liquid must be protected against that robber—the sun's heat, and therefore cannot be at the surface. A compromise is made—the wood forms a cylinder near to the circumference, but is very carefully covered by a waterproof coating of cork, which acts also as a defence against mechanical injury, and the attacks of parasitic plants.

Just as the prostrate position had to be abandoned because of shading—so, where the water supply is plentiful and contains the necessary minerals for the support of many plants—we shall find these rivalling each other in reaching upward for light, resulting in our forest growths. The limit in height is no doubt defined by the increased difficulty in raising water to the leaves, and the increased exposure to the sweep of the wind.

When we examine the leaf of a plant which always lives in the shade, and protected from destructive winds—such a leaf as that of our maiden hair fern for instance, and compare it with the leaf of a tropical plant such as the oleander, which has to endure scorching sun and drying winds, or with that of our pine which lives through the intensely drying cold of our winters —we at once see the effect of having to live under austere conditions. A much greater development and complexity marks the leaf that has to endure stress. Still more interesting is it to study the leaves of the same plant, one of which grew in the protection of the water, while the other grew in the air above the water. The prompt response of protoplasm to these conditions is surprising, because while the leaves were in the bud it was scarcely possible to know whether either or both of these leaves would develop in the air.

Let us now glance back for a moment and notice that somewhere in the advance from simplicity, there enters the phenomenon of death, as we think of it. We saw that the simplest organisms cannot be said to die, inasmuch as the living parent is merged in the offspring, of which it forms so considerable a part.

Apparently as an associated condition with the evolution of sex came the need of a certain maturity of parent, and the germ cells became at length not the whole of the parent but only a small proportion of its mass. Then we find that the mature plant produces germ cells only once, or a limited number of times, and after such definite effort at reproduction, the parent dies, except as represented by its offspring, to which it has contributd a minute portion. This small contribution from the parent controls the offspring to some extent, that is it carries with it a wonderful power of heredity, but not sufficient to prevent variation or to enable us to say that the individuality of the offspring is lost.

In conclusion allow me to say that I am not attempting to promulgate the Doctrine of Evolution, but merely indicating some factors of life and the response of protoplasm to them, although I may confess to being quite convinced that present forms of life are descended from those that went before them.

The fact of variation is undeniable. We may find examples in every family, and in the leaves of every tree. The possibility of variation must be acknowledged. But notice that an outside force-such as heat or light can do