bibliography is complete up to well into 1947. The article deals very thoroughly with the production of synthetic analogues, and a particularly clear account is given of the work on synthesis by Heilbron and his colleagues, and the relation of this work to that published by the Dutch investigators, Van Dorp and Arens.

It is not possible to review in detail all the sections, and passing over the very full and excellent account by Melnick and Oser of the physiological availability of the vitamins and Von Murralt's summary of the present position of vitamin B₁ in relation to peripheral neurophysiology, we come to William J. Darby's review of the position of pteroylglutamates in relation to human nutrition and disease. Workers in Great Britain and on the Continent of Europe have failed to realize the enormous concentration that has taken place in the United States on this work. Investigation of the extensive metabolic and haematological effects of folic acid constitutes only one small part of the work. Very extensive investigations have been made into the effect of folic acid in sprue, chronic diarrhoea, and various diseases of infancy and childhood. This summary will go a long way to prepare the British and Continental reader for the vast amount of work that will be published from now onwards in the journals of the United States. Efficient and excellent as this article is, it can only act as an introduction to this subject, since important questions, such as the anti-folic acid substances and their use in various conditions like leukaemia and in the treatment of malignant disease, are not touched upon.

Then follows a short chapter by H. R. Bird on the vitamin requirements of child s. It is pointed out that this is important not only in the study of nutrition as a whole but also for "the more efficient and profitable production of this economically important animal". A rather longer chapter, by H. P. Morris, deals with the vitamin requirements of the mouse.

Choh Hao Li and H. M. Evans deal very thoroughly with the properties of the growth and adrenocorticotrophic hormones. The methods of assay and of isolation, and the physical, chemical and biological properties of these two hormones are described. Then follows an article by C. W. Emmens and A. S. Parkes on the effect of exogenous oestrogens on the male mammal. This is very valuable in that it collects together the much scattered work on the effect of oestrogens on such varied functions as growth and sex differentiation and on other glands.

The chapter on the biology of antithyroid agents by H. A. Charipper and A. S. Gordon deals very exhaustively with the effects of thiourea and its derivatives on the structure of the thyroid and pituitary glands in various species, on growth and general metabolism, on iodine metabolism, on enzyme systems, etc. The article also deals with the chemical nature of the antithyroid agents and their clinical applications.

The next chapter, on the use of androgens in women, by Anne C. Carter, E. J. Cohen and E. Shorr, describes the biological effects of androgens in women and their use in the treatment of various disorders.

The final article, by C. G. Heller and W. O. Maddock, deals with the clinical uses of testosterone in the male. The authors indicate the various ways in which hypogonadism can be diagnosed. They indicate the various methods of administration of testosterone, its biological effects and its clinical applications.

E. C. DODDS

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By the Staff of the Computation Laboratory. (Annals of the Computation Laboratory of Harvard University, Vols. 7, 8, 9 and 10.) (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1948.) 55s. net each volume.

THESE four massive volumes contain a further very substantial instalment of the publication of the great table of the Bessel function $J_n(x)$, for values of x less than 100 and for integer orders n up to 100, which has been computed by means of the automatic sequence-controlled calculator in the Computational Laboratory of Harvard University under the direction of Prof. H. Aiken. Previous volumes have been reviewed in these columns (*Nature*, 160, 773; 1947), and five further volumes will be required to complete the project.

It will be noted that while volumes 7 and 8 (like their immediate predecessors) contain only three functions, volumes 9 and 10 each contain twelve. This is made possible by discontinuing the tabulation of values at intervals 0.001 in x for values of x less than 25, for orders above the fifteenth, and thereafter using a uniform interval 0.01. This will reduce to about three feet the present writer's earlier estimate of the length of bookshelf required to house the complete series. Except perhaps for the smaller values of x (where 10 decimals mean fewer than ten significant figures), it is unlikely that many users will often find inadequate the values within their range which the tables actually give; indeed, the provision is on a munificent scale.

Since the previous review was written, a systematic comparison has been made of values common to the Harvard tables and the tables, now in proof, to be published as "British Association Mathematical Tables", Vol. 10, and no error has been found in the Harvard tables.

In reviewing these volumes one cannot help contrasting the resources enjoyed by our American colleagues with those which have been at the disposal of workers in the same field on the eastern side of the Atlantic. But there is a danger that lavish resources may be wastefully used. The terms of the power series for $J_n(x)$ are numerically the same as those for $I_n(x)$, and an almost similar remark applies to the asymptotic series, including those for $Y_n(x)$ and $K_n(x)$, so that with slight modifications in procedure, and without proportional increase in time or labour, fundamental values for the other three functions over considerable ranges could conceivably have been produced concurrently with those for $J_n(x)$. However, let us be thankful for great mercies!

W. G. BICKLEY