

THE ECONOMIC VALUE OF BATRACHIANS AND REPTILES.*

BY CLYDE L. PATCH.

The Batrachians in Canada comprise the Toads, the Frogs and the Salamanders; the Reptiles, the Turtles, the Lizards and the Snakes. These two groups of animals, which include all cold-blooded vertebrates other than fishes, differ in many important respects.

The Batrachians lay their eggs in the water, where they hatch; and the young, which differ greatly from the adults in form, breathe by means of gills very much as do fishes. Most species undergo a metamorphosis during which the gills disappear and the tadpole assumes the form and structure of its parents and leaves the water to breathe air and spend a greater or lesser portion of its life on land. The skin of batrachians is not provided with scales, but may be either smooth or warty and often contain glands that secrete a sticky fluid which, although somewhat acrid, is harmless.

The Reptiles never lay their eggs in the water—even the marine turtles come on land for this purpose. Their young do not breathe by means of gills, but are hatched or born (some species give birth to young) with the form and structure of the adult. The skin, except of some turtles, is covered with scales.

The first vertebrate animals that could live upon land were the primitive, frog-like batrachians, which first ventured out of the water millions of years ago, in the middle of the Palæozoic or second great period of the earth's history. Though it is believed that the reptiles, birds and mammals are derived from these slow-crawling, cold-blooded batrachians, the fossil remains found in the rocks of the various geologic ages do not form a complete record of the successive stages of the descent.

Many million years ago, in the middle of the Mesozoic Era, which was the third great period of

the earth's history, the reptiles were the rulers of the earth as the mammals are to-day. Huge monsters, more than one hundred feet in length and most grotesquely fashioned, roamed over the land, while equally weird reptiles inhabited the seas, and in the air were creatures whose wings measured twenty feet from tip to tip. There were also smaller reptiles, including Crocodiles and Turtles not so very different from their modern descendants.

Birds are in many respects very similar to reptiles in structure and the two are thought to be closely related in their origin.

It was not until long after the huge reptilian monsters had become extinct that the first ape-like human beings appeared, therefore the statements of fiction writers who portray men of the Stone Age battling with dinosaurs are to be considered merely as fiction and not as facts. Also, the theory that our fear of reptiles is inherited from our arboreal ancestors seems rather far fetched. Personal observation has led the writer to believe that this dread is acquired in childhood when our

Photograph by Clyde L. Patch.

An ally of the gardener, the American Toad.



elders tell us untrue things about the batrachians and reptiles, and teach us to avoid them. With the exception of Rattlesnakes, which so far as records show are confined to the central southern plains and to a few localities in southern Ontario, the batrachians and reptiles of Canada are quite harmless and are as beautiful and interesting as birds, flowers and insects—probably more interesting, as there are yet many unrecorded facts regarding their life histories.

During past ages these creatures have mistakenly been credited with many mysterious powers. Shakespeare calls the toad "ugly and venomous" and informs us that it "wears a precious jewel in his head." The salamander according to fable retained life when cast into fire and was able to extinguish the fire by the chili of its body. Pliny tells us that he made the experiment once, but the creature was

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