A CONVENIENT LABORATORY PLANT PRESS.[1]

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The drying of plants is at best a laborious and uninteresting, though very necessary phase of the making of an herbarium and in the preservation of plants for illustrative or class study purposes. The old system of changing dryers has, in large part, given way in recent years to more modern and time saving methods. The introduction of the use of corrugated strawboard between the dryers and the utilization of some source of artificial heat for drying the plants[2] has taken much of the drudgery from the old methods and in general has resulted in a better quality of herbarium material.

The writer has used a simple type of plant press during the past ten years which has proven very practical and satisfactory for general laboratory purposes. On account of the simplicity of construction and the low initial cost of this apparatus it has seemed desirable to furnish a description of it with specifications and illustrations for the benefit of those who may not have solved the problem of drying plants to their satisfaction.

The first press of the sort to be described was constructed in 1911 for use in the laboratories of the Department of Botany and Plant Pathology at the Oregon Agricultural College. From one to four of them have been in constant use there since that time both for general laboratory purposes and for use in connection with classes in taxonomic botany. The writer has also used, since 1915, presses of similar construction in the Botanical Department of the Purdue Agricultural Experiment Station. A number of persons from other laboratories who have seen these presses in use at one or the other of these institutions have adopted a similar type.

The apparatus consists essentially of a box with rack on which the plant press rests, provided below with a source of heat (Fig. 1). The box is 15 by 18½ inches, inside measurement, and is open at top and bottom. It may be made square 18½ by 18½ inches if desired. The sides are made of one inch boards, ten inches wide and fastened together with screws. A rack on which the press rests (Fig. 2) is provided and placed three inches from the top of the box. This is made of material one inch square and is fastened all the way around the inside of the box. One or two cross pieces are added as illustrated, though are perhaps unnecessary. Yellow poplar lumber is found to be very satisfactory as it is not so liable to warp as some other kinds.

Heat may be conveniently supplied by two or three carbon filament electric light bulbs, the sockets for which are fastened about three inches from the bottom. Two sixteen candle power lights are sufficient for ordinary purposes, depending somewhat upon the succulence of the plants to be dried. It is well, however, to provide three sockets placed in such a way as to give the most uniform disribution of heat. The writer has also used, with entire satisfaction, special heating units of low resistance so

[1]Contribution from the Department of Botany, Purdue University Agricultural Experiment Station.

[2]Riker, P. L., Directions for collecting Plants. Bur. Pl. Ind. U. S. Dept. Agr. Circ. 126:27-35. 1913.

constructed as to fit in any standard electric light socket. Any convenient method of supplying heat by electric current may be used. It is important, however, that only a small amount of heat be supplied. It is only necessary that a draft of warm air passes through the corrugated boards of the press. Three one inch auger holes two inches from the bottom are provided on each side of the box to allow for intake of air.

The sides of the press are made of one inch boards 12½ by 18 inches. It is best to fasten a piece one and one-half inches wide crosswise at either end to prevent warping. This should be tongued and grooved and glued. Canvas straps with friction buckles are permanently fastened to the boards at either end as shown in the illustration. These should be of such length as to allow for the maximum expansion which the width of the box permits with sufficient additional length to conveniently allow for drawing the press tight. Double faced corrugated straw boards cut so

Fig. 1.—The Plant Press in Use.

Double faced corrugated card boards, cut so that the corrugations extend the short way, are used between the driers.

Heat is supplied by two or three carbon filament electric light bulbs, or by special heating units constructed to fit an ordinary electric light socket.

Any thickness of press, within the limits of the width of the box, can be used. Boards one and one-half or three inches wide are provided to fill in the space at the sides of the press on the rack when only a small amount of material is to be dried.

Ventilation is provided by six one inch auger holes placed three on each side of the box, two inches from the bottom. Photo by M. W. Gardner.

that the corrugations run the short way are used between the dryers. When succulent material is to be dried it is perhaps preferable to use one corrugated board between each pair of dryers. For the ordinary type of material two plant sheets with three dryers between each pair of corrugated boards is found entirely satisfactory. Grasses and other similar plants will be found to dry satisfactorily when three specimens and four dryers are placed between the corrugated boards. Folded sheets of newspaper are found to be entirely satisfactory for use as plant sheets, though the special sheets for sale by all dealers in herbarium supplies are preferred by many collectors. When plants are being dried for illustrative purposes a layer of sheet cotton may be used to advantage between the specimen sheets and the dryers.

When only a few plants are to be dried and the press is thin, a floor of loose but closely fitting boards should be laid on each side of the press on the rack so that all the heat will pass through the corrugated boards. For this purpose four boards 18 inches long, two or which are one and a half inches, and two three inches wide should be kept conveniently at hand.

Most material will dry in this press in less than twenty-four hours though very succulent plants will require a longer time. If the press is turned over every few hours during the early part of the drying period

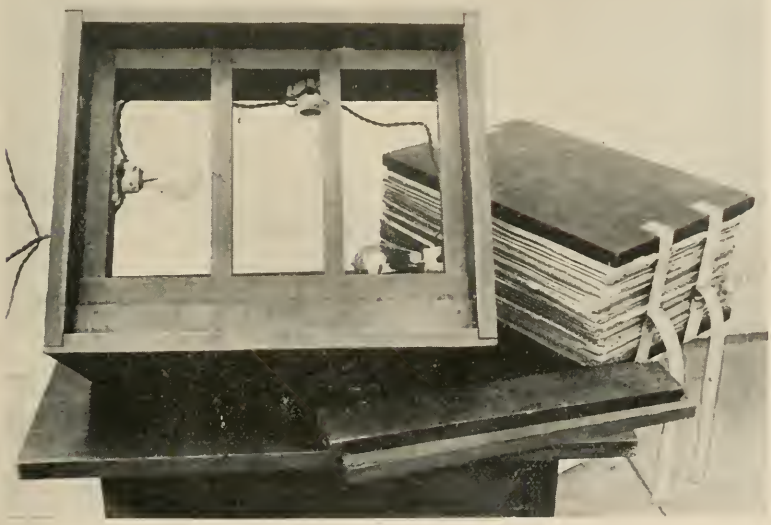

Fig. 2.—Box Raised on Edge to Show Construction.

The inside dimensions of the box are 18½ by 15 inches. The sides are ten inches high, open at the top and bottom. Sockets for electric lights are placed three inches from the bottom, and the rack on which the press rests is three inches from the top.

The press is made from one inch boards, 12½ by 18 inches. Canvas straps with friction buckles are provided at either end as illustrated.

Note the loose boards which are used for a floor at sides of press when only a small quantity of material is being dried. Photo by M. W. Gardner.

the plants will dry in a shorter time. As the plants become dry considerable shrinkage occurs and it is desirable to tighten the straps once or twice.

Where large quantities of plants are being dried at one time the apparatus described may not prove as satisfactory as some other methods in use, though a battery of four or five such presses will be found to be ample for ordinary class work. For the laboratory which has only occasional use for a plant press or for the individual collector it will, we believe, be found quite satisfactory.