



WINDOWED WINGS

We are used to thinking of moths and butterflies as having wings densely covered with powdery scales, and hence opaque. Some members of this family, however, have at least parts of their wings as transparent as those of dragonflies or cicadas. Through the wings of this one you can distinctly see the letters of the page on which it is resting.

PSYCHOLOGY

Lacking Parts of Brain, Monkeys Still Use Tools

EVEN with part of their brains missing, monkeys, who are admittedly not tool-using humans, can nevertheless handle rakes with agility and undoubted reasoning in order to reach a luscious banana.

In the latest psychological experiments on Columbia University monkeys, Prof. C. J. Warden has demonstrated that even when deprived of the frontal lobes of their brains, acknowledged seat of higher thinking, monkeys can use one rake to pull in another rake, even up to eight rakes, in order to get food that they want.

There is little chance that monkeys can be put to useful tasks in this world. But these experiments are telling psychologists important facts about the brain and its workings in the tailed relative of man.

Psychologists have formerly considered such use of a number of tools in combination as a monopoly of human beings and our close relatives among the higher, tailless apes.

Without their brains intact, however, the monkeys are baffled by still more complicated tasks conquered by them when they were normal.

Prof. Warden found that not only can both Old World and New World monkeys learn to use a series of rakes to pull in food placed out of their reach, but they can "remember" this ability after a lapse of two years or more. Incidentally, the New World monkey, the cebus, is most clever at the trick, although the Old World rhesus is the most closely related to man.

Two years after the monkeys had mastered the use of as many as eight rakes in series to pull in their food, the problem was made more difficult for them. The rakes were placed on two and sometimes on three platforms, each on a different side of the cage, so that the monkey had to bring them into the cage and push them out through the bars onto another platform in order to pull in other rakes

with the food. They also had to judge the lengths of the rakes and put them together in a certain order.

On this complicated task using three platforms, the rhesus monkeys learned to use a seven-rake series and a cebus monkey was able to master an eleven-rake series.

Loss of both the frontal lobes of the brain did not break up the ability to manipulate the rakes in series when they were on a single platform. But ability to work from more than one platform was seriously disturbed. On the two-platform set-up, the brain-deficient animals were able to use only two rakes, and on the three-platform set-up, they failed altogether.

This finding throws new light on the function of the frontal lobes, recently the subject of much discussion because some human patients who have lost this important brain area through disease or injury have scored higher on intelligence tests than they did before the loss.

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PHYSICS

Thickness of Paint Measured Magnetically

A LAYER of paint or other non-magnetic coating on a sheet of iron can be accurately measured for thickness even though less than a hundred thousandth of an inch, using a new magnetic device. A short iron rod, with two coils of wire on it, is pressed against each side of the coated iron sheet. As both are magnetized, by current through one coil of each, current is induced in the other coils. But the coating reduces the current on that side, and measuring the difference gives the thickness.

Science News Letter, July 27, 1940

PHYSICS—BACTERIOLOGY

Ultraviolet Barrier Stops Germs at Doors

A GERM-killing ultraviolet lamp a yard long, which can be placed above a doorway where it forms an invisible screen through which germs cannot enter, has been announced by the General Electric Company. Secret of the germicidal power is that it copiously emits rays of wave length 2537, which are extremely lethal to bacteria. These rays are invisible, but the lamp shines with a faint bluish light, to show that it is on. The 36-inch lamp consumes 30 watts of power.

Science News Letter, July 27, 1940