

PROTISTS

When people classify things, they organize them in groups with similar characteristics. We see different classification schemes everywhere. Examples include silverware in a drawer, plates in a cupboard, clothes in a closet and tools on a workbench.

When scientists classify living things, they also look for similar characteristics and list them in major groups. We are already familiar with two of these major groups: The Kingdom of Plants and the Kingdom of Animals. But scientists have also found many living things that don't fit into either of these two Kingdoms.

Certain life forms fall into their own major category called the Kingdom of Protists (or Kingdom Protista). In this Kingdom, we find some living things that more closely resemble plants than animals. Many are chlorophyll-bearing organisms with the entire "plant" made only of a single cell. They are called the algae and are fundamentally classified according to their color. There is the golden algae (which are yellow-brown in color), the green algae, and the blue-green algae.

In contrast to the plant-like protists (algae), there are animal-like protists called protozoans (*proto* meaning "first", *zoan* meaning "animal"). These life forms are more animal in nature and are sub-grouped according to how they move. The *Amoeba* is in one group and it moves with a "false foot" (also called a pseudopod). The second group is the ciliates and includes all protozoans that move by means of cilia. Examples include the *Paramecium*, *Stentor*, *Vorticella* and *Didinium*. The third major group is the flagellates; those that move with a flagellum or "whip". Protozoans in this group include the *Peranema*, *Euglena* and *Volvox*. Many protists exhibit both plant-like and animal-like characteristics and it is difficult to classify them either as protozoans or algae. Classifying them ultimately becomes arbitrary and depends on one's inclination toward botany or zoology.

Scientists also classify other living things besides plants, animals and protists into main groups or kingdoms. These include the Moneran Kingdom (bacteria) and the Fungi Kingdom (mushrooms).

When an attempt is made to identify a life form, a scientist continues from the kingdom through various sub-classifications which may include phylum, class, order, family, genus and species (remember the memory aid, "King Paul Cried Out For Good Soup"). With this scheme, all living things on earth can be exactly identified with a genus and species name. Animals or plants in the same genus are very much alike, and it is sometimes difficult to identify one species from another. As an example, two of the most common *Paramecium* (genus name) are the *Paramecium caudatum* and *P. multimicronucleatum*. They are both about the same size (250 microns), but the *P. caudatum* is slightly more pointed at the rear. Unlike the *P. caudatum*, the *P. multimicronucleatum* has four or more tiny micronuclei visible only in well-stained specimens. Other species are easier to differentiate. Two typical *Stentor* (*S. coeruleus* and *S. polymorphus*) are quite different in size and color. The *S. coeruleus* is about 1,000 microns long, while the *S. polymorphus* is only about 200 microns long.

Scientists estimate that there are over 50,000 different species of protozoa and many thousands more of algae. One estimate puts the green algae alone to include some 25,000 species! Even at that, there are many new protists yet to be found.