

## Lead levels in hair lower now than in 1871

Concentrations of lead in the atmosphere have risen steadily since 1940, says the National Academy of Sciences. Even so, human absorption of environmental lead may have decreased significantly in the past 50 years, according to a report in the Oct. 6 *SCIENCE*. The research is based on comparisons of the lead content of antique and contemporary samples of human hair. The presence of lead in the hair reflects the prior presence of lead in the blood because during growth the emerging hair accumulates and retains heavy metals such as lead.

Advertisements for samples of old hair produced 130 specimens (from museums and private individuals) dated between 1871 and 1923 (the year tetraethyl lead was introduced into gasoline). Contemporary hair samples were collected from rural and urban barber shops. Donald Weiss of Newton, Pa., and Bert Whitten and David Leddy of Michigan Technological University in Houghton, Mich., used atomic absorption spectrophotometry to analyze the lead content of the hair. They found the amount of lead in antique hair to be as much as 10 times the amount in 1971 samples—both rural and urban. Whitten admits that the technique may not be sensitive enough to detect small differences (significant differences were not found between urban and rural samples), but the difference between pre- and post-1923 samples was obvious.

These results may seem surprising; in recent years much of the emphasis on lead pollution has focused on getting the lead out of gasoline and thus out of the air. But, in fact, the amount of lead absorbed through the lungs by breathing polluted air is minor compared with the amount of lead ingested through the stomach by eating lead-based paint. The use of lead in interior paints was largely discontinued by 1950. Similarly, water is no longer collected from lead roofing nor stored in leaded jugs as it was in the early part of the century. Lead-contaminated stills, lead-glazed pottery, lead toothpaste tubes and lead in food and cosmetics are all sources of lead poisoning much more closely monitored than they were 50 years ago. "Thus," say the researchers, "the lower lead content in human hair in our contemporary population is probably a result of greater precautions in the use of lead in spite of a general increase in atmospheric concentrations."

Still, lead pollution and lead poisoning are problems. In 1971, a Governor's Task Force in Connecticut discovered that seven percent of a sample of inner city children in that state

had lead poisoning. This type of lead poisoning, usually associated with exposure to lead-based paints, can cause mental retardation, behavioral difficulties, perceptual disabilities, emotional instability and distractibility.

But similar information is not available on the effects of low exposure to

lead. The NAS and the National Institute of Mental Health suggest that low chronic exposure levels may have subtle effects on behavior without prior acute exposure; the nearly universal exposure to low levels of lead makes research into the problem an urgent concern. □

## 'Pay as you launch' plan for foreign satellites

President Nixon announced this week a formal "launch assistance" policy for satellite projects of other nations or international organizations. The policy provides for a "pay as you launch" plan for any nation that wants to orbit spacecraft for peaceful purposes. NASA has launched satellites for other countries in the past. But there has been some confusion about the U.S. position toward NASA's launching communications satellites for the Europeans if those satellites would be in direct competition with Intelsat, an international communications consortium of which the United States is a member.

The new policy says in effect that the United States will consider launch-

ing communications satellites such as the French-German *Symphonie* (SN: 8/29/70, p. 165) and the French regional system for communication with North Africa. One NASA official noted that the recent domestic communications system decision opened up the market for competition in the United States and that Nixon's policy statement followed the same spirit on the international scene.

The policy would also eliminate unnecessary duplications in world space communities: the need of a nation to develop its own booster when it could buy a booster from the United States and launch it from either U.S. facilities or foreign launch sites. □

## Interstellar particles 'seen' in solar system

The sun is traveling through the galaxy toward Hercules at about 20 kilometers per second relative to the near stars. So it is reasonable to assume that the observed dust particles in the galaxy and from other stars would pass through the solar system at times. But until now, no one has detected them.

Now, micrometeorite detectors aboard Pioneer 8 have detected at least two particles, mass  $10^{-13}$  grams, from outside the solar system—and possibly many more. The instruments provide data for scientists to calculate not only the direction of particles hitting the Pioneer spacecraft but also their speed. Pioneer 8 detected two particles moving

in the direction opposite that which the sun is traveling. Their velocity was around 100 kilometers per second. Some 400 other events have been detected, and Otto Berg of the Goddard Space Flight Center estimates that a significant number of these may also be passing through the solar system. Since such particles are most likely primordial material, the next step is for scientists to calculate their composition. That chance may come later in this decade. Berg has proposed an instrument on the possible Jupiter-Saturn mission in 1977 (SN: 3/4/72, p. 152) that can detect not only the size, speed and direction of the particles, but also their composition. □

## Aiding mass transit via highway fund: Hopes dim

Hopes by urban mass transit supporters that this year's federal highway bill would include a provision for diversion of some Highway Trust Fund monies to urban transit were dimmed in House action last week.

Claiming "betrayal," House sponsors of diversion amendments charged that last minute parliamentary maneuvering by House Speaker Carl Albert (D-Okla.) and Parliamentarian Lewis Deschler had thwarted their efforts to introduce their amendments. In this case, the environmentalist legislators and the Administration were on the same side, with Transportation Secretary John A. Volpe also supporting diversion of the funds.

But the Senate version of the bill in-

cludes diversion amendments, and supporters said there is some hope these can be incorporated into a conference committee version. □

## Advisory committee act

With no fanfare and no public statement, President Nixon late last week signed the Federal Advisory Committee Act. The act (SN: 10/7/72, p. 234) goes further than an earlier executive order in opening the operations of many Federal advisory committees, including many involving scientific matters, to press and public scrutiny. Whether the President would sign or veto the bill was in doubt until the final day left for Presidential action. □