

in growth, in order that its internal development may be accomplished. When this is the case, it becomes manifest that the body sarcode is, so to speak, a vital product of the nucleus. Moreover, it is from it that the flagella originally arise. In the same way, it is only by a complicated and beautiful series of delicate activities in the nucleus that the wonderful act of fission is initiated, and in all probability carried to the end. So, too, all the changes that go with fertilization and the production of germs are a series of correlated activities, due, at the beginning at least, wholly to the nucleus." All the stages are figured, from the bare nucleus (original germ) down to the amoeboid form prior to conjugation with another individual, and the conjoint formation of a quiescent mass of protoplasm, which finally gives rise to a cloud of protoplasmic dust, as it were, which represents the germs or nuclei of yet undeveloped individuals, thus completing the entire cycle.—*Jour. of Roy. Mic. Soc.*

THE DIGESTIVE PROCESS IN SOME RHIZOPODS.—Physiology, as a field for original investigation, has been recently entered by ladies. Miss Greenwood, Demonstrator of Physiology, Newnham College, Cambridge, has published a paper on the above subject. Her investigations were confined chiefly to the two interesting forms *Amœba* and *Actinosphærium*. The latter, as is well known, has a spherical protoplasmic body, honeycombed with numerous vacuoles, and with filiform pseudopodia protruded from its surface. Her method of work may be described as chemico-microscopical. The digestive process is considered under the heads: (a) Ingestion, (b) Digestion, (c) Egestion. In these two forms, no digestive *ferment* has as yet been found. Many accounts of intra-cellular digestion in invertebrates have been published, but not a few of them are mere fragments. Miss Greenwood draws the following conclusions in regard to the above-mentioned two forms:—1. They show constant and promiscuous enclosure of solid matter, which is received in the vacuole of ingestion. The nature of the latter is doubtful. The formation from the surrounding medium points to its aqueous character; but the rapid death of the enclosed prey, in *Amœba* at least, argues some influence or secretion from the enclosing animal. 2. Starch grains are not digested by Rhizopods. 3. Fat globules are not digested by *Amœba*; a slow digestion of them probably takes place in *Actinosphærium*. 4. The fate of digested matter depends on its character. If it is innutritious, the vacuole of ingestion disappears; if nutritious, it undergoes change not effected by direct contact with the acting protoplasm, but by something passed out of the protoplasm into what has become the *vacuole of digestion*, in fact, a secretion. This case resembles that of the higher animals, in so far that the secretion is passed into a cavity—the cavity in