

surface. Many aquatic plants, as the *Batrachospermum*, are, in like manner, protected by a viscid layer, which renders the leaves slippery to the touch, and which is impermeable to water.

Several tribes of plants contain liquids which are opaque, and of a white milky appearance: this is the case with the *Poppy*, the *Fig-tree*, the *Convolvulus*, and a multitude of other genera; and a similar kind of juice, but of a yellow colour, is met with in the *Chelidonium*, or Celandine. All these juices are of a resinous nature, usually highly acrid, and even poisonous in their qualities; and their opacity is occasioned by the presence of a great number of minute globules, visible with the microscope. The vessels in which these fluids are contained are of a peculiar kind, and exhibit ramifications and junctions, resembling those of the blood vessels of animals. We may also discover, by the aid of the microscope, that the fluids contained in these vessels are moving in currents with considerable rapidity, as appears from the visible motions of their globules; and they present, therefore, a remarkable analogy with the circulation of the blood in some of the inferior tribes of animals. This curious phenomenon was first observed in the *Chelidonium* by Schultz, in the year 1820; and he designated it by the term *Cyclosis*, in order to distinguish it from a real *circulation*, if, on farther inquiry, it should be found not to be entitled to the latter appellation.*

The circular movements which have been thus observed in the milky juices of plants, have lately attracted much attention among botanists: but considerable doubt still prevails whether these appearances afford sufficient evidence of the existence of a general circulation of nutrient juices in the vegetable systems of those plants which exhibit them; for it would appear that in reality the observed motions of the fluid, are, in every case, partial, and the extent of the cir-

* "Die Natur der lebendigen Pflanze." See, also, *Annales des Sciences Naturelles*, xxiii. 75.