penetrated the atmosphere and reached the living protoplasm. The simplest masses of protoplasm we are able to study are minute spherical or elongated structures, with a firm boundary or wall, or with a gelatinous envelope. These have two methods of reproducing themselves, the simplest of which is by each merely splitting into two—fission. The other method consists in the material which forms one mass breaking into many small parts within the wall. These parts escape through a rupturing of the wall of the parent cell. Each of these new individuals seems to be exactly like all the others, and is independent of all the others, doing for itself whatever is necessary for its life.

In examining the various one celled plants we are struck by the fact that one great group of them has kept the habit of living each by itself, a distinct individual life, while those of the other group adhere to each other in irregular masses, or even form carefully arranged colonies. We note that most of those that retain their independence live in dark, moist, warm situations, often within larger living creatures, and they accentuate their individual liberty by moving from place to place, through short distances. We call them Bacteria. They never reach any considerable size nor permanence of structure, but being bathed constantly in liquids which yield them nourishment, they increase rapidly in numbers by the process of cleavage, each splitting into two, and these again in a very short time. By this geometric progression they multiply at a prodigious rate, and we are aware that their activity or the poisonous substances they excrete are a menace to the lives of many of the higher creatures which they inhabit. Fortunately for us they have not learned how to protect themselves against light, which when intense exerts a destructive influence on colorless protoplasm. Another weakness of bacteria, and the same is true of nearly all other kinds of fungi, is that each individual is literally "a chip of the old block." The parent really becomes rejuvenated in the form of two offspring made from its material. Let me ask you to note that this is a form of immortality. Here there is no such thing as maturity, old age, and death. Each bacterium literally "renews its youth" by making of itself two new bacteria. Each of these must therefore retain unchanged the qualities of the only parent it has. There is little chance of its receiving any influence which will cause variation, and each is exactly of the character of the line of parents preceding it. Its qualities are rigidly fixed in the type of its ancestors. In this fixity of type and lack of adaptability of the race of fungi we have an important character which aids us when we desire to prevent their growth. If we can modify in any marked degree the conditions surrounding them, we render their existence difficult, if not impossible. An illustra-