

G. The plastic perception of distance of the pseudopodia is shown by the symmetry with which the forms composing the regular skeletal structures (*e.g.*, the ordinary lattice-spheres with regular hexagonal meshes, the radial spines with equidistant branches) are excreted from the exoplasm. Both this form of sensation and the one first mentioned (note F) have hitherto received scarcely any attention, but are deserving of a thorough physiological investigation.

225. *The Cell-Soul (Zellseele).*—The common central vital principle, commonly called the "soul," which is considered to be the regulator of all vital functions, appears in the Radiolaria as in other Protista in its simplest form, as the cell-soul. By the continual activity of this central "psyche" all vital functions are maintained in unbroken action, and in uniform correlation. It is also probable that by it the stimulations which the peripheral portions of the cell receive from the outer world are first transmitted into true sensation, and that, on the other hand, the volition, which alone calls forth spontaneous movements, proceeds from it. The central capsule is most likely the sole organ of this cell-soul or central psychic organ, and the active portion may be either the endoplasm or the nucleus, or both. The central capsule may thus (apart from its function as a sporangium, § 215) be regarded as a simple ganglion cell, physiologically comparable to the nervous centre of the higher animals, whilst the exoplasm (sarcomatrix and pseudopodia) are to be compared to the peripheral nervous system and sense organs of the latter. The great simplicity of the functions of the cell-soul which appear in the Radiolaria, and the intimate connection of their different psychic activities, give to these unicellular Protista a special significance for the comprehension of the monistic elements of a natural psychology.

Regarding the theory of the cell-soul as the only psychological theory which is able to explain naturally the true nature of the life of the soul in all organisms as well as in man, see my address on cell-souls and soul-cells ("Zellseelen und Seelenzellen") in *Gesammelte populäre Vorträge aus dem Gebiete der Entwicklungslehre*, Heft 1, p. 143; Bonn, 1878.