THE CLAM GARDENS OF MANUS

By J.L. Maclean

On two small islands off the north coast of Manus Island, Ponam and Pityilu, the villagers have an interesting method of storing their favourite seafood, the giant clam.

When a man has gathered from the reefs more clams than he needs for immediate use as food, the extra clams are put back into the sea, and kept in a convenient place until they are needed.

Often the area set aside for the clams is surrounded by a banis, a fence consisting of a ring of stones; this area then becomes an underwater garden.

Like plants, clams cannot move, and require little attention after they are put into the garden. Clams of all sizes are gathered for storage and they are often left for months and sometimes for more than a year.

They grow very slowly, so storing them is only a matter of convenience. People do not collect them when small, preferring to let them grow bigger before eating them.

Most living things grow rapidly at first but slow down as they get older. Clams grow in the same way, and giant clams 60 cm long grow only about 5 cm a year.

Pityilu islanders beside a banis. This banis is used for rubbish - but a similar design is used underwater for clam gardens.

Some scientists believe that giant clams may live for several hundred years. They never stop growing completely but their rate of growth is very slow in later life.

The method of reproduction of clams is the same as for other shellfish. Sperms and eggs are produced and are passed into the surrounding water. It is just a matter of chance whether an egg will come into contact with a sperm and be fertilized.

There are six species of clams in the world. All of them are found in Papua New Guinea waters. The largest species grows to 135 cm in length, and a pair of shells of this species would weigh over 230 kg.

The Manus clam gardens gardens are one of the simplest forms of aquaculture known. Aquaculture is the farming of animals that live in water. These islanders then are in some respects farmers of the sea.

A fascinating aspect of the clam gardens is the fact that the clams themselves are also farmers! Giant clams have two methods of obtaining food.

They can extract tiny organisms, called plankton, suspended in the sea-water, which they strain through an opening on one side of the clam and after the plankton has been filtered by the gills, the water passes out through the hole in the middle of the exposed colourful flesh.

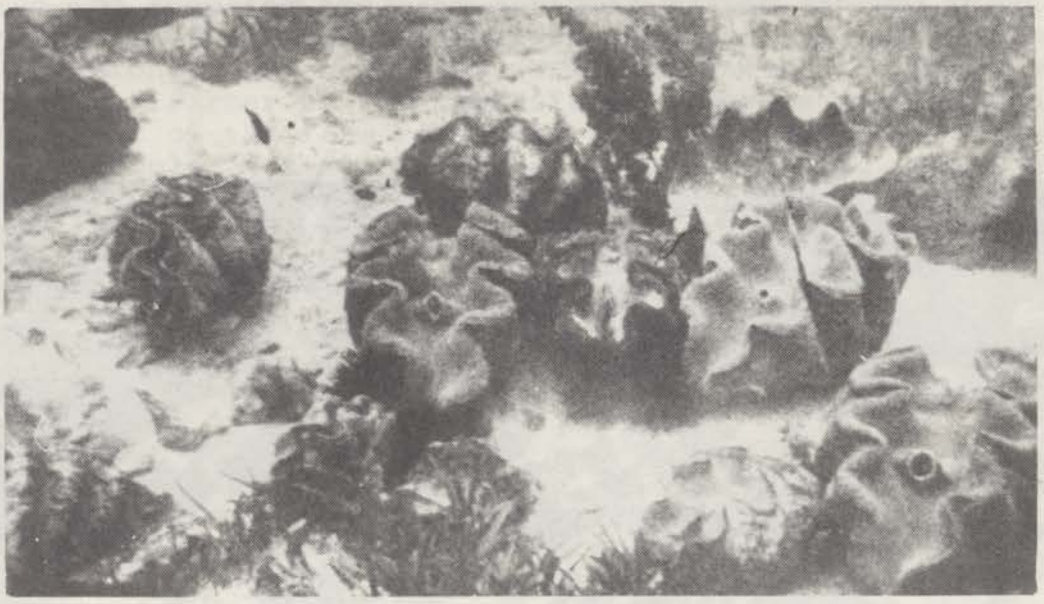
A diver inspects a heap of empty shells next to his clam garden at Ponam Island

That beautifully coloured flesh (or mantle) displayed by an open clam contains a garden consisting of millions of tiny one-celled plants or algae, invisible to the naked eye. These organisms are literally farmed by the clam to produce extra food to meet its enormous appetite.

The clam's mantle provides a favourable "bed" in which these microscopic plants use sunlight to manufacture their food, just as land plants do. Special cells in the clam then digest the algae.

The farming of clams has been a traditional practice for many generations, and the present-day islanders do not know when their ancestors started doing it. It is a convenient way of storing food and will no doubt continue for many more generations.

Recently, however, the collecting of clams has assumed a new function. One islander wryly declared that he was gathering clams and putting them into his clam garden to prevent Taiwanese fishermen from taking them.



An underwater photograph of a clam garden among weeds on the inner side of Ponam Island. Note the hole in the centre of the clam mantle through which water passes out after food organisms have been extracted from it.

Taiwanese fishing boats have been known to make illegal voyages into Papua New Guinea waters especially to gather clam meat, which is highly prized by the Taiwanese people.

Giant clams are also farmed in other outer New Guinea islands and also in the Gilbert Islands in the South Pacific.

In Papua New Guinea the chief use of clams is for food. One giant clam provides a good meal for a big family. The meat (muscle) of a clam 71 cm long weighs about 7 kg.

In some other Pacific Islands, such as the Carolines, various tools are made from the shells. They have been used as money in the Solomon Islands.

Occasionally "pearls" are found inside clams. The largest one discovered weighed 6 kg. However, clam pearls have no lustre and are of little value.

Many stories have been told of divers who have drowned when they were caught between the shells of a giant clam. Actually very few deaths have occurred, because clams close their shells slowly, so that there is time to remove an arm or foot from between them. Nevertheless if a diver were intent on some other object, he might not notice the closing clam until too late.

If you know of anyone being trapped by a giant clam the staff at the Department of Primary Industry Fisheries Research Station, Kanudi, near Port Moresby, would be interested to hear about it.

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A crowded clam garden at Pityilu Island containing a variety of clam species.