

dwelling erected even earlier, and now in use, a chemical is used for the purpose. Glauber's salt is satisfactory for the purpose. This is a common substance, a form of sodium sulfate. Storage in iron, marble, concrete and other materials has also been tried.

The house with the sun-heated water is an ordinary one-story building with five rooms, except for its roof structure. The south slope of the roof, with the heat collector, inclines 57 degrees with the horizontal, presenting 400 square feet on which the rays of the sun are received. Their heat passes to a tank of water. When warmed by the sun, the water is pumped to a storage tank, and from there to room radiators as needed.

The principle behind the use of Glauber's salt, or certain other chemicals, makes use of latent heat, or what is now more commonly called heat-of-fusion. It is the heat necessary to convert a substance from a solid to a liquid state, and is not evident in a temperature raise. It takes as many calories of heat, for example, to change ice into water as it does to raise the temperature of the resulting water up to about 175 degrees Fahrenheit.

The system of heat storage in a chemical used in the M. I. T. experimental house is largely the work of Dr. Marie Telkes of the Institute staff. The chemical is sealed

in containers. There is no loss of the material. Glauber's salt melts at about 90 degrees Fahrenheit. This is low enough to result in liquefying when the rays of the sun are focused on it, even in winter weather. When heat is needed in the house, air from the rooms is circulated about the sealed containers by use of a fan or blower.

The same research that has developed the best types of propellers for airplane propulsion has been applied to windmill blades to capture the greatest possible amount of the energy of the wind. Also blades have been developed to operate when the air movement is very low. Considerable success has been obtained. Windmills of the future may play an important part in generating electricity to supplement energy from waterpower and other sources. The supply delivered will be erratic, depending upon the winds. Wider use of windmills in farm pumping and operating generators to feed storage batteries may be expected.

Tidal power has been used for many years in various parts of the world. It is regular and reliable, but there are relatively few sites where the tides are high enough to produce economical power. The high tides on New England's rocky coast can produce power to drive electric generators. To use them or not is largely a question of economics.

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in this country it will not be an unlimited calamity. The snails are definitely warm-climate animals, and are exceedingly unlikely to become established where freezing weather is an annual occurrence. But they can do a vast amount of mischief in the warmer parts of the United States.

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ENGINEERING

Flywheel Tire Tester Used For Plane Landings Study

➤ A BIGGER and a better flywheel tire tester for use in determining what happens to the tire on a speedy plane when it hits and rolls on the runway, is to be installed at Wright Field, Dayton, O., soon by the U. S. Air Force. It is what might be called a small-space apparatus that eliminates the need for testing by actual plane landings.

The flywheel to be used is seven feet in diameter and three feet wide. It is to be installed in a fixed base and rotated by electric controls at speeds up to 250 miles an hour. Similar equipment already in use has a maximum speed of 200 miles an hour.

In use, the wheel is stationary except for its high speed of rotation. The tire to be tested is mounted on a separate shaft. After the flywheel has reached the desired speed, the tire is moved against it. The tire will get the same initial shock as it would get on a plane in landing on a runway. Slowing down the flywheel speed gives the same effect as a pilot applying the brakes, and the tire gets the same wear.

The flywheel is under construction at the Adamson United Company, Akron, O., and the 150-horsepower electric motor and the necessary controls will be built by Westinghouse Electric Corporation, Pittsburgh, Pa.

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AGRICULTURE-CHEMISTRY

Corn Hybrids Differ In Resistance to 2,4-D

➤ THE common weed-killing chemical, 2,4-D, is more injurious to some varieties of hybrid corn than to others, it has been shown by recent experiments conducted at the Iowa Agricultural Experiment Station by Elmer C. Rossman and David W. Staniforth. As the use of 2,4-D increases this may become an important factor to consider in selecting hybrid corn varieties for planting.

Contrary to common popular opinion, 2,4-D may injure corn and other members of the grass family, although in the doses ordinarily used it will not kill them. In the Iowa experiments the 2,4-D caused reductions in the yield of corn, a reduction in the number of brace roots, defective tassel formation, and a larger number of weak seedlings when the grain from the treated corn was planted.

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ZOOLOGY

War on African Snail

➤ EVEN before the giant African snails made their recently reported landings on the American west coast, scientists had begun battle against them. The Pacific Science Board has sent two men into the trusteeship area of Micronesia in the mid-Pacific to carry on a four-months' study of their life-history and ecology, as a basis for future campaigns aiming at their elimination. This team consists of Dr. A. R. Mead of the University of Arizona and Dr. Hoshio Kondo of the Bishop Museum in Honolulu.

A husband-and-wife team, Dr. and Mrs. F. X. Williams, has already been in the East African region that is the snails' natural home, seeking natural enemies that may be introduced into snail-infested areas to carry on biological warfare against them. One of these, a big, hungry black beetle, seemed quite promising at first; but it now appears most likely that the big snail's most effective enemies are two other snail species, both of them fiercely predacious—the leopards of the African snail world.

The huge snails, which attain an overall length of more than seven inches, were carried to all the islands of Micronesia held by the Japanese under the old League of Nations mandate. They were used for food, also chopped up to feed to chickens. Most of the Japs didn't really like them,

however, declares Dr. R. Tucker Abbott, malacologist of the U. S. National Museum. They ate them all right, "but with wry faces," he says.

Their presence in the Hawaiian islands is traced to this food use by Japanese. At least two importations were made by ordinary mail, and the snails kept as penned animals to be killed and eaten as wanted. As soon as the territorial authorities learned about it they swooped down on the snail-pens and tried to make a complete kill. However, some of the creeping mollusks escaped, and Hawaii now has a major snail pest to contend with.

There is nothing in American law or postal regulations to prevent free shipment of any kind of snails. The European edible snail featured by French restaurants, for example, can be shipped without hindrance. It makes American pest fighters uneasy, but unless there is legislation on the subject they can do little to stop the traffic.

There may be colonies of the giant African snails in an unknown number of places in this country because of this situation. One is definitely known about: it is maintained by 90-year-old Prof. E. A. Andrews of the Johns Hopkins University, for the purpose of scientific study. He feeds his slow-moving pets on lettuce.

Even if the African pest gets out of hand