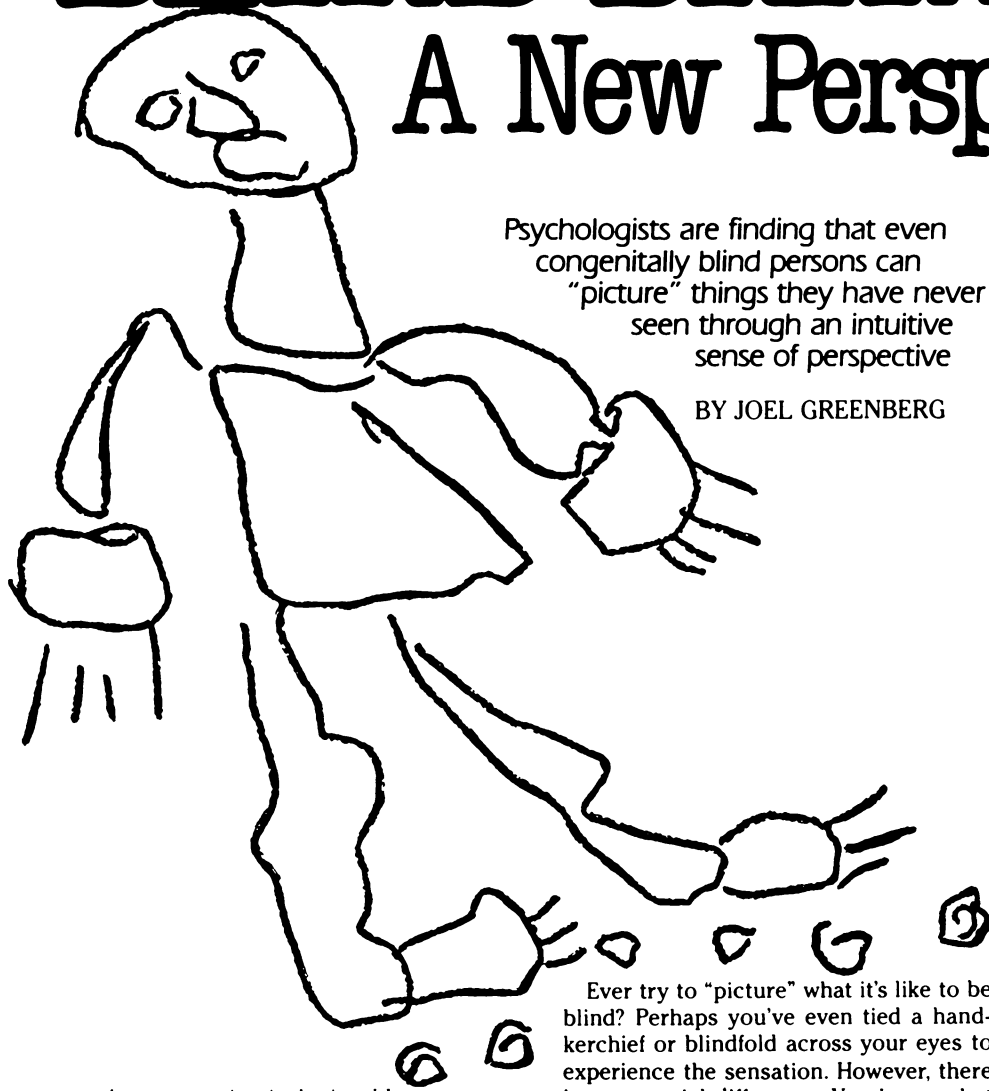
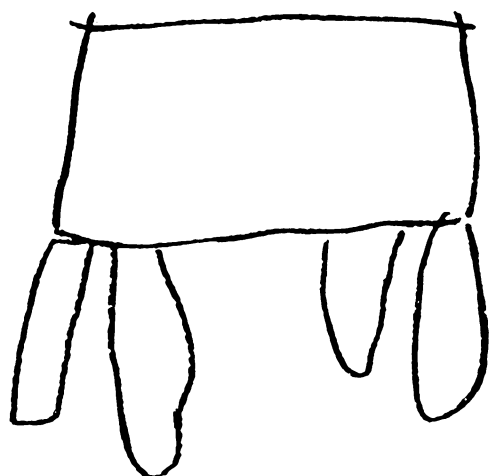


BLIND DRAWINGS: A New Perspective



A man running is depicted by a person totally blinded late in life — circles are added to give the feeling of movement.



