

and management are clearly based on knowledge gained with the National type of producer, and would not in every case be applicable to another form.

The description on p. 56 of the arrangements in the Crossley plant for varying the entering mixture is not very clear, and throughout the book but little is said of the generators produced by this firm, and it is limitations of this kind which are the chief fault that can be urged against an otherwise admirable book.

#### THE NATIONAL COLLECTION OF FISHES

*Guide to the Gallery of Fishes in the Department of Zoology of the British Museum (Natural History), Cromwell Road, London, S.W.* Pp. v+209. (London: Printed for the Trustees, 1908.) Price 1s.

THE unique collection described in this guide consists mainly of stuffed specimens, coloured, as far as possible, to resemble the fishes in their natural conditions. "I believe," says the director in the preface, "that there is no other collection of fishes in a public museum in which the specimens are presented without the usual iron supports, with sufficient space around each fish and in natural colours, instead of the oily-brown which all dried fishes tend to acquire." All preserved material is kept in a separate building, where it is accessible only to special applicants. This arrangement is very desirable, since arrays of jars displaying mystifying anatomical details merely serve to distract the general student of fishes who wishes to devote his attention to the external features of as many species as possible, acquiring, at the same time, such information about each as will enable him to understand their natural relationships, their places in the economy of nature, and the special character and variety of fish-life in all its aspects. This is the chief object of the collection, and of the descriptive labels attached to each specimen case. "This guide is a collection of the labels with some additions, arranged systematically so as to show the groups into which fishes are divided, and is illustrated by figures which are to a large extent taken from photographs of the specimens actually seen in the cases."

The variety and interesting character of the information given in this guide is fairly illustrated by the following samples:—

"The Herring, *Clupea harengus*, 255, is found on both European and American sides of the North Atlantic, and is especially abundant in the North Sea and off Norway. It may thus be regarded as a northern and a cold-water fish. The 'Herring' of the North Pacific is of another species, *Clupea pallasii*. The Herring fisheries of the North Sea take place during the spawning season, which reaches its height in June off Shetland, and in November off Lowestoft. The fishing fleets move southwards as the centre of shoaling shifts from point to point. The spawn of the Herring, unlike that of most food fishes, even the allied Pilchard and Sprat, sinks to the bottom; but the fish are mostly caught near the surface in drift-nets, which may be more than a mile in length for each boat. About 8,000,000 cwt. of Herrings, valued at more than 2,000,000*l.*, are annually landed

in Great Britain. The largest Herrings come from Loch Fyne, in Scotland."

"The Sea-brems and Snappers belong to the family Sparidae; they are coast fishes, widely distributed, and mostly carnivorous. The spinous and soft portions of the dorsal fin are continuous and nearly equal in extent; the lower rays of the pectoral fin are branched; the lower pharyngeal bones are separate. The genera of the family are distinguished the one from the other chiefly by the characters of the teeth."

In view of the recent rapid growth of our knowledge and increasing public concern regarding our food-fishes, it is not surprising that special attention has lately been devoted by the keepers of the gallery to these fishes. They are distinguished from other fishes by the letters B.F.F. (British Food Fish), while the descriptive labels attached to each specimen give the latest information (repeated in this guide) concerning its economic importance and value, the principal fishing grounds, means of capture, food, and habits.

Altogether, it may safely be said that a student who conscientiously examines the fish series in the national collection and who assimilates the information contained in this guide will acquire an accurate, vivid, and comprehensive knowledge of the world of fishes, a possession not only valuable in itself, but the best possible foundation for more special studies.

W. W.

#### THE RESISTANCE AND PROPULSION OF SHIPS.

*Hydraulics.* In two vols. Vol. ii., The Resistance and Propulsion of Ships. By Prof. Dunkerley. Pp. iv+253. (London: Longmans, Green and Co., 1908.) Price 10s. 6*d.* net.

THIS is the second volume of a treatise on hydraulics written by the author. Its origin may be traced to his previous service as professor of applied mechanics in the Royal Naval College at Greenwich, where students of naval architecture and marine engineering taking advanced courses receive instruction in the resistance and propulsion of ships. A good text-book on these subjects, bringing information up to date, has been much needed, and this volume (of about 250 pages) will be welcomed. It brings together in a clear and compact form the modern theories of stream-lines and wave-motion, and summarises experimental investigations on resistance and propulsion, thus sparing readers the labour and trouble incidental to personal research in many and scattered publications containing the original papers of Rankine, William Froude, Scott Russell, Cotterill, R. E. Froude, and other authorities. The mathematical parts of the book are well written, and the descriptive sections are interesting; numerous diagrams assist the explanations. Practical applications of scientific methods to the design of steamships and their propellers find a place, although no attempt is made to intrude on the special province of the naval