

MALACOLOGY

Collecting Shells Scientific

Sea shells are fascinating to discover and exhibit, and many of them can be found inland. Some look like a worm, some like a bleeding tooth.

By **MARTHA G. MORROW**

► COLLECTING SHELLS is a favorite pastime for those who vacation at the ocean. But others who never see the waves also collect shells. Thousands enjoy this scientific hobby.

Most shell enthusiasts like to collect their own on trips to the ocean-side. Some travel thousands of miles by train or car, steamer or Chinese junk, to secure unusual varieties.

Others are satisfied to be arm-chair collectors, enjoying gifts brought back by friends and acquaintances, or buying unusual and lovely shells rounded-up by South Sea natives and African tribesmen.

Those who live on the seashore or often visit the ocean have a wealth of shells at their beck and call. But others who live inland also can become successful amateur conchologists.

Freshwater mussels are found all over the country, wherever there are lakes, rivers and creeks. Snails live everywhere, in fields, in ponds and streams, up trees and bushes, even in the desert. Slugs, despised by gardeners, are merely snails whose ancestors have learned to do without their shells.

Buried or fossil shells are often found where the bank of a stream or lake is being washed away, or where an artificial excavation is being made. Such shells have usually lost their colors, but their interesting shapes remain. Some near the surface undoubtedly belonged to mollusks that lived quite recently; others, more deeply buried, probably housed tiny animals thousands and even millions of years ago.

Shell Sizes Vary

Shells range in size from ones no larger than the head of a pin to Giant Clam shells weighing 500 pounds or more. The Giant African Snail shell grows five to six inches long, while the "Punctum," which lives in leaf mold, is but a fraction of an inch. Some conch shells are large enough to be used as vases, others are so dwarf you can hold several dozen in the palm of your hand.

Often tinted rainbow-colors, shell patterns are frequently beautifully symmetrical. Some shells like the cowry have a high natural luster while others are lined with iridescent mother-of-pearl.

If you plan to collect shells, be sure to take a container along on your hunt for those that please you. Even apparently strong shells are not as stone-strong as they look, and tumbling them about in a loose mass will soon break them. Fortunately, the simplest boxes will do.

Cigar boxes or even shoe boxes are good for the heavier varieties like conch and river mussels. Match boxes will do for the small shells. Pill boxes or small perfume bottles containing a bit of absorbent cotton make good nests for the tiniest, most delicate ones. If you have a number of any one variety, divide a shallow box into compartments by fitting cardboard strips together.

Some of the shells you collect may still be occupied. Clams and freshwater mussels, tightly locked in their houses, should be dropped in boiling water. When the shell opens, pull the animal out. Your snail shell, of course, won't open, so drop it in boiling water for a few minutes, then fish the animal out with a straightened hair pin or paper clip bent at one end to form a hook.

Not all animals belong in the shells they occupy. Hermit crabs, for instance, appropriate vacant shells. To get rid of one, just grab the animal by its claws and pull it out. Or if it is too far within the shell, a little heat properly placed may bring it far enough out into the opening for you to get hold of it.

Don't wait until you have figured out the names of all your shells before you arrange and classify them. Just put the ones of the same shape together. Shape is more important than either color or size in classifying shells. State on your label exactly where it was found and the date—the shell can be identified later.

Shell Kit Available

Although some shell enthusiasts travel all over the world to collect rare shells, others enjoy those obtained by well-traveled friends or professional collectors. Six interesting shells have been collected for you by SCIENCE SERVICE. The shells come not just from the Florida Keys, but from far-away East Africa, the Philippine and Bahama Islands.

One shell looks so much like a worm it has been dubbed the "worm shell." Another, because of its brilliant markings, is appropriately named the "bleeding tooth."

The pecten shell was once the house of an animal we eat as scallop. The animal that created the tellina shell—it took two to house the mollusk—could burrow deep in the sand. The cowry, aristocrat among shells, is noted for its high natural polish.

