

With a mount of this type, if all adjustments are right, a star or the moon may be followed with only one motion of the telescope. The camera unit for the telescope was made from plywood bolts. Making the telescope was fun, but it did take a lot of time.

I would like to mention the names of four persons who helped me most on my project: Mr. John Barnes, my principal, who did the financing; Mr. George Sanidor, my science teacher, who got me started and gave advice; Mr. J. A. Williams, my shop teacher, who gave me advice, time to work, a place to work, and a lending hand when I needed it; Miss Billie Franklin, a friend, who helped me on my poster and did typing for me.

### RELATION OF ANIMALS TO HABITAT

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Organisms are classified as to phylum, order and genus. A few are to the species, on my chart. I studied animals in relation to their habitat in connection with conservation. Since the very smallest of our animals feed upon vegetation, I found them in vegetation or where they can get plant food. Larger animals feed upon smaller animals, and in turn are fed upon by still larger animals. Thus all become a link in the food chain. Man eats fish that have eaten animals, that have eaten animals that have eaten plants. If we know the food, plants, and the habitat of the food of birds and fish we can conserve our natural live resources. We also get a great deal more pleasure when we spend leisure time along the lakes, ponds, streams, and sea shores because we learn to see more and understand what we see.

The mill-pond is fed by springs at the farthest point from the spillway. It is situated in a ravine, the hillsides getting lower near the dam until on one side it is almost level ground. The mill race is closed off since the mill is no longer used. Even near the dam but outside the lake there are small springs forming swampy ground along the brook formed by the spill way.

I was unable to get the depth but in places the bottom was visible. Near the center of the pond it was once very deep. Although the pond has filled in a great deal, the depth does not vary with rain fall nor does it get muddy. This gives permanent pond conditions and I found animal and plant life abundant. At the head waters, water cress grows out for twenty-five feet or more on both sides of the spring. One spring bubbles up right out of the sand bottom about 50 feet from shore. The water appears about 1½ to 2 inches deep from shore.

In the water cress many salamanders were found and just out of the vegetation whirley gig beetles moved in and out. The

snails in the spill-way were so numerous each rock and piece of drift wood was covered. Here were also egg clusters of snails and insects. Cadice worms of various species were on top sides or bottom of rocks. Simulidae were on algae-covered stones. Small limbs, water logged and lying on the bottom were covered with planaria and egg masses of different kinds. Deep pools contained fish. Crayfish were under bank walls, in vegetation, and protected sides of rock. Isopods were in vegetation and many animals were found in a screen wire held down stream while the stream bed was disturbed above. Sand contained clams and small clams were taken from vegetation.

The most unexpected animal perhaps was an earthworm. Earthworms are found in moist earth but not in water. Yet several were found and when identified were water forms of earthworms.

The abundance of life perhaps was due to two factors. First, this spring-fed pond does not change water level but little even in dry weather. Second the vegetation is varied and has a wide distribution. Other factors are the varied habitats, such as: deep holes, static water, sand bottoms, rocky bottoms, swampy areas, swift flowing water, and shelters provided by stones. The animal life appeared to have been left undisturbed for a long period of time.

If we learn the balance of nature and understand it we will know how to protect our natural life resources. We in Tennessee should be more conservation conscious since we have the beautiful dams and lakes of T.V.A.

### GЕOTROPISM

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From the time that a seed falls to the earth until the plant turns to dust, it is affected by many types of tropisms, the directional growth of plants in response to stimuli: phototropism, the effect of light on growth; thermotropism, the effect of heat on growth, and geotropism. Geotropism is the effect of gravity upon the growth of plants. When a tree grows out of the side of a hill, why does it turn to point its leaves toward the sky? When a plant is turned up-side-down, why does the stem turn upward, and the roots downward? These are just some of the effects of geotropism. The object of my experiment on geotropism was to see the effect gravity has on the roots, the stems, or both parts of plants, and to find out if this effect is proportional to the force of gravity. We must realize that the science of man in space is becoming the outstanding study of the era. However, before man can begin to find out how he will react to space travel, we must first see how plants and other