

ELECTRONICS

Tube Tests Effects of Supersonic Speeds on Planes

► A TUBE which can be used to test the effects of supersonic speeds on aircraft parts was described to the American Physical Society meeting at Columbia University by G. N. Patterson of the Naval Ordnance Laboratory and the University of Toronto.

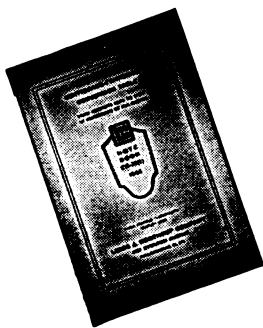
The simplest form of shock tube, he explained, is merely a straight tube with a diaphragm dividing the tube into two sections containing gases at different pressures and temperatures. Shock waves are produced when the diaphragm is punctured.

By selecting special combinations of gases at various temperatures and pressures, scientists can create the shock waves found at a "very high" Mach number, Mr. Patterson said. Mach number is the ratio of air speed to the speed of sound.

Science News Letter, February 5, 1949

Airplanes equipped with *cross-wind* landing gear, now becoming more widely used, take off in less distance with side winds than they do in still air.

Here's a lesson in *heat* conservation from Norway: some 5,000 gallons of formerly wasted hot water from a manufacturing plant will be piped daily to a new community center building and used to keep it warm.



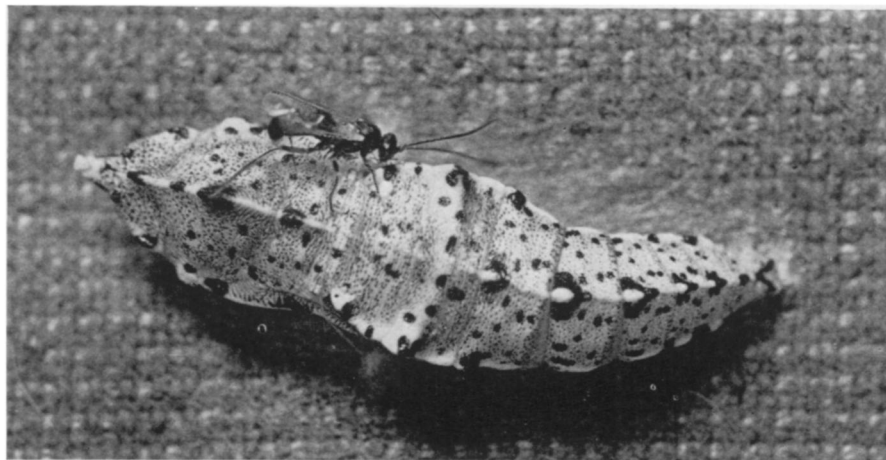
QUICK-READING TEMPERATURE-CONVERSION TABLES

For speed, when you're converting degrees F to C, and vice versa, you can now use a simple, compact "Sauveur-type" table all the way from absolute zero to 3350 C and 6062 F, in increments of one degree.

For quantities, there's a slight charge: ten copies for 75c; 50 for \$3.25; 100 for \$6.00. To minimize bookkeeping, kindly order from our Advertising Dept., and include check for exact amount . . . but please note that a single copy will be sent free on request. Better get one! Ask for Note Book EN-33(1).



Jrl. Ad EN-33(1a)



FIFTH COLUMNIST AT WORK—The ichneumon fly—really a wasp—perched on the back of a cabbage butterfly pupa is breaking down the enemy's defenses. The ichneumon fly lays eggs inside the pupa.

ENTOMOLOGY

Insect Fifth Column

Cabbage butterfly and wasp-like creature, the ichneumon fly, play leading roles in a tense insect drama.

► AN EVIL-DOER from the Old World that brought its own nemesis with it is the common cabbage butterfly—the particular one known to scientists as *Pieris rapae*. As everyone who tried to raise a Victory Garden during the war knows, it is a serious menace to cabbages and all their relatives. This insect, common in Europe, came to this country early and has made itself altogether too much at home.

However, along with it came one of its deadliest and most persistent enemies, the small wasp-like creature known commonly as the ichneumon fly. There are many species of ichneumon flies, most of them confining their attentions to one kind of victim-insect. The one that attacks the cabbage butterfly bears the somewhat topheavy title of *Apantela glomeratus*.

But she gets there just the same. Point of attack is neither the fluttering white adult nor the leaf-devouring larva, but the still, stiff intermediate stage, the pupa—which might be described as a caterpillar waiting to become a butterfly.

The larva that an *Apantela* female finds never gets that chance. She alights upon its unprotected outer skin, bores through it with her long, hair-like egg-laying apparatus, and proceeds to deposit a number of eggs inside.

Presently these hatch into hungry little larvae, which feed greedily upon the pupa's soft, juicy flesh—as thorough a job of boring-from-within as can be imagined. What eventually emerges from the pupa-case is

not a new cabbage butterfly but a small flock of new *Apantelas*. After they have attended to the necessary business of mating, the females flit off to hunt for more cabbage-butterfly pupae. Nobody needs to teach them what to do when they find them.

These pictures, which show Mother *Apantela* about to deposit her eggs, and what happens to the luckless pupa's inside works, were taken by an English naturalist-photographer, Douglas F. Lawson. But the tense little insect drama which he recorded in his Surrey garden could be matched, millions of times over, not only in American cabbage-patches but practically everywhere in the world where cabbages are grown.

Science News Letter, February 5, 1949

Colds are common in winter among *poultry*, especially the younger birds.

The so-called *tree-climbing kangaroo* of Australia rarely comes to the ground; it exists on a diet of leaves and fruit.

Birds are not a major hazard to airplanes in flight but many bad accidents have resulted from collisions with flying *ducks*, geese and others.

Flaxseed production in the United States for 1948 was approximately 25% higher than for the previous year; important products from flaxseed are linseed oil for paints and linseed meal for cattle feed.