sometimes makes the treatment of the innervation, the comparative anatomy and the development of the muscles less satisfactory than if the grouping in all cases were along morphological lines. In an extensive, scientific reference handbook, it would seem to the reviewer better, for instance, to group the sterno-cleido-mastoid and the trapezius together, rather than to class the former with the "muscles of the neck" and the latter with the superficial muscles of the back. Some repetition would thus be avoided and the morphological relations of the muscles would be emphasized. In spite, however, of the traditional general classification of the muscles according to adult topographical relations, the author gives an exceptionally clear account of the morphological relations of the muscles and some excellent illustrations based on this point of view. The topographical treatment is an aid in the discussion of the fasciæ. After treating of the muscles of each part, as, for instance, of the head, the author gives an extensive description of the muscle fasciæ, the most extensive and satisfactory which has yet appeared. The fasciæ he justly considers not as independent organs, but rather as local thickenings or strengthenings of the general connective tissue framework, the thickness, structure and extent of which depends upon the mechanical stresses to which the part is subjected.

The author's style throughout is so clear, his summary of the literature is so satisfactory, his own contributions are so welcome and his point of view of the theoretical aspects of the subject is so suggestive even when one does not accept all the conclusions reached, that one can not but regret that the mechanics of muscle action have not to some extent been considered along with the morphological aspects of the subject. While this would have necessitated some repetition of the extensive field covered by Fick in the volume on special joint and muscle mechanics in the same "Handbook" it would, none the less, add not a little to the interest of the study of the detailed anatomy.

Not the least satisfactory part of the volume under review is the section devoted to the general aspects of myology. Here an admirable review is given of the more recent literature on the histology of striated muscle fibers, their physical and chemical characteristics and their development, and of the general structure of the voluntary muscles. In general opposing views of disputed points are fairly presented. The discussion of the connective tissue in relation to the muscles is especially good. Eisler, however, accepts O. Schultze's apparent demonstration of the continuity of the myofibrils with the connective tissue fibrils attached to the sarcolemma with less reserve than would seem to the reviewer justified. The general, like the special, treatment of the muscle fascia is a contribution of importance.

Taking the volume as a whole, it should prove of much value not only to those interested in scientific human anatomy, but also to the zoologist interested in comparative anatomy.

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The Physiology of Protein Metabolism. By E. P. CATHCART, Ph.D., D.Sc. Monographs on Biochemistry. Longmans, Green and Co. 1912. Pp. viii + 142. Price $1.25.

Like the other monographs of this series, this book is from the pen of an ardent investigator in the field of which he writes. To those who derive their knowledge of the subject of nutrition from text-books, the present volume will offer numerous surprises. In many places the treatment consists in the exposition of the various points of view of specific problems relating to protein metabolism, which rest upon experimental data, and does not therefore furnish a complete and harmonious story. This style of treatment is most commendable, for with no other attitude could the author give an adequate picture of the state of our knowledge of this complex subject.

The book surveys the literature up to the end of the year 1910, and appeared at a rather unfortunate time, for never in the history of

protein metabolism investigations, have such enlightening studies been published during any like period as during 1911 and the first half of 1912. The admirable work of Osborne and Mendel on the physiological rôle of the individual proteins, and of Folin and Denis on the fate of the products of protein digestion after absorption, came too late for inclusion in this edition.

The author has succeeded admirably in adhering closely to the physiological aspects of protein metabolism, a difficult task, when a vast amount of experimental data relating to the chemical aspects of the same subject is now available. This attitude is a desirable one at the present time, when there is a strong tendency on the part of text-book writers and dietitians to assume that an adequate supply of "building stones" in the diet is all that is essential to insure physiological well-being in the animal. The author has done a good service to his fellow workers in producing a treatise which will assist in creating new attitudes toward the problems concerned, and to the great number of teachers who follow the original literature to but a slight degree or not at all, in presenting in so clear a form, the experimental lines of inquiry directed toward the solution of problems of protein nutrition, and the different points of view to which these have led.

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Scientific Results of the Voyage of S. Y. "Scotia" during the Years 1902–1904. Vol. III., Botany. Edinburgh, The Scottish Oceanographical Laboratory. 1912. 4to. Pp. x + 153, 12 pl., 1 chart.

Nearly simultaneously with the publication of this volume, now dedicated to his memory, Sir Joseph Hooker, the dean of botanists and the author of the "Flora Antarctica," passed from his earthly labors. The botanical results of the Scottish National Antarctic Expedition are derived principally from two summer visits to the South Orkneys and a winter spent at Laurie Island in Scotia Bay; a hasty visit to Gough Island; extensive collections of the algæ of Weddell Sea; notes on the botany of Ascension Island; and incidental collections made on the outward and homeward voyages. The report on the phytoplankton will be issued later.

The present volume opens with an introduction by Dr. Rudmose Brown on the problems of Antarctic plant life. Recent explorations have shown that the South Polar flora is in some respects richer than has been supposed, though its chief interest is derived from its relations to the problems of geographical distribution and the origin of the Antarctic flora.

With the exception of a doubtful fossil of conifera, possibly of Devonian age, found in Victoria Land, the known Antarctic fossil plants are those obtained by Otto Nordenskjöld from Hope Bay, Graham Land, ferns, cycads and conifers indicating a warm moist climate and abundant vegetation in Jurassic times. The fossil *Araucaria, Fagus,* etc., found at Seymour Island by the same expedition indicate the extension of somewhat similar conditions into the Tertiary.

The most striking feature of the Antarctic flora is its poverty compared with that of the Arctic. Spitsbergen in summer in 79° north latitude supports a hundred species of flowering plants, while at the South Orkneys in only 61° south there is not a single species. In Grant Land, in 81° and 82° north latitude, Peary collected 57 mosses and 7 hepatics, more than are known from the whole Antarctic region south of latitude 60°.

The explanation lies chiefly in the fact that while the Arctic summer mean temperature is well above the freezing point, that of the Antarctic is practically always below it. Another factor is adverse to the establishment of plants on the few snowless patches of Antarctic land, namely, the presence of myriads of penguins, which cover these areas with their guano and trample them into mud whenever the temperature is above the freezing point. The few sheltered spaces where mosses occur are poorly suited to flowering plants. Yet that their introduction is possible by natural causes is indicated by the discovery of