

substance, is nitrogenous fade before the facts that fungi inhale oxygen giving out carbonic acid, and nitrogen is essential alike to animal and vegetable. I believe, added I, that all plants removed from the sunlight treat air as an animal does, inhaling oxygen and giving out carbonic acid, not being able to decompose this gas, except by the action of sunlight upon their chlorophyl. the green colouring matter of their leaves.

Yes, all in the dust, began he, locomotion is no longer considered a characteristic of animals: certain algae produce zoospores similar to the heteromita, (here he gazed complacently at the phial which I still held in my hand). But are not those algae thought to partake of the nature of both plants and animals, I enquired. It was thought so formerly, said he, now nobody believes that any such organism exists. Those zoospores after swimming around some little time, fix themselves to the rock and grow up individual algae: their alimentation throughout is that of plants. Then the peronospora infestans as you are aware bears spores upon its slender branches or hyphæ. Those spores at maturity fall from the parent bough upon the potato leaf, and swim in the moisture clinging there, to it an ocean; at the end of two hours it settles down in life, and penetrating the living substance of the potato grows up a complete hyphæ. The peronospora had a busy time of it and became quite a factor in politics in 1845, when it blighted nearly all the potatoes in Ireland leaving the poor—"Be off wid yer lyin' ye spalpeen for wasn't it Fergus O. Foranayherd forninst me dure since the time of his granfayther an all his faythers before him. Its an illigant jintleman he is an wouldn't be afther hurten the tates at all. Sure it was. Fayther O'Flannagan towld me man Tim at the liction how the English, bad cess to em, brought over the tatie rot and forgathu."

Hereupon I with true English politeness gave one glance at the irate speaker, who was standing up in the carriage gesticulating wildly, then turning I looked out at the window, and composed my countenance as nearly as I could to convey the impression that I was coming over a text from which I expected to address a congregation the following Sabbath. My companion, however, rose and bowing to the incensed woman said, "pardon me madam, we were not speaking of your friend whom I know and respect most

highly, but of another of the same name that remained in Ireland only one summer." The lady seemed to consider this a sufficient apology, for she sat down. My companion also resumed his seat, and taking up the microscope he began to examine the waterplants. After some time he broke off a portion of one and placing it in the microscope he gave it me without a word. I placed the instrument to my eye and discovered what looked like an elegant green star growing out of the weed. Ah, said I, that's the coleochete is it not? Yes, and a true plant, he answered; and though it grows upon another plant it is not parasitic since it derives sustenance from the surrounding waters. It reproduces itself in the same manner as the algae or the potato blight, which is after all a questionable plant since it finds its protein ready made. How do you I asked apply the principle of alimentation to the determining whether a structure is plant or animal? Well, said he, take for example the bean; if it be planted in water to which salts of ammonia, carbonic acid, potash, lime, iron and phosphoric acid are added, the bean will in due time blossom and bear a full harvest vastly greater than the original seed, but the increment of the bean is exactly equivalent to the decrement of the substances supplied in the water. So you see the bean has derived its nutriment from elemental substances; or if to the water prepared for the bean a drop containing bacteria be added, the whole in a short time becomes filled with bacterium stuff, and what was before elemented substance is now protein, amyloid, etc. An animal treated to the same fare would soon starve from inability to assimilate the raw material; his food must be organic; all forms that subsist under the same conditions as the bean are plants; all others are animals. The plant is the producer, the builder; the animal the destroyer, the devourer, the arch-autocrat, exacting tribute from the whole vegetable world. On one side of the heteromita are colpoda and many species of animalcula cousins in the flesh; on the other the coleochete, algae and bacteria cousins in the plant; from this point both expressions of life diverge by easy stages in manifold series. He paused evidently expecting some comment, but as I remained silent, he continued, apparently speaking to himself.

Life—Life—In the time when earth was young, and continents mere narrow strips of land, the restless