BEHAVIOR

Language skills in the right brain

Ever since the split-brain theory became widely accepted in the early 1970s, researchers have continued to pursue more detailed knowledge of the functioning of the left and right hemispheres. Generally, it is believed that the left half controls the practical functions of speech, writing, logic and mathematics while the right half deals with more intuitive processes such as perception, sculpting and daydreaming.

Recent experiments, however, have indicated that the right brain is capable of displaying some linguistic skill. Most of those tests were performed on epileptics whose hemispheres had been surgically separated in an effort to prevent the spread of intractable epilepsy from one half of the brain to the other. (That operation has yielded moderate success, according to researchers.) But because of the unusual circumstances of such tests, other scientists have suggested that disconnected hemispheres might act differently from the normal, fully connected brain. In most of us, they speculate, the dominant left hemisphere may suppress the right side's language skills through inhibitory interhemispheric pathways.

Now, James Day of Dalhousie University in Halifax, Nova Scotia, reports that the right brain's linguistic abilities are expressed in the normal, intact brain. And, he says, "the right hemisphere in the intact brain can play a functional role in processing language."

Day, a psychologist, performed three separate experiments on 46 right-handed student volunteers. In each test, he exposed various concrete and abstract parts of speech on a screen alternately to the students' left and right visual fields. The reaction time and accuracy in identifying the terms were recorded for each subject.

The results, he reports in the August JOURNAL OF EXPERIMENTAL PSYCHOLOGY, "demonstrated the right hemisphere's ability to detect semantic relationships between concrete nouns and their superordinate categories." The data also showed that "the right and left hemispheres were equally efficient at recognizing concrete-object nouns in a lexical decision task"; but that abstract nouns may be recognized only by the left hemisphere.

Time passes slowly for the hyperactive

Among the major problems of hyperactive children is their short attention span, particularly in the classroom. According to the results of a study of 100 children 8 to 12 years old, time passes considerably more slowly for hyperactive youngsters than for normal children—a finding that could be useful in attempts to increase attention spans, according to a group of researchers.

Reporting in the June PERCEPTUAL AND MOTOR SKILLS, psychological researchers at the State University of New York at Buffalo describe tests of 75 normal children against 25 hyperactives. Each of the children pressed a button to begin time intervals of 7, 15 and 30 seconds. They were told to press the switch again when they felt each of those periods had elapsed. A similar, pilot study of 12 children 7 to 10 years old was performed beforehand.

The results showed that hyperactives made larger errors of estimation and that the longer the time interval, the larger the errors. The mean estimate for the 7-second interval was 6 seconds for the normals, compared with 10.8 for hyperactives. For 15 seconds, normals guessed a mean of 11.93 and hyperactives guessed 23.08. For 30 seconds, normals estimated 26.56 and hyperactives 50.84.

"However these data are interpreted, the results clearly suggest a major difference between normals and hyperactives in the ability to estimate time," conclude researchers Betty Cappella, J. Ronald Gentile and Daniel B. Juliano.

ARCHAEOLOGY

Wall drawing: Sweet honey on the rock

Honey-gathering scenes, common in South African rock art, have only been found three times among European rock art. The three are, furthermore, sketchy and undetailed. Now two scientists have discovered, in eastern Spain, the most elaborate and revealing European honey-gathering scene. It is associated with the late Ice Age, about 10,000 years ago.

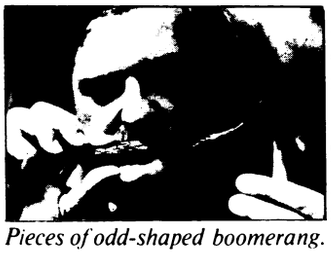
The particular drawing reveals in known Levantine rock art "the first definite ladder constructed of side ropes, with rigid intersecting rungs," report M. and L. Dams of Brussels. Two of the previously discovered paintings show very little else than free-hanging parallel strands of rope.

A major portion of the 52-centimeter-high scene shows five humans on the ladder, which extends from the ground up to an apparent tree branch adjacent to several modules, presumably wild-bee hives. A squarish object at the ladder's top end "may represent a leather bag . . . for the gathering of honey," the authors speculate in the July 21 NATURE. On the ground are a dozen diminutive human figures—mostly female, but including two males who "may have bows."

This scene depicts much more sophisticated technology than the other three, which are from the same time period. The ladder must have been very strong to support the weight of five persons (300 to 500 kilograms), the authors note. It must have required the use of thick, straight sticks of similar weight which were kept in place with knots.

Florida burial site: Brains to boomerangs

A deep, sulfurous sinkhole surrounded by slough may not sound like an attractive place to work, but for a team of underwater archaeologists, it may become utopia. Preliminary exploration of the Little Salt Spring near Sarasota, Fla., reveals it is one of the most extensive and ancient burial grounds ever discovered in North America.



National Geographic Society

Pieces of odd-shaped boomerang.

Sampling done so far in the 90,000-square-meter area suggests that some 2,000 persons—about 7,000 years old—are buried in the sediment. Superbly preserved skull and feet specimens recently unearthed appear to have been ceremonially wrapped in grass, according to project director Carl J. Clausen.

A most remarkable aspect of this entire site is its fortuitous combination of water chemistry and controlled temperatures. This has preserved with uncanny perfection organic artifacts that normally would have deteriorated. (Dry caves along the North American west coast have comparable beneficial effects.)

Finds like that of a wooden mortar, wooden boomerang and a projectile point made of antler—all about 9,000 years old—"are just unheard of," says Clausen. "Nothing like this has ever been found." The archaeologists, whose work is funded by the National Geographic Society and General Development Foundation, are routinely finding 10,000-year-old hickory nuts, leaves and twigs.

One archaic skull that was retrieved contained a remarkably well-preserved brain. Possibly the oldest one yet found anywhere, it still evidenced the characteristic cerebral convolutions.

This burial ground seems to contradict the popular belief that "man [about 6,500 years ago] was . . . a nomadic hunter who moved in extended family groups," says Clausen. "The large number of burials suggests a tradition . . . that may have lasted 1,000 years or more."