

## MEDICINE

# Link Smoking and Cancer

To escape lung cancer risk, male heavy smokers are advised to quit now. Survey shows heavy drinking increases chances of cancer of the larynx among heavy smokers.

► IT IS not too late for the man who has been a heavy cigarette smoker to escape the risk of lung cancer. His chances of getting the disease are very greatly reduced if he stops smoking now.

The American Cancer Society gave this bit of more cheerful news in its grim picture of the statistical relation between lung cancer and tobacco.

The report was given by Drs. E. Cuyler Hammond and Daniel Horn at the opening meeting of the American Medical Association in Atlantic City, N. J. It covers the first 32 months of study of the smoking habits and fate of 188,000 white men between the ages of 50 and 70.

A total of 8,105 of the men were reported to have died up to Nov. 1, 1954. Of these, 168 cases proved by tissue study to be bronchogenic cancer. That is the kind of lung cancer that starts in the breathing tubes in the lung and is the commonest kind of lung cancer.

Among the 168 lung cancer cases, the death rate among those who smoked two packs a day of cigarettes was about 90 times as high as it was for those who had never smoked. Only two bronchogenic

cancer cases were found among those who were non-smokers.

The rate for those who had quit smoking when the survey started was 14 times as high as for non-smokers, but only about one-half the rate for those who smoked less than one pack a day when first questioned. About half of the ex-smokers had been one-time light smokers. These had about the same lung cancer death rate as those who had never smoked.

Those who smoke less than a pack a day and are still smoking run about one-third the risk of lung cancer death as those who smoke two or more packs a day.

Lung cancer death rates are high among cigarette smokers and low among non-smokers regardless of whether they live in rural or urban areas.

Cigar smokers apparently run no risk of lung cancer. Pipe smokers do, but to a far less degree than cigarette smokers.

"A majority" of cancer researchers, chest surgeons and pathologists who examine lung tissue after death are of the opinion that heavy cigarette smoking may lead to lung cancer, Dr. Charles S. Cameron of the American Cancer Society reported on

the basis of a society questionnaire to about a thousand of these medical specialists.

## Thickened Vocal Cords

► THE SURFACE tissue in the vocal cords is thickened in heavy smokers. There is some water swelling in their voice boxes, an infiltration of abnormal cells, and an abnormal change in the tissues, called metaplasia.

These findings from post mortem examination of the larynx, or voice box, in heavy smokers were reported by Drs. Robert F. Ryan, John R. McDonald and Kenneth D. Devine of the Mayo Clinic and Foundation, Rochester, Minn., at the AMA meeting.

They classed as heavy smokers anyone who smoked several cigars or at least one package of cigarettes a day.

No sign of cancer was found in any of the larynxes of either smokers or non-smokers.

The differences in larynxes of smokers and non-smokers were mostly "matters of degree," the doctors reported.

In examinations of 40 voice boxes of men whose smoking history was not known, the doctors were able to make 31 correct judgments as to whether the larynx came from a smoker or a non-smoker.

## Lung and Larynx Cancer

► THE PRESENT rates of lung and larynx (voice box) cancer in American men "probably" would be reduced by 80% if American men did not smoke, scientists of Sloan-Kettering Institute, Memorial Center for Cancer and Allied Diseases, New York, declared at the AMA meeting.

Heavy drinking apparently adds to the risk of cancer of the larynx run by men who are heavy smokers.

Cancer of the larynx is 10 times more common in men than in women in the United States and makes up about two and one-half percent of all cancers among men.

Scientists reporting these findings are Drs. Ernest Wynder, Irwin J. Bross and Emerson Day. They came from interviews and questionnaires of 550 male patients, 209 of whom had cancer of the larynx, 132 who had lung cancer (studied for comparison) and 209 matched controls.

Over 100 factors were studied, including diet, voice strain, industrial exposure, dental hygiene, tuberculosis, syphilis, and X-ray to the neck. These had previously been suspected by investigators as playing a role in larynx cancer development. Medical, surgical, social and family histories were also taken.

