Buds sometimes become extra-axillary in consequence of the non- appearance or abortion of one or more leaves, or on account of the

adhesion of the young branch to the parent stem. In place of one bud there are occasionally several accessory ones produced in the axil, giving origin to numerous branches. By the union of several such buds branches are produced having a thickened or flattened appearance, as is seen in the fir, ash and other trees. In some cases, however, these *fasciated* branches are owing to the abnormal development of a single bud.

The typical form of stems is rounded. They arc sometimes compressed or flattened laterally (fig. 9), while at other times they are angular. Various terms are applied to the forms of stems, as *cylindrical* or *terete, quadrangular* or *square, jointed* or *articulated,* &c. The following are some of the more important modifications of stems: The *crown of the root* is a shortened stem, often partially underground, which remains in some plants after the leaves, branches and flower­stalks have withered. In this case the internodes are very short, and the nodes arc crowded together, so that the plant appears to be stem- less. It is seen in perennial plants, the leaves of which die down to the ground annually. A *rhizome* or *root-stock* (fig. 10) is a horizontal stem usually sending out numerous roots and leaf-buds from its upper surface. It occurs in ferns, iris, *Hedychium, Acorus* or sweet flag, ginger, waterlily, many species of

*Carex,* rushes, anemone, &c. The leaves are reduced to scales and by their presence, and the absence of a root-cap, a rhizome can be

distinguished from a root. A rhizome such as occurs in Solomon’s seal (fig. 10) is not a single stem, *i.e.* the product of a single bud, but is composed of portions of successive axes, the aerial parts of which have died off, leaving their scars (fig. 10, *b, c, d, e).* Rhizomes are well seen in British ferns. A rhizome sometimes assumes an erect form, as in *Scabiosa succisa,* in which the so-called *praemorse* root is in reality a rhizome, with the lower end decaying. The erect rhizome of *Cicuta yirosa* (water-hemlock) shows hollow internodes, separated by partitions. In the coral-root orchid *Corallorhiza,* which grows in soil rich in humus, no roots are developed, the coral-like branching rhizome acting as theabsorbing organ (fig. 13). A *pseudobulb* (fig. 1) is an enlarged bulbous-like aerial stem, common in epiphytic orchids; it is covered with a thick epidermis and acts as a water-store for the plant, which from its growth on branches of trees and in similar positions is often unable to get sufficient water for its immediate needs. A *sobole* is a creeping underground stem, sending roots from one part and leaf-buds from another, as in couch-grass. *Carex arenaria,* and *Scirpus lacustris.* It is often called a creeping root, but is really a rhizome with narrow elongated internodes. A *tuber* is a thickened stem or branch produced by the approximation of the nodes and the swelling of the internodes, as in the potato. The eyes of the potato are leaf-buds. Tubers are sometimes aerial, occupying the place of branches. The ordinary herbaceous stem of the potato, when cut into slips and planted, sends off branches from its base, which assume the form of tubers. Tubers fre­quently store up a quantity of starch, as in *Maranta arundinacea,* whence arrowroot is derived. Another form of thickened un­derground stem is the *corm,* as seen in the autumn crocus *(Col­chicum,* fig. 11), gladiolus, &c. Structurally it is composed of a solid more or less rounded axis covered by a layer of thin mem­branous scales (fig. 12, *h, h).* A corm is only of one year’s dura­tion, giving off buds annually in

the form of young corms. In autumn the young corm gives origin to leaves, the lower of which (s, *s', s")* form sheaths round the corm and flower stalk, the upper (*l', l'')* remaining very small ; and in the axil of the uppermost leaves the flowering-stem develops and bears the flowers (*b*, *b').* Meanwhile in the axil of one of the middle leaves on the corm, a bud—the rudiment of a new corm—appears (*k''*). The flowering-stem dies down, and the young corm *k'* from which it arose enlarges greatly during the winter at the expense of its parent corm (*k*), which thus becomes shrivelled. In spring the leaves produced on it (*l*, *l''*), which were merely rudiments in autumn, appear above ground as conspicuous large leaves. At the end of spring these leaves die down, the bases of the lower ones