

schools and colleges, since few medical schools will have the equipment or be able to afford the time to do it properly. Physiological chemistry will become then a first-year study in all of our medical courses, and the young man beginning the study of medicine must bring with him a knowledge of general inorganic and organic chemistry sufficiently broad to enable him to grasp the new problems which medicine now presents.

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#### SCIENTIFIC BOOKS.

*Handbuch der Fischkrankheiten.* Von Dr. BRUNO HOFER, Professor der Zoologie an der tierärztlichen Hochschule und Vorstand der Kgl. Bayer. Biol. Versuchsstation für Fischerei in München. Mit 18 Farbentafeln und 222 Text-Abbildungen. Verlag der Allg. Fischerei-Zeitung, München. 1904.

This is the first book devoted exclusively to the diseases of fishes, a volume of 359 pages well printed and well illustrated. The author asserts that the first aim of his work has been to aid the practical fish culturist and secondarily to gather together the substance of the few widely scattered scientific papers on the subject and his own unpublished material, the result of his observations as director of an experiment station. No technical knowledge is necessary to make use of the book. Particular diseases are described under the heads of external symptoms, course, cause, cure and prevention, the pathological changes receiving but passing notice. The scope of the work is limited to middle Europe and to fresh-water fishes alone, with Siebold's 'Die Süßwasserfische von Mitteleuropa' as a basis of nomenclature.

The book is divided into four sections. These treat of general infections, diseases of special organs, the crayfish disease, and general measures against fish diseases. Fourteen bacterial diseases are described, of which six are regarded as specific infections, and the characters of the organism are summarized. The disease itself is given a distinctive name,

as 'furunculosis,' 'purpura cyprinorum,' 'pestis salmonis,' etc. The last is the widely known so-called fungous disease of salmon which engaged the interest of Huxley, who believed it to be caused by *Saprolegnia* alone. Dr. Hofer accepts the work of Patterson, who holds the fungus to be a secondary or terminal attack and describes '*Bacillus salmonis pestis*' as the primary cause. It is further interesting to note that the bacillus of tuberculosis is found in fishes, a form recognizably different from the parasite in man and not pathogenic for warm-blooded animals. Seven other organisms are found associated with disease, but their rôle is not regarded by the author as satisfactorily determined. Infections of fishes with bacteria and animal parasites are not unknown in this country, but serious epidemics due to them have been described only among domesticated fishes, while in Europe they seem to be more common and devastate alike the natural habitats as well as the ponds of breeders.

Two general infections with protozoan parasites are described, each caused by a myxosporidian of the genus *Myxobolus*. A systematic list is given, profusely illustrated and with a short characterization of each species, of the sporozoa parasitic for fishes, in which Gurley's U. S. Fish Commission paper is largely drawn upon. This plan of illustrated synopses of the species is carried out with each group of parasites, more extensively with the crustacea.

The second section occupies two thirds of the book and is taken up with local diseases. The skin affections receive most attention and its lesions are mainly caused by parasites, the most important being the saprolegnious fungi, the great enemy of domesticated fishes. None of the tissues or organs is without its pathologic affection. Even the nervous system is the seat of parasitism, the author himself having investigated a yet unnamed sporozoan which causes in trout 'taumelkrankheit,' a torpor finally ending in death. Other authors have described 'polyneuritis parasitica' due to a *Myxobolus*, and a parasitic worm. A short chapter is given to an unexplained exophthalmia, a symptom frequently seen as a

manifestation of, perhaps, several different causes, one of which is of considerable importance in this country and has been shown to consist in unusual amounts of dissolved air.

The third section is devoted entirely to the crayfish disease, 'Krebspest,' for years past widespread and destructive in Europe, but here unknown. The author and his assistant have made a special research on this subject and have described as the cause of the disease *Bacterium pestis astaci*, which attacks also, causing a general infection, several cyprinoids and allied fishes in the waters of nature as well as in domestication.

The last section consists of a few pages of general directions to the fish culturist with respect to measures to be taken at the onset of disease. In general there is little encouragement to the breeder in the way of remedies. Therapeutics with fishes is not far advanced and the prognosis in the case of the general infections is bad. Some cases of external parasitism may be successfully treated, but the chief reliance must be in prevention. Practical directions are given for the disinfection of ponds and the natural remedy is frequently advised of removing infected trout to rapidly flowing streams.

The book is profusely illustrated with colored plates, drawings and photographs, and to these it owes a large part of its usefulness. The representation in color of the lesions of the bacterial diseases aids their identification, which is rather difficult at best.

M. C. MARSH.

*Katalog der Bibliothek der Gesellschaft für Erdkunde zu Berlin.* Versuch einer systematik der geographischen Literatur. Von PAUL DINSE. Berlin, Ernst Siegfried Mittler und Sohn. 1903. Pp. xxvii + 925. Price, 12 Marks.

When the Berlin Gesellschaft für Erdkunde moved into its own building the opportunity was given for a rearrangement of its library. The scheme in use had become antiquated and inadequate. To Dr. Dinse was entrusted the preparation of a new plan of arrangement. The results of this work lie before us in this large and in every way satisfactory catalogue, which from its fullness and fine subject classi-

fication has high bibliographic value. The scheme of classification is close and thoroughgoing, yet based largely upon considerations of practical convenience. Two main divisions are adopted: general geographic literature and literature of single regions and the sea. Under the former are the subdivisions: (1) bibliography, (2) history of geography and discovery, (3) history of cartography, (4) methods and education, (5) encyclopedic literature of geography, (6) collections and miscellaneous writings relating to geography, (7) general physical geography, (8) general bio-geography, (9) general anthropo-geography, (10) geography of political and economic history of nations, (11) onomatology and transcription. These are again subdivided and when necessary or desirable re-subdivided, sometimes according to subjects and sometimes by countries. The second main division, literature of single regions, is subdivided by continents and countries, and when the literature pertaining to a country is very extensive, this is again subdivided by subjects. Periodicals are arranged separately by countries.

Among the admirable features the following may be noted. The names of authors, when known, and the titles of books, separates and periodicals are given without abbreviations. When doubt might arise as to where a paper should be placed, it is given in full in the two or more places where it might go. At the end of every entry is given, inconspicuously, the letter and number indication showing the exact location of the work in the library of the Gesellschaft. Under each subdivision the works are arranged in order of publication. An author index with abbreviated title and page reference enhances greatly the usefulness of the work which will prove almost as useful to geographic workers in general as to the members of the Berlin Gesellschaft für Erdkunde.

J. M. NICKLES.

#### SOCIETIES AND ACADEMIES.

THE CHEMICAL SOCIETY OF WASHINGTON.

THE 151st regular meeting of the Chemical Society of Washington was held on Thursday