both from the more northern Soan cultures as well as from the early palæolithic (*coup de poing*) cultures of south-east India are present. But it is not easy to judge solely from pictures, especially as these are the weaker spots in an otherwise excellent piece of work. A few reproductions of photographs are necessary as controls, but implements do not photograph well. Frankly, Indian draughtsmen have not yet quite learnt the art of drawing stone tools, especially difficult in these cases when the material used is other than flint or some similar substance. There are so many details the student looks for in the picture. A draughtsman of stone implements must be both an artist and an amateur of the subject. However, the drawings in this volume are much more useful than many that have heretofore illustrated works on Indian prehistory.

The microlithic finds were also very interesting and included skeletal remains which have still to be described in detail. Pottery occurred, at least in the later phases of the culture, as well as some bone tools. No micro-burin seems to have been found; at any rate this type appears to be absent from the catalogue and the illustrations. It remains still necessary, therefore, to demonstrate beyond doubt a great antiquity for these cultures and any connexion either culturally or in time with the true Mesolithic cultures elsewhere.

The volume is well got up and there are many excellent maps and sections. If in future publications the drawings could be still further improved, some really first-class work may be expected. One rather doubts the necessity for such a complete catalogue of every find; a shorter analysis of the various types collected would surely be enough and would make matters easier for the reader. But this, if indeed it is a fault at all, is one on the right side. It is to be hoped that Dr. Sankalia will continue his important investigations.

M. C. BURKITT

CHEMISTRY AND NATURE

Annual Review of Biochemistry

Edited by J. Murray Luck, James H. C. Smith and Hubert S. Loring. Vol. 15. Pp. xiii+687. (Stanford University P.O.: Annual Reviews, Inc.; London: H. K. Lewis and Co., Ltd., 1946.) 5 dollars.

IT should be unnecessary to write that the latest volume of the "Annual Review of Biochemistry" will be welcomed by biological chemists, teachers and research workers alike. In no subject is there greater necessity for the teacher to engage himself actively in research than in the fundamental aspects of the chemical processes taking place in the tissues of organisms. In few subjects do we find so vast and stimulating a field; indeed, without the periodic surveys of the "Annual Review" the teacher would stand little chance of keeping himself in the biochemical picture. One may note in passing that the present volume refers to the work of some 3,500 individual workers.

The reviewer considers that the volumes of this series should be, as they all too frequently are not, an important component of the libraries of the purely chemical and purely biological laboratory. In Great Britain there is a tendency still to regard biochemistry as a slightly unrespectable offshoot of medical physiology; how erroneous is this conception may be shown by consideration of the contributors and their articles in the present volume. The past few decades have shown the results of the impact of chemistry upon biology, but the pure chemist does not always realize that a reverse action has also resulted. The modern developments in microchemistry are largely due to the crying needs of the biological chemist who is forced to work on the milligram scale.

Besides the 'hardy annuals', some less frequently reviewed fields are covered in volume 15. "The Biochemistry of Yeast" (Neuberg) provides an unusually useful compilation; among the more exotic facts reported is that an average sample of yeast contains about 1×10^{-7} per cent of uranium. "The Biochemistry of Teeth", "Respiration of Plants", "Photosynthesis" and "Organic Insecticides" are among welcome surveys of branches of study which are not regularly reported. It appears that biochemical investigation in the realm of the higher plants is making slower progress than is parallel work among the animals and micro-organisms. Is this a relic of the developmental history of biological chemistry, or is it the result of technical difficulties in the manipulation of plant tissues? Or is it due to some lack of attraction by this field for the junior research worker? The reviewer is of the opinion that many chemical preparations containing 'marked' atoms may ultimately be most readily achieved through the active intervention of higher plants and micro-organisms. Study of the biochemical processes of the higher plants would thus seem to offer many opportunities.

Among the regular features, the article on "Biological Oxidations and Reductions" stands out by reason of being both readable to the non-expert, and providing a mine of up-to-date information. There is, however, among several chapters, noticeable overlapping; this can be due only to lack of a clear editorial directive to the contributors. "Non-oxidative Enzymes", "Carbohydrate Metabolism", "Metabolism of Proteins and Amino Acids" and "Bacterial Metabolism" provide the worst instances. Since modern studies of metabolic processes have become no less than the study of enzymic mechanisms, sometimes isolated, sometimes integrated, it is clear that such duplications in the "Annual Review" are bound to arise unless the authors are adequately briefed. Such duplications must inevitably have uselessly expended valuable time and labour, but they also waste book-space and disappoint the reader.

Examples of overlap occur in amino-acid decarboxylation, transamination and sucrose phosphorylase. The first is given two pages in one chapter, three and a half pages in a second, one and three-quarter pages in a third and two pages in a fourth. Transamination has two pages, two pages and one and three-quarter pages in three separate chapters. The phosphorolysis of sucrose by a single strain of bacterial enzyme, discussed in volume 14 in three separate chapters, now comes up for rediscussion in no less than four places.

The reviewer believes that the time may now be ripe to separate, into a new review, the regular features of "Nutrition", "Vitamins", "Growth Factors", and "Mineral Metabolism", thus leaving together the more fundamental aspects of biological chemistry. The foregoing criticisms are not put forward in a carping spirit; but in the hope that the "Annual Review of Biochemistry" may continue to improve its position as an indispensable guide to scientific investigators.

D. J. BELL