

is it mentioned in the supplements that have since been published. Cope says:

This species ranges the Austroriparian region east of the Mississippi River, and the Carolinian district of the Eastern, not, however, entering New Jersey.

It appears, however, from the above record that there is at least one colony of corn snakes to be found in the pine barrens of New Jersey.

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#### FUNDULUS AND FRESH WATER

THE notes which have recently appeared in *SCIENCE* in regard to the capacity of salt-water minnows to survive being transferred to fresh water, remind me that the experiment has been, and I suppose still is tried, on what I may call a commercial scale, in south-eastern Massachusetts. "Mummichugs" (*Fundulus* spp.) are the favorite, practically the only, bait for winter pickerel fishing through the ice, and it was a very common practise to catch them in large quantities in salt water in the late fall, and keep them in running fresh water all winter.

When I lived on a farm in Middleboro, Mass., in 1892-96, one of my neighbors always had them for sale, during the pickerel season. He used to catch them in Buzzard's Bay, some fifteen miles away, and kept them in a perforated box, placed in a running brook. I have more than once bought "Mummichugs" from him, and, if my memory does not play me false, have kept them alive for some time in a boxed-in spring on my farm. They must have been in confinement at least a month, but seemed in perfect health and were very vigorous and active. Had there been any serious mortality among them, it certainly would not have paid him to keep them for sale.

As a matter of fact, I believe that live *Fundulus* for bait are to be had regularly in the Boston fish markets every winter, and my impression is that they are kept in tanks fed with ordinary tap water.

I may add that I use a good many "Mum-

michugs" for live bait every summer, and find them remarkably tenacious of life. If covered with wet seaweed, they keep lively for several hours even in hot weather.

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#### SCIENTIFIC BOOKS

*Vergleichende Physiologie.* By AUGUST PÜTTER. Jena, G. Fischer. 1911. Pp. 721; illustrations 174.

The title of this book, "Comparative Physiology," is misleading and the author, who is a professor at Bonn, endeavors to justify it in his introduction. The task of general physiology, he says, is the investigation of the general problems of life; comparative physiology is a method, the object of which is to enable one to comprehend the fundamental physiological similarities of organisms. The book therefore does not rehearse the physiological differences of species or larger groups, but deals with general physiology. "Allgemeine Physiologie" would have been a better title, had it not conflicted with that of his master Verworn's book. The facts are drawn chiefly from invertebrate animals and plants, a helpful list of which, with both scientific and common names, family, order and class, is given at the end. There are ten chapters, most of them long, rambling, and clumsily subdivided. In one case, the same heading is used for two distinct and separate sections. The index is wretchedly incomplete. Notwithstanding these technical defects, the book is a valuable addition to the growing literature of general physiology. It is very modern: most of its references to literature belong to the last decade; but again the great bulk of American physiology is unnoticed.

The morphological substratum of vital processes is passed over very briefly, only a few facts being presented regarding colloids, adsorption compounds, membranes, alveolar structure, and the chemical constituents of living substance. The term "living substance" is an abstraction; several kinds of