

TEPEE TECHNIQUE FOR COLLECTING CAVE FLIES

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If anyone collects specimens of any sort there is always a method for collecting involved. If one says that they have no method but just collect in a haphazard manner they are in fact using what scientists call the "haphazard method." To get the best results different methods may have to be employed.

To catch flies in the deep interior of a cave the first method tried was to suspend a strip of fly-paper on a stick and allow it to remain in the cave for some time in order to catch any flies which might happen to alight upon it. When the fly-paper with the adhering flies was removed from the cave the fly-adhesive was dissolved and the



Fig. 1. Lighted candle and tepee framework around which white cheese cloth is wrapped.

flies obtained. This procedure though comparable left the flies in rather an inferior conditions as specimens. In order to rectify this a different method was devised which I have designated as the tepee technique. This method applies especially to the deep dark interior of a cave.

The technique as finally developed consisted of four sticks (three or more might also be used according to conditions) about three feet long with the upper small branches cut so as to leave a projecting stub from the main stem. The sticks were arranged in the form of a small tepee in the locality of the cave which was under consideration. The upper projecting stubs of the cut branches made it quite easy for the sticks to remain in position so that they did not have to be tied together near the top. After the stick framework of the tepee was in the proper position a lighted candle was placed on the ground in or

near the center of the tepee floor (Fig. 1). After the lighted candle was in place then white cheese cloth was wound around the sticks from the bottom to the top and left there as the covering of the tepee. At first several candles were used but it was found that one candle could serve the purpose fully as well if not better than several candles, especially since the danger of the cheese cloth catching on fire was less.

At least two persons should do the collecting, especially if there happened to be quite a number of flies present in the cave. Flies were found to be most numerous soon after the bats had visited the location in the cave where the tepee technique was used. Fresh bat guano was deposited on the cave floor while the bats hung to the cave roof above. The collecting was made by the use of small vials which were practically filled with preserving fluid which was also used as the killing fluid. As the flies alighted on the cheese cloth the mouth of the open vial was quickly brought just below the fly or almost directly under the fly, if a fold in the cloth made it possible. The fluid used in collecting the flies was 70-80 percent ethylene to which a trace of glycerol had been added to keep the specimens pliable even upon the evaporation of the ethylene. If flies were very numerous each person (Jerome Lawson, Elmer Lee, James Talley or other Carson-Newman College students and myself) that was helping with the collecting had a separate fluid-filled vial. If the flies were very few then only one fluid-filled vial was used which was passed around to each person as the flies were seen on their side of the tepee.

Besides a definitely constructed tepee a definite time period should be taken in which to do the collecting. This is needful, especially if abundance cycles are to be studied. The time we always used was one hour. Although one hour may not be the best time in every case, the time chosen to determine abundance cycles should remain the same for each collecting period so that the collections may be comparable. A collection was usually made about the middle of each consecutive month until the experiment was completed. After each collection period the cheese cloth was unwound from the tepee framework and taken from the cave. The sticks of the tepee framework however were left in their same positions in the cave until the entire series of fly collections were completed. The complete equipment for the tepee technique is easy to carry in and out of a cave and it is inexpensive and always easily obtainable.