

Chapter Two

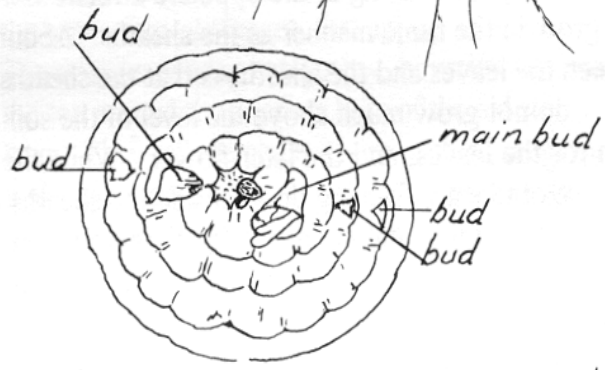
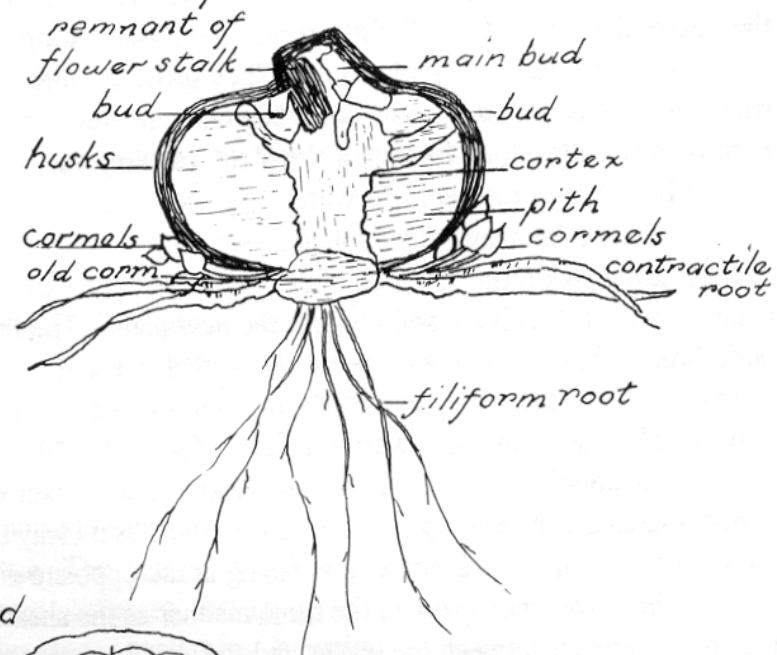
HOW THE GLADIOLUS GROWS

This chapter will address the actual growing of a glad, by beginning with planting a corm, the usual way of propagating glads. The propagation of glads from seed is discussed in chapter 14.

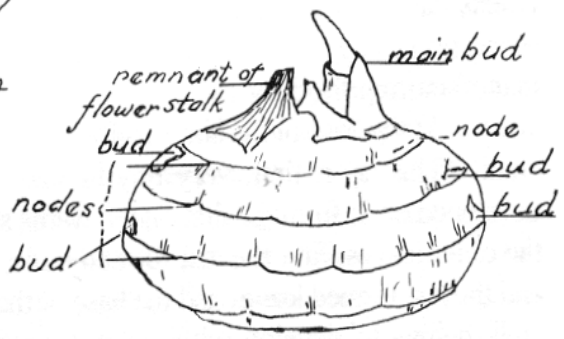
The corm holds within its structure the promise and much of the reality of the gladiolus plant and flower. The bulk of the corm is made up of the fleshy substance that serves as a food supply for the growing plant. The top of it is somewhat dome shaped, the base is more flattened, and at the center of this base is a depression, the scar left when the old corm was removed at cleaning time. Around this scar are little nodules from which the first series of roots will grow, These may be readily seen for some time after the corm has been cleaned and stored. The corm is covered with a series of husks, which is the base of the old leaves that appear in a series up the sides of the corm. These husks overlap each other, covering the corm, and meet together at the top around the dried up base of the old stem which is last year's flower stem. They call the place where each of these husks leaves the corm, the node. At each of the nodes, two small buds are in evidence at opposite sides of the corm. Thus each corm has a series of buds up each side of it. Usually only the top one or two are well developed, and it is from these that the new plants will grow. Each bud is an embryo plant.

