

ENTOMOLOGY

Mosquitoes Resist DDT

DDT has lost its effectiveness against two salt marsh mosquitoes. Malaria-carrying mosquitoes may be the next to develop resistance to the chemical.

► DDT, a chemical which did a valiant job during the war in protecting our forces from disease-carrying pests, is beginning to lose its effectiveness.

Two kinds of salt marsh mosquitoes have now developed resistance to the chemical. Malaria-carrying mosquitoes may be next. The two salt marsh mosquitoes have been serious pests along the Atlantic and Gulf coasts, making many areas impossible for people to live in during the mosquito season. One of them, *Aedes sollicitans*, may spread equine encephalomyelitis, so-called horse sleeping sickness which can also attack man. The other, *Aedes taeniorhynchus*, spreads dengue fever in Florida.

Malaria-carrying mosquitoes have so far not been found resistant to DDT. But entomologists, the scientists who specialize in study of insects, think it is only a matter of time before the malaria mosquitoes will also develop resistance to DDT.

Chemicals which may take over when DDT fails are already being tested by scientists of the U. S. Department of Agriculture. One of them, Lindane, has shown great promise, but is still expensive. It is known to scientists as the gamma isomer of benzene hexachloride. Others have been tried and are also effective. But Agriculture scientists feel that more tests of these new insecticidal chemicals must be made before they can recommend any particular one or ones.

Discovery of the DDT resistant mosquitoes was made in areas along the east coast of Florida by Department of Agriculture scientists working in cooperation with the Department of Defense and the Brevard County Mosquito Control District. First word that DDT resistance was developing, in mosquitoes near Cocoa, Fla., came from the U. S. Air Force. Salt marshes in that area had been treated with DDT in oil at regular and frequent intervals for five years. This had kept the area free from mosquitoes, which was considered one of the miracles of present day insect control practices.

Then, during 1949, great flights of mosquitoes from the treated areas swarmed into nearby towns and villages, in spite of heavy applications of DDT. Help was requested from the Department of Agriculture entomologists stationed at nearby Orlando, Fla. It was at this laboratory that much of the work was done during the war on the development of DDT for control of dangerous insect pests.

Both adults and larvae of both species of salt marsh mosquitoes in the Banana

River area of Florida have now developed resistance to DDT, Dr. W. V. King and associates report from their studies.

Heretofore, the larvae, or wriggler, killing power of DDT had been one of its most remarkable features. But now 10 times the amount previously effective does not kill the resistant larvae.

Only adult house flies have previously developed such resistance to DDT.

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ANTHROPOLOGY

Thumb Bone of Ape Man Is New Clue to Problem

► DISCOVERY of a thumb bone of the large Swartkrans ape-man, which gives scientists a new clue for solving the missing link problem, is announced by Drs. R. Broom and J. T. Robinson, of the Transvaal Museum, Pretoria, South Africa.

"One of the most noteworthy differences

between man and the higher anthropoids (apes) is that while man has a good opposable thumb, in the anthropoid the thumb is somewhat degenerate," the scientists point out in their report to the scientific journal, NATURE (Nov. 12).

The "opposable thumb" makes it possible for man to manipulate tools and weapons, though some anthropologists believe that the brain behind the thumb may be what makes us better able to use our hands than chimpanzees and other apes can.

The thumb bone now discovered in South Africa is the metacarpal, which is the first bone starting from the wrist.

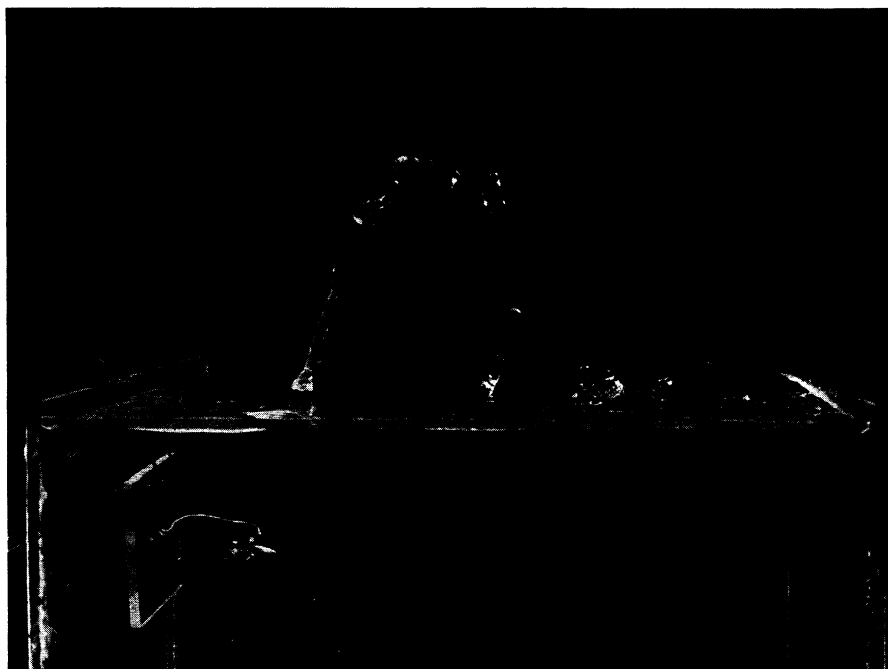
"It is almost exactly like that of man, but smaller," the scientists report.

It is shorter than the Bushman's thumb metacarpal but is somewhat stouter and a little more curved than in man. The fingers of the Swartkrans ape-man probably also were shorter than man's, the scientists suggest, so that the thumb being shorter is not surprising.

The one important difference between this newly-discovered ape-man's thumb bone and man's is a distinct pointed bony process on the inner side at the distal end. The scientists have seen nothing like this in man's thumb bone.

"It seems likely," they conclude, "that the thumb, though a little shorter than in man, was a useful clasping organ, and able to manipulate tools and weapons."

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ULTRASONIC WAVES—Sound waves with a frequency of nearly 3,000,000 cycles per second, cause this snake-like jet of water, which breaks up a few inches above the tank, to spurt from the water tank. The ultrasonic waves, sounds pitched so high as to be inaudible, come from a small disc in the water, clamped between two wires. The concave disc vibrates when a voltage is applied across it, and the sound waves are focused upward, causing the geyser.