

Seashore Oddities



By VANCE HOYT

THE seashore, ancient cradle of all life, is a unique world unto itself, replete with many curious and fascinating creatures. They are the underwater relics of Old Mother Nature's first brood, still unweaned and rocked by the ceaseless tides of the mighty seas.

Though lowly in the eyes of man, who still carries the salt of the ocean in his own blood, they are none the less ages-wise in the art of long survival. The microscopic protozoa, shell-forming animals, and the rock-forming diatoms — one-celled plants that collectively form the drifting mass of organisms known as plankton — served as the first sea food for the vast hordes of living things to follow. Plankton is still the staple food of the sea, for amoeba and for whale.

Other minute unicellular water plants of the world's first food supply are the scum-forming algae which cause the seas to turn red in patches by day and phosphorescent at night, fish to shine with a blue-green light, and the wakes of boats to glimmer luminously, like the tails of comets. Even the shifting wet sand beneath

one's feet may sparkle with points of light for a yard or more. Some of the tiny plant forms, such as the dinoflagellates of the *Alex* group, secrete a deadly nerve toxin which causes what is commonly known as mussel poisoning, from eating shellfish certain times of the year along the shores of California and in some places on the East Coast.

Have you ever seen on the beach what you thought was a mouse? It was perhaps an Aphrodite, a segmented worm which constructs the calcareous tubes found abundantly on the rocks, seaweed and pier pilings. As it scurries about at surprising speed, it looks like a mouse with a covering of long felt-like fibers projecting through strong bristles. Its coat is beautifully iridescent, giving the beastie a weird and startling appearance.

The palolo, another sea-worm, lives in the coral reefs of the South Seas. It lays its eggs on the surface of the water, where they can incubate in the sun. In order to do this, it disjoints its tail, which wiggles upward and bursts, scattering the eggs on the top of the water.

THE female of the species *Bonellia viridis* carries around inside her not one, but several tiny comma-shaped males. With a body about the size of a walnut and a proboscis nearly a yard long, this creature looks like anything but a worm.

The "lasso worm" however, is the most curious of the lot. When coiled up on the bottom of the sea it looks like a hunk of liver. But as some small fish ventures near in hope of a tasty tidbit, the worm darts out like a cast lariat and coils itself around the dupe, literally crushing it to death.

Where there are kelp beds near the shore, sand hoppers are plentiful. These little gammarids burrow in the strands and spin tubes within which they lie in wait for prey. One species sews up the margin of kelp fronds to make tubular nests. The males of another have the curious habit of carrying the females around on their backs at the time the eggs are deposited.

Although the sponge is an animal and one of the simplest forms of life, it possesses that rare thing, eternal growth. It never grows old and may in time attain a huge size, large enough to hold more than 200 gallons of water.

There are more than 6,000 species of sponges, and their ability to survive is amazing. Cut into tiny bits and squeezed through a silk bag under water, they still are able to unite their cells and live. Purple and green sponges have been pulverized

under water and mixed into a sort of mash. In a few days, however, the mixture will separate into two masses, with the respective cells collecting again into two distinct sponges, one purple and one green.

Members of the *Coelenterata* group, such as the hydroids, jellyfish, and sea anemones, are some of the oldest and most interesting forms of life. The hydroids reproduce by budding and look exactly like plants. Always stationary, they capture their prey as it comes to them.

IF THE quarry should prove large enough to offer resistance, the hydroid will set in action a barrage of poison darts from the nettle cells of its tentacles. Each of these cells contains a capsule which bears at one end a long, spear-headed thread. Like cast harpoons, these threads are shot forth, piercing the skin of the victim and paralyzing it into inactivity. Then the tentacles reach out, seize the hapless one, and draw it into the mouth part.

Some jellyfish grow to monstrous size, measuring seven feet in diameter and 120 feet in length. They all possess tentacles up to two feet in length and powerful enough to penetrate the human skin. Most surf bathers know well the smarting, red splotch a jellyfish can inflict!

Some jellyfish, such as the purple-striped species, are very beautiful. At night it may appear as a great luminous ball of light floating upon

the surface of the water. It is shaped like an umbrella, under which small fish dart for protection in times of danger. This is strange, as jellyfish are carnivorous. Fishermen call them "cat's eyes," for in the water they appear like the glaring optics of a feline. Jellyfish consist of about 99 per cent water and live no longer than one year.

Sea anemones are also called "animal-flowers" because of their plant-like appearance; but no plant has ever been known to pick up a stone and throw it at an enemy. When disturbed, some sea anemones "shoot" stones by forcing them out through their mouths by the constriction of their bodies.

A close relative of the sea anemone is the sea pansy. It can always be found in shallow water or at low tide by digging under the little horse-shaped marks that are seen in the sand. It is luminescent, and if a colony is disturbed at night, a wave of bluish light will be seen to run over the upper surface of the colony, starting from the point that is stimulated. All these creatures are found abundantly in the tide-pools along rocky shores and strands alike. They are hardy and can be kept easily in a salt water aquarium.

