

formed by the stalk which supports a leaf, and which is termed by botanists the *axilla* of that leaf. A law of symmetry is established by nature in the development of all the parts of plants. The leaves, in particular, are frequently observed to arise in a circle, or symmetrically round the parent stem; forming what is termed a *whorl*, or, in botanical language, a *verticillated* arrangement. In other cases they are found to have their origins at equal intervals of a spiral line, which may be conceived to be drawn along the stem, or the branch from which they grow. When these intervals correspond to the semi-circumference of the stem, the leaves alternate with one another on its opposite sides.

The stems of most plants, even those which are perfectly erect, exhibit a tendency to a spiral growth. This is observable in the fibres of the wood of the pine, however straight may be the direction of the whole trunk. This tendency is shown even in the epidermis of the cherry tree, for it may be stripped off with more facility in a spiral direction than in any other. The primitive direction of the leaves of endogenous plants is a spiral one. It is particularly marked also in the stems of creepers and parasitic plants, which are generally twisted throughout their whole length; a disposition evidently conducive to the purpose of their formation, namely, that of laying hold of the objects with which they come in contact, and of twining round them in search both of nourishment and of support. The twisted stems of the hop and of ivy show this structure in a remarkable degree, and the purpose for which this tendency was given cannot be mistaken.

A conjecture has been offered that this tendency to a spiral growth might be owing to the influence of the sun's light acting successively on different sides of the plant, in the course of its diurnal motion. In these northern latitudes the direction of that motion is from east to west; or, to an observer facing the south, from left to right. That light has a powerful influence in determining the direction of the growth of all the parts of the plant which are above ground, is manifest to every one who has observed the habits of vegetables. If a growing plant be placed in a situation where