PROPAGATION OF PLANTS.

METHODS IN REGARD TO CUTTINGS.

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THERE is no plant that is not amenable to propagation in some way; it is a provision of nature that every living thing shall be capable of increase. In most cases plants increase with the greatest freedom, though that may occur only in their native habitat. It is said that every portion of a tree or plant contains all the necessities for the making of a counterpart of itself, but in very many instances the nature of the wood of the plant renders it impossible to cause such development.

In nature plants are mostly propagated by seed. Under artificial conditions resort must in many cases be had to other means. In some instances propagation can be carried out almost without limit in numbers by means of cuttings, which, after seed, is the most prolific mode of propagation. Other methods of propagation are by layering the branches; by division of the rootstock, as in the case of fibrous-rooted iris, perennial phlox, and many other herbaceous plants; by division of the tubers, as with dahlias, tuberous-rooted iris, alstromeria, and plants with like roots; by dividing the rhizomes, as with Solomon's seal; by increase of the bulbs, as with lilies, narcissi, and other bulbous-rooted subjects; by using leaves as cuttings, as is done with foliage begonias, sometimes tuberous varieties of begonias, and gloxinias; by budding and grafting—though these two operations are rather to preserve and increase varieties than to make a plant, for the plant must exist before either operation can be performed, and therefore neither budding nor grafting really effects an increase, though possibly this may be a new point of view. Lastly there is propagation by cuttings of roots—the best means in some few cases. There may be mentioned apple-tree roots to make stocks, some tecomas, *Ailanthus glandulosus*, many herbaceous plants, amongst them *Anchusa italica* and *Verbena venosa*, which are most easily increased in this way. Those lovely flowering-plants, bouvardias, are easily progagated by root-cuttings, and the greatest increase as well as the strongest plants are secured in this way.

PROPAGATION BY CUTTINGS.

To be successful in the general propagation of plants by cuttings some knowledge of the nature of the plant dealt with is necessary, also the theory of plant-growth must be understood. It must be recognized that top growth makes roots, not roots make top. The growth of a cutting proceeds in the same sequence as the growth of a seed. The seed-leaves appear before roots are made, and so it is with a cutting—roots do not begin to form until some top growth has been made. There may be some cases where this statement may appear to be open