

# biomedical sciences

## Infectious cancer: Evidence from schools

Two years ago, Nicholas J. Vianna, a physician at the New York State Department of Health, reported evidence that Hodgkin's disease might be an infectious disease with a carrier state and long incubation period. Hodgkin's is a form of cancer that attacks the body's lymphatic system. The evidence came from a high school in upstate New York at which there was an unusual prevalence of cases of Hodgkin's (SN: 6/19/71, p. 421). Earlier this year, other investigators found that there were 18 times as many cases of Hodgkin's in Darby, Ohio, as are present in other areas of the United States (SN: 2/10/73, p. 85). Now Vianna, with Adele K. Polan, reports more evidence that Hodgkin's might be infectious.

Vianna and Polan studied high schools on Long Island, N.Y. They figured that where a case of Hodgkin's had occurred in a teacher or student from 1960 through 1970, more than the expected number of additional cases would appear among teachers and students who attended the same school. They found that five schools with cases diagnosed from 1960 through 1964 had other cases diagnosed from 1965 through 1969. None of the matched control schools had cases during this latter period.

## More insight on aspirin

Aspirin is probably the most widely used medication in the world, but its action in the body is only now being unraveled. Two years ago aspirin was found to inhibit prostaglandins, local hormone-like regulators in various tissues. Since prostaglandins induce fever, aspirin may relieve fever by inhibiting prostaglandins. Since prostaglandins help produce inflammation, aspirin may counter rheumatoid arthritis by inhibiting prostaglandins (SN: 7/17/71, p. 38).

Now aspirin has been found to inhibit lymphocytes—white blood cells that constitute immunological defenses in the body. P. I. Terasaki of the University of California at Los Angeles and A. A. Hirata of Abbott Laboratories report their findings in the Sept. 1 LANCET.

Aspirin's therapeutic value against rheumatoid arthritis might be partially explained by aspirin's ability to inhibit lymphocytes. White blood cells as well as prostaglandins are involved in rheumatoid arthritis (SN: 9/16/72, p. 181).

## Abnormal protein 'hooked' on copper

Wilson's disease is a genetic disorder that causes an abnormal accumulation of copper in the liver, brain, kidneys and corneas. The disease is also characterized by an unusually high amount of copper in the bloodstream not bound to a blood protein called ceruloplasmin. Various theories have been proposed to explain the biochemical basis of Wilson's disease, but none have been proven. Now it looks as if there is at least a partial explanation—an abnormal protein in the liver. This protein can bind copper four times as well as its normal counterpart can.

The finding, by R. S. Dubois and K. M. Hambidge of the University of Colorado Medical Center and by G. W. Evans of the U.S. Department of Agriculture in Grand Forks, N.D., is reported in the Sept. 21 SCIENCE.

The abnormal liver protein explains some of the defects in Wilson's disease. A normal liver incorporates copper into enzymes or excretes copper. The abnormal protein probably causes the liver to retain copper and to decrease the incorporation of copper into ceruloplasmin. Whether the abnormal protein is also involved in the accumulation of copper in the brain, kidneys and corneas is yet to be shown.

# natural sciences

## Mexican kelp comes to California

Mexican kelp that can tolerate warmer water than their northern counterparts have been planted off the southern California coast to help restore depleted kelp "forests."

"The local kelp forests, which are harvested for many products, have been decimated by two factors," says marine biologist Wheeler North of the California Institute of Technology. "First, by warm ocean currents that in 1957 through 1959 failed to cool sufficiently in winter . . . (and by) the invasion of hordes of sea urchins (which) eat the hold-fast by which the kelp tree anchors itself to the ocean bottom."

The Mexican kelp can withstand water temperatures up to 76 or 77 degrees F., North says, compared with 70 degrees for the native southern California variety. A source of increased heating in the future could be the coolant water output of nuclear power plants.

About 115 Mexican kelp plants were flown to Caltech's marine laboratory and thence set out on the bottom of Newport Bay. Within 10 months they had grown 15 to 20 feet tall and began producing spores, which were collected, placed on sheets of plastic film in laboratory tanks until they reached the embryo stage, and returned to the ocean. Their subsequent growth is still being monitored, including that of one batch only three miles north of the San Onofre nuclear power plant.

## Premature sea lion births and pollutants

Premature births of sea lions along the California coast may be correlated with high levels of pollutants accumulated in the mothers' bodies, according to Robert L. DeLong, formerly of the National Marine Fisheries Service, and two colleagues from the Naval Undersea Center in San Diego.

Residues of DDT in the blubber and liver of female sea lions with premature offspring were, respectively, 8.0 and 3.8 times as great as the concentrations in the same tissues of females whose offspring had normal gestation times. Residues of polychlorinated biphenyls (PCB's) were 6.6 and 4.4 times as high. In brain tissue, residues were 2.4 times as high.

"The exact relationship of pollutants to premature births . . . can only be elucidated through laboratory experiments," the investigators note in the Sept. 21 SCIENCE. But considering the differences found in the wild population, "We feel that the possible cause and effect relationship cannot be ignored."

## Australia to set up environment study group

Australia's Federal Cabinet has decided to establish a Bureau of Environmental Studies, on the recommendation of the Urban and Regional Development Committee.

The bureau presumably will make recommendations for policies on a national level, compared with the past in which such matters as protection and control of wildlife have been largely state matters (except for export restrictions). Plans have also been made to create a National Parks and Wildlife Commission; an interim director has been appointed to help formulate legislation for the new commission. Assistance of the Aboriginal peoples reportedly will be sought in the conservation and management of Aboriginal lands.

Australia also plans to compile a comprehensive listing of all its flora and fauna, according to Federal Minister for Science. The last such inventory, which included only plants, was in 1878.