

Brain researchers scare crows

It looks like scientists have found where the brain has its RAM, or short-term memory, says S.Ananthanaaryanan.

Two teams of researchers, one in Oregon and the other in Tennessee, have found that it is a peasized portion in just behind the frontal lobe of the brain that is active for remembering things for short periods.

The method they used

The brain seems to record experience, or learn, using chemical or structural changes among neurons. But for short memory, lasting seconds, such methods may not be available. The researchers provoked mental activity by asking subjects to quickly see and compare patterns of coloured dots shown in succession, first patterns of two dots, then of four dots and so on. In this activity, the patterns of dots are recorded and remembered for a short time, for comparison.

The Oregon group found that a particular portion of the brain showed marked electrical activity during the exercise. As the number of dots in test was increased, the electrical activity in this portion of the brain increased, till the subject seemed to have reached the limit of how many dots she could handle. But all the activity was in just that portion of the brain.

The second group, in Tennessee, watched the brain with a magnetic resonance imaging apparatus and found the same part of the brain to get active during the short-term remembering exercise.

Clearing house for ideas

The activity itself, of seeing the patterns, observing colours, form and shape, etc, was fairly complex. That doing all this should involve only a small part of the brain was remarkable. The observation suggests that this may be the part of the brain that is involved in much mental activity. For certain kinds of intelligence, then, it may be this part that determines how bright one is.

Crows can count too

Years ago, in another exercise, researchers had determined that a crow could count up to the number four. The method they used was to scare a group of crows in a cornfield by a gunshot fired by a farmer who walked into the field and entered a hut. The crows stayed away till they saw the farmer leave. When two farmers fired gunshots and entered the field and the hut, one after the other, the crows waited till both had left the hut before resuming the corn feast. They could stay safely away with three and four farmers too. But when there were more than four, the birds began to get confused about when all the farmers had left. They were quite sure till the number four.

The number of coloured dots that humans can handle in a flash is around four to six. This is of the same order as the limit of the birds' counting ability. Does this suggest that we have bird brains too, with a lot of peripherals attached? The size of the part that is active is also uncannily similar to the birds' apparatus.

Such a conclusion is obviously quite flawed. Birds, with the pea-sized brain do more than count up to four. They control flight, they build nests and they navigate thousands of kilometers. There is more to brain research than scaring crows!
