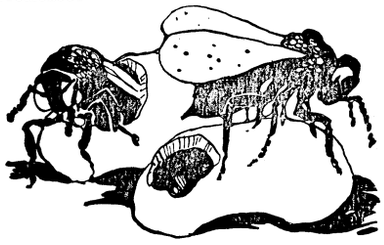
NATURE RAMBLINGS by Frank Thone

ENTOMOLOGY



Chalcis Fly

MANY of the winged pests that make themselves man's unbidden and unwelcome guests are all the more troublesome in that they choose for their feeding the very things which man himself most values.

Among these one of the most troublesome is a species of tiny insect known as the clover-seed, or alfalfa-seed chalcis fly. Its size may be gauged from the fact that it spends all of its pre-adult period of growth inside the tiny seed of clover or alfalfa, and when it finally emerges as a full-grown adult it is still smaller than its cradle.

The female drives her sharp ovipositor through the tiny pod of the clover seed when it is still soft and green, and lays an egg in the developing seed. The microscopic grub that hatches feeds on the rich, juicy tissues of the seed, reducing it to a hollow shell. Then it curls up for that mysterious sleep of metamorphosis through which many insects pass, resting for a time as a pupa. During this period the infantile tissues and organs of the larva disappear completely, and those of the adult develop. At last the insect gnaws its way out of the ruined seed to freedom—and a repetition of the vicious circle.

Since odds and ends of unreaped clover or alfalfa harbor the pest from autumn until spring, farmers are urged by the Department of Agriculture to cut their crops as close and clean as possible, to turn over all fence lines and waste places, to cultivate fields late so that infested seeds may be buried, and above all not to let a badly infested field stand without cutting just because the crop can not be used, but to clean these even more thoroughly than those only a little afflicted with the pest.

Science News Letter, August 12, 1933

ENGINEERING

New U. S. Submarine's Hull Joined Together by Welding

THE U. S. SUBMARINE *CACHALOT* now under construction at the Portsmouth Navy Yard has several remarkable features.

For the first time the sections of the hull of a submersible have been joined by welding. These hull sections themselves are the largest ever used in the construction of underwater craft. With one or two possible exceptions they are the largest ever used in marine construction in this country.

Submarines must be built to withstand the terrific pressure underneath the surface. There the ocean throws its forces in to crush the adventurer. The ship must also bear the buffets of orthodox surface cruising.

In the *Cachalot* an exacting problem was set for the naval construction corps. Overhead welding must be eliminated. The hull plates were shipped from the mills in great strips about 24 by 14 feet, weighing nearly 4 tons each. They were pickled and washed to remove the mill scale, then squared, and laid out for drilling in the shipfitters' shop.

Authorities call the *Cachalot* the most nearly "shop built" of all the submarines. Skill was required to prepare each piece in such a way that little extra fitting was required on the ways. Tests were made and it was found that the maximum error from a true circle at two stations was one-eighth of an inch and at others but one-quarter of an inch.

The same major features were used in the building of the *Cuttlefish* at a private yard in Connecticut.

It is believed that such an advance in methods means greater safety of the boat and it is certain that for large scale construction thousands of dollars may be saved over the old system of rivets.

Both *Cachalot* and *Cuttlefish* will be equipped with the "lung," the submarine escape appliance. This odd apparatus, looking something like a gas mask, is fastened to the mouth and nose of a person wishing to escape from a wrecked submarine. It supplies air for a long passage through the open water.

Further safety for the crew is supplied by two marker buoys. These big steel floating balls can be disengaged from inside the hull. They rise to the surface carrying an insulated radio aerial and a telephone. The latter is reached by opening a plate in the top of the buoy and with it communication can be maintained with the trapped crew.

Science News Letter, August 12, 1933

GEOLOGY

Scientists to Identify Unprofitable Lands

TO FACILITATE recognition of lands of doubtful productivity so that they may be removed from further fruitless attempts at cultivation is one of the objectives of a new committee of the National Research Council. Its division of geology and geography has appointed a committee on land classification that will study the methods now in use. Prof. K. C. McMurry of the University of Michigan is chairman of the committee.

Science News Letter, August 12, 1933

FORESTRY

Tanks Fight Fires In California Woods

TANKS, not the military kind but real tanks full of water mounted on powerful, pump-equipped trucks, have revolutionized methods of fighting forest, brush, grass and grain fires in California. There are now over 200 tank-truck fire-fighting units in the state; the state forestry department alone operates 36 of them.

A typical fire-fighting tank truck can carry 400 gallons of water into a dry area where a fire is going, and can reach a maximum road speed of 45 miles an hour. It is equipped with hoses and nozzles for its work when it arrives on the scene of action, and it can also supply men with small tanks strapped to their backs with the few gallons each they need when climbing into inaccessible corners to fight small fires hand-to-hand.

A full description of the new equipment, by Woodbridge Metcalf, extension forester of the University of California, is published in the *Journal of Forestry*, official organ of the Society of American Foresters.

Science News Letter, August 12, 1933