

medical sciences

Coffee and heart attacks

Cigarette smoking has long been implicated in heart attacks. Now Hershel Jick and Dennis Slone of Boston University Medical Center and their team have found that heavy coffee drinking may be linked to heart attacks even more than smoking is.

They report in the Dec. 16 LANCET that 276 patients with acute myocardial infarction were compared with 1,104 matched control patients with other diseases. The heart attack victims were bigger smokers and still bigger coffee drinkers than were the control patients. Both groups tended to drink about the same amount of tea.

The authors offer several explanations for their findings. People who are aggressive and competitive, and particularly prone to heart disease, may also be prone to heavy coffee drinking. On the other hand, coffee might be an actual causative agent of heart disease by altering fats in the blood. Some other investigators found a correlation between daily intake of coffee and blood levels of cholesterol.

Trace elements and the neonate

As nutrition investigators come to realize the benefits and dangers of various trace elements to health, they are exploring the actions of various elements in the newborn.

H. H. Messer and his team of biochemists at the University of Minnesota report in the Dec. 13 NATURE NEW BIOLOGY that the stresses of pregnancy and rapid growth experienced in the neonate period, coupled with a low fluoride diet, produced severe anemia in newborn mice. Since a high fluoride diet has been shown to enhance intestinal absorption of iron, the Minnesota investigators speculate that too little fluoride might prevent iron absorption and lead to anemia. They are exploring the ability of iron supplements to prevent such anemia.

The November 1972 NUTRITION REVIEWS reports that the absorption of iron, strontium and lead by newborn rats is age-dependent. The transition from the infantile to the adult pattern is most rapid for iron and slowest for lead.

Hormonal probe for cause of depression

In the Dec. 22 SCIENCE, Edward J. Sachar and his colleagues at Montefiore Hospital and Medical Center, New York City, present evidence that a disturbance in brain chemistry not only causes depression but increases with age. Such an increase might explain why older people are more prone to depression.

They gave the brain chemical L-dopa to healthy young subjects, to healthy middle-aged and older subjects and to depressed middle-aged and older subjects. They measured growth hormone in the blood of the subjects after they received L-dopa injections. Because L-dopa is a known stimulator of growth hormone, they interpreted inadequate growth hormone responses as disturbances in brain chemistry. They found that only seven percent of the healthy young subjects made inadequate responses, yet that 36 percent of the healthy middle-aged and older subjects and 77 percent of the depressed middle-aged and older subjects made inadequate responses.

space sciences

ERTS exceeds expectations

To look at the earth with remote sensing instruments such as spectrometers and cameras (and be able to talk about the findings) has long been a goal of earth scientists (SN: 8/5/72, p. 90). Part of that goal has now been fulfilled through the first Earth Resources Technology Satellite (ERTS I), launched July 23. According to geologists and photogrammetrists at the annual meeting of the American Association for the Advancement of Science last week in Washington, D.C., the results of ERTS I exceed many of their expectations.

Charles J. Robinove and A. P. Colvocoresses of the U.S. Geological Survey reported that new features had been discovered (such as faults and additional salt flats and dry lakebeds high in the Andes in South America). "The distribution of vegetation in relation to rock units and topography is readily apparent . . . and acts as a guide to the location of groundwater in shallow subsurface water-bearing rocks [aquifers]," said Robinove.

ERTS imagery has also helped scientists define not only current movement but the source of sedimentation in water distribution patterns and the persistence of the sediment. Bodies of water as small as a few acres can be seen.

All of this greatly complements current cartographic techniques, according to Colvocoresses. "In dynamic areas of the United States, changes are occurring faster than the mapmaker can possibly record them by conventional techniques [aircraft photography]," Colvocoresses said.

ERTS—just the beginning

ERTS I is just a first experimental step in looking at the earth from space, according to William D. Carter, a geologist of the U.S. Geological Survey. At last week's AAAS meeting, Carter reported the scientists' hopes for Skylab, to be launched April 30 and May 1. "While there is still much to do in our study of ERTS data, we are now awaiting the launch of Skylab . . . which will give us an opportunity to test other instruments (new cameras, microwave radiometers and spectrometers) in space and test man's durability and use in earth studies," he said.

"We are currently making recommendations for operational unmanned satellites to follow ERTS in the next decade," Carter added.

Large space telescope invitations

This month NASA invited astronomers from all over the world to propose participation in the definition and preliminary design of scientific instruments to be carried on the Large Space Telescope (LST), now planned for launch by the space shuttle in the early 1980's.

Although recommended as a high-priority item by the scientific community, the LST is still not approved as a flight project.

While the funding does not appear to be available, the technology is within reach. Herbert Friedman of the Naval Research Laboratory reported at the AAAS meeting that the newly launched Copernicus (SN: 9/2/72, p. 156) telescope was performing as had been hoped. "There is not a great step from the performance of Copernicus to LST," he said. "We are further along than we ever thought we would be a few years ago."