

the local jail, she adds.

Her contention is hard to document, but a study of police practices in an unidentified Northern city indicates that, for similar offenses, mentally disordered citizens have a significantly greater chance of being arrested than non-mentally disordered people.

Linda A. Teplin, a psychologist at Northwestern University Medical School in Chicago, and co-workers observed 1,382 police-citizen encounters over a 14-month period beginning in 1980. After excluding traffic offenses and other minor incidents, the researchers analyzed arrest rates for 506 police suspects.

The investigators identified 30 suspects with severe mental disorders. Almost 47 percent of this group was arrested, compared with 28 percent of the suspects who showed no signs of mental disorder.

Since most of the mentally disordered citizens committed misdemeanors, "the jail rather than the prison may have become a 'revolving door' for the chronically mentally ill person," says Teplin in the July *AMERICAN PSYCHOLOGIST*.

The findings are preliminary, she notes.

For now, Teplin recommends training police officers to handle the mentally ill; sending persons with minor charges pending to a mental health facility if necessary; establishing programs for people with multiple problems, such as alcoholism and depression; and developing community-based alternatives to hospitalization such as day-care units.

Teplin's suggestions are warranted, says psychologist John Monahan of the University of Virginia in Charlottesville, but it is not clear that the identified mentally disordered people had been released from mental hospitals or would have been sent to these facilities several years ago when commitment laws were less strict.

But in California, people who formerly would have gone to state hospitals are now more likely to be arrested for minor crimes, according to a report in the June *AMERICAN JOURNAL OF PSYCHIATRY*. "There is an urgent need to provide psychiatric services for mentally ill inmates in local jails," write psychiatrist H. Richard Lamb of the University of Southern California in Los Angeles and colleagues.

—B. Bower

Long-distance racers give from the gut

The fatigue a long-distance runner feels after pounding out 6 to 26 miles on the pavement isn't always a simple case of tired muscles. "Sports anemia," a drop in the percentage of iron-rich red cells in the blood that can occur during long bouts of intense exertion, has been recognized for several years, but its source has never been pinned down. Now, two studies of healthy racers published in the June *ANNALS OF INTERNAL MEDICINE* indicate that between 20 and 30 percent of the runners studied lost small but "significant" amounts of blood through their stomach and intestines during a race. The tiny amount lost in a single race is probably harmless, the researchers say, but could interact with other factors to help account for the iron deficiency anemia found in 10 to 15 percent of frequent competitors.

Laurence F. McMahon and colleagues at Yale University studied 32 racers in the 1983 Boston Marathon, while David A. Ahlquist and his research team at the Mayo Clinic in Rochester, Minn., looked at 10-kilometer racers as well as those who ran in marathons.

The conclusions from both studies were similar: Stool samples before the race and in several-hour intervals afterwards showed that up to a third of the runners were losing the equivalent of at least 3 milliliters (ml) of blood per day. (Non-racers typically excrete less than 2 ml per day, Ahlquist says.) One runner in Ahlquist's study lost 11 ml, another lost 18 ml, while a third, after two consecutive days of long-distance running, lost 43 ml of blood.

Exactly why blood seeps through the gastrointestinal tract is still unclear, the scien-

tists say, though they suspect that the repeated jarring of internal organs during a race, or the shunting of blood from gut to muscles that takes place during heavy exercise, might lead to a temporary breakdown in the lining of the intestine. Neither specific length of race nor blood thinning medications such as aspirin seemed to determine the amount of bleeding, and none of the racers had ulcers. In most runners, the excess bleeding stopped within a few days of the race.

Lest recreational joggers hang up their tennis in fear that their life's blood is oozing away, McMahon cautions that the findings seem tied to the extreme exertion of long-distance racing and competitive training. "Our findings say nothing about Joe and Jane Jogger," McMahon told *SCIENCE NEWS*. "Running is a great way to keep in shape, and nothing from our results suggests that it's bad for you."

Iron deficiency anemia can be successfully treated with iron supplements. Nonetheless, both McMahon and Ahlquist are anxious to identify factors that influence the bleeding in order to better understand how heavy exercise shapes normal physiology. "If we're going to check for blood in stools to screen for [the possibility of] colon cancer, for example, we need to ask how many of our patients run," Ahlquist says. At the same time, McMahon cautions that the estimated 10 to 30 million long-distance runners in the United States should not automatically discount blood in their stool as a harmless by-product of exercise, but rather should check with their doctors to rule out more malignant sources.

—D. Franklin

Liquid droplets on high

Many meteorologists believe that thin wispy cirrus clouds play an important role in determining both the amount of solar radiation that reaches the earth and the amount reflected by the planet back to space. Their models, though, are built upon the widespread assumption that because of low temperatures at altitudes of 20,000 to 40,000 feet, where such clouds are common, the clouds are composed of ice crystals. But recent measurements show that the lowest layers of cirrus clouds sometimes are composed of liquid water. The finding is leading researchers to revise their radiation models.

In a report to the National Science Foundation, Kenneth Sassen of the University of Utah in Salt Lake City described his measurements of liquid water in cirrus clouds at temperatures of -35°C to -36°C . At such temperatures cloud droplets are believed to freeze rapidly, yet liquid cloud droplets have been observed at this temperature, Sassen says. He attributes the phenomenon at such high altitudes to the dearth of particles that provide droplets with a nucleus around which to freeze. "The air up there may be so clean that there are not many of the particles we take for granted," he says.

Sassen, working with Kuo-Nan Liou, also of the University of Utah, collected his data from cirrus clouds 8.2 kilometers over Boulder, Colo. Measurements were gathered from lidar readings, in which laser beams are bounced off the clouds and returned to a ground-based sensor. Measurements by a high-flying aircraft confirmed the lidar observations that the base and up to 91.5 meters into the cloud were composed of liquid cloud droplets.

It is not yet clear how prevalent the phenomenon is. Still, liquid water differs from ice in ways that affect calculations of the radiation balance. In this light the researchers are adjusting their theoretical models to study the transfer of solar and terrestrial radiation through the liquid cloud layer.

—C. Simon

Shuttle launch aborted

Engineers at Kennedy Space Center in Florida this week were back at work trying to ready the third and newest U.S. space shuttle, Discovery, for its maiden flight, following an on-board malfunction that stopped the ignition of the craft's three main rocket engines—one was already firing—only four seconds before the intended June 26 liftoff. The oft-postponed launching had been most recently attempted the day before, but that try was canceled with minutes to go because of an apparent hardware failure in one of Discovery's five main on-board computers. At SN's deadline, it was uncertain whether the latest delay would last days or weeks. □