



triggerfish



surgeon fish



coral

parrot fish



crown-of-thorns starfish



pearl fish



clam



sea cucumber



anemone





AZURE VASE SPONGE



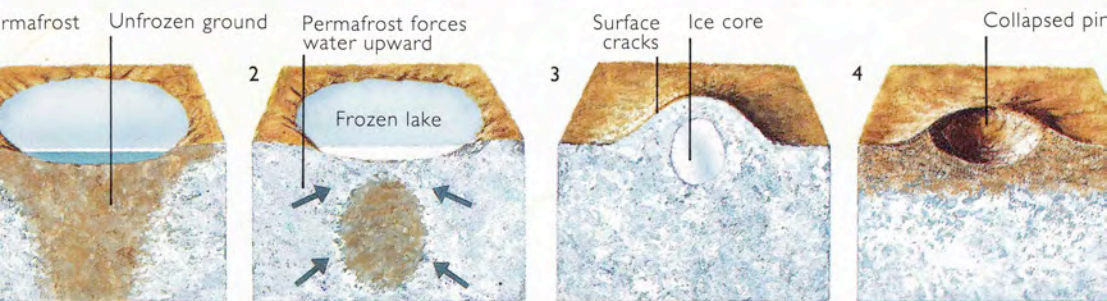
fig. 1.



fig. 2.



Sea Squirts (Tunicata)





A cluster of the serpulid worm *Spirobranchus giganteus* growing on a sponge, probably *Neofibularia nolitangere*. There is also a brittle star in their midst. Photo by P. Colin.

The fire worm, *Hermodice carunculata*, is well named. The fluffy-looking tufts along the sides are extremely sharp calcium spicules able to cause a great deal of pain to a person who unknowingly picks up the worm. Photo by P. Colin.



enough to get some of them. The best specimens come in with *Porites* coral, as the animals imbed their tubes in the coral (and that saves us the problem of worrying about a substrate!). The species is aptly named, as the "feathers" which protrude to extract plankton are in spirals of decreasing size, giving a decided Christmas tree appearance. This species hails from the Caribbean, and it should be placed in a position of lower lighting so that it is not encrusted by algae.

Bristleworms (*Hermodice carunculata*)

Although this species has a certain beauty, it is the bane of the reef tank hobbyists. Actually, there are several species of bristleworms. There are two major problems with them. They are painful to handle with bare hands, as the fluffy-looking tufts along the sides are, in fact, extremely painful needle-sharp calcium spicules. Also, they are disgustingly fecund, and they can easily reproduce in the reef tank. Most hobbyists remove them whenever they see them, using either gloved hands or tongs for handling them. Although hated by most reef tankers, the many species of bristleworms are very interesting, and some hobbyists actually keep them on purpose! However, they give them a tank of their own. They feed on detritus, so their numbers should stay small in a properly cared for reef



Viewed from the side, it is no wonder that these animals are called Christmas tree worms. This is *Spirobranchus* sp. (possibly *grandis*). Photo by Cathy Church.

The calcareous tube of this serpulid worm can be seen through the feathery head appendages. Photo by Courtney Platt.



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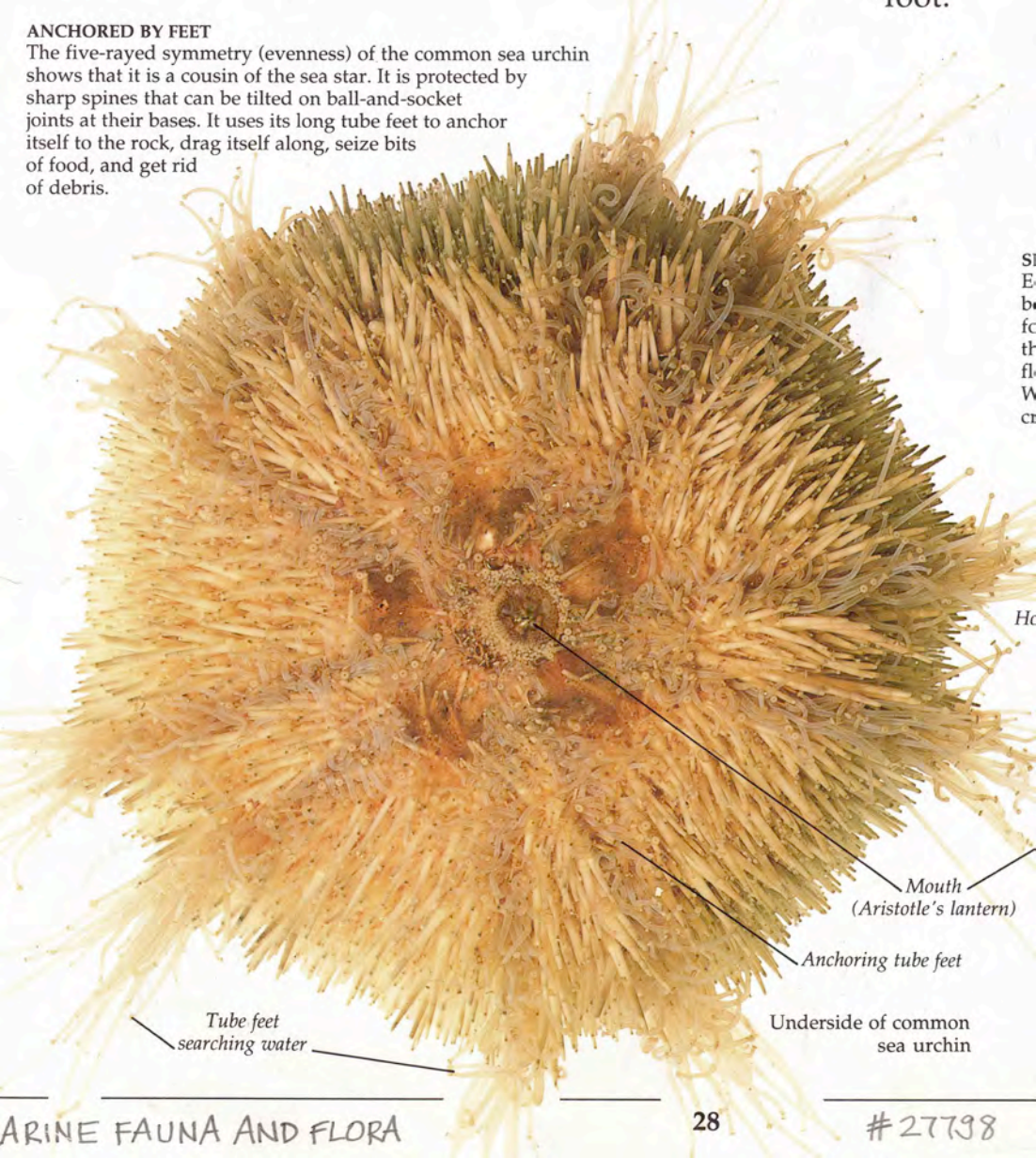
Tube worms

