

NOTES ON THE TECHNIQUE OF PLANT MOUNTING.

J. A. NIEUWLAND and ARTHUR SLAVIN, University of Notre Dame.

Some of our most beautifully flowered plants in ordinary mounting technique as dried specimens become devoid of shape, structure, and even appearance to serve for good identification. Flowers, of orchids particularly, not only dry poorly, but lose all semblance of appearance of the living plant. We have found it convenient to seal such parts in ordinary test tubes in an appropriate medium, and they may thus be kept indefinitely. This may be done rapidly by putting, for example, individual flowers of *Habenaria*, etc., in a test tube, and pouring in a mixture of equal parts absolute alcohol and xylol. This is changed several times until all or most all of the water is removed by the alcohol of the mixture, and may finally be replaced by pure xylol. Petals and sepals are then rendered quite transparent and inner parts of flower-buds may be seen and examined with an ordinary lens. In xylol, the plant parts are but slightly, if at all, contracted in size but it is usually advantageous to have some alcohol present in the mixture or the transparency will be so marked in small flowers that they may be rendered almost invisible. Such specimens may be kept for many years if hermetically sealed, which is, with a little practice, quite easily and expeditiously done. If the dehydration is done rapidly, which is quite feasible with small flowers, the alcohol often extracts the water so rapidly that the color of the petals is left, giving quite a lifelike appearance to the specimens.

The procedure is as follows: Several flowers are put into a test tube with a height of about four cc. of alcohol, xylol, or xylol mixture at the bottom. The top of the test tube is sealed to a glass rod or tube and pulled out into a thin capillary, by heating with a bunsen burner. The tube is bent back by momentary heating in a small flame. The lower end of the capillary is put into a beaker of xylol. As the tube cools, part of the liquid is sucked into the test tube. By heating the tube near the top of the level of liquid this is quickly brought to boiling using a small pilot flame on the burner, without noticeably heating the specimens at the bottom of the test tube. On removing the flame, more of the liquid runs in to replace the vacuum caused by the forced-out air. The test tube is cooled in a beaker of water and while cooling, is sealed off. If this sealing is done quickly while the cooling takes place, the tip will not blow out but can be heated to a hard, thick point. The tubes are then fastened to ordinary mounting sheets with the dried plants, and attached with adhesive tape.

Such test tubes and other parts of plants, some with natural colors preserved can be kept for years. We have a longitudinally sectioned flower of *Opuntia Rafinesquii* that has been preserved since 1915 when

we first began making such specimens. Parts of plants brought up so as to serve for histological material could be so brought up to xylol, and left sealed until used. They should, however, pass through the regular process for the paraffine sections. This method is longer, but for ordinary specimens for examination, fixing in chromoacetic acid and its accompaniments are not necessary. It is not advisable to treat material with the xylol mixture before transferring to the test tube as this fluid renders the plant parts rather brittle. The method of preservation could of course be made use of for zoölogical specimens.