Phylum Porifera

The phylum Porifera (see Fig. 4.16) consists of sponges, stromatoporoids, and possibly archaeocyathids. Members of this phylum are multicelled but have no true organs or tissues. They are mostly marine and range from Cambrian to Recent.

Sponges consist of two layers of cells separated by jellylike material containing amoeboid cells that carry on bodily functions and secrete skeletal components. The skeletons of sponges can be composed of collagen (organic fibers) or spicules of silica or calcite. Some sponges secrete a solid continuous skeleton of calcite or aragonite. The living tissue of the sponge surrounds a central cavity. The sponge draws in water through the pores in the outer layer. Food is trapped by collar cells that possess a flagellum and cilia, the food is digested and passed to the amoeboid cells, which distribute it to other body cells.

Archaeocyathids are an extinct group of early Paleozoic organisms that sometimes are classified with sponges and sometimes as a separate phylum. Their skeleton is composed of two cones, one inside the other, separated by vertical partitions called septae. The central cavity is open, like modern sponges. Archaeocyathids make excellent index fossils because they were very abundant in the early Cambrian period and became extinct by middle Cambrian [see Fig. 4.16 (c)].

Stromatoporoids are an extinct group of reef-building sponges from the Paleozoic. They are characterized by star-shaped grooves on their growth surface (astrorhizal canals). Their skeletons are preserved as calcite, but they may have originally been composed of aragonite [see Fig. 4.16 (d)].

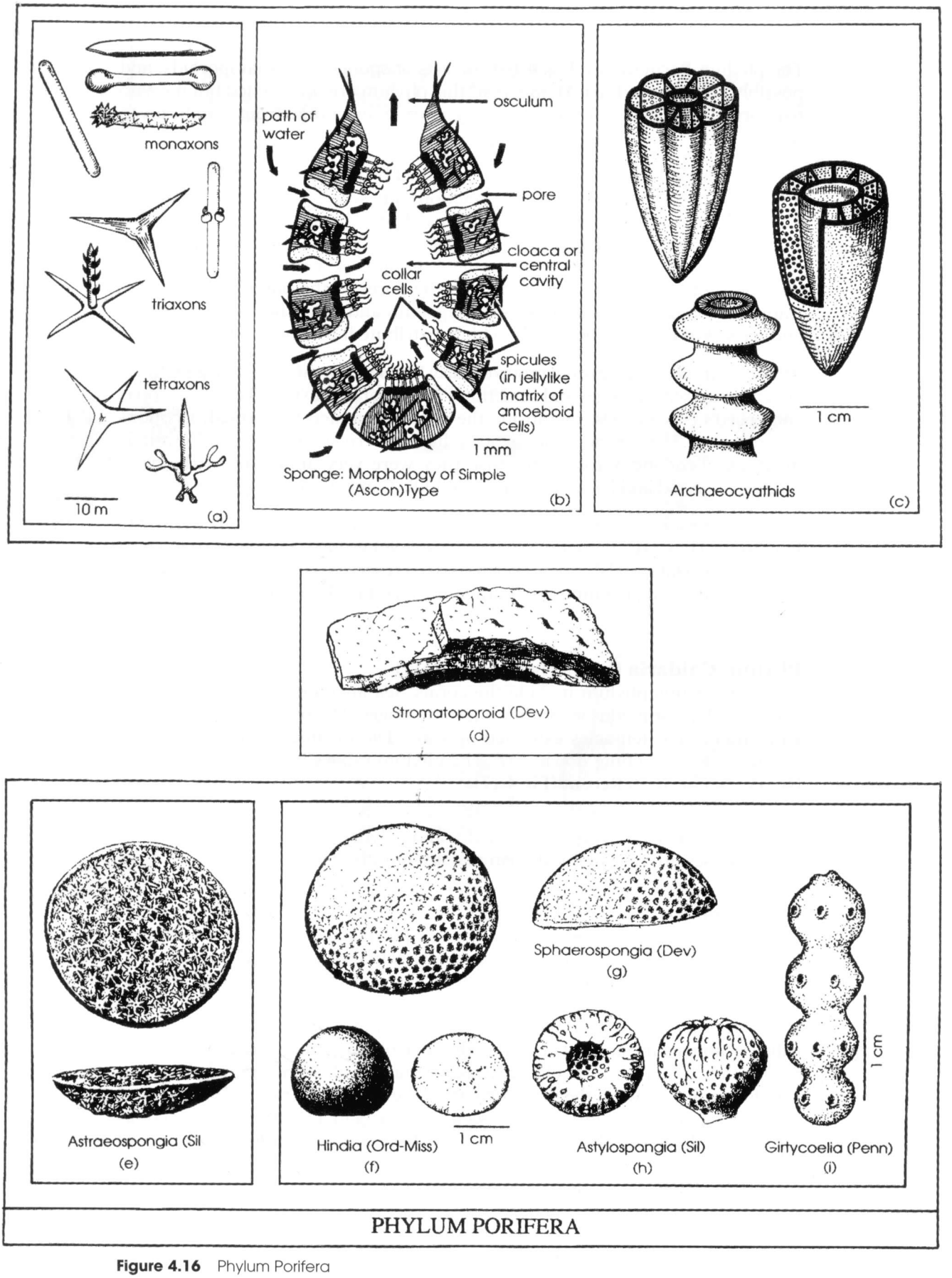

Figure 4.16 Phylum Porifera