

A new look at moving violations

Stare at the cascading spray of a waterfall for a while, then shift your gaze to the trees on the bank. Like salmon swimming defiantly upstream, the trees appear to "swim" upward.

Psychologists call this the "motion aftereffect." In the laboratory, when a person views a moving visual pattern, the same pattern appears to drift in the opposite direction when it is stopped. Many researchers say this perception of reversed motion is an automatic response of the brain's visual system, and outside of an individual's control. In their view, brain cells that detect motion in a particular direction become so overworked when adapting to a moving pattern that their activity temporarily reverses when the pattern halts, giving motion to what an observer knows are firmly rooted trees.

But the motion aftereffect may not be automatic after all, according to a study in the March 1 *NATURE*. Paying attention to a feature embedded within a moving pattern markedly weakens motion reversals, reports Avi Chaudhuri of the Salk Institute in La Jolla, Calif.

The finding suggests that much of the early processing of motion in the brain, such as that required for the motion aftereffect, depends on how an observer directs his or her attention to a moving object, writes Oliver Braddick of the University of Cambridge, England, in an accompanying commentary.

Chaudhuri had five observers monitor a sequence of rapidly changing letters and numbers in the center of a field of moving dots on a computer screen. Their task was to strike a key whenever a number appeared. Compared to experiments in which the same observers fixed their gaze on the letters and numbers without having to take any action, the duration of motion aftereffects dropped by almost 70 percent after attention was directed to the appearance of numbers.

However, paying attention to a feature not directly concerned with movement apparently does not influence motion aftereffects, Chaudhuri says. For example, observers who pressed a key when the background color of the dot display changed to red reported no weakening of motion reversals.

Color and motion properties of the same object may be processed through different pathways in the brain's visual system, Braddick suggests.

Animal research: Ups and downs

Despite intense pressure from animal rights groups and increasingly stringent state and federal regulations governing the use of animals by scientists, many graduate psychology programs are making long-term plans to continue animal research, according to a survey published in the March *AMERICAN PSYCHOLOGIST*.

Gordon G. Gallup Jr. and Timothy J. Eddy of the State University of New York at Albany recently compiled questionnaire responses from 207 chairs of graduate psychology departments in the United States.

Of the 197 departments that had maintained animals at some point for research, 168 continued to do so in 1988, a decline of nearly 15 percent. The highest rate of abandoning animal research was reported in the 11 Rocky Mountain states, where seven out of 21 psychology departments that once conducted animal research no longer do so.

On the other hand, 100 of the psychology departments that continued to use animals had renovated their animal facilities within the past five years, and another 25 departments were planning renovations within the next five years. Virtually all of the changes were made to comply with state and federal laws.

Survey responses also indicate that over the past 10 years, the number of animals maintained by departments that conduct animal research has declined slightly.

Study finds the root of some hand rash

A flowering plant closely related to the lily may cause an itchy, red hand rash for some floral industry workers and increase the risk of allergic skin reactions among the 45,000 people in the United States who work with the popular plant, called *Alstroemeria*.

Diane M. Thiboutot and colleagues at the Milton S. Hershey Medical Center in Hershey, Pa., surveyed 57 floral workers, finding 15 (26 percent) reported hand rash within the previous year. Eight floral industry employees with hand rash symptoms agreed to take a patch test, a standardized diagnostic measure of allergic reactions. The researchers exposed workers to pesticides and plant allergens, finding three of the eight subjects allergic to tuliposide A, the noxious substance in the sap of *Alstroemeria* and tulips. The team reports its work in the January *JOURNAL OF THE AMERICAN ACADEMY OF DERMATOLOGY*.

Floral designers and arrangers come in contact with tuliposide A when they cut *Alstroemeria* and tulip stems or handle the leaves, Thiboutot says. The allergic reaction develops with repeated exposure to the plant, she says, adding that workers in the study noticed a rash several months after they started working with *Alstroemeria*. Workers reported the rash vanished during time off, Thiboutot adds.

The researchers believe the growing popularity of *Alstroemeria*, a South American flower introduced to the United States in the 1980s, may account for some of the growing number of on-the-job dermatitis cases reported to the Society of American Florists in Alexandria, Va. Recommendations for flower industry workers with itching, scaling hands include wearing special gloves to block contact with tuliposide A or avoiding flowers that cause skin reactions, Thiboutot notes.

Failure to finger carpal tunnel syndrome

Sensations of pain, numbness and tingling in the hand and fingers raise the hint of carpal tunnel syndrome, a disorder caused by compression of the median nerve that runs through the wrist, palm and fingers. But two recent reports raise questions about the validity of certain diagnostic tests physicians commonly use to identify people with carpal tunnel syndrome.

In the first report, Jeffrey N. Katz of the Harvard Medical School and colleagues studied 110 people referred to the Brigham and Women's Hospital for evaluation of hand pain. The Boston researchers gave study participants a variety of diagnostic tests, including one called Tinel sign, in which physicians drop a small reflex hammer five times on the wrist and record whether the patient feels pain in at least one finger innervated by the median nerve. The team compared the results of those initial screening tests with findings obtained by nerve conduction testing, which accurately identifies more than 90 percent of carpal tunnel syndrome cases. Their report in the March 1 *ANNALS OF INTERNAL MEDICINE* shows the diagnostic screens were of limited value when used alone to find cases of carpal tunnel syndrome, which is thought to result from repetitive movements of the hand and wrist.

A second report, by researchers at the University of Limburg in the Netherlands, shows Tinel sign and 11 other diagnostic screening tests failed to reliably identify carpal tunnel syndrome when measured against a positive nerve conduction test. M. de Krom and his team conclude in the Feb. 17 *LANCET* that physicians should send patients with suspected carpal tunnel syndrome directly to the nerve conduction laboratory.

But Katz says combinations of screening tests can help avoid costly nerve conduction studies for certain people with hand pain. His study shows people younger than 40 who have a negative Tinel sign and "hand pain diagram" are at low risk of carpal tunnel syndrome.