

**PRESERVATION
of
AGRICULTURAL SPECIMENS
in
PLASTICS**



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Preservation of Agricultural Specimens
in Plastics

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INTRODUCTION

IN THE WORK carried out by the United States Department of Agriculture on the development of improved methods for preparing specimens of agricultural material, it was found that the procedures outlined below are practicable within certain limitations for the classes of material defined for each.

The two preservation methods described in this manual are:

1. Preservation of plant specimens by chemical treatment to retain their natural color and, after dehydration, mounting them in two-dimensional form in plastic plates. This method is applicable, with suitable modifications, to flowers, leaves, roots, and such other plant parts as lend themselves to being mounted in a flattened condition.

2. Embedment of three-dimensional specimens of biological material in blocks of transparent plastic. This method is limited to specimens that can be dehydrated without undesirable change in form or color and are not altered in appearance by the action of the plastic during embedding.

Each of these two preservation methods is designed to produce only the particular type of mount described, and is limited in application to the classes of material specified. In selecting the method to be employed for preserving and mounting a given specimen, it is important, therefore, to make sure that it is capable of being processed in the manner desired and that the resulting mount is of the type that will be suitable for the intended use.

The application of these methods should be undertaken only by persons who have a working knowledge of biology and chemistry, or who are under the guidance or supervision of adequately informed individuals.

It is not practicable in a publication of this kind to warn the readers against all dangers to be anticipated in variations of the processes outlined. General cautions are included in part 2, beginning on page 32 and continuing on pages 33, 34, 36, and 38; others are scattered throughout the manual. Different conditions or the use of different compounds and combinations might introduce additional hazards.

The subject matter contained in this publication is based mainly on the development work on specimen preservation carried out in the United States Department of Agriculture. Consideration has, however, also been given to the published results of other workers in the field, and the publications consulted are listed at the end of this manual.

In the development of the methods here described cooperation was received from numerous agencies and individuals, including the Bureau of Plant Industry, Soils, and Agricultural Engineering; the Bureau of Entomology and Plant Quarantine; the Forest Service; the Extension Service; the National Herbarium and other divisions of the Department of Biology of the Smithsonian Institution; the National Bureau of Standards; the botany departments of the George Washington University and the University of Pennsylvania; the New York Botanical Garden; the Brooklyn Botanic Garden; the Philadelphia Academy of Natural Sciences; the Arnold Arboretum and the Gray Herbarium of Harvard University; the Wildflower Preservation Society; and the New England Herb Society.

During the compilation of these instructions the subject matter was

presented in preliminary form in a series of short courses in specimen preservation, held during the first 7 months of 1945 through arrangements made by the U. S. Department of Agriculture Extension Service at the State Agricultural Colleges of Florida, New Mexico, Oregon, Washington, Idaho, Montana, North Dakota (in conjunction with South Dakota), Illinois, and Massachusetts (in conjunction with Vermont, New Hampshire, Rhode Island, and Maine). Members of the college faculties and of the Experiment Station and Extension Service staffs of these States cooperated in amplifying and revising parts of the original text. Acknowledgement is also made of the assistance received from numerous other sources both within and outside of the United States Department of Agriculture.