SEA URCHINS, sometimes known as sea eggs and sea porcupines because of their appearance, are globular or disc-shaped animals covered with hundreds of spines or thorny arms. Their skeletons are not truly

calcareous but composed of separate plates joined together and called *tests*, not shells. They live in cavities in the hard rocks, which they excavate with their tiny teeth as they turn around and around. In this way they fit the cavities to the exact size of their bodies.

Of the many seashore oddities, the starfish is one of the most highly specialized animals in body structure and function. It has no brain but a triple nervous system which consists of three nerve rings around the mouth, from which nerve fibers control respectively the functions of locomotion, sight, and smell. Each of these nerve systems works independently of the other.

Nor does the starfish possess a rear or fore end, as its shell consists of five or more arm-like rays, radiating out from a central disc which opens into a loose, baggy stomach that extends to the tips of the hollow rays. These are equipped with a double row of little tubes that end in suckers that serve for feet and for securing food; and any one of the five "arms" and "legs" can function separately as a head or tail, according to the direction in which the individual wishes to move.

This is possible because the tip of each ray is supplied with a little red eye and a sense organ of smell. Thus the starfish sees and smells its prey, which consists of young clams, oysters and mussels, and directs its course accordingly. But if some object should impede its progress, one

of the arms will immediately rise, and if nothing blocks its way, its eye will become the guiding head and the animal will move off in the direction the arm is pointing.

But the most singular thing about the starfish is its stomach. As a gastronomic freak, it possesses the ability to turn this organ inside out through its mouth onto its prey, which is held securely by its many tube-like feet, and thereby digest its food outside its body when such food is too large to be taken in through the mouth.

THE mollusks range in size from tiny shellfish to the giant clam *Tridacna* of the South Pacific, which is large enough to trap a man and weighs as much as 400 pounds. The clam, however, is no less spectacular in the dispersal of its young. Mother clams literally shoot their young at passing fish, to which they fasten themselves by tiny hooks. Hence they are carted about for eleven weeks or so, living off the food they get from the body of their hosts. If they should miss the fish they sink to sea-bottom and perish.

Because the geoduck, or the "quenux" of the Puget Sound Indians, looks like a picked duck with a neck several feet long but minus head and legs, and has the alertness of a land-animal and the habits of a fish, it has been called the "terrestrial bird." But the geoduck is neither fish nor fowl. It is just a big clam that desires nothing better

than to be left alone to its quiet and strange mode of living.

The geoduck establishes itself in the soft sand, three or four feet beneath the surface of the shallow beach, where, except at low tide, it is always covered with water. The neck remains above the surface of the silt an inch or two to draw in the sea water containing its food. During low tide the tip of the siphon can be seen, and occasionally a jet of water is expelled.

Unlike the "horse clam," its near-rival in size, the geoduck cannot, because of its large size, withdraw completely within its shell, depending entirely upon its depth in the sand for protection. Nevertheless, it has become so adept in the art of eluding the creatures that prey upon it, that the least vibration of the sand some distance away will cause it to retract its siphon.

Like grunion hunting, geoduck hunting is an exciting seashore sport on the Pacific Coast in some localities. The creamy flesh of the big clam when cooked tastes surprisingly like duck.

EVEN the lowly oyster knows a thing or two. The creature can even be taught. In France they have schools for oysters. Newly dredged oysters that are to be transported long distances are trained to keep their shells closed longer than they would otherwise, by exposing them to the air at lengthened intervals. Likewise, Irish fishermen have been

able to use oysters as living mouse-traps in their shacks. They are scattered around, and when a mouse sticks his nose or foot into a half-opened shell, the oyster closes on it.

None of the seashore animal curiosities, however, is more unique in its habits and interesting to watch than the crustaceans. The little shrimp, *Artemia*, has been known to live six months without air; while another species can live only in the heavy salt concentration of the Dead Sea and the Salt Lake of Utah. One type of snail literally "flies" through the ocean depths by flapping its wing-like structures. The crayfish, *Cambarus diogenes*, builds a chimney above the ground so that it may safely view the landscape from the top of its lookout tower and still be able to drop back into its hole and the water it contains. And like the starfish, the lobsters and crabs can disjoin any member of their body when injured or caught in some object, and grow a new one.

There are many lobsters and crabs of various colors and sizes, from the small "daddy long legs" of the ocean to the giant spider crab off the coast of Japan, which measures more than eleven feet between the tips of its outstretched claws. The lobsters have five pairs of legs, with the first developed into powerful pincers, and possess compound eyes and ear organs on the back side of the first joint of their long feelers. The crabs have ten true legs, with abdomen, or tail, curled under their bodies. Lob-

sters have been known to bury food by covering it with sand and then sit on the mound to protect their cache from all comers.

The fiddler crab has one claw larger than the other and uses it as a fighting weapon. Two males will approach each other, and extending their big claws, will clasp their tips like men shaking hands. Then each will try to break off his opponent's claw-arm by a sudden twist. Nor do they cease with their contest until the weapon claw of one is ripped from its body with a tearing sound.

