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Water

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The eggs of the beetles were internally sterile, although yeast and fungus mycelium were abundant in the sawdust plugs covering the eggs in the niches.

Although no nutritional symbiosis could be demonstrated between the beetles and their associated fungi, the relationship is considered as one of true symbiosis in the broader sense. The fungi obviously derive benefit in being disseminated by the beetles and in being introduced into the inner bark of the logs or susceptible trees. The blue-staining fungi, by inhibiting the flow of sap, in all probability make living trees more favorable for beetle development, and by aiding in the decomposition of the inner bark cause it to separate from the wood, creating a more favorable environment for the development of the insect broods. Until a brood of beetles can be reared in a fungus-free log, it cannot safely be concluded that the fungi are not necessary for the normal development of the beetles.

A popular account of this work was presented in the form of a two-reel motion picture made while the work was in progress. The film was photographed by Mr. V. P. Hollis of the Photograph Laboratory of the University of Minnesota. The cost of making the film was provided in part by the General College of the University of Minnesota.

WATER

Abstract of remarks by W. J. MAYO, M.D., Mayo Clinic

In the hope of stimulating interest in the problem of water, I wish to devote a few minutes to some of the physical properties of water. We know that three-fourths of the surface of our globe is composed of water. If the solid part were compressed into a ball, water would surround the earth about 2 miles deep. We know that water is compressed naturally to its greatest density at a temperature of 39.2° F., and if this temperature is changed either up or down, the water expands. If the temperature rises to 212° F. at sea level, the water expands in vapor form 1642 times and produces the power which we know so well in connection with steam engines. Water is 819 times heavier than dry air and is vaporized at about 212° F. When it reaches the colder and lighter upper atmosphere, the vapor condenses into a colloid condition we call clouds. Because it exists in colloidal form, before rain is produced some change takes place in the clouds, and a form of energy which we think of as electricity apparently connects the colloid vapor in the upper atmosphere with the earth. When this energy is produced rapidly, it is manifest as lightning.

In order to rain 1 inch or to snow 10 inches, 113 inches of water in colloid form must be suspended over each acre of ground. What produces the attraction that converts the colloid into rain? If one lays a dry hand on certain electrical apparatus, no effect is

produced; but if one lays on a wet hand, the effect of the electricity may be felt quickly and sometimes unpleasantly. Does water in the earth furnish an attraction to water in the air? Countries which depend on irrigation suck the water from the soil, and even though they draw the water from the rivers and place it on the land, they remove from the soil a certain fluid content which might have gone further into the earth. Why did Babylonia pass away in a desert of sand? In some sections of country where water used to be abundant in wells from 30 to 75 feet deep and where the annual rainfall was 15 inches, the wells for irrigation purposes are now from 600 to 700 feet deep. Some of them produce salt water, and the rainfall has decreased to an average of 5 inches. Moderate rains in these localities are becoming rare. When storms come, they are likely to be violent, as though there were an attempt to make some sort of connection deep in the earth which we do not understand.

Sound observers point out that the persistent cutting of our forests, the unnecessary plowing of enormous tracts of land which removes the protective covering from the soil, and the draining of lakes and marshes, have caused great diminution of water in the earth and reduction in rainfall. They state that in areas where these processes have been continued for years, even when rain occurs, the water penetrates only the superficial layers of the land, and that the earth a short distance below the surface is dry.

Did the Ancients know something about water that has been forgotten? In the downs of Sussex in England, in soil of chalk and gravel that contains no water and where rain seldom falls, there are in constant use so-called dew ponds made by the Ancients hundreds of years ago which, as far as is known in history, have always contained water up to a certain level. In these waterless regions the sheep and cattle go up each day from the lower lands to drink from the dew ponds on the heights, and by the next morning the same amount of water is to be found in the ponds. No adequate explanation has ever been given. There are in the vicinity of these ponds evidences of prehistoric dwellings of the human race.

Scientists are interested greatly in the sun, moon, and stars and have made extraordinary researches into the elements. Think of the radio, television, and so many other extraordinary advances that scientific study has produced. Perhaps a study of water might produce equally astonishing results.