Marine Fauna & Flora

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ANCHORED BY FEET

The five-rayed symmetry (evenness) of the common sea urchin shows that it is a cousin of the sea star. It is protected by sharp spines that can be tilted on ball-and-socket joints at their bases. It uses its long tube feet to anchor itself to the rock, drag itself along, seize bits of food, and get rid of debris.



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Mouth
(Aristotle's lantern)

Anchoring tube feet

Underside of common
sea urchin

Tube feet
searching water

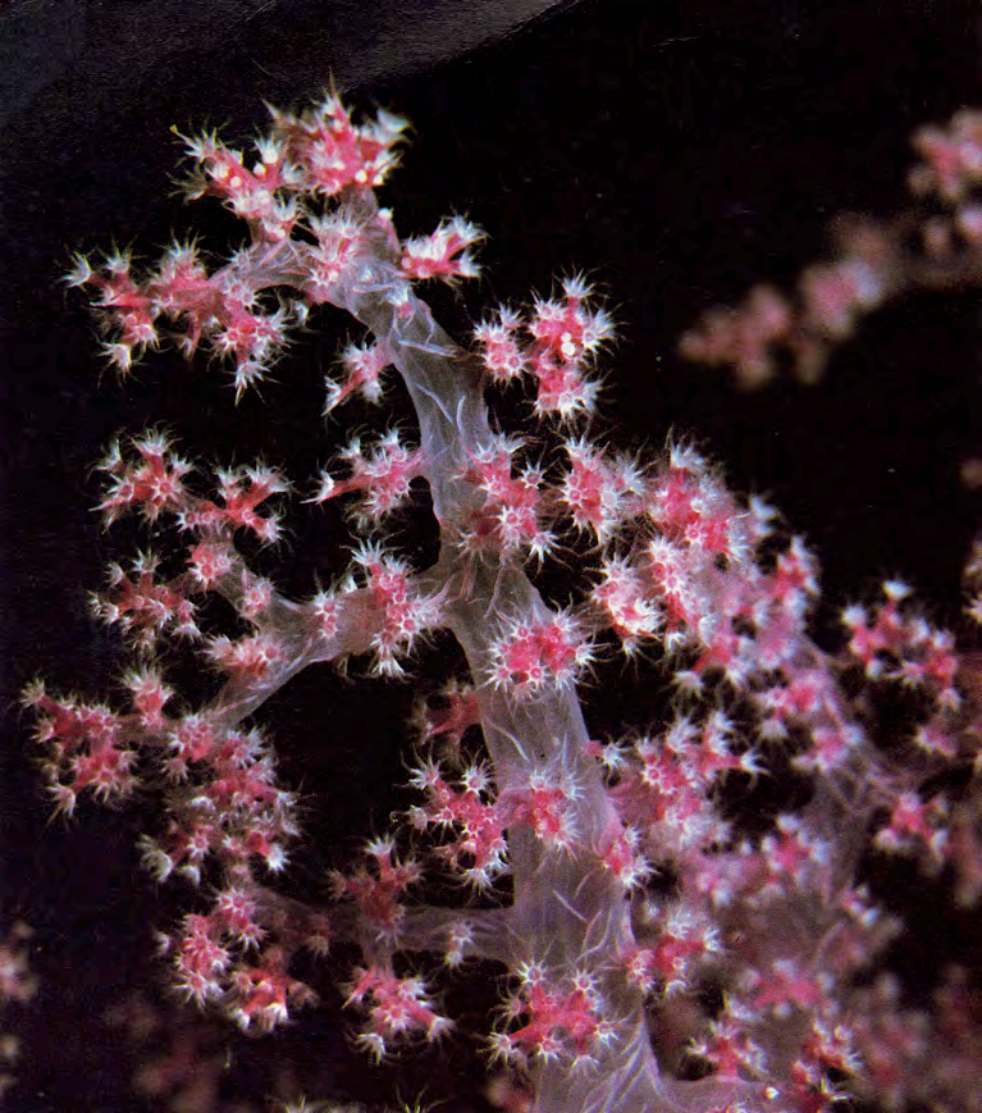




Gills

SEA SLUG

Many sea slugs are meat eaters. This slug lives on the soft coral known as dead-man's fingers. Some sea slugs are able to eat the stinging tentacles of anemones and keep the stings for their own protection. Sea slug eggs hatch into swimming young, which then settle and turn into adults.







