

the bonds between the carbon atoms being often simultaneously broken, so that a number of smaller molecules are produced.

Peculiar interest also attaches to the autotrophic bacteria, which, as the author points out, are, like green plants, independent of other living beings and are, moreover, independent of the energy of light, since they are able to utilise the energy liberated by oxidation of various inorganic materials (for example, sulphur or a ferrous salt) for the conversion of carbon dioxide into assimilable carbon compounds.

The present work is one for which biochemists have long been waiting and it will be received with gratitude. The predominant interest attached to bacteria as the prime causes of disease has overshadowed the study of their general physiology, and, as the author says in her preface, it is indeed "time that an attempt should be made to arrange the scattered data in order to appraise our knowledge of bacteria as living organisms".

This has been very effectively accomplished, and the successive chapters, which cover the whole field of bacterial metabolism, all show evidence of diligent search and wise selection.

As might be expected, the chapter on respiration is of particular interest and presents an extremely interesting picture of the work of the Cambridge School, in which the author of the book has herself taken such an important part.

It has, of course, not been found possible to deal with equal thoroughness with all the subjects discovered; thus the section on the death-rate, in which reference is made to the large subject of disinfection, might usefully have been expanded.

An appendix is provided dealing with practical methods, and the work concludes with a most valuable bibliography, extending to thirty pages.

ARTHUR HARDEN.

The Comparative Anatomy of the Brain.

The Evolution of the Nervous System in Invertebrates, Vertebrates and Man. By Dr. C. U. Ariëns Kappers. Pp. vii + 335. (Haarlem: De Erven F. Bohn, 1929.) 8-75 g.

WHEN the International Brain Commission met in 1905 at the Royal Society's rooms in London, it recommended the establishment of a central institute for brain research in each of the countries represented. While most of the representatives regarded this resolution as the expression of a pious wish not likely to be realised, the Royal Academy of Sciences in Amsterdam set

to work to found such an institute as the Brain Commission recommended and placed Dr. Ariëns Kappers in charge.

It is no exaggeration to claim that this enlightened course made Amsterdam the chief centre for the investigation of the comparative anatomy of the brain, not merely for Holland but also for the whole world. During the War, the issue of three large volumes on the comparative anatomy of the nervous system in vertebrates and invertebrates by Dr. Ariëns Kappers and Dr. Drooglever Fortuyn, providing as they did the most impressive collection of data yet made available on this subject, revealed the great significance of the work accomplished during the first ten years of the Brain Institute's work, and set the seal of success upon the Royal Amsterdam Academy's enterprise.

The first half of the valuable book that has just been issued in English may be regarded as a concise and generously illustrated summary of the large treatise, brought up-to-date. Like all Dr. Ariëns Kappers's writings, it is a simple and lucid statement of the present state of knowledge, in which the often conflicting views of different workers are fairly and fully stated, along with the solid background of Dr. Kappers's own observations. It is a general survey of the facts relating to the nervous system as a whole in invertebrates and vertebrates, and especially the comparative anatomy of the cerebral cortex, striatum, thalamus, cerebellum, medulla oblongata and spinal cord, together with a useful account of the evolution of what Dr. Kappers calls the 'metabolic tissue' of the central nervous system.

This section of the book will be of particular value to students of comparative anatomy and psychology in providing them with a brief and easily understood survey of the whole field of comparative neurology.

The latter part of the book is a comprehensive survey of the literature, and Dr. Ariëns Kappers's original observations, on what he calls the anthropology of the brain, "written in the hope that it may increase the interest in this much neglected field and stimulate further research". It gives a succinct and well-illustrated account, with an excellent bibliography, of the work which has been accomplished in the study of endocranial casts of the extinct members of the human family and of the actual brains of the various living races of mankind.

The volume is a most useful book of reference, with an exceptionally full index.

G. ELLIOT SMITH.