

mostly harmful mutations. These are of a kind that would seem unlikely to have served as steps in that progressive evolution which has yielded the multiplicity of complex, efficient living forms which surround us to-day.

The book is one which every biologist interested in the least in genetics should possess, and one which any intelligent layman can read with interest and profit. It may also well take a prominent place among textbooks of genetics for class use.

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BIOLOGY OF NORTH EUROPEAN SEA FISHES

Naturgeschichte und wirtschaftliche Bedeutung der Seefische Nordeuropas. Ernst Ehrenbaum, 337 pp., 276 illus.; E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1936. Price, unbound, 33, R.M., outside of Germany.

THE literature of the rapidly developing science of fisheries-biology has now grown to dimensions so formidable that no one, other than a specialist, can hope to keep abreast of it. Especially needed have been convenient handbooks, in which fishermen of different nations, and others concerned with the fishing industry, could find concise accounts of what is known of the life-histories and commercial exploitation of the various fishes to be caught on the fishing grounds; not only off their own coasts, but on others farther distant, to which their fleets also repair. The volume by Dr. Ehrenbaum, here reviewed, was prepared expressly to fill this want for the coasts and fishing banks of Northern Europe as a whole, and may be said to do so, admirably. The book appears as Vol. II (one other volume has already been published) of the compendious "Handbuch der Seefischerei Nordeuropas," projected under the combined editorship of Drs. H. Lübbert and E. Ehrenbaum. And Dr. Ehrenbaum's eminence as an ichthyologist, with the active part he has long taken in the international investigations of the sea fisheries, gives it authority.

In it we find accounts of nearly all the fish-species to be found in North European seas, including many known there from occasional captures, only. Being frankly dedicated to the service of those employed in the fishery trades, the fullest accounts are (naturally and rightly) those of the species that support the most important fisheries; of which that of the herring may serve as example.

Here the reader finds the common names by which the fish is known in various languages, followed by a brief systematic description, including color and size. Geographic distribution on the two sides of the Atlantic next receives a paragraph, including mention of

the closely related herring of the North Pacific. The life-history is treated in greater detail, covering such topics as food, adult migrations, breeding, type of eggs, length of incubation at different temperatures and successive larval stages; the latter illustrated from the author's own earlier investigations. Later growth-rate is next traced, with discussion of the relative abundance of different year classes, a matter of prime import to fishermen in the northern countries of Europe. After mention of parasites and enemies—the herring must be seriously decimated by the latter—Dr. Ehrenbaum discusses the question of local races, including the movements of schools of different racial origins. The account ends with a statement of the amounts of herring caught in different years, at different localities and seasons, of the methods of the fishery in different countries, and of the states in which herring from different sources are marketed.

The accounts of the other species of commercial importance follow these same general lines, chief emphasis being laid in different cases on the phases in the life history that are either the best-known or that seem the most interesting from one standpoint or another. Thus the account of the eel is largely devoted to its growth in fresh water, structural changes that precede sexual maturity, breeding migrations of the adults downstream and out to mid-ocean, situation of spawning grounds, and return journeys of the young eels to the coast and upstream—matters that have so greatly aroused scientific interest of late years. Similarly, in the case of the cod, special attention is paid to migrations as proved by tagging experiments, also to the regional distribution of the fishery; while, for the plaice, the question of overfishing in the North Sea is kept to the fore.

Species not regularly fished receive briefer mention. If common enough to be familiar to fishermen, or to other frequenters of the coast—the labrids, for example—the accounts include (as before) the common names, brief systematic characterization, summary of distribution and reference to what little may be known as to life history. Finally, species so rare that only an occasional specimen is taken are passed over with bare mention or with brief comparison with their better-known relatives.

Outstanding features of the book are the beautiful illustrations of all the familiar species and of most of the less familiar ones also, chosen with discrimination from various sources. With these, it should be easy for any one at all familiar with the sea fishes of northern seas to name the species he has caught or has found in the fish market; or to name the genus at least in the case of rarities. Specific determination of these last would in any case be a task for the systematic ichthyologist. Since the book is not dedicated to the

latter, no objection can be raised to Dr. Ehrenbaum's decision—stated in the introduction—to renounce any attempt at classification intended to express the most modern taxonomic views in favor of an older arrangement, apt to be more familiar to his readers. In this, like most European ichthyologists, he uses genera in a more inclusive sense than is usual with his American colleagues. Haddock and coalfish, for example, are included in the old genus *Gadus*; the European shad in *Clupea*.

