'EXTINCT' SNAIL FOUND; HAD BEEN HIDING 300 MILLION YEARS

By FRITZ HAAS
CURATOR OF LOWER INVERTEBRATES

ALTHOUGH the vast majority of existing plants and animals are known, a scientist may still discover species that had escaped our knowledge. On an expedition, in which groups of scientists join, the chances of such discoveries are still greater. Should, however, such an expedition be a marine one, with a specially equipped ship to stay on and to work from, then the hopes for some surprising discoveries are high. Thus it happened in the case we are going to speak of.

A Danish ship, the *Galathea*, was on an oceanographic expedition from 1950 to 1952. Off the west coast of Mexico her nets brought up a few living snails. At first they did not appear to be of special interest. They were limpet-like creatures, about an inch and one-half long and one-half inch high. Their importance to science became apparent only after a Danish zoologist, Dr. Henning Lemche, had studied their soft parts anatomically.

These new snails turned out to be different from any other known living ones. Without going into details, I might say that the soft parts of the novel animals were not attached to their shells by a circular muscle, as in the true limpets, but by pairs of small muscles, eight on each side. When the soft parts were removed from the hard shell, the impression of these muscles could be clearly seen in the interior side, close to the outer margin. This feature is something unheard of in snails living in our time.

FOSSIL RELATIVES

This discrepancy from everything in the anatomy of modern snails, noteworthy as it may be, leads however to even more surprising facts. At a time in the history of the earth, as far back as 300 million years and more, periods called Cambrian, Ordovician, Silurian, and Devonian, there were snails in the ocean that very closely resemble our novelty from modern Mexican waters. Their scientific name is Tryblidiidae. The soft structure of these snails is, of course, unknown, as only their fossil shells have been found. However, as we know, certain inner organs leave traces on the shell, as, for instance, the muscles by which the soft parts are firmly attached to the protecting shell. In these old, old fossil snails the impressions of the attaching muscles are visible, and these muscle scars are arranged in pairs, eight on each side!

Considering the high degree of resemblance of their shells and the identical arrangement of the attaching muscles, there cannot be left any doubt that the old snails, believed to be extinct since Devonian times, and the modern ones from Mexican waters are closely related.

Close relationship of certain modern animals with others that had been living in even older times than the Cambrian is known. In these cases, however, fossil representatives of the groups are known from the first time of their appearance, through all the geological eras, to the living forms of our present quaternary period. In other words, there is no gap between the fossil and the living representatives.

WHERE DID THEY HIDE?

The fossil Tryblidiids, however, disappeared at the end of the Devonian period. That means that in none of the younger fossiliferous rocks have Tryblidiids been found. Suddenly now, after a period of roughly 300 million years, a living Tryblidiid has appeared. How could this happen, after this group had been "officially declared dead" and considered to be extinct? Has nature, perhaps, a cache where such "lost" members of the animal kingdom survive? It really looks as if this were true.

There exists a vast, imperfectly known niche for animal life, and this niche is the deep sea. It was there that the *Galathea* expedition found our living Tryblidiid, at a depth of 3,590 meters (11,775 feet). Let us remember, also, that a few years ago a living representative of a group of fishes believed extinct since the late Cretaceous, some 60 million years ago, the Coelacanthids, was secured from the deep waters between Madagascar and the Seychelle Islands.

This story would be incomplete if we did not discuss the following problem: When and why did the Tryblidiids leave the shallow-water habitats they lived in during Devonian times and go into hiding in the deeps?

The deep sea is believed not to have changed the living conditions of its animal inhabitants since the oldest times. Absolute darkness and an icy temperature must have reigned there from the very beginning. So far as known no portions of the deep-sea bottom have been raised to or above sea-level. All the many rocks containing fossils of marine animals originated as deposits in shallow waters. It was in such that the fossil Tryblidiids were found. Why, then, at the end of the Devonian, did they disappear from the shallow waters only to be rediscovered now in the deep sea? It is not impossible, though not proven, that, besides their shallow-water forms, which we find as fossils, there were already Tryblidiids living in the deep sea at these early days, and these only have survived. The other ones have disappeared without any visible reason. This catastrophe occurred at the end of the Devonian, and that takes care of the question "When." The "Why," however, is not so evident. We do not know if other, perhaps predacious, animals made the Devonian Tryblidiids move into the undisturbed deep sea, or if the already abyssal Devonian Tryblidiids could survive in the undisturbed deep sea while their cousins in the shallow-water zone fell victim to some ecological change they could not resist.

We may confidently expect more such relics of bygone times to turn up from time to time in nature's "Lost and Found Counter," the deep sea.

SATURDAY PROGRAMS FOR CHILDREN

The autumn series of free entertainments for children (motion pictures—except for the first program, which will be Indian dances) will open on October 5 and continue on each Saturday morning until November 30. The shows, which begin at 10:30 A.M., are presented in the James Simpson Theatre under the auspices of the James Nelson and Anna Louise Raymond Foundation. No tickets are needed. Children are invited to come alone, accompanied by adults, or in groups from schools and other centers.

Following is the schedule for the season:

October 5—Indian Dances and Stories
The Laubins in person

October 12—Columbus Day Special (2 movies)
Story of Christopher Columbus
Gold Rush Boy
Also a cartoon

October 19—Alice in Wonderland
(Walt Disney's version)

October 26—The Phantom Horse
Family life on a modern horse-farm in Japan

November 2—An Indian Program (3 movies)
Pioneer Boy in the Midwest, The Oregon Trail, and Indian Family of Long Ago
Also a cartoon

November 9—From Penguins to Ostriches
Also a cartoon

November 16—White Mane
A story from southern France of the fisher-boy Folco and his wild horse White Mane

November 23—Adventures with Camera and Spear
Sasha Siemel, known as the Tiger Man, will tell his story

November 30—Winter Hobbies
Also a cartoon