The current classification revision requires that the Myxozoa and the Microspora be elevated to separate phyla on the grounds that they produce complex spores with extrusible polar structures, not found elsewhere in the protozoa. Previously the Myxozoa and the Microspora constituted a class of the protozoa, the Cnidospora. The term Cnidospora reflects a feature which they possess in common with the lower invertebrate phylum Cnidaria. On contact with a likely host the spore ejects a polar filament or tube which may aid in adhesion or penetration. A myxozoan spore, which is considered to be multicellular, ejects a filament for attaching the parasite to the host body. A microsporan differs in that it shoots out a tube which is used for injection of the infective organism into a host cell.

Myxozoa and Microspora contain genera which are of considerable economic importance. All are obligate parasites in a wide variety of animals which they infect by means of a small amoeboid sporoplasm that emerges from a characteristic spore. The myxozoans develop in body cavities and tissues, most commonly in cold-blooded vertebrates, where the sporoplasm grows into a large, multinucleate cyst-like growth while the microsporans are intracellular parasites, especially of arthropods. It is appropriate to include the Ascetospora, formerly the Haplosporea, among these spore-producing parasites because, although their spores have neither polar filaments nor polar capsules, the general pattern of life history is similar to the microsporans. Whether the difference in spore structure is sufficient to justify a proposed separate phylum, the Ascetospora, remains for future debate. Information on all these groups is accumulating; new genera and species are being described and alternative hosts are being recognized, but identification can be difficult without much background information.

**Spore Structure**

The most readily identifiable stage is that of a mature spore whose structure is sufficiently distinctive to be used as a taxonomic aid.

*Myxozoa.* A typical myxozoan spore possesses polar filaments which
Figure 12.1: Mature Spores of Myxozoa and Microspora. (a) Myxozoan spore showing two polar capsules and bilateral symmetry typical of the family Myxobolidae; (b) microsporan spore showing a tubular filament which is not enclosed in a capsule, a polar cap and polaroplast. c, polar cap; pc, polar capsule; pf, polar filament; pp, polar plug; pt, polaroplast; s, sporoplasm; tf, tubular filament.