

# Ecological Source Material from the County Courthouse<sup>1</sup>

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Actual group study in the field is an experience which teachers as well as students find stimulating. The ecological study of a limited area is a problem well within the range of the high school student's ability. Sometimes, however, the teacher hesitates to embark on such a study because the available text material is inadequate for his area. Environmental conditions, of course, vary considerably from one part of the country to another, and as a result, ecology is treated only in the most general terms in the usual high school text.

The descriptive study of an area is perhaps the simplest problem which a high school class could undertake. Such a descriptive study becomes much more meaningful if it is used as a basis for comparison . . . but herein often lies the rub. Descriptive ecological studies are not ordinarily part of the high school library. Suppose, however, the area could be compared, not with another area some distance away, but *with that same area a century or more earlier!*

Fortunately, such a comparison—in some degree—is usually possible. Buried in the files and vaults of county courthouses or office buildings are the field notebooks of the various surveyors who have cruised the area, including those of a century and more ago. A surveyor's notebook reflects, in some degree, the personality of the surveyor himself, and reads almost like a diary. This is especially true of the notebooks from the early and middle eighteen hundreds, which are frequently filled with a wealth of vegetation data.

A few years ago the writer became interested in learning the past vegetational his-

tory of a small area in Franklin County, Missouri. In the courthouse at Union, Missouri, he found two surveyor's notebooks from the 19th century—one from 1853, and one from 1881. In those days the points of reference used by surveyors were not brass plates sunk in concrete posts. They used "witness trees" which were easily recognizable by their size and position. Some of these witness trees may still be detected today. Both of the surveyor's notebooks at Union contained gratuitous descriptions of the vegetation along the lines which these men ran. These descriptions contained not only the common names of the trees, but as a general rule some estimate of their abundance or prediction of their value. It was fascinating to compare the vegetation of the last century with that of today.

Let's see how one might go about finding and using these old surveyor's notebooks. Prior to asking the records clerk for permission to study the field notebooks, the area to be studied must be chosen and located precisely on the master map of the county. From this master map the township coordinates are obtained, and the notebooks are filed under these coordinates. For example, near Troy, Alabama, there is an interesting vegetation type, a hammock, known locally as the "pocossin." From the master map in the Pike County engineer's office we discover that this area lies within section R-21-E and T-9-N. Proceeding to the records clerk, we explain our purpose and request permission to examine any field notebooks pertaining to this area—particularly the old ones. It has been our experience that these clerks are usually most cooperative after the purpose of the request is made plain, although as a general rule the notebooks must be examined in the office and not be removed from the courthouse.

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In the case of the Troy "pocossin," the notebook reveals—in the precise, but spidery script of the nineteenth century surveyor—that this un-farmed, largely un-cut area is just about the same today as it was over a hundred years ago. We read, "Chinkapin tree abt. 2° diam. N. 8 degr. E 4 chains 6 lnks. to small stream. Forest—Gum, wtr. oak, magnolia, willow. N. 5 degr. W up steep incline 8 chains 14 lnks. to large forked chestnut." In 1955 the chinquapins and the chestnuts are gone—victims of the chestnut blight, but magnolia, scrub oaks of various species, and "gums" still characterize the area. The frequent references to "chinkapin" and chestnut trees, however, attest to their relative abundance in times past. Armed with such data, how much more meaningful is the present descriptive study of the area! Indeed, if carefully done, a comparative study as outlined here would add a significant note to scientific knowledge, and might well be worthy of publication.

Another source, sometimes overlooked, is the large aerial photographs available at the county offices of the United States Department of Agriculture, which are used as base maps for soil surveys. These photographs may extend back twenty years or more. To a high school student, a twenty year old aerial photograph is like something out of ancient history. These aerial photographs may be used for tracing out an outline base-map of the study area. If there is a meandering stream or river within the area, however—or even a pond which is becoming filled in—the changes which can take place with respect to the position of the banks are sometimes little short of startling, even in a relatively short span of time. The photographs are quite clear. With the magnifying glass it is possible to locate single isolated trees, which can be used on the ground as reference points.

A comparative ecological study will yield many benefits to the students undertaking such a project. They will learn to use their own knowledge and resources, without recourse to previous studies or specific directions obtained from text material, and yet will be able to present results which are both interesting and significant.

## A Terraced Laboratory

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Countless opinions and arguments concerning laboratory and lecture techniques have achieved much to direct attention and effort into improvement. The biological fields have been fortunate that trials and changes have taken a positive but conservative approach, rather than coining new terms which are supposed to herald profound innovations. Too many of these mutations are, under critical examination, only new exaggerations and are doomed to oblivion after the first appeal is exhausted.

In general whether it be the formal laboratory of Asa Gray or the working companionship of student and teacher so common during the beginning of the sciences, the fundamentals are similar. The laboratories are all basic in approach and the instruction has always been in the presence of materials. The only exclusion needed are those courses using a laboratory merely for titular needs.

The patterns of teaching in the biological science courses in colleges are more varied than in high school, but many colleges and most high school biology courses use a combination of discussion, discourse, investigation, and demonstration. With this pattern of combined techniques there has been little choice of rooms. Most teachers however, are aware of the advantage of conducting a lecture, discussion or demonstration where the students are elevated on steps.

At Montana State College the "Ohio State" method of teaching botany is employed. This method of teaching makes use of discussion, discourse, investigation and demonstration techniques in varying proportions during each period. For use in this course a trial laboratory with the student tables on raised platforms was established for use by four of the six sections.

The room was a small lecture room, which after conversion is a laboratory for 32 students. The alteration consisted of building 4 steps 5 feet wide with risers of 8 inches. The tables are 26 feet long, 18 inches wide, and 28 inches high. Electrical outlets are easily available for each student unit. The chairs have a single