

## A Modified Berlese Funnel

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A standard piece of collecting equipment in use by many entomologists is the Berlese funnel (Berlese, 1). This is a device for sorting or separating small organisms from the vegetable debris in which they live. It consists of a metal or cloth funnel with a screen near the upper portion of the funnel upon which the material to be treated is placed. At the lower end of the funnel is fastened a jar or vial. Heat is applied over the material and as desiccation occurs the animals move to the lower portions of the debris, eventually dropping through the screen at the bottom of the debris and falling to the collecting jar at the small end of the funnel. The original funnel used a specially designed water jacket as the heat source and many modifications of the basic apparatus have been made (Peterson, 2; Zinn, 3). In general, the current practice is to use an electric light bulb as the heat source.

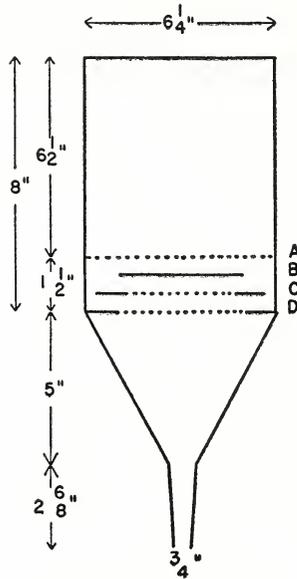
The senior author has made extensive use of the Berlese funnel in the quantitative analysis of populations living in the leaf litter of the forest floor (Williams, 4). In all of these studies an ever-present problem has been the relatively large amount of extraneous debris which falls into the collecting jar along with the animals. The term berlesate seems to be quite appropriate for the material thus collected. The debris in the berlesate presents a problem in sorting the many microscopic forms which are found in this type of collection. It greatly increases the time necessary for sorting.

In the course of an analysis of the fauna of tree holes, the authors found that the amount of debris in the berlesate was greater than that in most surface litter collections. A method of cutting down on the amount of debris without impairing the efficiency of the funnel was obviously desirable. Since the problem was a quantitative one it was necessary to insure a maximum recovery of animals with a minimum of debris.

After a series of experimental modifications was made, the one described below was found to be a very satisfactory solution to the problem. The essential feature of the system is a series of coarse and fine screens so arranged as a series of baffles that most of the debris is caught before it reaches the collecting jar, yet the organisms can readily move to lower levels of the funnel in their negative response to the desiccating power of the light bulb. The resulting berlesate is remarkably free of debris, in some cases almost a pure sample of animals.

Figure 1 shows the construction of the funnel. The legend for the figure gives the necessary data as to dimensions, size of screening, and construction details.

This system of screens can be adapted for any size funnel and the number of baffles increased for a larger funnel. We use two sizes of funnels, the one figured and one twelve inches in diameter. In each case the effectiveness of the baffle arrangement is excellent.



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Figure 1. Sectional view of modified Berlese funnel with screen baffles in place.

The solid lines in the screen baffles (A, B, C, and D) are 1/16" mesh window screening and the broken lines indicate 1/4" mesh hardware cloth.

Screen A is 6 1/4" in diameter.

Screen B is 4" in diameter.

Screen C is 5 1/2" in diameter with a center opening 3 1/2" in diameter.

Screen D is 6 1/4" in diameter with a center opening 4 1/4" in diameter.

The screens are reinforced at the edges with 3/16" wire, soldered in place.

Screen A is removable, resting on three L-shaped flanges soldered to the side of the funnel.

Screens B, C, and the center portion of D are a removable unit. Three sheet metal legs, 1/2" high, soldered to the screens separate each level. This unit rests on the outer ledge of fine mesh screen of level D, which is soldered to the side of the funnel. The center portion of D is slightly larger than the opening so that the unit rests on the ledge of fine mesh screen.

### Literature Cited

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