Spontaneous Motion in Plants.

If children, monkeys and oppossums climb trees and suspend themselves in the air from limbs in various ways, so do climbing plants. The curious and interesting movements of this class of plants have been investgated by Palm Mohl, Dr. Gray, Darwin and others. It is well known that the hop, honeysuckle, convolvulus, etc., always twine around the stem that supports them in one direction; that is always from right to left or from left to right; but few have attempted to observe by what process the ends of the growing shot contrive to change from one side to the other of the central support. If the extremity of a living climber, say of convolvulus, growing perfectly free and in a normal position, be observed, it is seen to hang over from its support in a horizontal position, and this horizontal position, if observed from hour to hour, is seen to point to different directions. The end of the growing shoot revolves in a large circle round the support, always with the same species in the same direction, either with or against the sun.

In warm weather this large circle of the terminal bud in the air is made in much less time than in cool weather. The rate of the revolution varies in different plants, and with the same plant at different periods of its growth. With the hop Darwin found the revolution to vary from two and a half hours to nine hours. The apparent object of climbing plants is to obtain more light, and a place where leaf and fruit may develop in the presence of a free circulation of air, numerous leaves imbibing much nutriment from the atmosphere. When a hop or Lima bean has climbed to the top of its pole, and has a half yard of stem over, by what vital physical force does it make this curious circle of about a yard in diameter (eighteen inches from the top of the pole each way) in search of some new support? If the bean had instinct or reason could it do more to find what it most needed? The late eminent physiologist, Mohl, supposed this phenomenon was caused by a dull irritability in the stem, exciting a movement in one direction till a circle in the air was formed.

Darwin tested this theory experimentally, but found no such irritability. Our limited space does not permit us to follow the experiments of this naturalist. He found that when a climbing plant first springs from the ground, the extremity of the shoot performs slow gyrations in the air, as if it were searching a support. By what force do the roots of plants *search* for water and other aliment, and their moving stems above ground *hunt* for stakes and trees to uphold them in rich currents of atmospheric food?

The spontaneous movement of tendrils in the grape vine, passion flower and Virginia creeper are, if possible, still more surprising. Touch the tendril and you may develop at once its curling movement. In a few hours it uncurls itself as if the hint and effort to catch a support were a mistake. Farmers should know that living growing plants, not less than all animals, man included, make mistakes. We live in a world of mistakes.

A tendril rarely twines itself round another tendril, although nothing is more convenient or more in its way. What is the full meaning of this power of selecting and discrimination?

Our cultivated plants and fruits not only *select* their daily food in the soil and in the atmosphere, but select in some degree their associates. Plants, as a general truth, but with many exceptions, are social beings.—*Ex.*