

no consensus in the animal or human literature supporting the tension reduction model of alcohol consumption."

Adds Nation, "At this point, the data suggest only that research is needed to examine cadmium's effects on humans."

For 55 days, the researchers fed six rats regular laboratory chow while another six received lab chow containing 100 parts per million cadmium. (Though most humans would not encounter a dose this large, says Nation, similar levels have been seen among people who have had cadmium-poisoning symptoms.) Then, instead of the usual water supply, the researchers gave all the animals a 15-percent alcohol solution for five days in order to familiarize them with alcohol and its effects. Next, a choice between alcohol solution and water was offered for a five-day "baseline period," then for two weeks during which the animals were trained to press a lever to avoid mild electric footshocks, and finally for nearly three weeks after the footshocks were stopped.

During the stressful shock-avoidance training, cadmium-exposed rats consumed about twice as much alcohol solution as their counterparts and drank slightly more alcohol than water. This pattern became more pronounced in the period following avoidance training, although, says Nation, it is not clear why. There were no significant group differences in total fluid intake, feed intake and body weight.

In a similar study conducted about one year ago, Nation and his colleagues found that rats fed a lead-contaminated diet drank more alcohol than a control group, but the preference for alcohol is considerably stronger when the animals are exposed to cadmium. They have also found that it takes longer for alcohol to affect the behavior of cadmium-exposed rats compared to a control group.

Cadmium is used as a binding agent in the electroplating industry and also in the manufacturing of batteries. Cadmium used by industry is present in sewage sludge, says Nation, which is used by agricultural companies as fertilizer. From there, it enters the food chain. "Cadmium is mobile," says toxicologist Donald Lisk of Cornell University in Ithaca, N.Y. "It moves readily from soil to plants to animals."

In the last two years it has been detected in high concentrations in tobacco plants, says Nation. The substance is also known to "load" in some other plants, such as lettuce, says Lisk.

Although its concentrations in human diets vary and have not been fully explored, Lisk adds that "cadmium is at a level that probably should not be exceeded in the American diet."

Cadmium concentrates in the kidneys, explains Lisk. The first sign of toxicity in humans, he says, is usually kidney dysfunction.

— B. Bower

## Colon-cancer defect found

A genetic defect may be responsible for a large number of cases of colon and rectal cancers, according to British and Israeli scientists, who say the discovery could lead to improved diagnosis. Led by Walter F. Bodmer of the Imperial Cancer Research Fund Laboratories in London, the researchers reported this week that the loss of certain genes through mutations "may be a critical step in the progression of a relatively high proportion of colorectal cancers."

When comparing cancerous material from the colon and rectum with normal tissue from similar sites, the scientists found that some genetic material was missing from chromosome 5 in at least 20 percent of the tumors. In a parallel study, the group located the gene for familial adenomatous polyposis (FAP) on the same chromosome. Found in certain families, FAP is characterized by the formation of numerous polyps in the colon, which frequently become malignant if not removed. On the basis of these two studies, the scientists suggest in the Aug. 13 NATURE that mutations in the FAP gene may be involved in both familial and nonfamilial forms of colorectal cancer. They also say that further research should provide methods for prenatal and presymptomatic diagnosis of a predisposition to colorectal cancers, which will add an estimated 145,000 new cases to U.S. cancer figures this year. □

## Chlordane sales halted

Sales of chlordane, heptachlor and related cyclodiene insecticides will end immediately, John A. Moore, the EPA's assistant administrator for pesticides and toxic substances, announced this week. Since the mid-1970s, only termite-control companies have been permitted to use the chemicals. The action results largely from an agreement between EPA and Velsicol Chemical Corp. in Rosemont, Ill., the sole maker of chlordane and heptachlor. It was prompted by new data provided by Velsicol showing that these compounds can contaminate household air for at least a year.

Because the chemicals cause liver disease and adverse neurologic effects in exposed animals, and are suspected human carcinogens, EPA canceled most uses of them in the 1970s. Use against termites was excepted because of a lack of effective alternatives. But the new data and the availability of alternate termiticides — some registered just this year — have now led EPA to end most remaining uses. All applications within or under the perimeter of inhabited structures are permanently suspended, for example. If Velsicol can show that applying these chemicals outside the perimeter of homes will not contaminate indoor air for at least two years, such uses may be approved in the future. □

## Rock-a-bye baby crocodilian



Bronx Zoo

*These broad-snouted caimans are what's new at the Bronx (N.Y.) Zoo. Eighteen of the endangered members of the crocodilian order were hatched last month from two different moms given to the Bronx Zoo by Japan's Atagawa Tropical Gardens. Their birthdays mark the first time a second generation of exotic crocodilian has been bred in a zoo. While the baby caimans are a handful now, they'll grow to be 9 feet long and will weigh as much as 150 pounds. Zoo officials hope to eventually return future generations of broad-snouted caimans and other rare reptile species to the wild. The zoo has also successfully bred other crocodilians, including the Chinese alligator, the Malayan false garial, the Siamese crocodile, the Cuban crocodile and the Yacare caiman.*