Bibliography is limited to titles especially important from the standpoint of the volume in hand; there is an adequate index.

All in all, the reviewer can have little but praise for Dr. Ehrenbaum's book, for which one may predict favorable reception in America as well as in Europe, for many of the species discussed occur on both sides of the Atlantic.

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SOCIETIES AND MEETINGS

THE ILLINOIS STATE ACADEMY OF SCIENCE

THE twenty-ninth annual meeting of the Illinois State Academy of Science was held at the Senior High School, Quincy, Illinois, on May 1 and 2. The meetings were attended by nearly 800 persons, including members of the Junior Academy, which held sessions of its own as a part of the annual meeting.

At the general session on Friday morning the retiring president, Dr. C. D. Sneller, of Peoria, gave an address on "The Mucous Membrane of Our Nose, Throat and Ears"; Dr. T. E. Musselman, of Quincy, talked on the subject, "The Contributions of an Amateur to Science." These addresses were followed by a symposium on "The Tropics," sponsored by the geography section of the academy. The principal speakers at this symposium were Dr. W. H. Haas and Dr. L. R. Crandall, both of Northwestern University. For the public lectures given on Friday evening Dr. Fay-Cooper Cole, of the University of Chicago, addressed the Junior Academy members on the subject, "Digging in Our Own Backyard," while the annual public lecture of the academy was given by Dr. Andrew Conway Ivy, of Northwestern University Medical School, who spoke on the topic, "The Endocrine Glands."

The Friday afternoon program consisted of the presentation of 119 papers before nine sectional meetings. On Saturday the sessions of the academy were made up of field trips. These trips were four in number and each drew a good attendance. The geological trip, led by Dr. M. M. Leighton, chief of the State Geological Survey, Dr. George E. Ekblaw, also of the State Geological Survey, and Father Callistus Bifoss, of Quincy College, visited sites of geological interest in the vicinity of Quincy. An industrial trip, under the direction of Mr. M. Finn, of Quincy, made an intensive tour of some of the manufacturing plants located in Quincy. An anthropological trip, led by Mr. Louis Darr, Jr., and Mr. O. D. Thurber, both of Quincy, visited and studied the various types of Indian burial mounds in the vicinity of Quincy. A biological

trip, under the direction of Dr. T. E. Musselman and Mr. Robert Evers, both of Quincy, visited the Coe cress beds and the commercial mushroom beds, besides other points of biological interest in the region of Quincy.

The following resolutions were adopted by the academy:

Resolved, that we express our appreciation and admiration for the fine work being done by the Junior Academy and for its exceptional line of exhibits, and that we commend Miss Mable A. Spencer, its chairman, Mr. Louis A. Astell, the committee and all others who are promoting this work among the young people of Illinois.

Resolved, that we heartily commend the Illinois State Geological Survey, for its research program calculated to discover further uses of the mineral resources of the state, and thus to increase employment; and that the State Academy urges that the federal and state governments encourage such research in every possible way.

Resolved, that the State Academy favors a wise policy of conservation that, while ministering to present needs, will pass our resources on to future generations, and that we commend research having this end in view.

Because of the great inadequacy of space and ill-suited laboratory conditions and facilities of the State Geological Survey and the State Natural History Survey for research on the natural resources of the state, we urge that every possible consideration be given by the State General Assembly and the governor of the state to the construction of a State Natural Resources Building for this work.

The officers elected for the ensuing year are:

President, C. L. Furrow, Zoology, Knox College, Galesburg; *First Vice-president*, Harold R. Wanless, Geology, University of Illinois, Urbana; *Secretary*, Wilbur M. Luce, Zoology, University of Illinois, Urbana; *Treasurer*, George D. Fuller, Botany, University of Chicago; *Editor*, Dorothy E. Rose, State Geological Survey, Urbana.

The next annual meeting will be held at Rockford College, Rockford, Illinois, on May 7 and 8, 1937.

WILBUR M. LUCE,
Secretary