The function of the corm, as the gladiolus grew in its native Europe, Eurasia & South Africa, was to store nutrients through the dry season, thus enabling the plant to initiate growth with the coming of the spring rains. Simply stated the corm is the plant at rest with the essential parts for growth present. This rest period is part of the natural cycle of growth through which the gladiolus goes. Whether growing in its native habitat or in through cultivation the rest period must be taken into account, In the cultivation of gladiolus the rest period occurs as storage. As some cultivars need longer rest periods than others, hastening the period artificially by placing the corms in cold storage for a month or so is possible.

Cross section of corm as dug, before removing old corm and cormels.



View from top of corm



View from side of corm

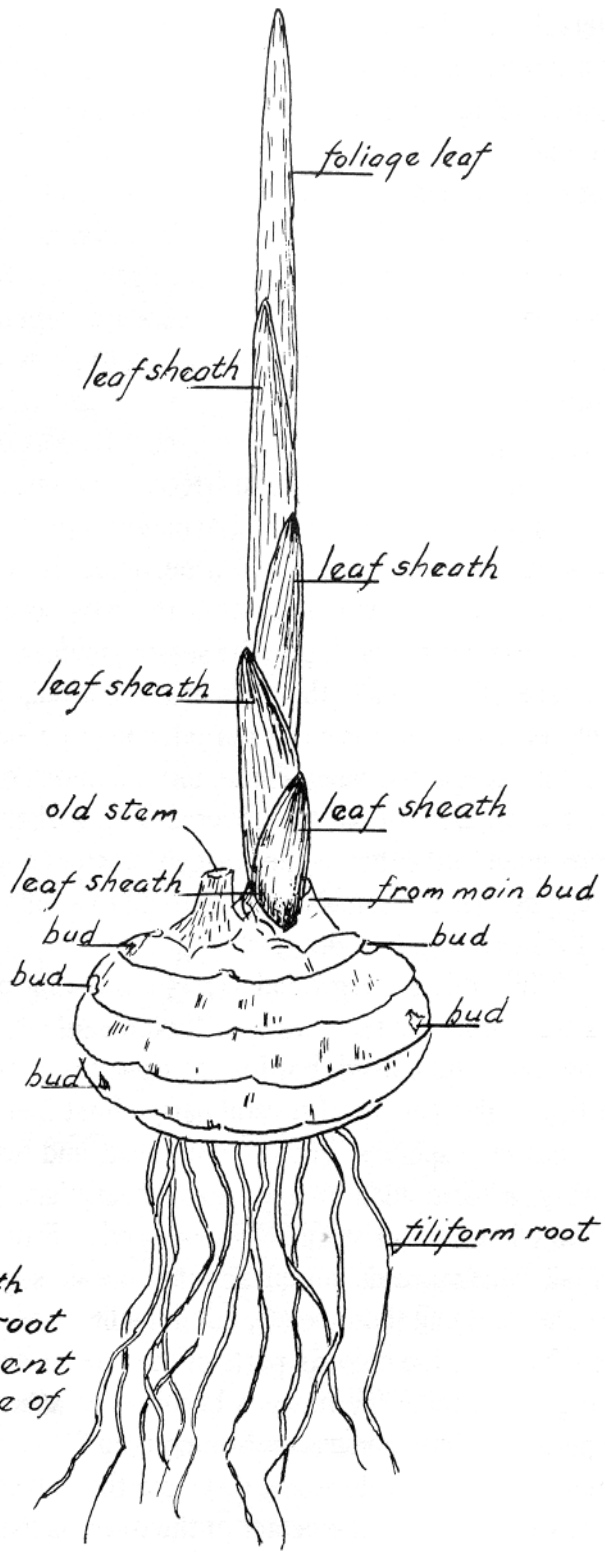
When the gladiolus corm is planted in warm moist soil, it will usually start growth promptly. Many corms will have already started growth to some extent in the latter part of the storage period, at least to the extent of swelling the nodules from which the first roots are to come. When corms are planted in a warm moist soil growth accelerates with the beginning of growth from the base of the old corm, these are the filiform roots. To these is soon allied a new series of roots, the contractile roots. They grow from the base of the stalk, which is in reality the new corm beginning its development. Their purpose seems three fold: to anchor the plant, to carry nutrients from the soil, and to act as a reservoir for water.

