

must be connected at their lowest root, and likewise the three or six main classes, or phyla, of the vegetable kingdom must be traced to a common and most ancient original form. How the connection of these tribes is to be conceived I shall explain in the succeeding chapters. But before proceeding to this, we must occupy ourselves with a very remarkable group of organisms, which cannot without artificial constraint be assigned either to the pedigree of the vegetable or to that of the animal kingdom. These interesting and important organisms are the *primary creatures*, or *Protista*.

All organisms which we comprise under the name of Protista show in their external form, in their inner structure, and in all their vital phenomena, such a remarkable mixture of animal and vegetable properties, that they cannot with perfect justice be assigned either to the animal or to the vegetable kingdom; and for more than twenty years an endless and fruitless dispute has been carried on as to whether they are to be assigned to this or that kingdom. Most of the Protista are so small that they can scarcely, if at all, be perceived with the naked eye. Hence the majority of them have only become known during the last fifty years, since by the help of the improved and general use of the microscope these minute organisms have been more frequently observed and more accurately examined. However, no sooner were they better known than endless disputes arose about their real nature and their position in the natural system of organisms. Many of these doubtful primary creatures botanists defined as animals, and zoologists as plants; neither of the two would own them. Others, again, were declared by botanists to be plants, and by zoologists to be animals; each claimed them. These contra-