Drawing of a table by a person totally blind since early in life.

Drawings courtesy of J. M. Kennedy

Psychologists are finding that even congenitally blind persons can “picture” things they have never seen through an intuitive sense of perspective

BY JOEL GREENBERG

Ever try to “picture” what it’s like to be blind? Perhaps you’ve even tied a handkerchief or blindfold across your eyes to experience the sensation. However, there is one crucial difference: You *know* what those chairs and tables you’re bumping into look like. You know what the room looks like. You know what other people, dogs, lakes and mountains look like.

But what of the blind — particularly those sightless since birth or early childhood? Are they capable of picturing such things in a comparable visual sense? It has only been recently that this question has been asked by psychologists. And the answers thus far have been intriguing and often surprising.

“Today we can claim that blind people do have untapped abilities to use depiction, [that] picturing is perceptual, not just visual [and that] blind people have an intuitive sense of perspective,” says John M. Kennedy of the University of Toronto’s Scarborough College. In research over the past seven years, Kennedy and his colleagues have worked with blind adults and youngsters, ranging from those born blind to those who lost their sight late in life. The findings were presented earlier this year at the annual meeting of the American Psychological Association.

“There seems no doubt that the blind understand depiction,” he says, “even if it proves to be true that some aspects of pictures create difficulty for them. The abilities they can muster are most impressive: They can draw; they can recognize; they can use elements like lines and dots; they can understand whole shapes, or parts; they can select what is important and capture that; they can recognize ambiguities; they can appreciate how two drawings will be more specific about an object than one.”

In a series of eight steps, Kennedy’s subjects were tested on their ability to identify and understand braille pictures, and then in their ability to perceive and draw objects from various perspectives, including objects in motion. Some of those tested had never seen the things they were asked to draw. In the first step, 15 persons were presented with raised-line drawings, which included complexities such as overlapping lines and ellipses that represented circles from an angular perspective. “The findings were that even congenitally totally blind people could identify a few of the pictures or understand them once they were given a few general hints or captions,” Kennedy says.

In addition, several young blind children, ages 5 to 8, were asked to point at objects from various vantage points and displayed a perspective one might only expect through the ability to see. “In pointing to the corners of a room, they make their pointing arms converge more and more as they walk away from the corners,” says Kennedy. “In pointing to the perimeter of a plate, they make their fingers describe a small circle when pointing directly from above the plate and an ellipse when pointing from a point off to one side. The ellipse becomes more eccentric as the vantage point approaches the plane of the circular plate,” he notes. “Hence, the keys to perspective are already present in their familiar activities — a point of view, convergence and shape transformation.”

The project then progressed to where the subjects did their own drawing — starting with common objects such as a hand, a glass and a table and moving on to “drawing tasks that would daunt many sighted people.” These included people in a circle, a plan view of their room, objects in motion and an object made of cubes in a tilted orientation or three-quarters view.

In drawings of common objects, Kennedy reports, “a wealth of abilities has been

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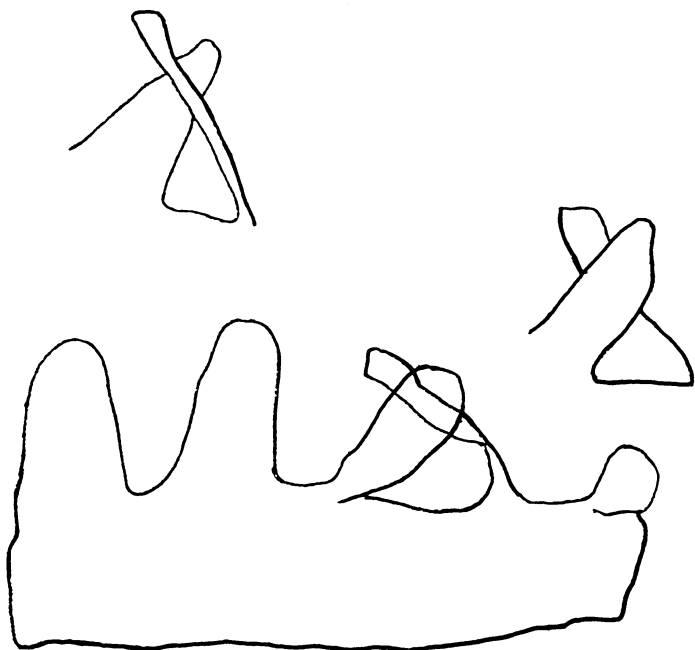
CHILDREN'S THINKING: WHAT DEVELOPS?—Robert S. Siegler, Ed.—LEA (Halsted Pr), 1978, 371 p., charts & graphs, \$19.95. Papers presented at the 13th Annual Carnegie Cognition Symposium, May 1977, covering the areas of memory development, development of problem-solving skills and development of representational processes.