Giant tube worms—some 10 to 12 feet tall—thrive beside an undersea “chimney” at a vent in the Galápagos Rift. Hot, mineral-rich geysers feed colonies of these organisms, whose bodies contain bacteria that metabolize nutrients from hydrogen sulfide in the seawater and make food for their hosts.





Nearly anyone who has snorkeled along a tropical beach is familiar with the big greenish or black animals aptly called sea cucumbers that crawl around in full view on white sand bottoms. But another group of these fascinating animals — which are related to feather stars and starfishes — are more reclusive and are seen mainly at night. Some simply are a bit more conspicuous at night, rearing up rather like short, stubby snakes in the sand to perform what has been described as a mating dance (left). Others, more usually found on the reef, are quite slender and can reach lengths of up to a yard (right, draped over sponges). These can be seen wandering about to feed from sunset to sunrise on the reef itself.

#23,005 (C) 1993
SEA CUCUMBER

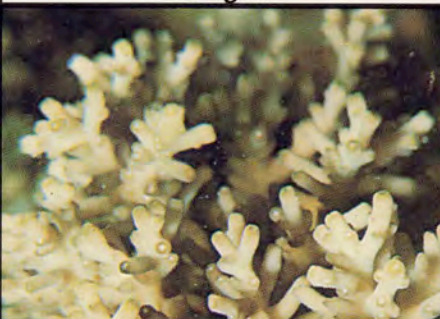
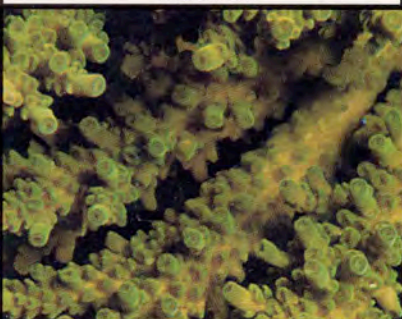
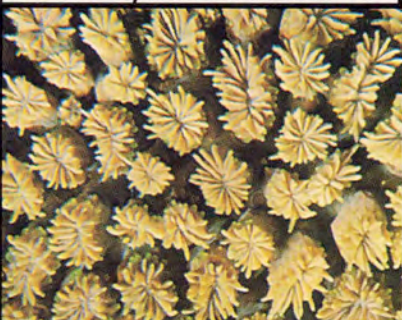
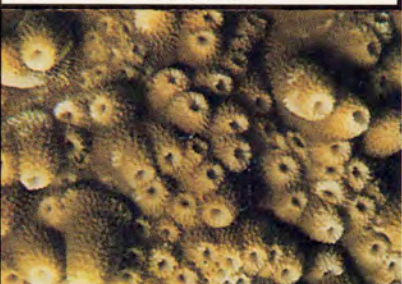
MARINE FAUNA + FLORA

