growth, development, physiology of respiration and digestion, his excellent summary of the principal investigations on the determination of age by means of the ootoliths, scales, opercular bones and vertebræ, and lastly, in a few pages relating directly to fish culture.

A summary of the important literature is given under each heading, emphasis being laid quite naturally upon European publications. This feature together with a full bibliography will be especially helpful to American students. The consideration of all recent experimentation and the judicious application of the principles set forth is a most commendable characteristic of the whole work.

G. C. EMBODY

*The Care of Home Aquaria.* By RAYMOND C. OSBURN.

This contribution of Professor Osburn's, published by the New York Zoological Society as a volume of the New York Aquarium Nature Series, on account of its small size and necessarily popular character, is too likely to be overlooked. The investigator of any form of aquatic life will find aquaria of the utmost service, and will do well to refer to this simple presentation of the fundamental principles which govern their care. Under the captions The Meaning of Balance, Temperature, Placing and Cleaning the Aquarium, Animals that Will Live Well Together, Feeding, Marine Aquaria, The Care of Young Fishes, etc., a great deal of broad, practical information will be found arranged. Ample illustrations are attractive rather than instructive. A short appended bibliography will be found useful.

The following paragraphs are quoted more or less at random:

"The fact that animals require oxygen in respiration and that green plants give off oxygen in excess were discovered and published as early as 1778, but lovers of aquatic life were slow to apply this knowledge. In fact, it was not until 1850 that the first properly balanced aquarium was described by Mr. Robert Warrington of Manchester, England."

"To supplement the surface absorption of oxygen, it is necessary to grow plants in the aquarium."

"It is a common but very mistaken notion that an animal should have food at hand at all times to keep it in good condition. It is well known that various forms of domestic animals, as well as the wild species confined in zoological gardens, make the best growth and keep in the most satisfactory condition when supplied only with what food they will clean up at one feeding. This applies with equal force to the inhabitants of the aquarium, but besides *there is a real and grave danger of contaminating the water by supplying more food than will be readily consumed.*"

Emphasis is placed on the great educational value of aquaria. The ordinary balanced aquarium is a little world apart, in which plants, fishes and microorganisms are mutually interdependent, and the art of aquarium-culture is to understand and control this balance.

JOHN TREADWELL NICHOLS

*Animal Flight, A Record of Observation.* By E. H. HANKIN. London, Iliffe and Sons, Ltd. 8vo. Pp. 413, 97 figures.

Considering the many explanations we have had of soaring flight, it is somewhat surprising that we know so little about it and that still further explanations seem necessary. The author of the book under consideration takes care to state in the preface that "the present book will be found to contain the facts in the case, with no explanation at all," a statement that seems at once to claim too much and too little.

Until he has watched and recorded the frigate bird and the albatross a large portion of the facts must be considered as lacking, while running through the record of the author's observations is an evident, though unexpressed, belief that some occult influence is at the bottom of it all.

The observations, for the most part, were made at Agra, India, and the majority of them on the kite, or cheel, *Milvus govinda,* though they include the adjutant and three species of vulture, all experts in soaring.