

MEDICINE

Cancer in Heavy Smokers

The more heavily a person smokes, the greater are his chances of lung cancer although there are other factors involved.

➤ TWO studies showing a statistical relation between smoking and cancer of the lungs are reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (May 27).

"In general it appears that the less a person smokes, the less are the chances of cancer of the lung developing and, conversely, the more heavily a person smokes the greater are his chances of becoming affected with this disease," declare Ernest L. Wynder and Dr. Everts A. Graham of Washington University School of Medicine and Barnes Hospital, St. Louis, in their report of 684 cases of proved cancer of the lungs.

"In a hospital population, cancer of the lung occurs more than twice as frequently among those who have smoked cigarettes for 25 years than among other smokers or nonsmokers of comparable age. Pipe smokers apparently experience an almost equal increase in the incidence of lip cancer compared with other smokers or nonsmokers," Drs. Morton L. Levin, Hyman Goldstein and Paul R. Gerhardt of the New York State Department of Health state in reporting their study.

The New York study which started in 1938 was based on a history of tobacco usage obtained routinely from all patients admitted to the Roswell Park Memorial Institute, Buffalo. The histories were taken before final diagnosis was made. About half the patients were subsequently found not to have cancer.

Patients in the St. Louis study were in hospitals in various cities of the following states: California, Colorado, Illinois, Maryland, Massachusetts, Missouri, New Jersey, New York, Ohio, Pennsylvania, Utah and the District of Columbia. As a result, it was felt that this gave a good cross section of the entire United States.

Smoking cannot be the only factor in causing lung cancer, the St. Louis group points out, because the disease does not develop in every person who has been a heavy smoker for a long time and a small percentage of cases do occur in nonsmokers and minimal smokers.

The New York group also observes that "some other unidentified common factor" may play a part in lung cancer.

Almost all, 96.1%, of patients with lung cancer who had a history of smoking had smoked for over 20 years, the St. Louis group found.

Few women have smoked for such a length of time, they state, pointing out that this may be one of the reasons why there is more lung cancer among men today.

The heavy smoker who has given up

smoking may yet develop lung cancer, it appears from results of the St. Louis study. This showed that there may be a lag period of 10 years or more between the stopping of tobacco smoking and the occurrence of cancer symptoms.

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ENTOMOLOGY

Electric "Fence" Tests Insecticides

➤ NEWEST wrinkle in testing insecticides in the laboratory: build an electric "fence" powered by alternating current around the potted plant on which the insecticide is sprayed.

Object of the barrier, devised by Drs. G. A. Wheatley and S. Z. Moczarski of the School of Agriculture in Cambridge, Eng., is to keep wingless insects from straying away from the plant being tested, yet retain control over atmospheric conditions. This is not possible when cages are used to confine the insects.

Direct current barriers have previously been used for this purpose, they state in the journal, NATURE (May 13), but these sometimes kill the insects. Alternating current

has a stimulating effect, making the insects "not loth to leave the points of contact." The new barrier gets rid of the risk of short circuits found with direct currents.

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PHYSICS

Solidification Point, Melting Point Not Same

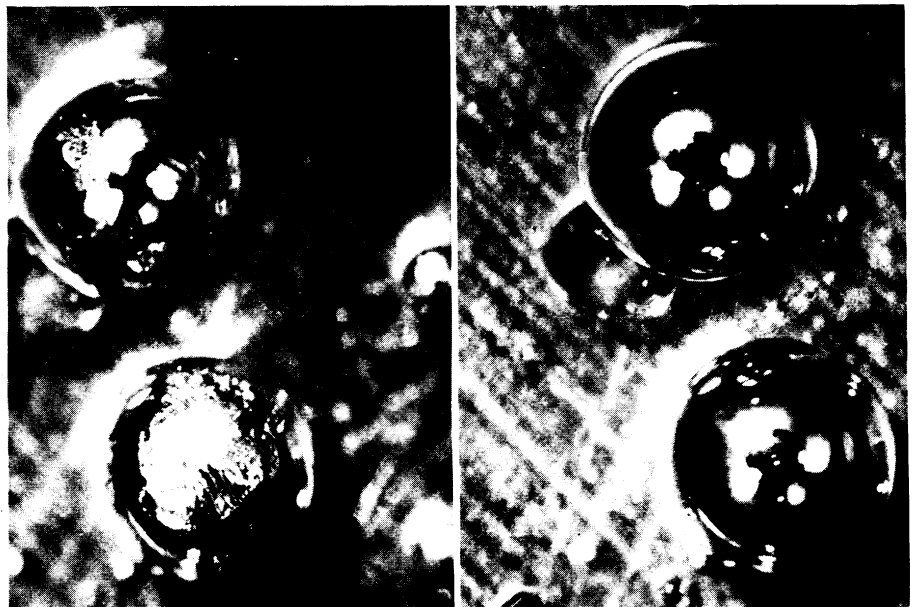
➤ THE melting point and the solidification point of a metal are not identical temperatures in spite of the fact that they are generally believed to be the same. This is the conclusion that General Electric scientists announced recently.

These scientists have been studying the behavior of metal droplets by means of special microscope equipment. They state that a molten pure metal solidifies at temperatures lower than the temperatures at which the metal melts.

Impurities in a metal cause solidification at a higher temperature than the solidification point of the metal in pure form, they said. The barest trace of impurities is enough to make molten metals "freeze" at temperatures above the solidification points for pure metals.

By means of a special attachment to a microscope, the scientists observed, through a quartz window, droplets of molten metal in a chamber. They were able to count the droplets solidifying as the chamber temperature was lowered. Certain of the droplets, free of impurities, were found to remain molten well below the supposed solidification point for the metal under study.

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DROPLETS OF GOLD—The droplets on the left, about eight thousandths of an inch in diameter, had been cooled far below their textbook solidification point without hardening. On the right are solidified gold drops which finally hardened after having remained molten, though 230 degrees Centigrade below the textbook solidification point for gold.