

dug out accidentally. Snakes in this part of the country hibernate under haystacks, piles of boards, etc., but usually they seem to pass the winter in gopher and ground squirrel holes in the ground.

Between last Christmas and New Years I caught one "Water" Snake and one Western Garter Snake on a particularly warm day in a valley between the city of Los Angeles and the ocean. Near Dulzura I caught one more "Water" Snake and this winter received two small unidentified snakes from Calexico, where there is an arid tropical climate. Even in the desert around Calexico, snakes are more scarce in winter than they are in summer; though, if the truth must be told, they are not plentiful there at any time.

I have not known of any case of *Clemmys marmorata*—Southern California's only turtle—being found in the winter.

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### COLUMBUS ON THE REMORA.

In the Journals of the first and second voyages of Columbus are found respectively descriptions of a species of Trunk and Sucking-fish observed near Cuba. The account of the latter mentions that the "Reversus," or Remora, was employed by the Indians in a singular manner of fishing which consisted in holding the "hunter-fish" fast by a cord, and allowing it to attach itself to the bodies of other fish or large marine turtles. Humboldt conjectured the "Reversus" to be identical with *Echeneis naucrates*, Poey with the species named by him *E. guaicano*. Pre-Linnean writers on ichthyology continued to apply the term "Reversus" to the species of Sucking-fish described by Columbus, and also included under the same term a spinous variety, or "species," which is easily recognizable from the descriptions and figures as *Diodon histrix*. The use of the Remora as a "hunter-fish" in the manner first related by Colum-

bus seems to have continued until modern times in various quarters of the globe; so at least the writer is informed by Dr. E. W. Gudger, who has collected a number of reports to that effect.

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## CERTAIN FAMILIAR STRUCTURAL ADAPTATIONS IN FISHES.

That habit and structure are correlated will be questioned by no student of evolution. That habit determines structure would probably be less widely conceded. If it does so, specialized structures would be expected to arise among fishes already possessing habits to take advantage of them; we would expect to find the habit served by a fish's peculiar structure, shared also, to some degree, by its relatives which lack the structure; and notable cases where this expectation is realized are evidence that structure is determined by habit.

Some such cases come to mind. The sailfish, remarkable for its great expanse of dorsal fin, is said to come to the surface of the sea with the fin out of water, functioning as a sail in the wind. The sword-fish and mackerel, its allies, are surface fishes, the sword-fish at least often swims with its back-fin out of water.

The prehensile tail of the sea-horse with which it coils around and holds fast to sea-weed is a structure unique among fishes. The pipe-fishes, its nearest allies, live among sea-weed twisting their lithe bodies among and bracing their tails against the strands of weed.

The highly developed breast-fins of the flying fish which enable it to travel considerable distances through the air and elude predaceous fishes of which it is the prey, is one of the most remarkable structural adaptations to be found in the world's ichthyofauna,



Eastman, Charles Rochester. 1915. "Columbus on the Remora." *Copeia* 19, 11–12.

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