

PEG-Treated Walnut Limbwood Makes Handsome Decorator Clock

By

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"Thanks to the FPL development of the polyethylene glycol treatment, this practical utilization of waste walnut limbwood opens up a new field of conservation and marketability of waste tree parts."

Donald H. Gott, Sec.-Mgr., American Walnut Mfrs. Ass'n

THE HANDSOME WALNUT DISK decorator clock (see picture) that adorns a wall of the new coffee shop at the Forest Products Laboratory has attracted considerable interest among both staff and visitors. In view of the number of requests received at FPL and by the Forest Products Research Society for information on how these clocks are made, the procedure is here summarized for the benefit of all interested parties.

Disks, about 2-1/2 inches thick, are band sawn from sound walnut limbs at an angle of 40° to achieve a distinctive shape and appearance. The limbwood should be fresh cut, green, and from 8 to 10 inches in diameter outside bark. Such material is normally left in the woods to rot, and can usually be had for the asking.

The disks should be sealed in plastic bags or immersed in water to prevent checking and splitting until they can be stabilized with polyethylene glycol. PEG treatment consists of soaking the disks in a 30 percent (by weight) water solution of polyethylene glycol-1000 for around six weeks at a temperature of 70° F. or above. Treating time can be reduced to about two weeks by elevating the temperature of the treating solution to from 140° to 160° F. and by increasing the concentration of the solution to 50 percent.

The PEG-stabilized disks can be air seasoned under cover in from two to three months, depending on drying conditions. Or they can be dried more rapidly (7 days) in a kiln under rather drastic conditions (110° F., 15° depression).

When dry, smooth one face on a jointer, and then run through a planer to reduce to uniform desired thickness of about 2 inches. Suitable electric movements are made by the General Electric Company and a number of other manufacturers. Since pro-

duction models normally require some modification to adapt for this use, it is best to order through a local clock repair shop. The main requirements are a shank (for mounting hands) long enough to extend through 1/4 inch of wood, a diameter of around 3 inches, and depth of about 1-3/4 inches.

Next, properly position the disk in a drill press and bore a hole in the back that will exactly accommodate the movement. Then sand both sides of the disk, using warm water and fine wet-or-dry paper for final sanding of the face side, and bleach the face with oxalic acid to accentuate contrast between heartwood and sapwood.

When dry, fine sand the face side and then give the entire disk, including the bark, at least three coats of polyurethane finish of the type that sets with exposure to atmospheric moisture.¹

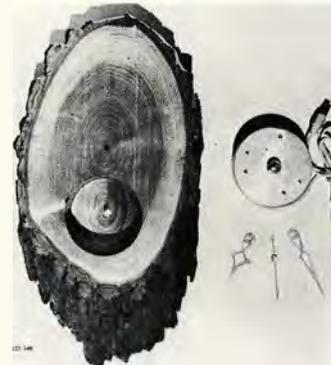
The graduations (or hour markers) on the clock face can be made of sap maple, holly, or brass. Those shown in the picture are made of holly strips about 1/8 inch square; they are attached with contact cement. Length and arrangement are largely a matter of personal taste. After gluing on the graduations, the face should be carefully cleaned and then sprayed with a coat of clear acrylic lacquer.

In addition to the clocks, other useful items can be made of stabilized disks sawn from normally wasted tops and limbwood down to 4 inches in diameter. The ash trays and pen sets here pictured illustrate product possibilities for small handicraft industries that could be set up to utilize this class of material.²

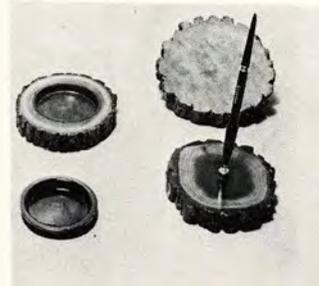
¹This type of polyurethane finish may be obtained from Tranco Chemical Corp., Reading, Mass. (Tranco 542F).



Face-view of walnut clock.



Back of clock showing hole for mechanism, right: Hands which attach on clock face, are shown lower right.



A group of walnut ash trays.

²A Minnesota company now sells do-it-yourself kits for the clocks, and a Wisconsin company plans to market a completely finished clock. Write the *Journal* for information.