

Do You Know?

Bacteria may attack nearly all kinds of petroleum products, including waxes, oils, kerosene and gasoline, if they are stored in the presence of water.

The common *chipmunk* carries the nuts he gathers in his cheek pouches and has been known to carry four hickory nuts at a time.

One-fourth of the total area under cultivation in the world is devoted to growing *wheat*, and the annual harvest is approximately 140,000,000 tons.

A water-repellent, insulating *liquid*, recently developed, when sprayed on spark plugs and wiring in automobiles protects the engine from moisture even when buckets of water are thrown on it.

Fresh *milk*, frozen with extreme rapidity at 20 degrees below zero Fahrenheit, may be kept months, and when thawed out is as appetizing and tasty as it was in its original condition.

A new form of *hormone spray* containing naphthalene acetic acid in emulsifiable oil, applied to orchard trees from an airplane, reduces the pre-harvest drop of apples and pears caused by winds.

Future buildings may, in numbers far exceeding present structures be windowless and lighted entirely by artificial light, or be constructed with side walls and doors of glass and with mirrors for inside walls and ceilings.

Turkey eggs for eating may soon join the familiar chicken eggs on the market as a result of the development of a small-sized turkey which is a heavy layer and produces eggs throughout most of the year.

THE SCIENTIST IN ACTION

by
W. H. GEORGE

A SCIENTIFIC STUDY OF HIS METHODS

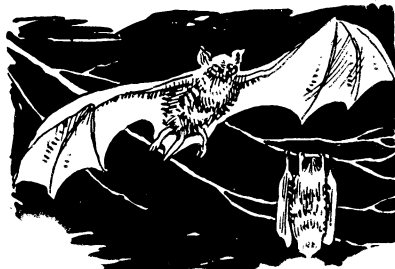
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Proximity Sensings

➤ **BATS** were the original discoverers of the principle of the proximity fuze.

These flying mammals have long excited man's wonder at their ability to fly about in the near-darkness of caves, or outdoors in the deepening dusk, without ever colliding with the walls or with each other. Small wonder that our ancestors were inclined to look upon them as endowed with darkly supernatural powers—even to the extent of picturing Satan as having bat's wings!

Modern scientists, insatiably curious and unafraid of the Devil himself, have done some rather extensive experimenting on this uncanny ability of bats to sense their way around in the dark. They have tried putting up obstacles that must be as difficult for bats to see as for human beings, things like stretched wires and suspended strings—and the bats would avoid these as readily as they did larger and more obvious lumps of matter.

Finally the secret was hit upon. Bats, it was discovered, constantly give out exceedingly shrill little chirpings while in flight. Probably the chirps that we hear are the lowest-pitched of the bat's tones, at that—higher notes that they pipe are above the human ear's perceptive ability. Echoes of these high-pitched notes, returned to the bat's ears by the surfaces of obstacles, warn of impending collisions, and the bat's exquisitely-balanced neuromuscular flight controls automatically go into action and cause a saving zoom or swerve.

Now this is essentially what the proximity fuze does, except that in its case the echo-producing vibrations are those of ultra-short radio waves in the ether instead of ultra-short sound waves in the air. But the principle is the same—an apparatus that sends out exploratory vibrations and catches their returning

echoes. Of course, the resultant behavior is different: the bat swerves, the bomb blows up. But that is a mere matter of detail.

The analogy promises to become closer, now that the war is over and men are looking for peacetime applications for war-born devices. It is proposed to equip airplanes with adaptations of the proximity fuze, with suitable electronic relays to bring about an automatic avoiding maneuver when the plane approaches an unseen obstacle in darkness or fog.

If this comes to pass, it will be a curious closing of a cycle. When what we now know as radar was first invented, it was called an "absolute altimeter": the echoes of short radio waves sent out from a plane were to warn of the proximity of dangerous obstacles like jutting mountain-tops, and enable the pilot to avoid them. Now it is proposed to make the avoidance independent of human eyes on the instrument board and hands on the controls—to turn the plane into a kind of mechanical super-bat.

Science News Letter, November 3, 1945

AERONAUTICS

Entire Airplane Consists Of One Thick Wing

➤ **WHAT LOOKS** like the ultimate development in the "flying wing" type of aircraft is offered for patent 2,384,893 by Prof. Louis H. Crook, aerodynamics specialist on the physics faculty of the Catholic University of America. The entire craft consists of one thick wing, with control surfaces at its trailing edge and its outer ends. Everything else is inside the wing, even the propellers. Two are mounted; one at the wide mouth of a tunnel that tapers to a choke near the center of the wing, the other at the choke, just before the tunnel widens again toward the outlet.

Science News Letter, November 3, 1945

Root *vegetables* should be stored in closed containers and at a temperature at least as low as 40 degrees Fahrenheit.

Apple trees have "*measles*" but not the kind the human race experiences; diseased trees have irregular, dead, brown-colored pockets of tissues scattered throughout the interior of the bark.

Formaldehyde, at the rate of a million pounds a month, will be produced at a new plant at Springfield, Ore.; it is an essential chemical in the production of synthetic resins and plastics.