Before these contractile roots develop, and soon after the filiform roots begin growth, the stronger buds from the upper part of the corm begin to push through the soil to form the new plant. The first parts to push through from the bud are the sheathing scales, usually three to four in number. They serve the purpose of protecting the tender leaves as grow toward the light. These sheaths are flattened and folded double so each enfolds the next. Their open edges face opposite each other. Each succeeding sheath pushes its way up through the folded base of the preceding one, facing in the opposite direction.

The leaves then grow in the same manner as the sheaths. About the only difference between the leaves and the sheath is that the sheaths are much tougher and they do not grow much above the level of the soil. They act as protection for the leaves, and the initial flower development. While the first leaves are appearing, the others are developing inside the sheaths. They are already formed and they continue to making new growth before pushing on up toward the sun. The first true leaf usually appears about twenty days after the corm has been planted and the others follow in rapid succession. The leaves soon reach full size and function to manufacture food for the plant.

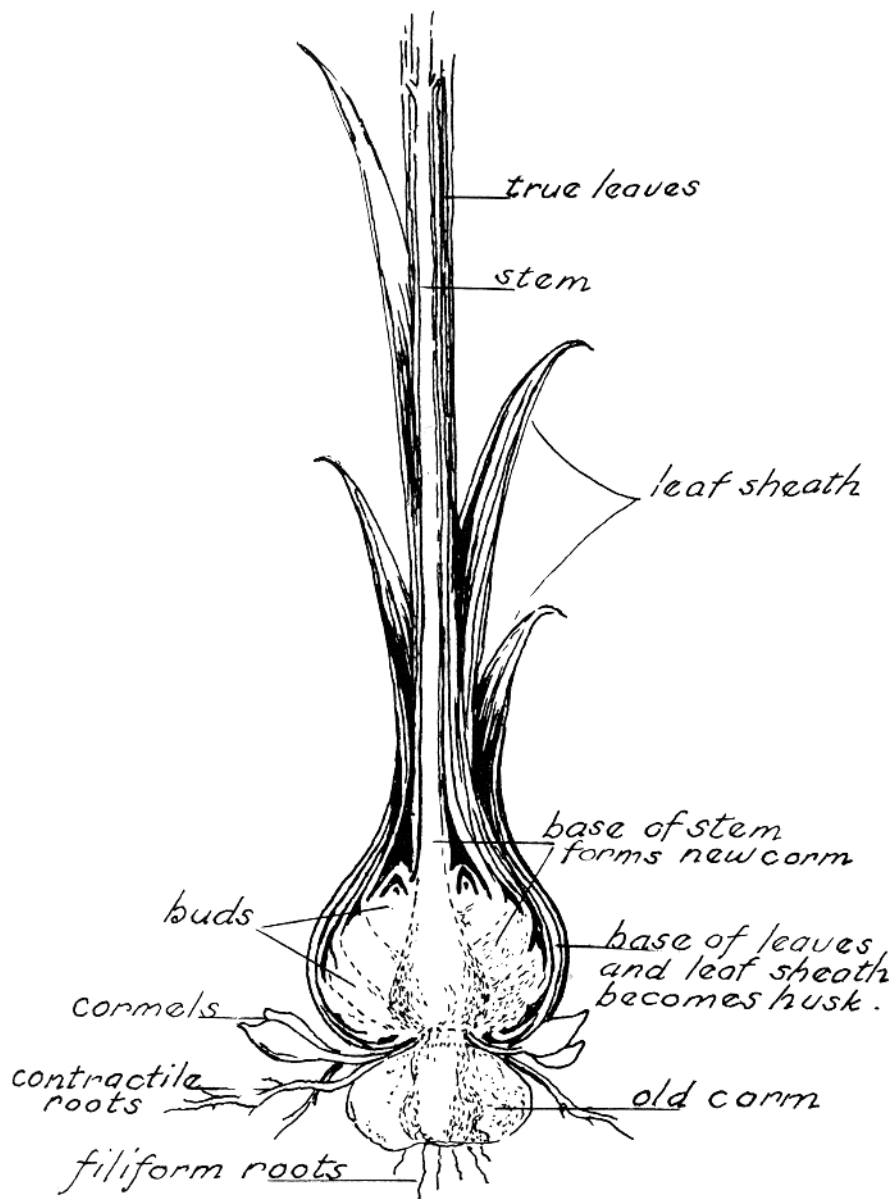
The beginning of the flower stalk is formed at the base of the sixth leaf. At first this is very tiny in size, and as it grows, flowers develop from the bottom floret upward as the stem pushes up through the older leaves, first the last formed buds, then the earlier formed ones, and the last formed leaves and the base of the stem itself. Since the flower stalk begins to develop within about a month after growth starts, and all buds develop within a period of a week or ten days, this appears to be a critical period in the determining the final composition of the spike. It is during this period that the number of buds will be determined. This early development of the spike occurs several weeks before it begins to swell the stalk as it grows upward through the sheath and the buds will not appear above the foliage until about two weeks before the first floret opens. Later care will determine the health and to some extent the size of the flowers. The number of buds cannot be increased by late care, only at this comparatively early stage.

