factory, one thing is at any rate quite unquestionable: the structures they are intended to explain are indisputable facts; that the plankton Daphnids, for example, are longer and narrower in summer than in winter is a fact beyond doubt. The plankton investigations have further given the following very interesting result. During the formation of all those structures on which the increase in the buoyancy power depends, all plankton organisms *follow parallel lines.* However different their organisation may be, the development of the buoyancy apparatus takes place *simultaneously* (May, June); *they reach their extreme development simultaneously* (mid-summer), *and they are reduced simultaneously* (October, November). From this, and because the highest development of the buoyancy apparatus unquestionably takes place just at the season when the rate of sinking is highest (summer), we conclude that *the variations in the buoyancy or supporting power of fresh water, following the variations in temperature, are the outer inducements which lead to the seasonal variations as the answer to these*

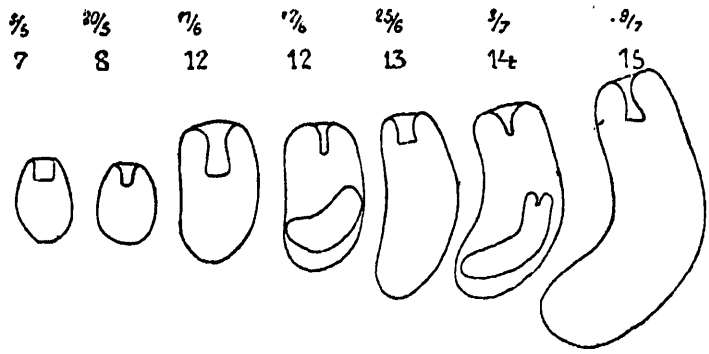

FIG. 54.—A Rotifer, *Asplanchna priodonta.* In May, almost isodiametric; in July, four times longer than broad.

on the part of the organism. The variations in viscosity and specific gravity on the one side and the seasonal variations on the other stand in the relation of cause and effect. In 1900,[1] when this theory was set forth, we had not the slightest idea of the manner in which the variations took place. It was therefore quite natural that the theory, in the eyes of many, seemed only a loose hypothesis. It is naturally not to be expected that a scientifically educated naturalist should have confidence in a theory based on the observation that the very same species in summer is five times longer than in winter, or that another species in winter is many times greater than in summer, and that without any means of interpreting the manner in which these great variations in body structure take place.

One of the reasons why the study of the variation in plankton organisms has only advanced with the greatest difficulty, is that the

[1] See Wesenberg-Lund, "Von dem Abhängigkeitsverhältniss zwischen dem Bau der Plankton-organismen und dem specifischen Gewicht des Süsswassers," *Biolog. Centralbl.*, vol. xx. pp. 606, 644, 1900; with regard to the viscosity, see Ostwald, "Zur Theorie des Planktons," *Biolog. Centralbl.*, vol. xxii. p. 596, 1902.