The little strombus shell once housed an animal that could jump and rotate its shell



UNUSUAL SHELLS—The "worm shell" that once housed a sea-faring mollusk points to a tiny cowry, noted for its high natural polish. The strombus (upper left), the delicate tellina (lower left), the "bleeding tooth" (lower right) and pecten, easily spotted by its two "ears", are the other shells in this photograph.



SNAIL SHELLS—Carefully separated and labeled, these snail shells are from Dr. Carlos de la Torre's Cuban collection. They were collected inland.

from side to side. It is a miniature edition of the giant conch shell that seems to give forth the ocean's roar when you hold it up to your ear. All members of this family have a peep-hole notch in the lower outer lip to allow the animal to look around without sticking its stalk-like eyes out too far.

This shell collection is available for the nominal cost of 50 cents each. Just write SCIENCE SERVICE, 1719 N St., N. W., and ask for the Sea Shell kit. These shells demonstrate the two main classes of mollusks. About three of every four shells are univalves, with a single spiral shell. The snails and their relatives build univalve shells. The bivalve mollusk has two pieces, joined by a hinge, and is typified by clams, mussels and oysters.

The most valuable shells are not necessarily those with the most beautiful colors, the largest or the most delicate. As with postage stamps, it is rareness that gives value to a shell. A considerable number of small and inconspicuous shells have been found only once by any man, amateur or professional.

Some Shells Are Rare

Best known of the rare shells is a large and beautiful "Glory of the Sea" Cone, found in the Philippine area. Only 18 to 22 have been spotted to date. Another scientific beachcomber's treasure, of which our leading museums can boast of no more than 60, is the Golden Cowry, rare relative of the small, shiny shells used by South Sea and African natives as ornaments or money.

Amateur collectors are continually expanding man's knowledge of shells. Many of the discoveries by amateurs are made by keen-eyed enthusiasts who know shells so

well they are quick to notice unusual ones. Some are picked up by alert individuals, looking for something new to them, who at the time do not realize that these shells may also be new to science.

Several hundred American shell collectors are banded together in a national organization known as the American Malacological Union, designed to include everyone interested in shells or the animals that grow in the shells. Mrs. Harold R. Robertson, 136 Buffum Street, Buffalo 10, N. Y., is its secretary; Dr. J. P. E. Morrison of the Smithsonian Institution, Washington, D. C., is its present president.

Provide for Growth

Since a shell is made of hard, stony stuff—it is essentially the same as limestone or marble—obviously it can't stretch as the animal grows, the way your skin does. So mollusks have to use other devices.

Two-shelled mollusks like oysters and clams, tellinas and pectens, lay down a new layer of shell material inside the original small shell and projecting a little beyond its edges. Thus the old shell layer is on the outside, the new one inside; the first-formed part of the shell is thickest, the later parts near the edge are thinnest.

The coiled shells of the many and varied members of the snail family do the same thing in a somewhat different way. Here the animal moves forward as it grows, enlarging the mouth of its shell. Thus one layer is in front of the other instead of on top of it.

The oldest part of the snail's shell—what was once the baby snail's tiny house—is found in the middle of the coil of the flat type of snail shell, or at the tip of the shell in the pointed, spire-shaped type.

Tenants Interesting Too

The animals that build the shells are themselves interesting creatures. The two-shelled mollusk, which must have water to live, has only a rudimentary head without the two eyes we see on snails. This animal has two tubes, called siphons: water is constantly drawn into one siphon and discharged through the other. This is how the animal gets its food and oxygen. The mollusk's body is tightly attached to both shells, which it can open and close at will.

The snail building a univalve shell has a long, worm-like body spirally coiled. The head and large, strong muscle called the "foot" are at one end, sheathed in a fleshy mantle that hangs down around them like a skirt. The foot by which it creeps and digs is often seen protruding from the shell. On this is a tough, horn-like "door" with which the mollusk shuts itself into its house when danger threatens.

Science News Letter, August 11, 1951

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