of the hard beak and claws. Twenty-one days after setting, from the pip, a partial ring is broken around the shell. The chick by pushing its feet against the small end, with its head against the large end, bursts the shell all around and is free.

Our incubator was easily converted into a brooder. A few chicks lived in the class room for two weeks. As long as plenty of food was kept before them and there was sufficient heat, they demanded no attention. For night protection, they were tucked into a well ventilated box and placed under the cover of the hood.

Since the claiming of chicks was apt to become a problem, ownership was arranged before the eggs were set. Even then, the owner did not gain them until he had promised to return them for periodical visits.

The few minutes given every day or so to observation of the developing embryo made no break in the remainder of the lesson period. References were made frequently to the human or mammalian embryos at such a particular stage of development. Many textbooks carry a page of comparative embryos.

Lula A. Miller,
Eastern High School,
Washington, D. C.

AN AIR TIGHT BALANCED AQUARIUM

This technique is a variation of the Spallanzani tube (to disprove spontaneous generation) and originated at a session of the "Laboratory Techniques in Biology" in-service course.

A balanced aquarium is prepared by making a Spallanzani tube and putting in it several snails such as Physa, an alga such as Hydrodictyon or Nitella, and some natural or artificial pond water.[1] The tube is prepared by heating and drawing out a soft glass test tube over a Bunsen flame so that there is a constriction near the center of the tube. After putting in the plants and animals the tube is sealed by applying the Bunsen flame to the constricted portion until it is molten and then pulling and twisting the tube. The top portion of the test tube is discarded.

The writer has prepared such tubes which are maintaining themselves very well. The aquarium water remains very clear in the tube. In some tubes there were definite signs of growth and in one tube where hydrodictyon was introduced, the hydrodictyon reproduced, forming many cylindrical nets or colonies.

Another way of checking on the balance within the aquarium tube is to add some Brom-Thymol Blue to the water before sealing the tube. If decay goes on due to death of plant or animal material, the water will become slightly acid which condition will cause a change in the color of the water from blue to yellow. (Brom-Thymol Blue is yellow in the presence of an acid and blue in the presence of a base. It operates on a pH range of from 6 to 7.6.)

When studying the balanced aquarium in class, enough of these tubes can be made up so that each student can have one for individual study to observe and take notes on. Better still—each student can easily make one himself by following simple mimeographed or verbal directions or watching a demonstration at first by the teacher. The experience of working with glass under a flame and

[1] Artificial pond water can easily be made in the laboratory by using the following formula:

NaCl, 1.20 g.; KCl, 0.30 g.; $CaCl_2$, 0.04 g.; $NaH \cdot CO_3$, 0.02 g.

Phosphate buffer, with pH of 6.9–7.0: 50 c.c.

Distilled water to 1000 c.c.

This is a stock solution. For use, dilute this by adding 900 cc. of distilled water to 100 cc. of the solution.

making the aquarium is a pleasureable as well as an instructive one for the student.

LOUIS HABER,
Seward Park High School,
New York, N. Y.

Biological Briefs

RUTH SHERMAN

MCKINNEY, H. H. *Vernalization and the Growth-Phase Concept.* The Botanical Review 6: 25–47. January, 1940.

Considerable recent research has shown that certain winter annuals and biennials can be induced to hasten their period of sexual maturity by treating the seed or bulb in the early stages of germination. This is known as vernalization. The most successful method to date has been that of soaking seeds or bulbs in water so as to begin germination, and then, under suitable conditions of moisture, to maintain them at temperatures near freezing for from 5 to 60 days. This method appears to have commercial value in hastening the blooming periods of daffodils, iris, and Easter liles, and may be profitably applied in the future to cereal and forage crops.

VAUGHAN, WARREN T. *Why We Eat What We Eat.* Scientific Monthly 50: 148–154. February, 1940.

Our varied diet of today has been developed through the ages, and gathered from world-wide points of origin. Nomads perhaps first discovered many of these, and the development of varieties and methods of cultivating food plants progressed as these nomads became agricultural peoples in prehistoric times. While the crab apple and other small wild forms are indigenous to North America, our large apples came originally from northern Eurasia. Wheat appears to have developed from the wild grasses of Asia Minor or Egypt; it was introduced into China about 3000 B.C. and was known in Egypt in 2440 B.C. Rye, rice, and barley have origins almost as ancient. Corn, apparently native to Mexico, has been cultivated since prehistoric times and is unknown in the wild state. Travel routes have controlled the spread of foods from their points of origin, and the courses of war and trade have frequently been strongly affected by food factors. Such has been the case with coffee, apricots (brought to England in the crusade of 1620), and "Irish" potatoes. The article presents an extensive list of the geographic origins of foodstuffs.

EMERSON, HAVEN. *Eugenics in Relation to Medicine.* Journal of Heredity 30: 553–556. December, 1939.

Physicians may play an important part in furthering the progress of eugenics. They are well-equipped to advise those contemplating marriage or creating a family, and should have a large part in the development and work of the "social control" agencies. The most direct help lies in teaching to each individual and family the facts of human biology. For this purpose, medical schools should broaden their curricula. The doctor should include a family pedigree as a part of his medical records. He should encourage health examinations for prospective mates, and should institute a campaign to minimize exaggerated fears of childbirth. In encouraging voluntary sterilization and birth control measures, physicians may work directly to aid the eugenics movement.

LEY, W. *Animal Fables.* Natural History 45: 84–87; 122–123. February, 1940.

Many strange beliefs concerning animals have a partial basis in misinterpreted truths, while others have been