

branch, or a shoot cut from it, forms the stem of the new shrub.

Q. Can you obtain more layers from the same branch?

A. Yes, several layers may be cut from it; if it be long enough and sappy enough, the whole branch may be covered with earth, or only the portions of it cut and tongued.

Q. How is the sap carried into the extremity of the branch and brought back, if so many parts are cut half way across, or nearly so?

A. The undivided part above conveys it backwards and forwards, while enough of it oozes through the crossing veins of the branch into the bud at the extremity of each tongue.

Q. Is any thing more done?

A. Yes, the undivided part above the tongue is often twisted round, or tied tightly, to prevent the sap from returning back to the stem, unless in very small quantities, in order to nourish the rooting parts more.

Q. But will not this, also, hinder the rising sap from flowing towards the top of the branch?

A. No, its rising force will carry it on fast enough.

Q. What more?

A. In some layers, moss or clay, or any solid substance, is put into the slit to keep its parts from closing; and the layered part is usually fastened down to the earth by pegs, or some contrivance, to prevent it from springing out of it.

Q. Is earth necessary in all cases?

A. No; tender green-house plants are mostly layered under moist moss; a stone answers as a covering for others.

Q. Can many plants be propagated by layers?

A. Nearly all forest trees, many fruit trees, and several shrubs, may be so propagated; and though two years may be required in some cases, a few weeks or days are sufficient in others.

Q. How are plants propagated from joints?

A. By laying the joints in or on the earth, and without using the knife as in layering.

Q. Give instances of plants that grow quickly by nature from joints.

A. The strawberry; its runners are all jointed, and every joint grows from even resting on the ground. Couch grass and florin grass also grow from joints naturally and freely; every joint may be made a new plant by leaving a runner with it.

Q. What are offsets and suckers?

A. They are the offspring under ground or over ground of plants, which, if parted from the parents and planted separately, are at once perfect and independent plants.

Q. What are cuttings?

A. Short pieces cut from trees and other plants (and generally of new growth) with buds or joints, which are put into the earth where they take root.

Q. Give instances of plants usually propagated by cuttings.

A. Currant and gooseberry trees, flowering shrubs, and willows, and osiers.

Q. What are slips?

A. Shoots torn off at the stem.

Q. What are pipings?

A. They are almost the same as cuttings; and are only so called in reference to carnations and pinks. They are either actual cuttings made under a bud or joint, or they are pulled out of the stem at the second joint. They grow as cuttings do.

Q. What are bulbs?

A. Roundish knobs furnished with scales: at their lower part is a ring, from which the roots strike.

Q. Name some bulbous plants.

A. Tulips, onions, narcissuses, jonquils, and hyacinths.

Q. How do they grow?

A. Some of them either in earth or water; by putting the bulbs with the root part downwards and the stem end upwards, they grow readily.

Q. Can they be cut into pieces like potatoes, and yet grow?

A. Some, like the onion, must be divided from top to bottom, through the centre, where the germ is: the cut must be made through the ring at their base, in which are the rudiments of the roots, or the roots themselves.

Q. What are tubers?

A. They are roundish, flattish, or kidney-shaped knobs containing eyes.

Q. Give examples of some.

A. Potatoes, Jerusalem artichokes, and dahlias.

Q. How do they grow?

A. Either from the entire tuber, or from parts containing an eye; and in some plants there must be at least a portion of the stem with the set.

Q. Name tuberous plants which will not grow without a part of the stem.

A. The dahlia.

Q. Why?

A. Because the only rudiments or beginnings of eyes are at the upper part, where the stem is, and they cannot be separated from that portion.

Q. What is grafting?

A. The insertion of a small shoot (having one or more buds) of one plant into the stem of another, in such a manner that they become one plant.

Q. What is the small shoot inserted into the stem called?

A. A scion.

Q. What is the stem called into which the scion is inserted.

A. A stock.

Q. What is budding† or inoculating?

† Some plants will not grow well from grafting, though they will from budding. Peach trees are budded, because they are too delicate to bear the wounds which grafting would occasion to them.