

PSYCHOLOGY

Language for Insects?

Honeybees may use real abstraction, just as humans do, in communicating information, since they relate direction to sun's position.

➤ SCIENTISTS ARE worrying about whether honeybees, ants and termites tell each other things the way we humans do.

The honeybee dancing her figure of eight dance to tell the direction and distance of a new source of nectar may be using a kind of language. Ants may have a kind of language for declaring the wars they wage or giving directions about the so-called gardens they raise and the livestock they cherish. Termites may even have a language of love, since they live in a fully two-sexed society.

On the other hand, the bees whose method of communication has been studied most, may after all come closer to the setter pointing a bird. The setter uses what scientists call a pseudo-abstraction. He points directly toward the bird.

The honeybee seems to use a real abstraction, just as humans do. Instead of pointing directly, she uses the more indirect method of telling a direction by relation. She turns the axis of her dance 60 degrees to the left of the sun if the new source of nectar is in a line running from the hive 60 degrees to the left of the sun. In other words, she relates the direction to the position of the sun.

The bee's abstraction is a symbol, just as the word horse is our symbol for the animal, and it is just as arbitrary, Dr. A. L. Kroeber of Columbia University, New York, declared at the meeting of the National Academy of Sciences in Washington.

Of course, he pointed out, it may be that the honeybee only seems to us to use abstractions and symbols. The real problem is: How do the bees learn the symbols? Do they teach each new generation, as human parents teach a child the word, or symbol,

for horse? Or is the bee knowledge of how to tell each other a few fundamental and vital facts transmitted with the genes that are handed on from one generation to another?

Solution of the problem might come, he suggested, from observing the pupae as they emerge, to see whether they are born, as it were, with the faculty of understanding bee language or whether they must be taught it.

Dr. Kroeber, who is an anthropologist, said he would not dare to carry out the necessary experiments because bees are so hard to handle. He thinks these must be made by someone who knows bees, such as Dr. Karl von Frisch, the German scientist whose 40-year studies of bees have "opened a brilliant and promising path" for future research on the social insects, including the ants and the termites.

Science News Letter, May 10, 1952

AERONAUTICS

Carbon Brush Wear Poses Serious Flight Hazard

➤THE STRATOSPHERIC wearing of carbon brushes not only puzzles scientists but also creates a hazard for airplanes flying six or more miles high, the Society of British Aircraft Constructors report in London.

Carbon brushes are small blocks of compressed carbon which are used to feed electric current into some motors or to take it from electric generators. Usually they wear very slowly, lasting for years, but at stratospheric heights they may wear down at the rate of one-half an inch each hour.

When completely exhausted, electrical contact is broken and the motor will stop or the power supply will fail.

Although scientists know what happens to the brushes and are findings ways of stopping it, they are not agreed as to why it happens. Apparently the stratosphere's low moisture content, less than one one-thousandth of that at ground level, is partly responsible.

Scientists figured that high-flying planes would have to carry about 570 pounds of water with them to supply the proper amount of moisture to carbon brushes. But in view of the excessive weight, they decided some other way of reducing carbon brush wear had to be found. However, the scientists did not comment further.

Science News Letter, May 10, 1952

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