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2nd Annual Workshop on Inland Waters Spawns Project on Little **Sioux**

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and allow it to set over night or longer. Now examine the stalks or stem. What changes have

taken place?

B. Next take a short piece of the stem and split it lengthwise (see page 140 of <u>Life</u> diagram 3 for more information on how to cut the stalk) and look at it under a dissecting stereoscope. Sketch one or two of the tubes that you split open.

C. Now cut a very thin cross section of the stem and examine it under a compound microscope. (See diagram 2 on page 140 of Life.) Sketch and label the pattern of water tubes. D. Select a small piece of stem from a dicot (ask the instructor) and make a cross-section slide as you did with the celery and sketch and label the water tube pattern you see. (See figure 24.10 on page 335 of Modern Biology.)

Fern Spore Case Lab

Ferns are the only group of vascular plants that reproduce by spores. The others use seeds. You know, from past experience, that seeds are dispersed in many ways. Some seeds are carried by the wind like the milkweed. Birds carry poison ivy seeds, or seeds may be carried by water and animal's fur. The spores are very tiny and do not move except by the wind, water, and a "spring snapper." When the air is moist the spore cases which contain the spores, spring open. The edge of the spore case opens up and acts as a coiled spring to propel the spores out into the world.

In this activity you will be looking at a fern leaflet and seeing the springed spore case and some spores. Look at the diagram on page 78 of $\overline{\text{WLT}}$.

A. From an instructor, get a fern leaflet and examine it. Notice how the edges are curled up in some places. These still have the spore cases in them! Those that are open and fuzzy on the back have already dispersed their spores.

B. Take a clean slide and place the leaflet on it and smash part of it with your finger and you will notice little black granules which are the spore cases. Use a microscope to examine them. Sketch one of the spore cases and label the "spring."

C. Next add water and a cover slip. Smash the cover slip down to force the spores out. Take a good look and have your slide checked by an instructor. Slide check

You may want to take a slide of spore cases and add water and heat them to see if you can make them snap open.

These types of methods have proved to be effective in our particular educational setting. We believe that the added incentives, which are provided for the learner by such methods, have enhanced the interests and the achievement of students. Therefore, we would like to see this model implemented into more classrooms throughout the state of Iowa.

DID YOU KNOW ABOUT OUR ACTIVITY?

Milbert Krohn Past President 506 20th Street Spirit Lake, Iowa 51306

The Iowa Science Teachers is sponsoring the following activities for science teachers of Iowa.

Inland Waters Seminar . . . Lake Okoboji
Earth Science Seminar . . . Knoxville
Junior High Seminar . . . Oskaloosa
Fall Programs Des Moines, ISEA
Short Course Ames

Iowa Academy Science

Teaching Section . . . Grinnell SSMA National Meeting . . . Des Moines 73 St. Louis NSTA Regional . . 1972

Junior Academy Field Days

Bloody Run Earth Science
Okoboji Aquatic Field
Luther Camp Winter Field

We are going to try to expand our program to include seminars in physics, chemistry and elementary science. We need teachers with ideas to join us in our effort to get science education moving. We will help supply the personnel for your idea. Get with us in our movement to place Iowa in the forefront of activity in science education.

2ND ANNUAL WORKSHOP ON INLAND WATERS SPAWNS PROJECT ON LITTLE SIOUX

Milbert Krohn

The second annual workshop on Inland Waters held at Lakeside Laboratory at Lake West Okoboji has ended. Participants have returned to their home schools and are now engaged in

measuring several chemical and physical parameters along the Little Sioux River. The project, sponsored by the Iowa Science Teachers and the Iowa Conservation Education Council, brought 18 high school teachers together to learn about procedures for measuring the character of a moving body of water. The teachers are now training teams of students to assist them in their projects. The information is going to be channeled to a central collecting depot. From here it will be sent back to the participating schools. Students and teachers alike will (hopefully) produce papers for presentation at the Iowa Academy of Science - Science Teaching section in the near future. Materials will be made available to other governmental agencies if they desire. It is hoped that the program, if successful, will become a template for research teaching throughout the midwest and perhaps the entire country. Co-directors of the project are: Milbert Krohn, Spirit Lake Community School District, and Paul Joslin, Science Education, Drake University. Should any teachers be interested in setting up similar groups in other parts of the state they are invited to inquire about procedures from either of the directors.

WHAT DID YOU TEACH TODAY?

Parents on the Run Marguerite and Willard Beecher Grosset and Dunlap, New York, 1967

"I have taught in high school for ten years. During that time I have given assignments, among others, to a murderer, a pugilist, a thief and an imbecile. The murderer was a quiet little boy who sat on the front seat and regarded me with pale blue eyes; the pugilist lounged by the window and let loose at intervals in a raucous laughter that startled even the geraniums; the thief was a gay-hearted Lothario with a song on his lips, and the imbecile, a soft-eyed little animal seeking the shadows.

The murderer awaits death in the state penitentiary; the pugilist lost an eye in a brawl in Hong Kong; the thief by standing on tip-toe can see the window of my room from the county-jail; and the once gentle-eyed little moron beats his head against a padded wall in the state asylum.

All these pupils once sat in my room, sat and looked at me gravely across worn brown desks. I must have been a great help to those pupils - I taught them the rhyming scheme of the Elizabethan sonnet and how to diagram a complex sentence . . ."

SO YOU WANT TO BE AN OUTSTANDING TEACHER!

Barton Philipps Science Education Center The University of Iowa Iowa City, Iowa 52240

Great teachers are great because of the long vacations, short working day, easy work (if you call it work), and good pay. WHAT? Who said that? Truely GREAT teachers rarely take a vacation and work overtime without pay, to guide the students in learning situations. And as for the pay, the garbage collectors in many areas make more than the teachers.

You can tell if a teacher is interested in teaching as soon as you walk into the classroom. If they let you in the door, just ask yourself a few questions as you look around. What is the philosophy of the school? Are they dedicated to pushing every child into college so the school looks good, or are they interested in the child's self image? Is it a bare, drab room or are the walls filled with things the children have done and items of interest to the child? Are the children going through the motions of work or are they smiling and busily engaged in classroom activities? Do the children do the same thing every day, or is there variety in the daily schedule? Does the child have time to think out an answer and then venture a guess, or is he or she afraid of being wrong? Which is better - the right answer or the processes of thinking that were involved? Does the child receive individual help or is everything done in groups? Must lessons be done in silence, or is communication permitted on a non-disturbing level? What chance does the child have to pursue an area of his own interest? Does the teacher make too many negative remarks about the children's work? What do the children say about school, or don't they say anything?

When is the last time you visited your child's classroom? We need interested people whether they are parents or not. YOU need to get involved with your schools. If you are