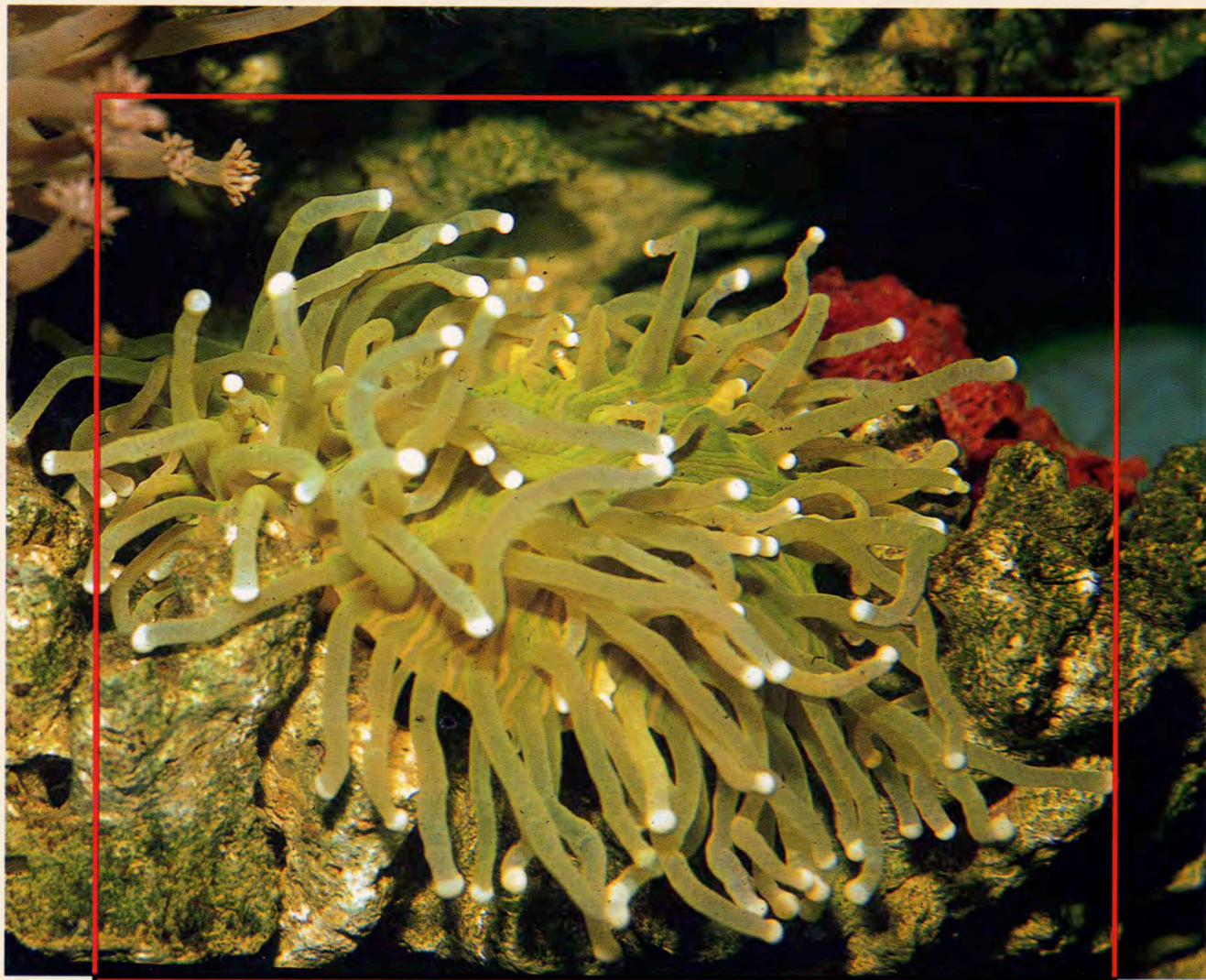


Above: One of the many wonders of underwater Mauritius: a feathery white fan worm.



Corallimorphian (not a coral).

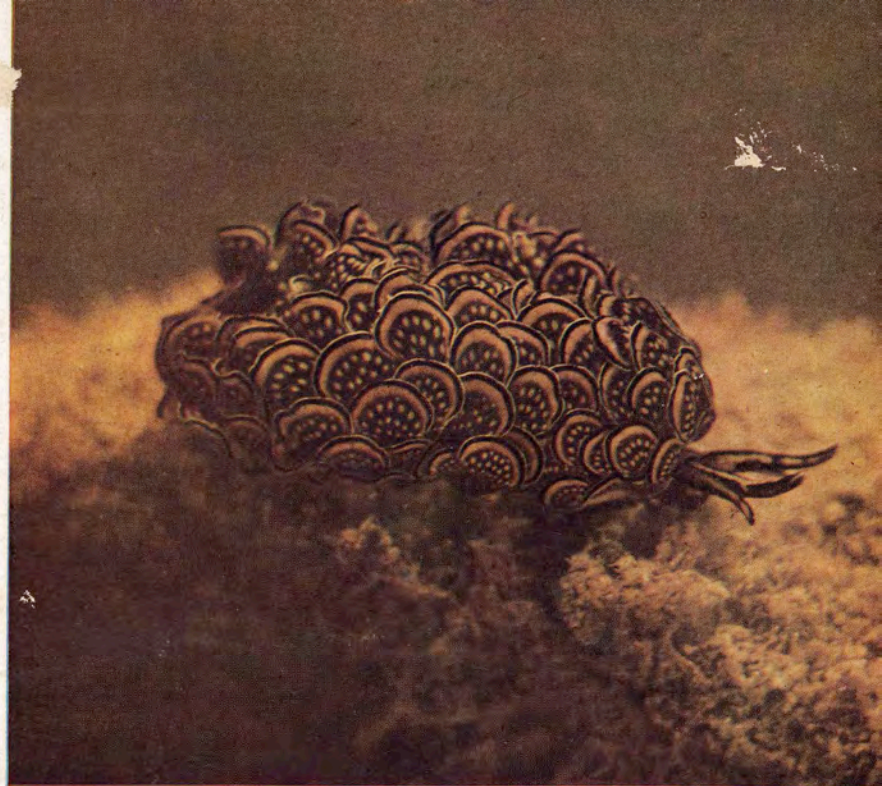
*Acropora.**Millepora.**Platygyra.**Fungia.**Pavona.**Millepora.**Acropora or Acrhelia.**Acropora or Acrhelia.**Goniopora.**Euphyllia ancora.**Galaxea.**Favia.**Sabellid worms.**Acropora.*



The tentacles of the free-living *Heliofungia actiniformis* are always extended during the day. They are usually gray, blue or green in color with a light-colored tip. Photo by Dr. H. R. Axelrod.



GLUED TOGETHER at about six feet deep, the eggs of a sea-snail, adhering by the secretion of its parent, undulate gracefully in the movement of the tide. For such invertebrates the coral gardens are a colourful but dangerous place.



OARED SEA-SNAILS (*phyllobranchus*) are a rarity even in New Caledonia. They live between six and nine feet deep and row themselves along with the petal-shaped organs which cover their bodies. They love the rocks, and live on minute sea-organisms.

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TUNNELLING SEA-SNAILS (the spirobranchia) dig long and deep galleries in the coral for their homes. Their breathing organs, spread on the surface of the sea, act also as their radar to warn them of danger—at which moment they retreat into their tunnel, closing a valve which can be seen in the background.