CHRONIC HEMODIALYSIS AS A WAY OF LIFE—J. W. Czaczkes and A. Kaplan De-Nour—Brunner-Mazel, 1978, 235 p., \$15. Covers the methodological and medical aspects of chronic dialysis as well as the psychiatric aspects.

CORAL GARDENS—Leni Riefenstahl—Har-Row, 1978, 223 p., color plates, \$29.95. Magnificent color photographs of coral reefs and their flora and fauna.

COSMOS, EARTH, AND MAN: A Short History of the Universe—Preston Cloud—Yale U Pr, 1978, 372 p., illus., \$14.95. The author, a polymath, relates for the educated layman the story of the co-development of earth's air, water, crustal rocks, climate and life in cosmic perspective as a vantage point from which to view the present state and future prospects of humankind.

EYE MOVEMENTS AND THE HIGHER PSYCHOLOGICAL FUNCTIONS—John W. Senders et al, Eds.—LEA (Halsted Pr), 1978, 394 p., illus., \$29.95. Proceedings of a conference held in February 1977 at the Naval Postgraduate School, Monterey, California.



Lower drawing is first response to instruction to draw a hand with crossed fingers; upper drawings were done after being asked to show which finger is on top — by a person totally blinded since early in life.



Stationary wheel at bottom; spinning wheel at top — by person totally blinded late in life.

uncovered ... some very capable drawings." Among the more complex tasks, the representation of motion was "startlingly good — devices that have only become common in visual art in the last few generations were invented by the blind artists." The subjects showed a person in movement by employing methods such as showing bent, asymmetrical limbs, adding small circles to suggest movement, changing from front to side view and including a "line of movement" drawn at the feet of a running figure. Wheels in motion were depicted by curving the spokes, adding overlapping circles, placing the wheel on a hill and drawing several wheels along the path of movement. The artists were somewhat less successful with cubic objects in a tilted view. "The solutions were imaginative but tended to leave the realm of depiction as we understand it, becoming idiosyncratic and symbolic," Kennedy says. He also reports finding "drawing abilities in most of the children, creditable abilities in some."

The blind subjects were tested individually and "have little or no previous

pictorial experience," Kennedy stresses. "They have not been taught how to solve the mysteries of pictorial depiction. They figure out solutions on their own.

"Time and again, they come to identical realizations — individually, separately, each one facing the problems of two-dimensional portrayal on their own, they arrive at the same solutions," he says. "The inevitable conclusion is that the principles that underlie line representation belong to a perceptual system that is not restricted to vision. It is a system of principles that is in common to haptics [sense of touch] and to vision."

According to Kennedy, three aspects of the research results strongly indicate that perspective is in the perceptual system of the blind:

- "When given a [braille] picture they commented freely and continuously, without prompting, on the location from which a portrayed object was depicted.

- "In drawing an object, they would inform us that it was being shown from a particular point of view.

- "They understood occlusion [overlap] by objects with sharp occluding edges and round occluding bounds. The ability to understand how to depict a rounded object is geometrically quite different from the ability to understand corners and edges, where surfaces change slant abruptly. One cannot understand occlusion by a rounded object without a clear sense of a point of view."

"This work may bring about three things," Kennedy concludes. "We may find haptics and the sense of touch being reconsidered. We may be entering the current debate on the nature of depiction with fresh ideas and demonstrations. And most importantly, a pictorial avenue of communication with the blind may become a day-to-day reality." □