

stituted one-third the list. Of the injured, passengers were about eight per cent. only, the employees nearer 80 per cent. A passenger must travel, on the average, over 60,000,000 miles to lose his life; in New England, however, he must travel 125,290,750 miles; in the southwest he may lose it at the end of 34,327,929 miles. The average traveler is hurt after traveling about 4,000,000 miles.

The report is a most important one, and should be carefully studied by all interested in any phase of the subject.

R. H. THURSTON.

A Book of Whales. By F. E. BEDDARD. The Science Series. Published by G. P. Putnam's Sons, New York, and John Murray, London. 40 illustrations. 8vo. Pp. xv + 320.

The seventh publication of this well-known series is from the pen of the English editor, and attempts to gather into a comparatively small compass a general account of the Cetacea, and 'to illustrate by means of the group of whales a very important generalization, the intimate relation between structure and environment.'

In the absence of any other comprehensive work on the subject, the book will receive a hearty welcome. Teachers of anatomy and custodians of museums have long felt the need of some general work on the Cetacea, and there is a growing popular interest in all matters that relate to the life of the ocean. It is a pity, however, that the author did not make a good thing better by publishing a list of the more important papers bearing on his subject. American zoologists have contributed no small amount to the literature of the Cetacea, and Professor Beddard acknowledges the help he has received from the works of True, Cope and Scammon.

The introductory chapters make interesting reading. They deal with the external form and internal structure of whales, but assume that the reader has a general knowledge of the group and of comparative anatomy. The author himself is often not satisfied with the explanations that he gives for the existence of certain structures. It is indeed a hard matter to give plausible reasons for the existence of many devices of

nature, and phylogenetic explanations based on hypothetical ancestors are not as convincing now as they were a few years ago.

The section on the stomach is especially interesting, and one is almost overcome when he reads of the amount of food that a hungry Cetacean can devour. The stomach of a 'bottle-nose' contained ten thousand beaks of squid, and a grampus contained thirteen porpoises and fourteen seals, all perfectly whole and intact. It is thought that large stones in the stomachs of certain whales may perform the same function that gravel performs in the bird's gizzard.

More than half the book deals with the various groups of Cetacea. The treatment is not technical, and the monotony of mere description is varied by anecdotes, historical reviews and what is now known as natural history.

The press work is of a high order, although the inversion of the figure of the right whale is evidence of some carelessness and gives the animal a most grotesque appearance. There are some other indications of lack of care in preparing copy and reading proof, but the general appearance of the book is good, and the text figures and many of the plates are excellent.

H. C. BUMPUS.

GENERAL.

ACCORDING to a plèbécite taken by the London *Academy* the 'Life and Letters of Huxley' is the most interesting book announced for publication this autumn. It is reported that in addition to this volume the letters exchanged between Huxley and Tyndall may be printed in full.

It is stated in the New York *Evening Post* that an interesting manuscript autobiography of the late Sir Richard Owen, the eminent paleontologist, has been discovered among a lot of old documents put up for sale in a London auction room. The existence of this manuscript was unknown and unsuspected, and it was only when the documents came into the hands of those familiar with the handwriting that its authorship was identified. A singular feature of the autobiography is that it is written, not in the first person, but chiefly in the third person, the author referring to himself as 'he' or to

'Richard Owen, a paleontologist of some repute.'

It is stated that the bicentennial monographs to be written by Yale professors, publication of which will begin early next spring, will number not fewer than twenty-five. President Hadley and Professors Morris, Chittenden and Dr. T. T. Munger, of the Yale corporation, will have charge of the publications.

THE catalogue of the birds of New York State, undertaken by Dr. Marcus S. Farr, has made important progress and the first edition will probably be ready for publication within six months.

BOOKS RECEIVED.

The Laws of Gravitation. Memoirs by NEWTON, BOUGUER and CAVENDISH. Edited by A. STANLEY MACKENZIE. New York, Cincinnati and Chicago, The American Book Company. 1900. Pp. vii + 160.

The Effects of a Magnetic Field on Radiation. Memoirs by FARADAY, KERR and ZEEMAN. Edited by E. P. LEWIS. New York, Cincinnati and Chicago, The American Book Company. 1900. Pp. xviii + 102.

A Handbook of Photography in Colors. THOMAS BOLAS, ALEXANDER, A. K. TALLENT and EDGAR SENIOR. New York and Chicago. E. and H. T. Anthony & Co. London, Marion & Co. 1900. Pp. 230.

Studies of Animal Life. WALTER WHITNEY LUCAS. Boston, New York and Chicago. D. C. Heath & Co. 1900. Pp. 106.

Von Richter's Text-book of Inorganic Chemistry. Edited by H. KLINGER, translated by EDGAR F. SMITH. Fifth American Edition, Philadelphia. P. Blakiston's Son & Co. 1900. \$1.75.

SCIENTIFIC JOURNALS AND ARTICLES.

The American Journal of Science for November contains the following articles:

'Elaboration of the Fossil Cycads in the Yale Museum,' by L. F. Ward.

'Chemical Composition of Turquoise,' by S. L. Penfield.

'Quartz Muscovite Rock from Belmont, Nevada; the equivalent of the Russian Beresite,' by J. E. Spurr.

'Volumetric Estimation of Copper as the Oxalate, with Separation from Cadmium, Arsenic, Tin and Zinc,' by C. A. Peters.

'Synopsis of the Collections of Invertebrate Fossils made by the Princeton Expedition to Southern Patagonia,' by A. E. Ortmann.

'Cathode Stream and X-Light,' by W. Rollins.

IN the first report of the Michigan Academy of Science there is an abstract of a paper by Jacob Reighard on 'The Breeding Habits of the Dog-Fish, *Amia calva*,' showing that the nests are made by the male sometime before the spawning season by biting or tearing away aquatic plants, or other material on the bottom, leaving a concavity lined with roots, gravel or water-soaked plants. These nests may be quite near together or a considerable distance apart according to the numbers of fish and character of the bottom, and a single nest may be used by two fish in succession, consequently containing eggs in very different stages of development. The act of spawning occupies several hours, the eggs being deposited at considerable intervals.

The American Naturalist for October has for its leading article a 'Reconsideration of the Evidence for a Common Dinosaur-Avian Stem in the Permian,' concluding that this hypothesis should not be discarded, but very seriously kept in view. W. A. Cannon discusses 'The Gall of the Monterey Pine' and W. S. Nickerson has a 'Note on *Distomum arcanum* (n. sp.) in American Frogs' a species found so far only in frogs from Massachusetts. G. W. and E. G. Peckham have a brief article 'Instinct or Reason' noting a case in which one of the solitary wasps was led to depart from the customary manner of dragging insects into her burrow. The usual instalment of synopses of North American invertebrates is lacking. Editorial Comment, Reviews, etc., complete the number.

The Popular Science Monthly begins its fifty-eighth volume with the November number and has for its frontispiece a portrait of the late James Edward Keeler. The first article is an instalment of Professor Newcomb's 'Chapters on the Stars' and treats of binary and multiple stars, star clusters, nebulae, and the methods by which they are investigated. Under 'Rapid Battleship Building' Waldon Fawcett notes the (comparatively) short time in which some of the very largest vessels have been constructed. The second part is given of 'The Address of