

PUBLIC HEALTH

Safe Smoking Sought

The best solution to the cancer-cigarette problem, because of the economic importance of tobacco, is to find a good substitute or a harmless tobacco—By Faye Marley

► THE NEXT BIG STEP in the cancer-cigarette war is to find out how to change cigarettes to make them safe. The job has started already.

It involves:

1. Identification of the cancer-producing substance in cigarette smoke.
2. Development of an effective means of removing it.
3. Discovery of a satisfactory, safe substitute for tobacco.

Dr. Sidney Farber of Harvard Medical School and Children's Hospital, Boston, told SCIENCE SERVICE that the tobacco industry should either find and remove the hazardous substance or find a substitute.

Already begun is the testing of tobacco substitutes such as sugar beet and cabbage leaves by the Roswell Park Memorial Institute, New York State Department of Health, Buffalo. Papaya leaves are being tested by Sutton Research Corporation, Los Angeles, Calif., and Frito-Lay, Inc., of Dallas.

Dr. George E. Moore, director of Roswell Park Institute, said plans are underway there to test catalpa leaves and that lettuce leaves already have been tested.

"In small quantities," Dr. Moore said, "the handmade cigarettes we have produced are good. They do not taste like cubebs, for example." The cubeb cigarette is made from the crushed dried unripe berry of a tropical shrub, *Piper cubeba*, of the pepper family.

Dr. Moore and others pointed out that filters have been of some help in getting rid of tars, but no one filter has been able to get rid of all the injurious gases. Phenol is taken out by cellulose acetate filters, but "activated charcoal filters" take out other harmful substances that stop ciliary action needed.

While the cigarette-smoking (and selling) public awaits the U.S. Public Health Service's advisory committee report, speculation about stock market reactions, effect on the farm crops, effect on cigarette sales and psychology of smokers is heard with all degrees of seriousness.

The smoking habit is too deeply ingrained in the American people for it to be overcome, Dr. Wendell G. Scott, head of the American Cancer Society, believes. But smoking must be made safe.

Some cigarette filters, he said, cut nicotine and tar consumption in half, and selective tobacco blending has been shown to further reduce the harmful elements.

If the Public Health Service report on smoking and health should announce a relationship between heavy smoking and lung cancer and perhaps heart disease, and if tobacco consumption should eventually fall off, everyone agrees that the impact on the economy might be great.

Federal taxes paid to the Government by

the cigarette industry at the end of the fiscal year, June 30, 1963, totaled \$2.08 billion and state taxes for that period totaled \$1.12 billion. In addition, more than \$50 million in local taxes was paid.

Tobacco has more impact than money paid to the Government as such, however. L. Y. Ballentine, commissioner of agriculture for North Carolina, told the American Public Health Association meeting in Kansas City, Mo., that the significance of tobacco in our economy could be compared to the effect of a stone dropped into a large body of water, producing ripples that go on and on until they reach the farthest shore.

"Tobacco is the fifth largest cash crop in the nation," Mr. Ballentine said, "and last year ranked third in value of all agricultural exports. Last year some 750,000 American farm families in 21 states received a little over \$1.3 billion for the sale of their tobacco crops."

The U.S. Department of Agriculture's scientists working in "utilization of possible substitute crops" are more concerned with surplus production and alternating crops than they are with a possible tobacco crop problem due to lessened production.

Dr. D. W. Irving, a USDA scientist in utilization research and development, does not foresee any immediate attempts to substitute smoking substances for tobacco crops, but he believes it could be done if necessary. The Government subsidizes the tobacco

farmer and has done so for some years. Although a changeover from tobacco would entail considerable study, planning and education of the farmer, it could be done.

Mr. Ballentine did not stop with the farmer, however. He quoted figures showing \$146,592,464 in direct annual payments from the tobacco industry to the advertising industry. He showed that millions of pounds of cellophane and aluminum foil are used. Also involved are expensive machinery, precision instruments and electronic equipment.

"The butcher, the baker, the tobacco stick maker all have an economic stake in tobacco," he said. Researchers who have linked tobacco with lung cancer and heart disease would add another rhyming word—the undertaker.

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BIOTECHNOLOGY

Heat Detector Helps In Cancer Diagnoses

► HEAT PICTURES of body temperatures can be made by an improved high-speed imager that will help medical researchers in their studies of cancer and other ailments. Temperature imaging, or thermography, records and displays infrared radiation as it occurs in the human body. Infrared Industries, Santa Barbara, Calif., is producing "Thermoscan," which for the past five years has been undergoing practical and developmental testing at Royal Victoria Hospital, McGill University, Montreal. The device has reduced testing from ten minutes to less than one minute of scan time.

Dr. Ray N. Lawson, Royal Victoria Hospital surgeon, who coined "Thermoscan," examining skin temperatures of women suspected of having breast cancer, discovered that more than 90% of temperatures of cancer-afflicted breasts are higher than that of the normal breast.

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General Dynamics

X-RAY MOVIES—L. A. Milton, reliability group engineer of General Dynamics/Astronautics, examines with a magnifier the quality of high-speed X-ray motion pictures of a missile part under simulated operation conditions. The pictures help engineers in the evaluation of parts and part failures.