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## Capillarity

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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