ance, for it is founded, perhaps, more on our imperfect means of investigation, than on any real differences in the procedures of nature relative to this function. When the juices either of plants, or of animals, are transparent, their motions are imperceptible to the eye, and can be judged of only by other kinds of evidence; but when they contain globules, differing in their density from that of the fluid, and therefore capable of reflecting light, as is the case with the sap of the *Chara* and *Caulinia*, we have ocular proof of the existence of currents, which as long as the plant is living and in health, pursue a constant course, revolving in a regular and defined circuit; and all plants which have milky juices exhibit this phenomenon. Although the extent of each of these vegetable currents is very limited, compared with the entire plant, it still presents an example of the tendency which the nutrient fluids of organized structures have to move in a circuit, even when not confined within vessels or narrow channels; for this movement of *rotation*, or *cyclosis*, as it has been termed,* whatever may be its cause, appears always to have a definite direction. The current returns into itself, and continues without intermission, in a manner much resembling the rotatory movements occasionally produced in fluids by electro-magnetism.†

Movements, very similar in their appearance and character to those of vegetable cyclosis, have been recently discovered in a great number of polypiferous Zoophytes, by Mr. Lister, who has communicated his observations in a paper which was lately read to the Royal Society, and of which the following are the principal results. In a specimen of the *Tubularia indivisa*, when magnified one hundred times, a current of particles was seen within the tubular stem of the polype, strikingly resembling, in the steadiness and continuity of its stream, the vegetable circulation in the Chara.

* See pages 41 and 42 of this volume.

† So great is this resemblance, that it has led several physiologists to ascribe these movements to the agency of electricity; but there does not, as yet, appear to be any substantial foundation for this hypothesis.