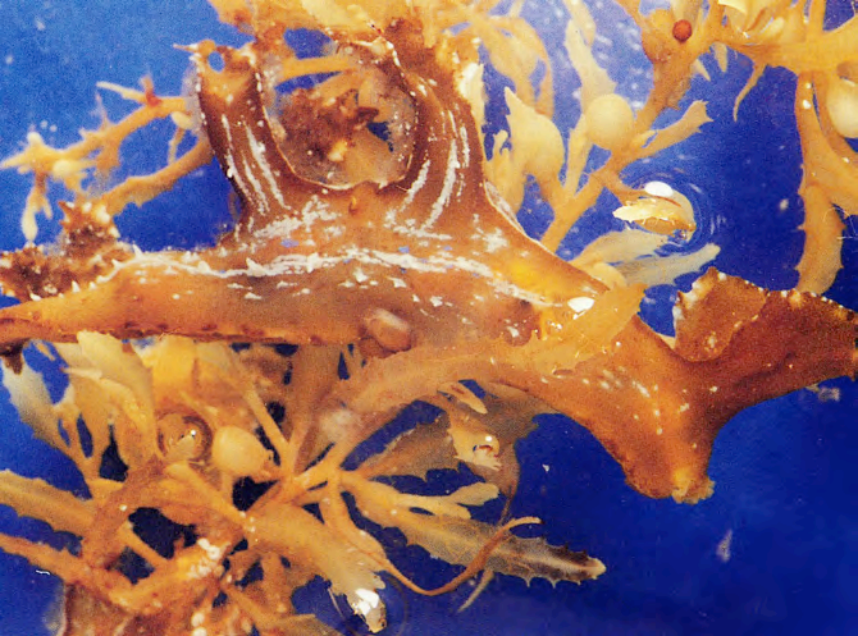


STICKY SEA-WORM, or spirographia, is a near relative to the spirobranchia. They exist in flexible, parchment-like tubes and adhere to sand, rocks or coral, building themselves there a shelter. The branched tentacles here are extended from the protective tube—it is through these that it breathes and finds food from the microscopic matter in the sea.

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Marine fauna + flora





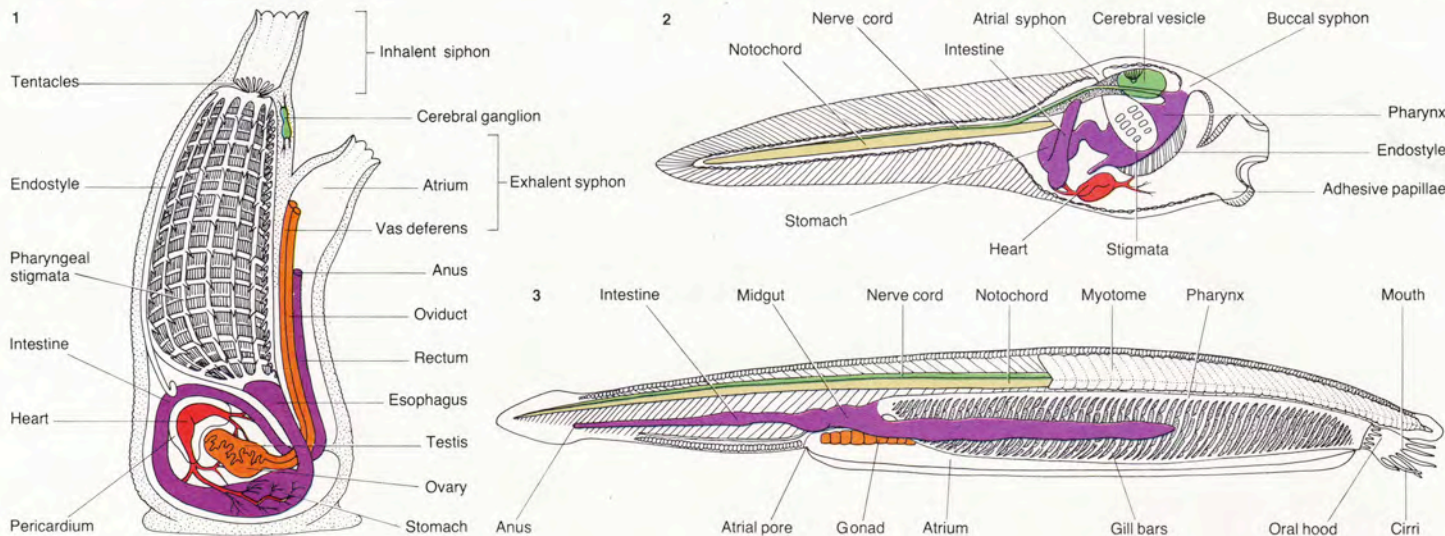




encrusting the hulls of ships and other marine structures. They are also of considerable evolutionary and zoological interest.

The other urochordates, thaliaceans (salps and others), and the larva-like larvaceans, have characters fundamental to the group but have evolved along pelagic and not bottom-dwelling lines. Members of one thaliacean order, the Pyrosomidae, are commonly found in warmer waters and emit phosphorescent light in response to tactile stimulation. These pelagic animals (eg *Pyrosoma* species) live in colonies, but some other types exist as solitary individuals. They have complex life-histories. *Oikopleura* is a larvacean genus of small animals like the tadpoles of sea squirts. Rhythmic movements of the tail draw water through the openings of the gelatinous "house" in which they live and which is secreted by the body.

