

Subsequent chapters deal with the load factors against cracking and failure for a number of these, with the effects of cables of varying eccentricity, and with bond, shear and torsion.

In the case of shear, the common error regarding the distribution of shear stress in an 'I' section has unfortunately been perpetuated, but it does not affect the validity of the rest of the work of the chapter, which deals with points very often ignored in books on prestressed concrete design.

If one accepts that design of simply supported prestressed beams should be carried out using working loads and working stresses, the book is a useful and comprehensive text-book; if one believes that design should be based on failure at a definite excess loading, and checked for condition at working loads, it is of far less use. Nevertheless, the chapter on ultimate load still largely applies, as in fact does most of the book except for the work on balanced design, albeit not so conveniently as intended.

References are numerous and well related to the text, and the style of writing is clear and easy to follow. It is well worth a place on the bookshelf for those requiring a detailed study of a specialized structural field.

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AUTOMATION ECONOMICS

The Economic Consequences of Automation

By Dr. Paul Einzig. Pp. xi+226. (London: Martin Secker and Warburg, Ltd., 1956.) 21s. net.

THE word 'automation' has become the excuse for a spate of books, articles and speeches, some of which contribute little to the clarification of its meaning. Dr. Paul Einzig's book has all the appearances of having been hurriedly compiled to meet the market, for it quickly abandons the attempt to ascribe to the word any particular meaning and plunges into an exposition of the problems that beset our economy. In this context, automation is merely a synonym for any technical change in methods of manufacture leading to greater productivity, and little attempt is made, except in two chapters at the end which briefly list its advantages and disadvantages, to discuss in detail the specific effects of the introduction of automatic equipment on particular industries or occupations.

Dr. Einzig is more concerned with the general economic problems of inflation, the business cycle and the balance of payments, and the part played in them by any form of labour-saving capital investment; thus there is little in his views that will be new to a reader of the more popular financial journalists. He rightly sees technological change as only one of the possible causes of unemployment, which is itself unlikely so long as expansionist policies continue. The growth of large-scale mass-production industries, in his view, may have a stabilizing economic effect, because of the long periods during which their investment plans mature, although the scale of their production makes them more vulnerable in times of deflationary pressure.

To the better-known reasons for believing that the dangers of the business cycle have been overcome, albeit at the cost of some continuing inflation, Dr. Einzig adds a new one which arises directly out of rising production itself. This is based on the time-lag between the steps taken to increase production, whether by increased employment or overtime or

increased capital investment, during which income is generated and the actual production of consumable goods. The effect of this 'pipeline lag' is to keep purchasing power ahead of the volume of goods available to consumers and so to maintain demand. In other words, an increase of capital investment will not, as some economists have feared, cause over-production—although automation (or any other method of raising output by capital investment) may tend to exaggerate deflation during deflationary periods and inflation during inflationary periods.

This argument seems to be in contradiction to Dr. Einzig's view that automation reduces the extent of inflation by raising the output of goods and, by reducing the need for labour in the industries affected, weakening the power of the trade unions to demand wage increases under conditions of "overfull employment".

What is lacking in this analysis is any examination of the problem of the radically different rates of technical advance made possible in the mass-production consumer-goods industries and in the capital-goods industries—a matter of special importance in a country such as Britain, in which the rate of personal consumption at home is going to be more and more dependent on the ability to export capital goods to pay for imported food and raw materials. How are investment and output in these industries to be kept in balance?

Dr. Einzig recognizes that Britain is more likely to suffer from too slow an adoption of new methods than otherwise; but he exaggerates the extent to which, so far, the trade unions have resisted change. In the case of the Amalgamated Engineering Union, he assumes that this is because it is Communist controlled, which it is not. On the other hand, he has some justification for fearing that the narrowing of differentials may be having a harmful effect on the recruitment of the more skilled workers who will be required in industry. He also underlines the inadequate remuneration at present received by research scientists and engineers; but this leads him to the conclusion that a large proportion of them, because of their dissatisfaction with their conditions, are inclined to become Communists or 'fellow-travellers' and that their claims for higher pay must be satisfied in order to secure their political loyalty. Unsupported assertions of this nature must undermine confidence in what purports to be a serious economic study.

AUSTEN ALBU

SHEFFIELD

Sheffield and Its Region

A Scientific and Historical Survey. Edited by David L. Linton. Pp. xxv+334+11 plates. (Sheffield: British Association for the Advancement of Science, 1956.)*

THOSE attending the annual meeting of the British Association have learned that, in a county justly noted for generosity, the city of Sheffield has played no small part in making Yorkshire hospitality so well known. Before reaching the city, visitors received details of the impressive programme, the varied excursions and the detailed arrangements made for their comfort and convenience. They have

* After the meeting, copies of "Sheffield and Its Region" will be obtainable from A. B. Ward, 24 Chapel Walk, Sheffield. 30s.