


5-1929

Collecting Specimens at Night

Roy L. Abbott
Iowa State Teachers College

Follow this and additional works at: https://scholarworks.uni.edu/science_bulletin

 Part of the [Health and Physical Education Commons](#), and the [Science and Mathematics Education Commons](#)

Let us know how access to this document benefits you

Copyright ©1929 by Iowa State Teachers College

Recommended Citation

Abbott, Roy L. (1929) "Collecting Specimens at Night," *Science Bulletin*: Vol. 1: No. 7, Article 10.
Available at: https://scholarworks.uni.edu/science_bulletin/vol1/iss7/10

This Contents is brought to you for free and open access by UNI ScholarWorks. It has been accepted for inclusion in Science Bulletin by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

Offensive Materials Statement: Materials located in UNI ScholarWorks come from a broad range of sources and time periods. Some of these materials may contain offensive stereotypes, ideas, visuals, or language.

the parentheses of column "A." More than one term may apply to a single breed.

A. Leghorn. Minorca. Rhode Island Red. Plymouth Rock. Wyandotte. Cochin. Orpington. Langshan.

B. 1. Is the most popular breed in Iowa. 2. Noted for especially high egg production. 3. Noted for large white eggs. 4. Are of a dual type. 5. Are a meat type. 6. Are poor mothers. 7. Were developed in Europe. 8. Are small birds. 9. Are good for producing spring fries. 10. Are good for producing capons.

WINFIELD SCOTT

CAPILLARITY

Physics

One of the best practical illustrations of the effect of surface tension is found in capillarity. For this topic the instructor will do well to base his teaching upon surface tension. It is this force that raises the water in a clean glass capillary tube and that depresses the mercury in such a tube.

The principles of capillarity are usually stated under four heads. It is not necessary to repeat them here. It must be realized, however, that each statement explains a condition under which surface tension acts to produce the phenomenon. When water rises in a fine bore glass tube, the surface tension lifts the column against the force of gravity. In a tube with a larger bore, the column does not rise so high because surface tension is there opposed by a greater weight. Temperature weakens surface tension and hot water will not rise as high as cold water in the same tube. Everything in this phenomenon is dependent upon the intensity of surface tension. In discussing capillarity do not emphasize so much the statements of its principles as the explanation of its phenomena, in terms of surface tension. If this is done the statements of the principles will become clear and significant to the pupil.

Capillarity is abundantly illustrated in our daily environment. One must take a broad gauged view of the subject and see that it applies to fine slits and cracks as well as to fine bored tubes. The ordinary pen is a capillary invention. The slit in the pen acts as a capillary tube to hold

the ink back from the point of the pen. When one writes, he presses on the tip of the pen, thus widening the slit and letting the ink down. Good ink must have good surface tension. If it becomes frozen, its surface tension is weakened and it becomes worthless.

Cleaning processes in the home such as washing, mopping, wiping dishes and drying one's face with a towel are accomplished through capillarity. A garment taken out of hot soapy water is much lighter than when lifted out of the rinsing water because the surface tension of the hot, soapy water is very much less than that of the cold rinsing water. Consequently there is much more water held by capillarity in the garment lifted from the cold water.

In nature capillarity spreads the water throughout the sub-soil bringing it up to the roots of a plant for continuous nourishment. Capillarity also causes water to creep into the cracks of rocks, causing breakage when it freezes. Thus it contributes to erosion and soil formation. The physics instructor should always keep in mind that the more environmental—man-made as well as natural—he can make his discussions, the more they will contribute to the mental awakening of the pupil. There is no subject that lends itself better to such an end than capillarity.

L. BEGEMAN

COLLECTING SPECIMENS AT NIGHT

Biology

Many teachers of biology do not realize how much valuable biological material may be collected after dark. In fact, certain specimens, as grasshoppers, earthworms, and various species of amphibia, are most easily captured then.

The only apparatus needed is a good flash-light, a pair of waders, and containers for the specimens. The frogs and toads may be placed in a gunny sack fitted with a draw string, and earth worms in any can containing damp, green grass — no earth is necessary for them, and they will last for days in this condition. A fruit jar with a perforated lid makes a convenient receptacle for grasshoppers.

Leopard, Green, and Cricket frogs

may be collected around ponds or along streams on any night during the warm weather, but common toads and tree frogs may be found around water only during the spring breeding season. This is usually in May, and as the males of these species sing lustily, it is easy to find them by following the direction of their songs. The tree frogs will often be found sitting on a bit of wood several feet from the bank. They may easily be captured with a net while holding the light directly upon them.

Earthworms may be collected in large numbers from almost all blue-grass lawn, especially where the soil is a rich, sandy loam. It is best to choose a lawn somewhat removed from the street as the glare of street lamps or the flash of automobile headlights tend to keep the worms in their burrows. Choose a warm night following an afternoon shower, or else wet the lawn thoroughly from a hose. The earthworms come out of their burrows shortly after dark, and may be captured as they lie stretched at full length, feeding. Each worm keeps its tail in its burrow and can withdraw into it with amazing rapidity, as the beginner at nocturnal collecting will soon discover. Many an eager grab will net only a handful of grass. When an earthworm is seized, it resists being pulled from the burrow, and unless care is exercised, the animal will break in two. Even when it does not break, the worm may be so injured by a strong pull, that it will soon die. Such injured worms should not be placed in the container with the others, as one dead, decomposing worm will soon cause the death or injury of the rest. Since worms mate at night, copulating pairs may often be captured as they lie stretched between adjacent burrows; they usually separate quickly when seized.

Grasshoppers are most easily collected in the late summer. A weedy fence-row along a corn field, or tall weeds along a country road, are favorable places for the capture of the large yellowish-green, differential locust or grasshopper. These insects roost along the stems of the weeds, and on a cool night may be collected by the hundreds. They furnish excellent food for captive gar-

ter-snakes and various fishes; when injected, or preserved whole without injection, they keep indefinitely as laboratory specimens.

If the biology teachers who read this article will make one nocturnal collecting trip, they will probably make another, as it is a fascinating game.

ROY L. ABBOTT

CRYSTALLIZATION

Physics

One of the most interesting molecular phenomena in nature is known as crystallization. It is brought about in the arts of man and in nature by three methods. When a chemical salt, such as table salt, is dissolved in water and allowed to stand in a shallow dish until it dries, it will be observed that the solid residue appears as crystals. Those from common table salt will be cubical in form. However, every different salt will yield its own distinctly shaped crystal.

A second method consists of the slow cooling of a mineral substance from a molten condition. When sulphur is melted and allowed to cool slowly, beautiful slender hexagonal crystals are formed. Permanent crystals found in nature such as those of quartz or of diamonds and other precious stones were formed by this process of cooling from a molten condition under suitable conditions.

The third method in which crystals are formed is by sublimation. When a substance in a vapor condition changes slowly into the solid state without passing through the liquid state, it frequently assumes a crystallized form. Frost crystals on a window pane are an illustration of this method of crystal formation. A piece of camphor placed in a bottle with clean walls will sublime and form a layer of tiny crystals on the walls of the bottle. Flowers of sulphur, which are crystalline, are produced by vaporizing sulphur in a closed chamber and allowing the vapor to condense directly to the solid state.

In the arts, crystallization of salts from solution and crystallization by sublimation are both frequently used to purify substances for medicinal and other purposes.

L. BEGEMAN