

bonate of lime, and again he refers them to the hexagonal system. The crystals sometimes occur in notable quantity, even in young specimens of *Amœba*, and are quite conspicuous; at other times, even in what appear to be the same species, they are few and small, or not clearly evident. The crystals, unlike the quartz sand, appear to be an intrinsic element of the animal.

There is yet little positively known in relation to the modes of reproduction of Rhizopods, though it is certain that a common mode is by division, as has been observed in some of the naked Lobosa, Heliozoa, and Monera. The opportunities for observing the process have appeared to me to be by no means frequent; for in all the four years of my study of the Fresh-water Rhizopods, I met with an *Amœba* in the state of division in but few instances, and the common Sun-animalcule, *Actinophrys sol*, but rarely.

The shell-covered Protoplasts are frequently found in pairs, with the shells mouth to mouth. When the shells are sufficiently translucent to allow the soft parts within to be seen, at times it is observed that these become confluent in one mass, which flows to and fro from one shell to the other. The mass finally dividing again into two, the individuals with their shells become separated without apparent change from the original state. This condition of union of a pair is commonly named 'conjugation', and has been supposed to hold a relation with the act of reproduction, though it has not been positively proved to be so.

From certain appearances, hereafter to be considered in the special cases, I have suspected that many of the supposed examples of conjugation are really due to reproduction through division. From the appearances alluded to, there is reason to suspect that from time to time the shell-covered Protoplasts, under appropriate conditions,—such as are induced by being well fed, so that the animal is in a highly active condition, and the shell is surcharged with sarcodæ,—quickly project one half the mass of sarcodæ, which as quickly assumes the shape and size of the parent. The exuded mass at the same time may be supposed to rapidly secrete a shell; or, if this is composed of foreign matters, as in the case of a *Diffugia*, it may be immediately formed by the adherence of particles to the exuded sarcodæ. If such shall be proved to be one of the modes of reproduction of the shell-covered Protoplasts, it is one which we may suppose would