

trum, the CFC industry also praises the diplomatic community for reaching a protective agreement. However, says Kevin Fay, director of the Alliance for Responsible CFC Policy in Washington, D.C., "it goes much farther than anything we think is necessary." Members of the CFC industry think that both the schedule and scale of the reductions are too stringent and do not provide adequate time for the industry to find suitable substitutes for CFCs and halons.

Nonflammable, noncorrosive and non-toxic, these chemicals seemed ideal in almost every sense. They are just too stable in the lower atmosphere, and rise into the ozone layer before releasing their destructive chlorine. The production industry is now looking at CFCs that either lack chlorine altogether or break up in the lower atmosphere.

Several less destructive CFCs are currently on the market and could serve as replacements in a limited number of situations, says Fay. Other substitutes, including the nonchlorinated CFCs, are still in development and will not reach the market for five to seven years.

However, all CFC users may not be able to find replacement chemicals. Says Fay, "the solvents industry and [others] who use [CFC] 113 are very concerned because there really are no substitutes on the horizon." With CFC 113 and the halons, says Fay, the answer to the upcoming limitations may lie in efficient recycling.

— R. Monastersky

### AIDS protein 'computed'

Scientists in England have used a computer to construct the probable three-dimensional structure of a protein that may prove significant in developing new drugs against the virus causing AIDS. In the Sept. 24 NATURE, Laurence H. Pearl of the Institute of Cancer Research in Surrey and William R. Taylor of the University of London report their computed structure for the protease enzyme produced by the AIDS-causing HIV virus.

Part of the HIV protease — essential for the production of proteins that make up the virus core — structurally resembles the aspartic class of proteases found in the blood and digestive system. After comparing the amino-acid patterns from both groups, Pearl and Taylor found that the HIV protease is very similar to half of the aspartic protease's structure. Based on this observation, they suggest that HIV protease may in fact be active only when two of these smaller proteases unite. Their computer model of this "double" form and its binding sites may point to the design of drugs that inhibit HIV protease activity, and therefore viral infection, say the scientists. □

## Discounting the threat of acid rain

There is little evidence that acid rain has had a significant impact on lakes and streams in the United States, says a controversial report issued last week by a Reagan administration study group. Even in regions such as New York's Adirondack Mountains, where lake acidification has occurred, it says only a small percentage of lakes have been affected. The report also concludes that most watersheds in the Northeast have reached a steady state, meaning that further acidic deposition is unlikely to increase the number of acidified lakes.

These conclusions are contained in an interim assessment of the causes and effects of acid rain, issued by the National Acid Precipitation Assessment Program (NAPAP), the umbrella organization coordinating federal acid rain research. Originally scheduled to appear in 1985, the report summarizes the current state of scientific knowledge about acid rain after more than five years of study (SN: 7/18/87, p.36).

This document, says NAPAP's Charles N. Herrick, focuses on "what we found out, how we found that out, what we still need to find out, and what we need to do to find it out."

The interim assessment was greeted with strong protests by the Canadian

government, several environmental groups and a number of scientists whose work had contributed to the NAPAP report. Canada's Environment Minister Tom McMillan complained that the report is "voodoo science," designed to prove that the situation isn't serious enough to warrant immediate action. The report, for instance, ignores the potential impact of U.S. emissions on Canadian lakes, a large number of which lie on granite beds, making them more sensitive to acid rain than most U.S. lakes.

Scientists, including James N. Galloway of the University of Virginia in Charlottesville and Michael Oppenheimer of the Environmental Defense Fund in New York City, argue that the NAPAP assessment uses data selectively, ignoring new evidence that doesn't seem to support its conclusions. For example, one recent study shows that some lakes may continue to become more acidic even when the deposition rate of strong acids is reduced. Some researchers also argue that the criteria used by NAPAP to define an acid lake are inadequate. The assessment, they say, excludes a number of lakes where damage has occurred and doesn't take into account the strong pulse of acidity associated with spring snow melts.

— I. Peterson

## Sudden death tied to sickle-cell trait

Black military recruits carrying the abnormal hemoglobin S in their red blood cells are 28 to 40 times more likely to die suddenly during strenuous physical exertion than are recruits without the so-called sickle-cell trait, researchers reported this week. Although scientists have previously reported cases suggesting that people with the trait are more susceptible to death without any known preexisting cause, the current study is the first large-scale look at this phenomenon.

People who inherit hemoglobin S genes from both parents can develop the often-fatal sickle-cell anemia. Those with an abnormal gene from only one parent, however, have sickle-cell trait, ordinarily considered an innocuous disorder. Approximately 8 percent of the black population in the United States has sickle-cell trait, a condition rare among nonblack Americans. Since oxygen deprivation forces cells with hemoglobin S to become sickle-shaped, researchers have wondered about exercise's effect in people with the trait.

Scientists at Walter Reed Army Institute of Research in Washington, D.C., and the Naval Hospital in Bethesda, Md., evaluated all deaths occurring among the 2 million enlisted recruits receiving basic training in the U.S. military from 1977

through 1981. On the basis of detailed autopsy reports, the researchers conclude in the Sept. 24 NEW ENGLAND JOURNAL OF MEDICINE that the rate of "sudden unexplained death attributable to [sickle-cell trait]" among black recruits was 31 deaths per 100,000. They also calculate that the risk of sudden death for those with the trait is 28 times that for black recruits without hemoglobin S and 40 times that for all recruits, regardless of race.

The authors suggest that although civilian life is "seldom as stressful as basic military training," studies should be done on sickle-cell trait among others involved in strenuous exercise, such as athletes and heavy laborers. During this study, the Army Medical Corps cautioned recruit training centers in 1982 about the potential risk involved, but a Defense Department spokesman told SCIENCE NEWS there is no set policy regarding the issue.

In an accompanying editorial, Louis W. Sullivan of Atlanta's Morehouse School of Medicine notes that, while the study is important, such findings do not show increased risk in ordinary occupations or in daily life. Sullivan says there should be no subsequent discrimination in employment or insurability against those with sickle-cell trait.

— D.D. Edwards