

Biological Briefs

STANFORD, E. E. *The Fungi and the War*. Nature Magazine 37: 288-294; 329. June-July, 1944.

We are learning new ways of making use of fungi as well as of fighting those injurious to our interests. There is scarcely a plant without its fungus enemy; stored foods, lumber, damp cloths, leathers, and human skin must be protected against attack. The development of wilt-resistant strains of plants and of new fungicides is progressing well. Pressure-treating with creosote prevents dry-rot as well as insect damage to lumber.

On the other hand, yeasts provide us with leavening for bread and with millions of gallons of industrial alcohol, and are depended upon as the principal source of concentrated B vitamins; there is also some experimentation on yeast products as meat substitutes. Germany may be using yeasts and other fungi to produce fats and glycerine. Fungi are used to produce several acids: gluconic (for calcium, gluconate in infant diets), citric, propionic (propionates inhibit unwanted molds in cheese and bread). Penicillin is a recently publicized fungus derivative for combating coccus infections, and work on other molds may lead to products of even greater power and wider application.

ROWE, DOROTHY P. *New Trees for Our Forests*. Nature Magazine 37: 352-354; 386. August-September, 1944.

We are at present cutting our trees faster than they grow. One solution is the development of fast-growing hybrid trees. Dr. Ernst J. Schreiner, with the U. S. Forestry Service, has developed strains of fast-growing poplars which attain pulpwood size in 10 to 15 years. Birches, ash, maples, oaks, and other forest trees of the northeast are also being hybridized. This process involves covering branches of unopened female flowers with glassine bags, introducing pollen when they are receptive, and collecting the seeds in cloth bags—all from swaying ladders or from perches on the tree itself. Desirable hybrids are then propagated from cuttings.

ARNOLD, OREN. *Emergency in Grass*. American Forests 50: 280-283. June, 1944.

Today's meat scarcity is due partly to a grass shortage which has been developing for three generations. Ninety per cent of our rangeland has been depleted of nutritious grasses by overgrazing over a period of 50 years, and cannot be restored without at least a decade of careful nursing. Regional

investigation must determine how many cattle can be put on a known acreage and still allow the grass to come back. Twenty-five to fifty per cent of the average annual growth of grasses should be left on the ground each season. In Arizona, experimental plats show convincing results. Where grazing is reduced to permit the return of the grama grasses, the initial financial loss due to a smaller number of cattle per acre has soon been more than made up by a greatly increased calf drop and a heavier weight of individuals. In addition, the range shows the grass growth our grandparents first beheld, preventing and healing surface erosion. The technical facts are known; the people must now be educated.

RUTH SHERMAN STEIN

FAIRY SHRIMPS

These delicate little fresh-water crustaceans are most exciting animals for display in the biology laboratory—exciting because of their uncertainty and because of their rhythmic beauty. It is difficult to forecast their coming as they may appear year after year in some places and then suddenly be absent for a season or more. Their presence is not detected unless a dip-net is used and successive dippings examined carefully. Some high school students have accidentally caught them by dredging with glass jars.

The fairy shrimps show up early in the spring just after the ice has melted from shallow pools, usually pools of a stagnant nature, filled with fallen leaves, trash, algae and decaying organic matter. With the advent of warm weather they disappear leaving only the eggs which when extruded, fall to the pond bottom.

Ranging from one half inch to one inch in length, these transparent little fellows swim on their backs by a rhythmic beating of the "gill-feet." These plume-like appendages serve to extract oxygen from the shrimps' native element and also act as organs of propulsion. (The name *Phyllopora*—leaf-feet—is

given to this order.) It is claimed that these "breathing-legs" take food bits and grind them towards the mouth cavity. Be that as it may, the beauty of the wave-like motion of the legs, perfectly coordinated, is something to hold the attention of any observer. The transparency of the body is often tinted with pink, brown or bronze, and the long narrow abdominal region is reddish from the haemoglobin.

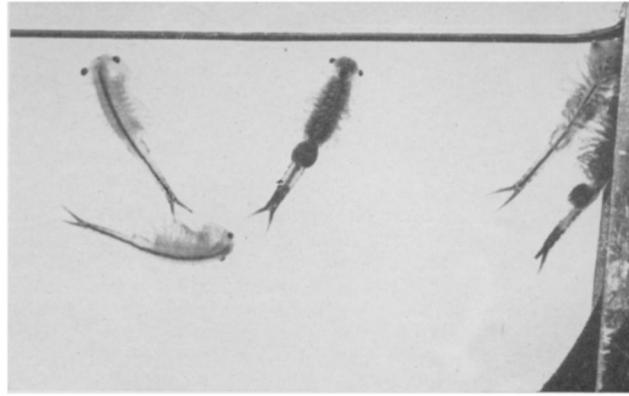
The females, which predominate, stow their eggs in a pouch midway between the anterior and posterior ends on the under side (uppermost as the shrimp swims) and this egg-pouch is much darker than the surrounding tissues. The males may be smaller and fewer in numbers than the females, lack the egg-pouch of course, and have extensions on their second antennae which act as claspers in copulation.

When collecting living specimens for the laboratory, it is well to include some of the dead leaves and algal growth with which the fairy shrimps are associated, and to bring in several gallons of the water in which they live. Place the entire collection in a small aquarium or large battery jar (of the clear glass variety) and the little animals will furnish much worth-while study for a week or more.

Many species of fairy shrimps are found in North America, *Eubbranchipus vernalis* Verrill being one of the common forms observed in the eastern parts.

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EDITOR'S NOTE: It is a source of regret that this article arrived too late for the February issue, where it should have been in order to be in time for the southern part of the country. Because of the crowded schedule it could not be included in March. It seems wiser to publish it now, even though the fairy shrimp season is over in many parts of the country, than to postpone it for an entire year.



Fairy shrimps photographed in a water cell. Two females (with dark egg-pouches) and three males.

Reviews

ARMSTRONG, W. EARL, HOLLIS, ERNEST V., AND DAVIS, HELEN E., *The College and Teacher Education*. American Council on Education, Washington, D. C. x + 311 pp. 1944. \$2.50.

This is a report of the planning and experimentation of six universities, five colleges, seven teachers colleges and two Negro colleges which took part in a nationwide study of teacher education. The large areas presented in separate chapters are *Implementing Student Personnel, Working on General Education, Emphasis on the Major Field, Patterns of Teacher Education, Recurring Emphases in Teacher Education, Colleges and Schools*, and *Integration and the Group Approach*. In each of these chapters are given detailed reports of the problems actually attacked in certain of the cooperating institutions. For example, the chapter on emphasis on the major field includes descriptions of the revision of the curriculum for teachers of agriculture, as carried on at North Carolina State College, relating the curriculum of the prospective teacher in the University of Texas to the needs of the teacher in the Texas public schools, and a joint project at Harvard dealing with the bases upon which the curriculum for the prospective teacher should be built. The plans and developments are carefully traced and documented with references to the reports of the institutions themselves. Each of the chapters treats three or four of the institutions in some detail, although any given institution may be mentioned in all of the chapters. In the final chapter the authors, after mentioning the difficulty of distinguishing exactly between general and strictly professional education, nevertheless suggest that "we should like to see some 80 to 85 per cent of the undergraduate's whole time in college given to general education and subject concentration. . . . The 15 to 20 per cent of the entire program we have reserved for professional education should begin in the freshman or sophomore year and lead up to the main emphasis, student teaching, not later than the first semester of the final year."