are properly set up, start timing. This method is reported to work about half the time.

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For a good method to measure transpiration, cut the roots off a suitable plant. Working underwater, insert the plant into a snug-fitting rubber tube. The other end of the rubber tube goes to one end of a "T" fitting. A second end of the "T" fitting is attached via a rubber tube to a 1ml pipette. The third end of the "T" fitting is attached via a rubber tube to the bottom of a water-filled titration pipette. The control of the titration pipette is set to "off". Remove the entire unit from the water, clamp together and adjust to the proper height. As water is transpired, the 1ml pipette will empty of water, and the printed markings make it easy to measure the amount of water transpired. When the 1ml pipette is nearly empty of water, use the water from the titration pipette to run the water back out to "0".

To fit a root-intact plant into the hole of the cork used for the water container of a transpiration experiment, don’t try to jam the roots through the hole. Instead, cut the cork in half longitudinally, then slip over the plant at the junction of the root and stem. Glue the cut halves together. With a little modification this can be used for the transpiration set-up described above.

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Your own local, hand-gathered seeds can be used for botany labs. Honey locust and redbud seeds were suggested. Some seeds will have to be sacrificed.

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REPORT ON FOCUS ON TEACHER TRAINING; AN OPEN DISCUSSION

AMCBT Meeting 9/28/84

by

Jerry Foote - University of Wisconsin-Eau Claire

Ten people attended this meeting and each chipped in ideas to provide a truly Open Discussion.

Several thoughts were presented regarding things which should be accomplished in training future Biology Teachers.

Not training Biology teachers, but training Science teachers, was a central thought. Some colleges meet this need by requiring future Biology teachers to complete Chemistry courses through Organic, a year of Physics, and Math through Calculus.

In Wisconsin, there is a state requirement that future Science teachers must have a major in the area of science which they will teach. To teach in a minor area, the candidate must also have a major in some other area of science! Science includes: Biology, Chemistry, Earth & Space Science, and Physics. This doesn’t completely insure that all future Biology teachers will indeed be well grounded in all of the sciences, but it does mean that Wisconsin will no longer have Physical Education majors or Social Studies majors with only a minor in Biology, teaching Biology!

At the high school level, should Biology classes be taught? The above discussion led to the thought that maybe
some sort of Integrated Science Courses should be taught instead of the separate Biology, Chemistry, and Physics series. I don't know of any schools that have gone this far, but there are some that have an Integrated Science Type program which includes the Junior High Science courses and Biology!! Students then continue with Chemistry and Physics if they so desire! There are, then, a few schools beginning to form Integrated Science programs, but I don't know of any Colleges or Universities that are training teachers for this type of Science teaching.

Investigatory or Inquiry experiences were thought to be important and indeed imperative in High School Science courses. What experiences do Colleges and Universities provide for models of this type of education? It was agreed that most Biology courses at the college level are not really inquiry oriented and that this type of experience in a Teaching Methods course would be too limited to provide an adequate model for future teaching. Teachers generally teach as they were taught or as they learned, yet we are asking future science teachers to use a method with which they have either not had previous experience or at best have had very limited experience. Under these conditions, can we really expect High School Science teachers to use inquiry or investigative methods with their students?

This is the point at which we, as science teachers, can play a pivotal role in the training of our future science teachers. We must initiate inquiry types of experiences in our College and University Science courses so that our future teachers can gain experience and confidence with this teaching method. Only with this past experience and confidence will high school teachers really feel comfortable in using these techniques with their students. It was felt that this new type of teaching model is really necessary if our present methods of recitation and memorization are to be modified in any way. With the explosion of knowledge that is upon us, it is incumbent upon future teachers to help their students gain new knowledge through experiences other than memorization of facts. Facts will come and go faster than future students can possibly memorize and keep up with them!

It is up to us, in our College and University courses to lead the way! What can you do to introduce more investigative experiences into your courses?