While the above described formation of the flower spike is occurring underground the leaves and flowers are forming aboveground. The contractile roots are continuing to grow and supply food to the plant. It is during this time a swelling of the base of the new flower stem is taking place. This ultimately will become the new corm and the bases of the leaves surrounding it will become the husks of the new corm. This process appears to be a continuous one, which is hastened after the flowers have bloomed and is the critical period in the development of the new corm. After development of the corm, underground runners appear at the base of the corms. In some cultivars this growth appears late in the season,. Finally the ends of the runners swell, developing into cormels, each of which is a tiny corm having one leaf bud at the top and tiny root nodules at the base. While corms are covered with shell like husks, cormels are covered with a shell like substance that becomes quite hard either as the cormels reach maturity underground, or after digging. These cormels are vegetative replicas of the original corms and are grown to increasing the planting stock of a cultivar



Corm with
shoot and root
development
First stage of
growth.

The Growing Plant



While this underground growth is taking place, and while the leaves are continuing their work of food manufacturing, the flowers are opening, beautiful indeed, but for the basic purpose of producing seed. Each flower is made up of several parts. First there is the pair of small green sheathing spathes. Enclosed in these, and fastened to the stem is the ovary, at first small in size. Each ovary has three compartments inside which are the first undeveloped seeds. From the ovary grows a short stalk which spreads out quickly into the six segments of the flower. They commonly call these petals, but in reality three are sepals and three petals. These are the colorful parts of the flower, and by their shape and colorings, determine the flower's beauty

.Attached to the base of the three petals are three stamens each comprising filaments and anthers. The filaments are really little stems that hold the anther, the pollen bearing sacs. Growing up from the center of the ovary is the pistil. This is made up of the hollow tube like stem, the style, and the three part stigma at the top. This is the part of the flower to receive the pollen which will pass down through the style to fertilize the egg cells of the ovary. Usually the pistil is longer than the stamens and is carried slightly above them in the flower.

For the flower to serve its basic purpose, which is to produce seed, the pollen must fertilize the tiny egg cells of the ovary, at the base of each flower. This is accomplished when birds, insects, wind, or artificial means carry ripe pollen from the anthers to the stigma from where it germinates down through the style, there to join with the egg cells. Once fertilization has taken place, the seeds will begin their development. The ovary will swell as they grow, and the segments and the sexual organs of the flower, except the ovary, will dry up and fall away leaving only the seed pods, or ovaries, on the stem. After these ripen, the seed will either be carried naturally from the pods, or be gathered by the grower where it is wanted for growing into corms, and thence again, through the whole cycle. Seeds become corms, and the corms develop into more corms by the described process. It is from the seeds that new cultivars originate, but that is the story of a separate chapter. We still don't know which came first, the seed or the corm. It doesn't really matter so long as we keep in mind their separate purposes, which aren't so separate after all. It is only from seeds that new cultivars spring from corms and cormels accepted cultivars are propagated.

After the plant has reached the seed production phase or the stem has been removed, the new corm develops at the base of the flower stalk which will become next year's gladiolus plant. In this corm, food is stored, buds are developed in embryo form, the bases of the old leaves become the protective covering, the old leaves die back, and the new corm enters its period of rest to grow again with the coming of warm moist days. As a final measure, apparently to assure that all will not be lost if the fleshy corm is somehow destroyed, the cormels with their tiny corm of one bud will be wrapped in their hard shell like coating. Each cormel will grow into corms once this coating is broken down by nature's warmth and moisture, letting into the cormel the earth's life giving elements.

Updated by: Cliff Hartline