

Microscopy to document torture

Microscopic examination of skin samples can distinguish between tissue damage due to electrical and heat injury, report Danish scientists. T. Karlsmark and L. Danielsen of Municipal Hospital in Copenhagen and co-workers say in the Jan. 6 NATURE, "Reports of the use of electrical torture are usually denied, so that there is an urgent need of diagnostic methods to distinguish the consequences of electrical torture from other superficial injuries." A spokesman for Amnesty International in Washington, D.C., says the organization receives reports from many different countries of electrical torture.

In recent experiments, fully anesthetized pigs were exposed to heat energy and electrical energy on opposite sides of the body. Skin samples taken 14 days, 21 days and 2 months after injury were stained with a dye that selectively reveals calcium. In the scars following heat damage the investigators found calcium deposits in hair follicles and in clustered structures resembling fat cells. In contrast, in scars arising from electrical injury, they found calcium salts on collagen fibers in the area where the cathode had been. They conclude that "the collagen calcification described here is unique and in the absence of a history of skin exposure to calcium salts, highly indicative of electrical injury."

Caribou herd listed as endangered

Under an emergency rule, Interior Secretary James Watt has designated the southern Selkirk Mountain herd of woodland caribou as endangered. It is the last herd of woodland caribou to frequent the United States outside of Alaska. Only 13 to 20 animals are thought to survive in this herd, which ranges over Washington state, Idaho and southern British Columbia. The caribou, which once populated the northern tier of states from Maine to Washington, is considered the most critically endangered mammal in the "lower 48," according to the Fish and Wildlife Service.

The population is threatened primarily by poachers, but the animals are also killed by wildfire and collisions with vehicles. Perhaps due to inbreeding, calf survival is low. And the herd is geographically isolated from larger herds in Canada, which are not endangered but are also declining. A provision of the Endangered Species Act allows the listing of a "distinct population" of a vertebrate species that is threatened in a particular area, even though the species may be more numerous elsewhere. Under the emergency rule, the population will be protected as "endangered" for 240 days, during which time the Fish and Wildlife Service expects to propose permanent endangered status. The National Audubon Society had threatened to sue if the Interior Department did not act to protect the caribou.

Longer days for stronger piglets

Almost a quarter of the piglets born in swine production die before they are weaned. Some of these baby pigs lack adequate nutrition and others are crushed by their mothers, in some cases because they are too weak to get out of the way. Researchers at the University of Georgia propose that piglet mortality might be decreased by lengthening the daily light exposure of animals confined indoors. John Mabry reports recent experiments in which sows and their litters were exposed to either 8 hours of light and 16 hours of darkness daily or 16 hours of light and 8 hours of darkness. The litters exposed to the longer daylight period have more babies survive to weaning age and a heavier combined litter weight. Mabry finds that the piglets exposed to 16 hours of light daily nurse more often than the other group (averaging 31 instead of 25 times per day). In addition the sows under the longer-light condition have more solids in their milk and yield more milk overall.

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EtO dangers prompt new standard

On Jan. 5, U.S. District Court Judge Barrington Parker ordered the Occupational Safety and Health Administration to issue within 20 days a new, temporary standard lowering permissible workplace exposure to ethylene-oxide (EtO) gas. EtO is used as a sterilizing agent, fumigant, pesticide and chemical additive. It is also an "intermediate" chemical — one developed during the production of another — in the manufacture of automotive anti-freeze, textiles, films, bottles and detergents.

By law, OSHA must issue this type of emergency standard if it is learned that employees face "grave danger" from industrial exposure to a toxic substance and that a new standard would protect them. Since the administrative record indicated current occupational exposures at the existing OSHA standard indeed pose a grave danger to workers, Judge Parker said one is compelled to view OSHA's previous unwillingness to immediately lower its EtO standard as "a clear error of judgment."

The Public Citizen Health Research Group (a Washington-based public-interest group) and the American Federation of State, County and Municipal Employees union first petitioned OSHA to revise its EtO standard in August 1981. At the time, they cited research that strongly suggested the chemical caused cancer and genetic abnormalities in exposed workers. When OSHA denied the petition, the Health Research Group and AFSCME appealed. Joining in their litigation were the Service Employees International Union, Dist. 1199 of the National Union of Hospital and Health Care Employees, and the Amalgamated Clothing and Textile Workers Union. According to the petitioners, at greatest risk from EtO hazards are the 100,000 health-care workers exposed to the gas through its use as a sterilant; their exposures have typically been the highest.

Though the research appeared too late to be included in their petition to OSHA, HRG notes that a Finnish study by K. Hemminki and colleagues reported in the Nov. 20, 1982 BRITISH MEDICAL JOURNAL describes a miscarriage rate three times higher — 15.1 percent — among 545 women on hospital sterilizing staffs who were exposed to EtO while pregnant, as compared with 605 women similarly employed who did not encounter EtO at work.

Statistics were adjusted for age, other pregnancies, decade of pregnancy, smoking and consumption of coffee and alcohol. What's more, no correlation was found between miscarriage rate and exposure to two other hospital sterilants — formaldehyde and glutaraldehyde. Most notable, these effects were measured in hospitals where EtO concentrations ranged from 0.1 to 0.5 parts per million as an 8-hour average, with peak concentrations to 250 ppm. In American hospitals, the petitioners point out, 50 ppm 8-hour averages are allowed, and 1,000 ppm peaks do occur.

\$25 million launches wetlands project

A \$25 million grant, the largest ever for environmental conservation by a private foundation, is being awarded to the Nature Conservancy by the Richard King Mellon Foundation to launch a five-year National Wetlands Conservation Project. According to Conservancy president William Blair Jr., the project aims "to preserve significant examples of our threatened aquatic ecosystems — from the Atlantic coastal wetlands to the watershed forests of Hawaii." It also plans to showcase innovative schemes for protecting the most critically endangered habitats.

Legal briefs

- Calling "illegal" his removal of 800,000 acres from consideration as wilderness (SN: 1/8/83, p. 21), six environmental groups filed suit Jan. 13 against Secretary of Interior James Watt.
- Sixteen environmental groups are suing the Reagan administration, asking that at least 6 of the 27 nationwide permits relaxing wetlands protection (SN: 7/24/82, p. 56) be revoked.

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