The lancelets are a minor group of chordates containing only two genera and under 20 species. These small, apparently fish-like animals are known as lancelets because of their elongated blade-like form. They show primitive chordate conditions. The notochord, which in sea squirt larvae merely supports the tail, extends into the head (hence the term cephalochordata). There is no cranium as in the craniates or

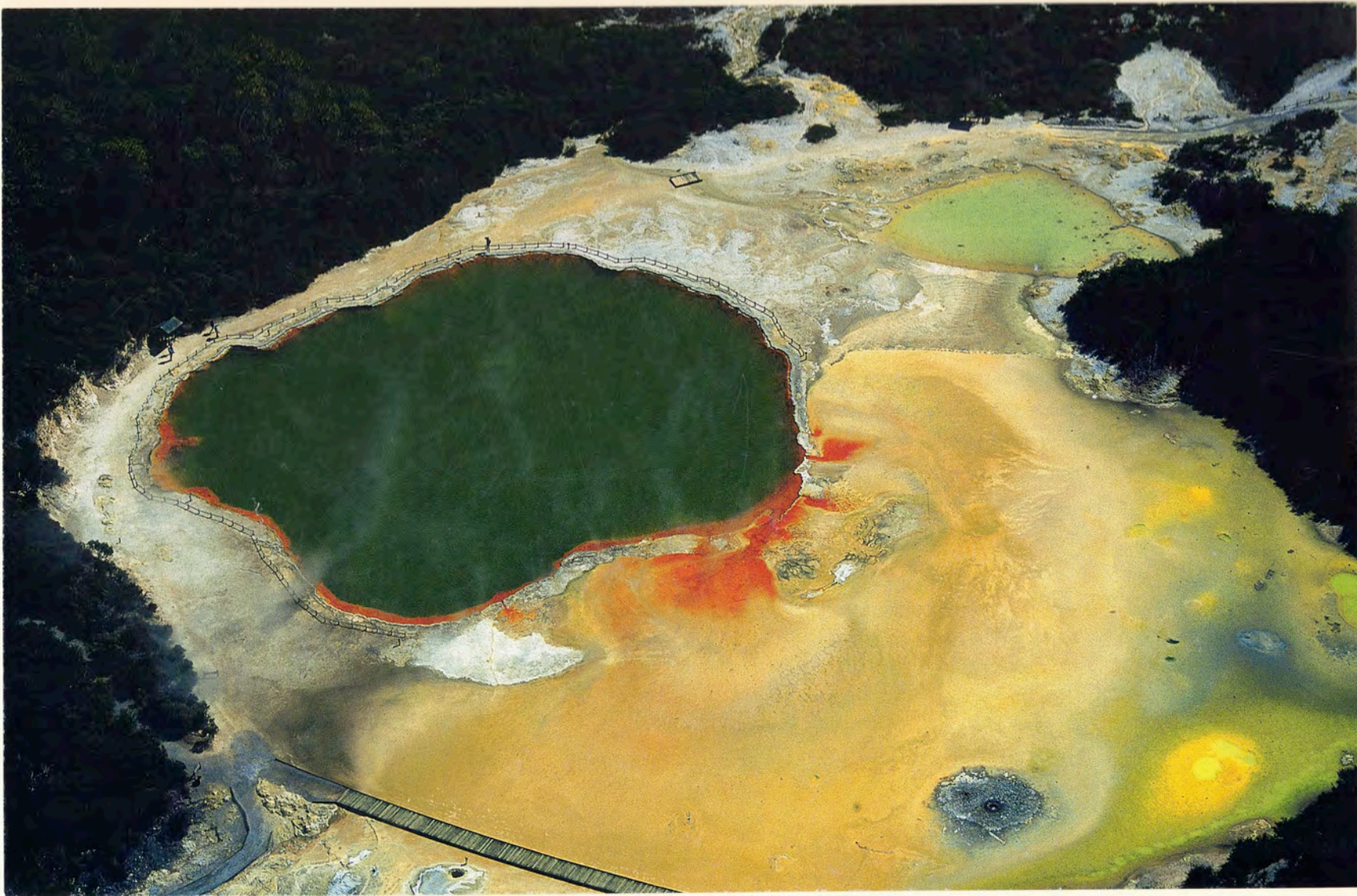


marine fauna + flora

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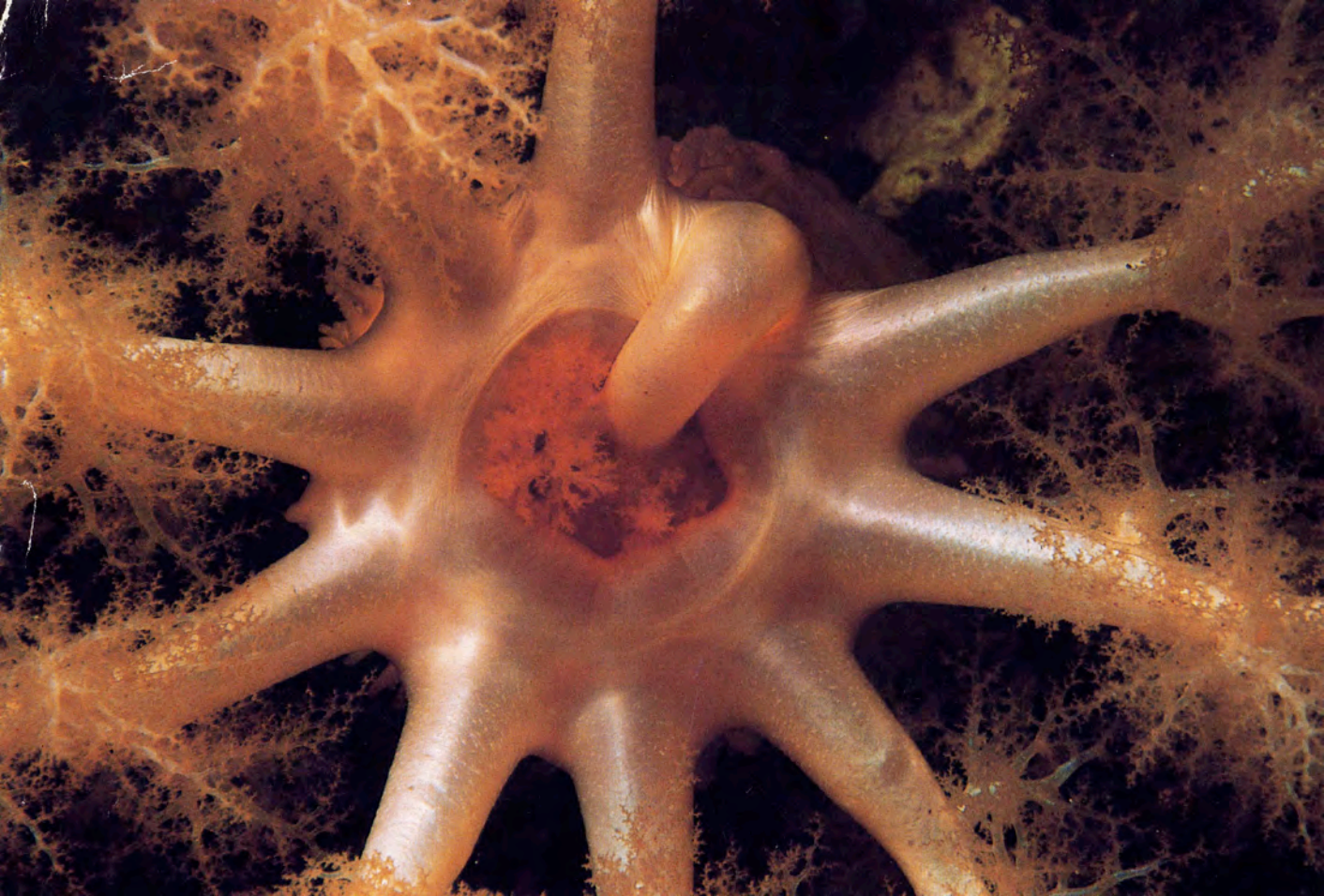




29,421 (©2003)

