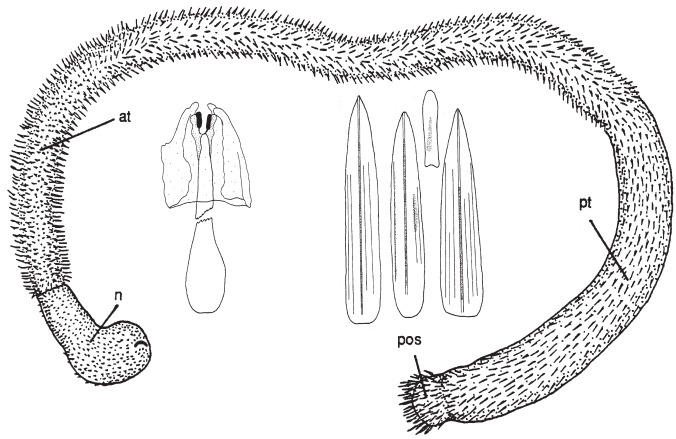


**Figure 16.3 Chaetodermomorpha (Caudofoveata).**
*Chaetoderma elegans* Scheltema, 1995 from off the coast of southern California between 50 and 1,800 m depth. Length of specimen 32 mm, with neck (n), anterior trunk containing stomach (at), posterior trunk with digestive gland and gonad (pt), and posterium with mantle cavity (pos). The radula, shown at left center, is 0.2 mm long; it comprises a cone and two denticles shown in black, typical for the family Chaetodermidae. Body sclerites are from various parts of the body and are up to 0.23 mm long. [From Scheltema (1998b)].

1996). Small aplacophorans 3 mm or less may be collected interstitially, living in the spaces between sand grains or broken shell hash (Morse 1979, Salvini-Plawen 1985b).

## 16.4 COLLECTION TECHNIQUES

As can well be imagined, most aplacophorans are now being taken by dredges, trawls, grabs, and cores from oceanographic research vessels (see Chapter 3, Remote Bottom Sampling). Collections are also made from submarines (Research Submersible Vessels, or RSVs), and readers may have seen the wonderful submarine dives on hydrothermal vent communities on their televisions. One can also dredge in relatively shallow waters from small ships, such as fishing vessels, if they are equipped to put over the side and retrieve a dredge or grab.

A quantity of mud is brought up, which then is sieved through 0.5 or 1.0 mm screens, preferably while still aboard the vessel using gentle flotation in seawater. If you have captured aplacophorans, they can be sorted from the rest of the organisms back on land. Techniques for collecting interstitial aplacophorans may be found in Morse and Scheltema (1988).

Diving is another way that aplacophorans have been collected recently. Divers have discovered several species on a variety of surfaces: on rocks, amongst turtle grass rhizomes, upon alcyonarian soft corals, and interstitially.

Aplacophorans from shallow depths can be kept alive and brought back in seawater; however, deep-water forms come from water of only 1-2ºC and should be preserved as soon as possible. The rise in temperature, rather than decreased pressure, will kill the organisms quickly. Buffered formalin is a good general preservative, but preservation over time should be in buffered alcohol in order to preserve the sclerites. Borax is a good buffering agent; 1 teaspoon (10 g) to a pint (500 $cm^3$) of liquid gives a saturated solution.

## 16.5 EXAMINATION

Should you find an aplacophoran, you will do well to examine it under a dissecting microscope or, if unavailable, through a hand lens. Look first for a tell-tale ventral line that if present indicates you have a neomenioid (Figure 16.1). A cuticular oral shield, discrete differences in width along the body, or a tail-like posterior end indicates a chaetoderm (Figures 16.3 and 16.4). The beautiful sclerites, of all manner of shapes and sizes according to species (Figures 16.1-16.4), can be removed by needle into a drop of glycerin in a depression slide or, alternatively, onto a flat slide, dried, and permanently mounted with a commercially available histological mounting medium.

Good slide preparations of the sclerites are of great importance for identification, just as are the shells of other mollusks. In order to see the radula, you will need to cut off the anterior end and remove the tissue in household bleach (5% sodium hypochlo-