. He emphasizes many of our failings both in planning and in industry, and points the way of their correction. Finally, let me quote what he says we expect of automation, and which will be agreed by all whatever their political views: "If we want higher wages, shorter hours, better education, improved pension schemes, we have to be able to afford them. Automation provides one way to assist in achieving those things. It is by no means the complete answer but, inasmuch as it can have a profound effect upon our future wellbeing, we must welcome it and not fear it, we must control it and not allow it to submerge us, and its advantages and benefits must be enjoyed by the many and not utilized for the privilege of the few".

JOHN F. COALES

ELECTRONIC COMPUTERS

Electronic Computers

Principles and Applications. Edited by T. E. Ivall. Pp. viii + 167 + 53 plates. (London: Iliffe and Sons, Ltd.; New York: Philosophical Library, 1956.) 25s. net.

THIS book is intended to serve as a non-mathematical introduction to the principles and application of digital and analogue computers primarily for technicians, engineers and students, but also for business executives. It starts with a historical introduction to computers, and follows with a general introduction to computing in which the differences between analogue and digital machines are discussed. Thereafter the analogue and digital machines are treated separately.

In the description of analogue computer circuits the broad principles tend to be overshadowed by details. In particular the principle of negative feedback does not seem to be very well emphasized and the 'virtual earth' concept in d.c. feedback amplifiers is introduced in an indirect manner. The simpler circuits discussed include those for reversal of sign, summation, integration and differentiation, and the manner in which the circuits are connected to solve a differential equation is explained. A number of function generators are described using masked cathode ray tubes and biased diodes, and two forms of multiplier are mentioned briefly.

In the chapter on equipment for analogue computers the approach is as if the reader was being shown one of these machines for the first time. While this type of approach is interesting, and a number of

practical points including power-supply stabilization are brought out, it tends to obscure some of the more fundamental design features. There is a good general account of the applications of analogue computers including aircraft design problems, flight problems using TRIDAC, pilot training simulators and auto-correlation.

The remainder of the book, rather more than half, is devoted to digital computers starting with basic circuits, followed by control and general organization and storage systems. The basic circuits include the simple two-state circuit, the various forms of gates and an adder. The design and use of a shifting register are also described. In the chapter devoted to control and general organization, the manner in which the instructions held in the store are selected, interpreted and obeyed is explained. The emphasis is on serial machines, and a scheme for a hypothetical computer using delay line stores is built up. Certain of the terms differ from those used in normal computer parlance, but these are none the less suitably descriptive.

A brief survey of storage systems is given which, in common with the rest of the book, is well illustrated by some good plates. A wide variety of digital computer equipments is described, including input and output mechanisms which are used respectively for feeding information into the machine and for obtaining results from it. The applications of digital computers are discussed only in general terms, with particular emphasis on applications to commerce. Mention is made of machine translation of languages and computer-controlled machine tools. The book concludes with an interesting appendix on business computer running costs.

This book will be of interest to scientists and technicians wishing to obtain a general knowledge of analogue and digital computers, but with the possible exceptions of certain sections on digital computers, the treatment is too brief to be of great value to those wishing to specialize in the subject.

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McCARTHYISM

The Torment of Secrecy

The Background and Consequences of American Security Policies. By Prof. Edward A. Shils. (Heinemann Books on Sociology.) Pp. 238. (London: William Heinemann, Ltd., 1956.) 15s. net.

THIS book analyses in considerable detail the social and psychological background of McCarthyism. It happened to be just after I had read it that I heard that the Canadian Ambassador in Cairo had committed suicide, apparently as a result of some evidence bandied about in a United States Senate Committee. Although McCarthy was, before his recent death, more or less discredited, the results of his work linger on. Fortunately, there are many signs of relaxation. Though this is only a relatively minor matter, it may be interesting to prospective British visitors to scientific conferences to know that it has become very much easier to get a visa.

The book is not easy reading to the uninitiated. The famous cases—the Hiss case, the Fuchs case, the Oppenheimer case and many others—are constantly referred to, but are not actually described. The reader not well informed about these cases would be somewhat at a loss. Most of the writing refers, quite