in the full lifetime cycle of a cotton shirt and a shirt containing polyester fibers. While it takes considerably less energy to produce cotton lint than polyester fiber (613 kWh per 100 lbs. versus 2,158 kWh for the synthetic), and 25 percent less energy to make a cotton shirt than one containing synthetics, the advantage is lost in the wearing and maintenance (washing/drying/ironing) cycles. The total energy requirements for the manufacture and energy-intensive maintenance of a cotton shirt is 115.5 kWh, and for the more durable 65/35 polyester/cotton blend shirt it is 72.4 kWh.

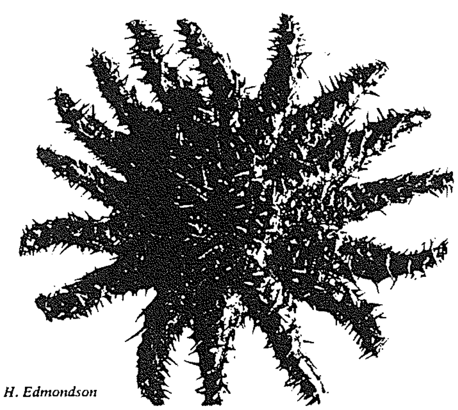
When land-use factors are considered, the advantages of synthetics become even more pronounced. Van Winkle and his research associates estimate that if cotton were to replace man-made fibers in U.S. textile production, it would require a 35.6 percent increase in total cotton acreage. "With the increasing world population requiring increased food supplies," the authors contend, "it would be well-nigh impossible to divert this much prime cropland from food to cotton production."

Debunking the Starfish Myth

"The Crown-of-thorns Crisis in Australia: A Retrospective Analysis" by Richard A. Kenchington, in *Environmental Conservation* (Spring 1978), Elsevier Sequoia, S.A., P.O. Box 851, 1001 Lausanne 1, Switzerland.

Inadequate research, poor sampling techniques, and the eagerness of the news media for a sensational story combined to create the great crown-of-thorns starfish "menace" of the late 1960s and early '70s.

So says Australian marine biologist Kenchington, who suggests that the advent of scuba-diving technology led to greatly increased exploration of Australia's 2000-kilometer-long Great Barrier Reef and the dis-



Acanthaster planci, *measuring up to two and a half feet across, envelops living coral by extruding its stomach through its mouth.*

Photograph by C. H. Edmondson

covery in 1962 that large areas of the reef were infested with coral-eating crown-of-thorns starfish *(Acanthaster planci)*.

Although little was known about either reef ecology or the starfish, some scientific authorities hypothesized that the starfish infestation was something new, abnormal, and probably caused by human tampering with the environment. Subsequent surveys, which were inadequately financed and hampered by the extent and remoteness of the rich coral cover, did little to discourage speculation by the news media and environmentalists that the Great Barrier Reef would eventually collapse, exposing the entire Queensland coast to the erosive force of the Pacific Ocean.

In the absence of effective means of dealing with the menace (hand collecting and chemical treatment proved either impractical or dangerous to other marine life), the Australian government opted for further study and delay. By 1970 it was apparent that predictions of impending doom were unwarranted; even where the starfish's ravages had been great, the coral soon regenerated itself.

Further studies showed that the *A. planci* population explosion was a relatively short-lived phenomenom resulting from temporary changes in ocean salinity and temperature that had nothing to do with the hand of man. Analysis of reef sediments more than 3,000 years old demonstrated the recurring nature of starfish infestations, Kenchington writes, and showed that they were "natural but infrequent episodes in the long-term ecological balance of the Great Barrier Reef."

The Porpoise Success Story

"The Tuna/Porpoise Problem: Behavioral Aspects" by Karen Pryor and Kenneth S. Norris, in *Oceanus* (Spring 1978), 1172 Commonwealth Ave., Boston, Mass. 02134.

For many years, fishermen have capitalized on the tendency of yellowfin tuna to swim beneath schools of "spotted" and "spinner" porpoises (genus *Stenella*) in the tropical eastern Pacific. The *Stenella* schools usually travel and feed within 20 meters of the ocean surface and are easily spotted by fishing boats.

By using speedboats to herd the porpoises into a milling group, the tag-along tuna school may be efficiently encircled by huge nets. In the process, however, the air-breathing porpoises may easily become entangled in the nets and suffocate. All this has provoked widespread public concern.

However, since the early 1960s, according to Pryor, a marine biologist, and Norris, professor of natural history at the University of California, Santa Cruz, fishermen have used a variety of new equipment and techniques to release the encircled porpoises. To reduce entanglement, today's nets are required by federal law to have fine, 1¼-inch mesh at points where the *Stenella* are allowed to escape. Other gear improvements have minimized "canopies" or bulges in the net in