

A Biology Reference Shelf

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Every biology class should have a reference library or at least a shelf of books that can be used at a moment's notice. To place all biology reference material in the main school library is a mistake as it involves too much time and travelling to look up material on short notice. If there are some good books right in the laboratory, material can be looked up on the spot with a minimum of time and effort. For instance, a pupil discovers several types of mixed protozoans under his microscope. He wants to know what they are right away. A book at his immediate disposal answers his questions then and there. Undoubtedly there is much value in sending boys or girls to the main library to spend a period or two in research for a special report to the class, and this type of work should be encouraged, but for quick, easy, and efficient "spot" news, a handy bookshelf is ideal.

It would be most desirable to have a hundred or so well-recognized biology books at the disposal of the pupils, but this is beyond the fondest hopes of teachers in many small schools, so we must content ourselves with a minimum of books.

What books? By all means stock the biology laboratory with at least one copy of each of the newer secondary school biology textbooks, such as *Dynamic Biology for Today* by Baker and Mills (Rand McNally); *Biology for Better Living* by Bayles and Burnett (Silver Burdett); *The Biology of Flight* by Fitzpatrick and Stiles (Macmillan); *Biology* by Moon and Mann (Henry Holt); *Biology for Today* by Curtis, Caldwell and Sherman (Ginn); *New General*

Biology by Smallwood, Raveley and Bailey (Allyn-Bacon); *Everyday Problems in Biology* by Peiper, Beauchamp and Frank (Scott, Foresman); *Life Science* by Hunter (American Book Co.); *Science of Living Things* by Weymouth (Henry Holt); *Biology and Human Affairs* by Ritchie (World Book Co.).

An old stand-by which will help a lot in identifying water-inhabiting forms is Ward and Whipple's *Fresh Water Biology* (Wiley), as is Dr. Ann Morgan's *Field Book of Ponds and Streams* (Putnam). As a matter of fact the whole Putnam series of *Field Books* is most valuable—the one on *Animals in Winter* also by Dr. Morgan; *Field Book of American Wild Flowers* by Mathews; *Field Book of Common Ferns* by Durand; *Field Book of American Trees and Shrubs* by Mathews; *Field Book of Insects* by Lutz; *Field Book of Seashore Life* by Miner. *Birds of America* by Pearson *et al.* (Garden City Publishing Co.) is an excellent reference book with its many colored plates, photographs, and full descriptive material.

The National Geographic series on fishes, birds, animals, and flowers is an excellent set to have. The magazine itself should be in the main school library.

The Yearbook of Agriculture (published by the U. S. Department of Agriculture) for 1936, 1937, 1938, and 1939 cover heredity in plants and animals, soils and food (nutrition in humans and animals). These may be available through your Congressman or may be purchased from the Superintendent of Documents at Washington, D. C.

The 4-H Club Insect Manual (U. S. Department of Agriculture Miscellane-

ous Publication 318) is an excellent reference on insect orders, collecting, preserving, and mounting, as well as suggestions for control.

The General Biological Supply House, Chicago, Illinois can supply teachers with their famous *Turtox Service Leaflets* which cover many projects, experiments, and laboratory procedures.

A good encyclopedia is a nice addition to have, but in smaller schools it may be necessary to forego such an expensive set of books and use the ones in the main library.

Permanent scrap-books are commonly made up by the pupils themselves and cover many of the current articles and pictures from newspapers, magazines, and advertisements.

The individual teacher will be able to stock the reference shelf to suit local needs, but the suggestions made above will serve to show how useful a few books can be if they are near by.

A METHOD OF QUIETING PARAMECIUM FOR OBSERVATION¹

The polyvinyl alcohol method of quieting paramecium and other microorganisms is not new, but it is probable that many readers of *THE AMERICAN BIOLOGY TEACHER* have not had it brought to their attention.

A solution of completely hydrolyzed, medium viscosity *polyvinyl alcohol* is prepared by stirring the powdered alcohol² into water until the solution is as

¹ Reprinted, in part, from *Science*, Vol. 99, p. 544, June 30, 1944.

² Type B, Grade RH-349-A, obtained from E. I. duPont de Nemours Company, Electrochemicals Department, Niagara Falls, New York. Other grades of the alcohol can be used, but they go into solution with more difficulty and remain cloudy in solution.



Using the Biology Reference Shelf. Photo by Lacroix.

thick as heavy molasses—approximately 12 to 14 grams of dry alcohol in 100 cubic centimeters of water. This should be done over a steam bath and the solution left until all bubbles rise to the surface, after which the solution will be glass clear, and may then be kept indefinitely in a stoppered wide-mouth bottle.

In use, two drops of a thick suspension of paramecia or other similar microorganisms are placed on a slide and two drops of the polyvinyl alcohol solution added. The whole is thoroughly stirred with a needle and covered with a cover glass. The animals are brought almost to a standstill at once and will remain so in good condition for over four hours. Abrupt and striking reversals of ciliary beating and many other details are clearly visible. The frequency of pulsation of the contractile vacuoles usually becomes slower after three hours. The cover glasses are self-sealing because the polyvinyl alcohol dries to form a firm membrane that prevents further evaporation. The slides can be cleaned merely by soaking briefly in water.

Stentor presents a handsome object when immobilized by this method. The same holds for the larger hypotrichs and various small aquatic worms like *Nais* and *Chaetogaster*.

G. B. MOMENT,
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