

to the produced organism by non-sexual than by sexual propagation. Gardeners have for a long time made use of this fact in many ways. When, for instance, a single individual of a species of tree with stiff, upright branches accidentally produces down-hanging branches, a gardener, as a rule, cannot transmit this peculiarity by sexual, but only by non-sexual propagation. The twigs cut off such a weeping tree and planted as cuttings or slips, afterwards produce trees having likewise hanging branches, as, for example, the weeping willows and beeches. Seedlings, on the other hand, which have been reared out of the seed of such a weeping tree, generally have the original stiff and upright form of branches possessed by their ancestors. The same may be observed in a very striking manner in the so-called "copper-coloured trees," that is, varieties of trees which are characterized by a red or reddish brown colour of the leaves. Off-shoots from such copper-coloured trees (for example, the copper beech), which have been propagated by cuttings in a non-sexual manner, show the peculiar colour and nature of the leaves which distinguished the parental individual, while others reared from seeds of such a copper-coloured tree return to the green-coloured condition of leaf.

This difference in inheritance will seem very natural when we consider that the material connection between the producing and produced individuals is much closer and lasts much longer in non-sexual than in sexual propagation. The special tendency of the molecular motion of life can therefore fix itself much longer and more thoroughly in the filial organism, and be more strictly transmitted by non-sexual than by sexual propagation. All these phenomena, con-