ALTHOUGH not a true crab, the hermit crab is often seen crawling about tide pools, half-hidden in some old gastropod shell which he has taken over for a home. If disturbed, he will block the opening of the shell with his claws. But as he grows in size he will be forced to seek a larger abode.

The lovely sea anemone, which is able to move only at the rate of an inch a day, sometimes attaches itself as a hitch-hiker to the shell in which the crab lives. The association is agreeable to the crab, as the stinging tentacles of the anemone offer protection from his natural enemies.

Neither is the horseshoe crab, found along the Atlantic Coast, a true crab. It is a predecessor of the scorpions and spiders, adapted to marine life; a "living fossil" that dates back some 130 million years. In fact, the species is so old the female has long since lost all faith in her spouse.

When she comes out on the beach in late spring to deposit her 10,000 packets of eggs, she carries the male around on her back to be sure he'll be on hand to fecundate them. This crab-like creature is found so abundantly in certain localities that it is used for fertilizer and poultry food.

Although a wolf-fish recently attacked a child on a California beach, the sting ray, or "stingaree" is the only denizen of the strands to be feared by the bather. It lies half buried in the sand along shore, ready and anxious to drive the barbed spine of its tail into anything that comes near it. This spike is used for securing food and also as a weapon. Spearing a passing fish, this flounder-like demon floats along until it has eaten its luckless prey alive. If a man should be snagged on the heel while bathing, putrid fish flesh on the barb is likely to infect the wound. Some germicide, such as a two per cent solution of iodine, should be applied immediately and the foot soaked in hot epsom salt water to relieve the pain and inflammation.

Now and then a huge hunk of flesh of a tough, fibrous nature is washed ashore to arouse speculation among laymen and scientists alike as to its identity. It may have come from the *Castrostromus baida*, a monster that is all portable mouth, like a steam shovel; or *Eurypharynx Pelacanoides*, who is also mostly mouth, and has a string of luminous lights along its side like portholes. If

the mass has hair on it, it is probably from the oatfish, which has a flaming mane like a horse. This true sea serpent grows to twenty feet in length, looks like a huge snake or eel, and has a high, flaming-red dorsal fin that rears up from its head.

Or, most likely, the flesh is part of a dead whale or a giant squid. This monster mollusk has a distinct head bearing ten muscular arms or tentacles over forty feet in length, each equipped with suction cups the size of dinner plates with a retractable hook on each. Like the giant octopus, its cold and staring eyes, over fifteen inches in diameter, are frightful things to behold.

Certainly no other form of ocean life has such an efficient and modern means of locomotion as the giant squid, which may weigh many tons; for the squid is the world's first jet submarine. For power, it uses the ocean water which is drawn into its torpedo-shaped mantle by rhythmical constrictions and then expelled through the funnel, or jet, beneath its neck, causing it to move in the opposite direction. It can take off in a sudden burst of speed and direct its course by simply bending the funnel to one side. If pursued, it lays down an inky screen in the water, à la octopus.

Truth to tell, the seashore is a fascinating world of many strange and ancient forms of life that can be more interesting to observe than bathing beauties, suntan enthusiasts, or even beach athletes.

BOOKS IN REVIEW

BY FRANK MEYER

WHEN a great historian, who has descended into the arena of current political controversy, finds it as difficult to recognize the spiritual treasure borne by his own civilization as do so many publicists and journalists of our era, it is cause for deep concern. Arnold Toynbee is a great historian. In the six volumes of his *A Study of History* there are literally hundreds of brilliant insights into the relations of men and societies in the past. His over-all view of history is a magnificent conception, however imperfect it may be — and as any work so ambitious must of necessity be. But in the last few years he has become a sort of minor prophet, pontificating regularly on the issues of the day. His latest book, *The World and the West* (Oxford, \$2.00) is of a piece with these journalisms, even though it is put forward as an introductory presentation of a section in the forthcoming Volume VIII of *A Study of History*.

Because of the tone in which it is written and because of the circumstances of its publication, however, *The World and the West* must be judged primarily as a contribution to current political discussion. These

chapters were first delivered as a series of lectures over the BBC; the series has been repeated this spring over the American radio; and parts have been published in this country as magazine articles. As a matter of fact, it is just as well that Mr. Toynbee's historical reputation is not judged by *The World and the West*. Previously it has been cause for regret that his contemporary journalism was not tempered by his historical understanding. If this book is in any sense a sample of the concluding portion of his major work, it would now seem that his political prepossessions have begun to adulterate his history.

This is, of course, no ordinary political pamphlet. It is not written as though to make a point. But all Mr. Toynbee's authority, all his historian's reputation for objectivity, his panoramic theory of great civilizations in growth and mutual influence, are most disarmingly and subtly brought to bear to create in the reader's mind an overwhelming argument for neutralism. Not overtly. There are no stated conclusions as to what the policy of the West should be, no arguments for world government such as Mr.