Geo Thermal Area
North Island New Zealand

Geology

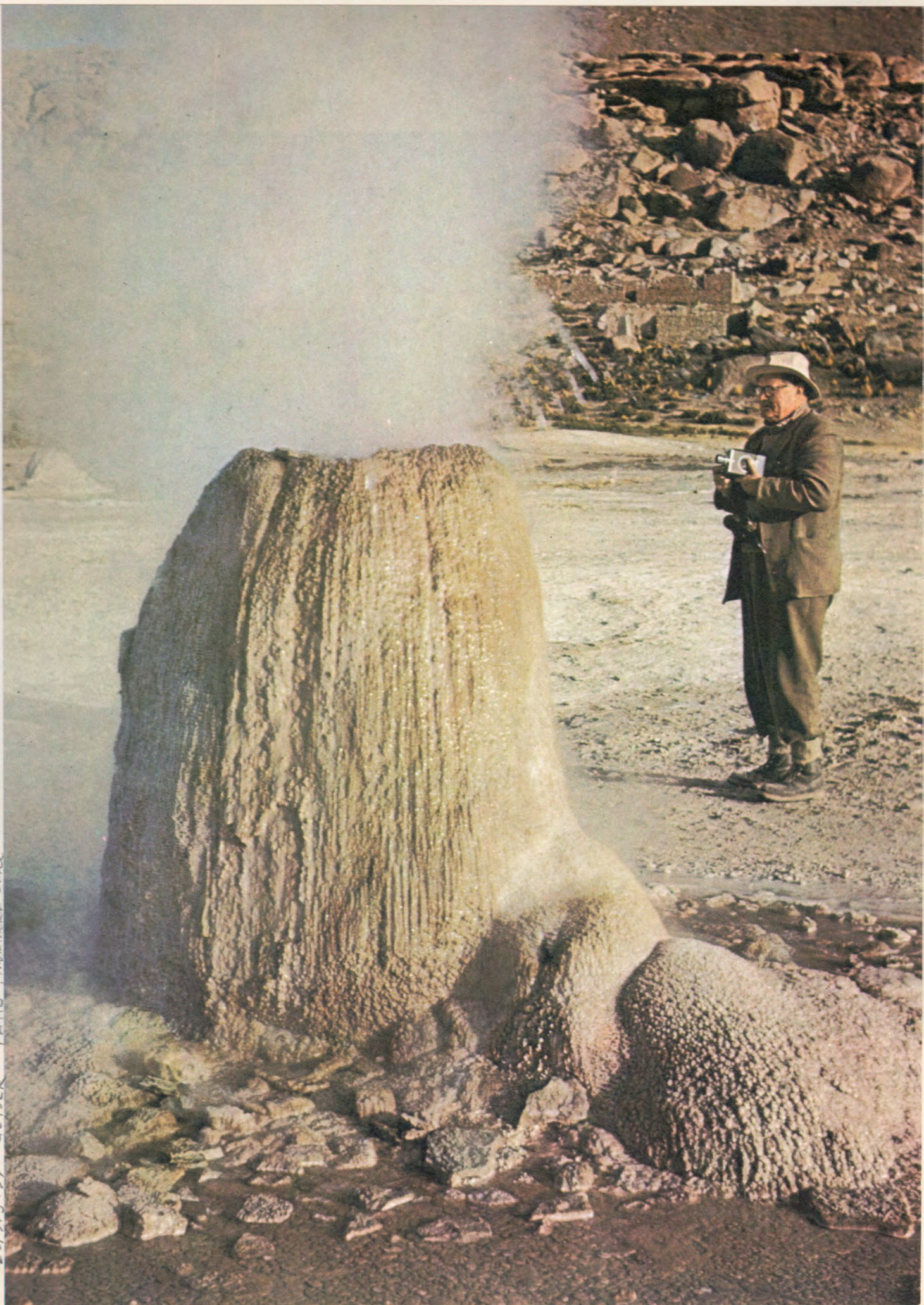




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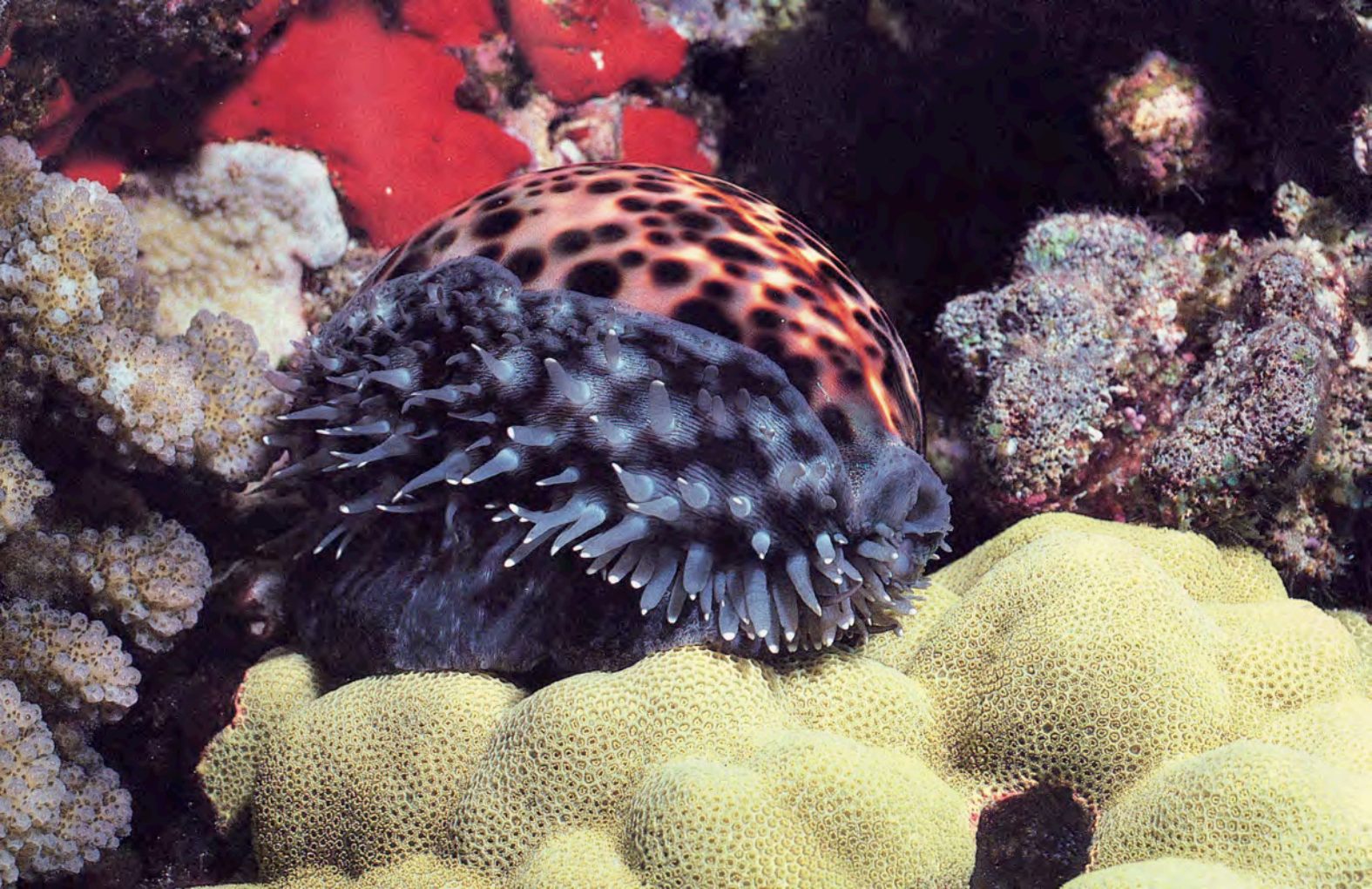


The sea cucumber has evolved two remarkable ways to distract predators. Sometimes the bottom-dwelling creature releases the sticky white stringlike substance shown here. As the mass entangles the attacker, the sea cucumber moves to a safer location. In other cases, the sea cucumber eviscerates its digestive and respiratory tracts and gonads. The predator gets an easy meal, and the sea cucumber crawls away and regenerates these organs.



Nudibranchs are marine relatives of the far less colorful terrestrial slug. Dozens of species inhabit the Great Barrier Reef. Researchers describe them as elusive, if not rare, and continue to discover new species every year.















MARINE FAUNA & FLORA

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ANEMONE with ANEMONE Shrimp
Photo by JEFFERY L. ROTMAN

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