Only one of the men with larynx cancer was a non-smoker, as compared to 22 in the control group. A direct relationship was found between the amount smoked and the "relative risk" of developing larynx cancer. As compared to the group who smoked 16 to 34 cigarettes a day, the man who smokes 1 to 15 cigarettes is 50% less likely to develop cancer of the larynx, and the



**CONVERTED SEARCHLIGHT**—This 60-inch searchlight mirror has been converted into a solar furnace by engineers of the Convair Division of General Dynamics Corporation. When stripped of the arc lighting mechanisms and glass covers, the searchlights make efficient solar furnaces for high-temperature testing of metals used in aircraft and missiles.

man who does not smoke at all is 90% less likely to develop the disease, while the man who smokes more than 35 cigarettes runs twice the risk. Cigar and pipe smokers were found to run approximately the same risk as the smoker of 16 to 34 cigarettes.

Men who consumed more than six ounces of whisky a day were found to be seven times as likely to develop larynx cancer as non-drinkers who smoked approximately the same amount, that is, more than 16 cigarettes a day. No significant differences in relative risk were found among those who smoked the same amount but who did not drink at all, who drank beer or wine or who drank six ounces or less of whisky a day.

The investigators advanced the theory that while heavy use of tobacco may cause or initiate larynx cancer, they believe heavy alcohol intake enhances the tobacco's effect probably by making the tissues more susceptible. This theory is based on the fact that although the risk becomes greater for the heavy smoker who drinks more than six ounces a day, there is no difference in risk for those who drink varying lesser amounts.

More cigar and pipe smokers were among the larynx cancer group than among the lung cancer group. Alcohol was found not to be a factor in the development of lung cancer.

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#### PSYCHOLOGY

## Promotion May Cut Ideas

➤ A YOUNG man is often rewarded for an outstanding achievement by promoting him to an important executive position.

The wisdom of doing this was questioned by Dr. R. H. Felix, director of the National Institute of Mental Health, in *Science* (June 3). Dr. Felix himself has just passed his 51st birthday.

Taking a young man from the ranks of the do-ers and putting him in an administrative job may rob the world of creative ideas, Dr. Felix pointed out. Scientific studies have shown that novel and significant ideas are developed at an early age.

"Shortening of the period for the kind of work in which novel ideas develop is not the ideal way to cultivate creativity," he said.

At the same time, the executive post might be better filled by a mature person, he indicated.

"A mature leader," he said, "is generally a constructive person who has experienced the various development phases. His goals are clear, his thinking is realistic. . . . The working climate under such a person is generally very wholesome. He cultivates the talents of his group and, in turn, graciously accepts their support.

"When crises arise, they are met with a minimum amount of over-reaction and contagious disturbance.

"Much of the popular thinking about the deterioration of abilities with age simply

#### MEDICINE

## Try Drugs After Surgery

➤ IN THE future doctors may give cancer patients doses of radioactive gold or other radioactive chemicals after the cancer has been removed by operation or destroyed by X-rays or radium.

This treatment might save lives now lost to cancer "seeds" that spread through the body to kill even when the original cancer has been destroyed.

The new treatment was suggested by Dr. Horace Goldie of Meharry Medical College, Nashville, Tenn., on the basis of mouse studies by himself and associates.

The studies showed that cancers kill the animal mainly by one of two means: 1. they break blood vessels and cause fatal hemorrhage; or 2. they eat away vital organs like the liver, lung or pancreas and destroy their essential functions.

The size of the cancer, Dr. Goldie says, is not as important as its site. Cancer spread is a more dangerous enemy than cancer growth. The unpredictable damage to vital organs and death are caused by seeds (metastases) that escape from the original tumor to establish hidden colonies in distant parts of the body.

These cancer "seeds" can be overtaken

and destroyed in the mice by such chemicals as radioactive gold, chromic phosphate or yttrium phosphate. Normal cells are not harmed by the radioactive substances in doses that killed the cancer cells.

White blood cells, the body's scavenger cells, could carry the radioactive chemicals, usually without apparent injury to the white cells, a report from the American Cancer Society, which supports Dr. Goldie's research, stated.

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#### METEOROLOGY

## Miniature Tornadoes Made in Small Box

➤ A WEATHER Bureau meteorologist is making miniature tornadoes in a small box in the hope of learning more about what causes "twisters."

Dr. Neil B. Ward of the Bureau's Fort Worth, Tex., office told the American Meteorological Society meeting in Kansas City, Mo., of his experiments with baby tornadoes of various sizes.

He controls the whirlers' sizes by changing the area of the diaphragm in the top of the box through which the air is evacuated to form the tornado. Talcum powder is used to make the funnel visible.

Scientists have made tornadoes in miniature off and on for the last 50 years. Dr. Ward's model differs from previous ones in that he controls the size of the evacuating diaphragm.

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