

ing of several poems and the citing of many magazine articles such as "Bearding the Lion in His Den" and "Gassing the Dandelions." Each item brought the contributor a point in the game.

A few minutes before the end of the hour, the teacher terminated the enthusiastic contribution and urged the students to play a round-up, continuous story game as a summary of what they had learned during the period. Each person was to take his turn in adding one fact about the dandelion. If any player in turn was unable to add an additional pertinent fact to the subject under discussion, and another could, that player had to pay a forfeit.

ANN: "The following are the tactics by which the dandelion has become so widespread and abundant: It blossoms and produces seeds from early spring to late fall."

MAY: "It flourishes on all sorts of soils and thrusts its long taproots down into the soil and thus gets moisture and food not reached by other plants."

LOTTIE: "Its leaves spread out from the base crowding and shading out all neighboring plants."

JOHN: "It has plenty of pollen carriers to insure strong seeds."

PETER: "It can develop seeds from its own pollen, or it can develop seeds without any pollen."

DOROTHY: "It develops almost numberless seeds, or akenes as the botanists call them, which are scattered far and wide by the wind."

JEAN: "It forms vigorous leaf rosettes in the fall and thus is able to begin growth early in the spring. It"

And so the story continued until everything which had been learned during the period had been told.

Several players found it necessary to sing a song together in order to redeem their forfeits, much to the delight of the class.

The field trip described above indicates the instructional potentialities inherent in objects in the immediate environs. Much was learned about the dandelion and it served well to introduce the unit on adaptation. Other common plants have just as interesting tales to reveal. Teaching techniques were presented that were interesting and effective. The field trip lesson was psychologically sound and ended with an overview-drill that knit the learnings into a whole.

Stock the Aquarium with Local Fishes

DONALD S. LACROIX

Amherst High School, Amherst, Massachusetts

In establishing aquaria for the school biology laboratory, why not use fishes that are found locally? "Punkin seeds" (a species of sun fish), bull-heads (horned pout), and pickerel are hardy varieties widely distributed around the United States. There are many others and all should be experimented with but inhabitants of fast-running brooks and

rivers will not make successful additions to the aquarium. Also, some species will not get along well with others. Pickerel, for example, will devour anything their size or smaller; sunfishes are rather pugnacious, the larger ones tending to "bully" the smaller. We have kept pickerel in solitary confinement, and once brought two 4-inch specimens to-



gether in the same aquarium. After a few hours, the tail of one was sticking out of the mouth of the other. Bullheads mind their own business and spend most of their time feeding along the bottom. Small suckers are good scavengers.

An interesting addition to a large aquarium is the crayfish, but here a word of caution—segregate these fellows by placing a glass partition in the tank near one end, otherwise they'll make passes at the fish until the latter are so worn down that they become easy prey to the voracious crustaceans. And, too, crayfish have a taste for greens, and will chew up some kinds of water plants. Feed them a couple of earthworms a week just to keep them happy.

It is wise to stock the tanks with rather small specimens, fish up to 3 or 4 inches in length for large aquaria and 1 to 1½ inches for smaller containers. If snails are to be included, they should be large ones so that the fish will not be tempted to nip them. One or two tadpoles should be included.

Water plants purchased from fish

farms or biology supply houses will grow best in school aquaria.

You will find boys (and girls) who will be only too glad to collect fish for your school, and you will discover that the establishment of several small aquaria will serve as an incentive for the collecting activity.

Almost any clear glass container can be used. It is not necessary to buy an expensive tank, although one big aquarium is a valuable asset in any biology laboratory. Gallon jars, such as are used to supply mayonnaise to the hotel trade, make excellent tanks and have the advantage of being readily portable. Battery jars are used frequently. Tobacco jars can be pressed into service. Six or eight of these smaller aquaria scattered about the laboratory make interesting studies. Obviously only small fish (and a very few individuals) should be put in these. Large test tubes (1 in. × 10 in.) can be used for tiny aquaria where algae and small water plants can be observed with a hand lens.

From the aesthetic standpoint, the development of algae on the sides of an

aquarium is objectionable. Actually, these organisms indicate that the little watery world is operating normally and that conditions within it are at their optimum. Snails will take care of some of the algal growth, but if it becomes unsightly, it may be scraped off with a razor blade or a microscope slide. Water need never be changed unless the aquarium becomes fouled up with decaying organic matter. Under such conditions the whole thing might as well be thrown out and a new one started.

Low temperatures can obtain without hurting the wild forms of fish, but high temperatures are often fatal. A combination of high temperatures and prolonged exposure to direct sunlight will ruin aquaria.

AN EASY WAY TO LOCATE OBJECTS

Students often complain that they are unable to locate objects which are under observation with the microscope, such as certain cells, groups of tissues or mitotic figures. The instructor is then faced with the necessity of locating the object and of describing where it can be found so that the student can observe it. If the eyepiece of the microscope is equipped with a pointer this is relatively easy to do, but if not some other method must be used. In the writer's Biology classes there are lately many veterans of the Army and Navy who are familiar with a way of locating things in terms of the clock face. If such students wish to know, for example, where there is a cell at the metaphase stage in an *Allium* root-tip under observation on the microscope, all the instructor needs to do is to take a good look at the material and then to ask the student to search in the vicinity of "three o'clock," "six o'clock," or "eight o'clock," as the case may be. The student can then find the object with

very little difficulty. Not only ex-service men, but also most other students seem to know of this system of describing locations as there have been frequent references to this in radio and cinema dramas. Doubtless there are other fields of instruction where it could be used to advantage, as on field trips or in explaining charts, diagrams or lantern slides.

FRED R. CLARK,
*Ferris Institute,
Big Rapids, Michigan*

A HIGH SCHOOL PROJECT ON INFANTILE PARALYSIS

MISS BETTY LOCKWOOD, of Redford High School, Detroit, Michigan, First Vice-President of THE NATIONAL ASSOCIATION OF BIOLOGY TEACHERS, has had an important part in a nation-wide program of Poliomyelitis Education sponsored by *The National Foundation for Infantile Paralysis, Inc.* She was selected to organize and present materials to several tenth grade classes. The entire project was under the supervision of S. D. Kramer, M.D., Epidemiologist of the Michigan State Department of Health. The results of the project have made possible the publication of a teacher's guide and a source book for use in a high school Unit on Poliomyelitis. These are available, free of charge, on request to *Education Service, The National Foundation of Infantile Paralysis, 120 Broadway, New York 5, New York.* Miss Lockwood's article in the October 1945 issue of *Science Education* includes a brief description of class procedures; reprints of this article are also available on request at the above address.

Miss Lockwood is well-known to many readers of THE AMERICAN BIOLOGY TEACHER for her work as guest editor of the *Ornithology Issue*, January 1944. We congratulate her upon her most recent opportunity to be of service.

The cuts that have appeared on the Calendar to date are by the courtesy of the *Slingerland-Comstock Co.*, Ithaca, N. Y. We regret that this information was omitted from the January and February issues.