

MEDICINE

Filters Reduce Tars

Tests show that two filters, the holder that uses another cigarette or the tip made of asbestos laminated with paper, cut down on amount of tars and nicotine from cigarettes.

► IF YOU want to avoid as much as possible of tobacco tars and nicotine while smoking cigarettes, you will either use the kind of holder that holds a cigarette in it as a filter or the kind of cigarette that has a filter tip made of asbestos laminated with paper.

This appears from tests reported in the *Journal of the American Medical Association* (Feb. 20).

They show that, of five holders containing filters, the best is one that uses a cigarette inserted in the holder. With this one, reduction of the nicotine in the mainstream smoke, which reaches the smoker's mouth, is 41%. Reduction of tars in mainstream smoke by this holder is also 41%.

The filter tip of asbestos laminated with paper reduced the nicotine in the mainstream smoke 41% and the tars 44%, earlier tests in the AMA chemical laboratory showed. (See SNL, July 18, 1953, p. 45.)

An earlier model of this filter tip cigarette had done a somewhat better job, 60% nicotine reduction and 55% tar reduction, but was replaced, apparently because it was packed so tightly it interfered with smoking quality. The AMA tests may not have included all filter tip cigarettes now on the market.

Of the five holders reported, three were ineffective, the tests showed. Two of these use for filtering a metal trap like those found in many pipes, and the third uses a cylindrical paper containing a number of small paper baffles.

The fourth holder uses a plastic cylinder filled with granules of silica as a filter. Its performance rated "intermediate" between the ineffective ones and the one with a cigarette in it as filter.

The efficiency of most of the holders dropped after more than the first five cigarettes were smoked through them. When 20 cigarettes were smoked through them, the two with a metal trap lost 27% and 42% of their effectiveness. The one with the paper filter lost 14% of its effectiveness, and the one with a plastic and silica granule filter lost 34%. The one with the cigarette as filter lost none of its effectiveness.

In the tests a "standard" cigarette, that is, the regular size of one of the best-selling cigarettes, was used. With an automatic, constant volume smoking machine, two-thirds of each cigarette was smoked using two-second puffs once a minute.

Whether or not effective filter tips or filter holders will help in prevention of any lung cancer that might be caused by cigarette smoking is not stated in either of the AMA reports on the holders and filter tips. Part of the answer to this depends on whether

tars or nicotine or both from cigarettes or some other factor are proved to cause lung cancers in the smokers.

In the report of tests on filter tips in 1953, the AMA stated that "in all cases the fraction of nicotine removed by the filter tip from the smoked portion of the cigarette is small." While there is no such comment in the latest report on the holders, the most effective holder and the most effective filter tip remove the same percentage of nicotine, according to the published figures.

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PALEOBOTANY

Corn Origins Clarified

► CORN, AMERICA'S most important food plant, is definitely a native of this hemisphere with a North American history of at least 60,000 years, four Harvard University botanists have concluded on the basis of new evidence.

The scientists also disputed the widely held theory that corn is a descendant of the Mexican grass, teosinte. This grass had much to do with the evolution of corn through natural hybridization processes, but the "ancestor of corn was corn," Dr. Paul C. Mangelsdorf of Harvard said.

Small cobs of corn discovered in Bat Cave, New Mexico, have been estimated to be 3,000 to 3,900 years old. No larger than strawberries, the cobs have 50 tiny kernels. Dr. Mangelsdorf described the Bat Cave corn as the oldest and most primitive ever found.

"This ancient Bat Cave corn," Dr. Mangelsdorf stated, "proves beyond a reasonable doubt that the ancestor of corn was corn and not, as some 19th century botanists have supposed, the wild grass teosinte."

Teosinte has a corn-like appearance with tassels and ears. The ears are borne separately and usually have five or six seeds enclosed in bony shells.

Dr. Elso Barghoorn of Harvard and Miss Margaret Wolfe of Radcliffe College have definitely established that fossilized grains of pollen taken from earth cores 200 feet beneath Mexico City are corn pollen. (See SNL, May 24, 1952, p. 335.) Dr. Barghoorn estimated the age of the pollen fossils to be at least 60,000 years.

The fossil grains were found in cores studied by Dr. Paul B. Sears of Yale University and Mrs. Kathryn Clisby of Oberlin College. The pollen grains were first thought to be those of teosinte.

Laboratory experiments have shown that

VETERINARY MEDICINE

Animal Disease Reports Would Aid Defense Effort

► A NATION-WIDE program of livestock disease reporting would strengthen the nation's defense against bacteriological warfare and improve its farm economy, officials for the American Veterinary Medical Association have concluded.

Estimates on animal disease losses now are mere "informed guesses," the officials said. Exact information would be invaluable in public health studies and in spotting outbreaks of foreign livestock diseases that might indicate biological warfare, they stated. Attempts to establish a division of vital statistics in the U. S. Department of Agriculture have been made, but funds have never been made available. The importance of getting such information has long been stressed.

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PRIMITIVE CORN COB—Dr. Paul C. Mangelsdorf examines an ancient Bat Cave corn cob.

crosses of teosinte and corn yield plants with greatly increased variability as well as drought and disease resistance and structural strength. Hybrids of modern corn and teosinte produced synthetic types which match almost exactly the prehistoric cobs, Dr. Mangelsdorf said. Dr. Walton C. Galinat is associated with Dr. Mangelsdorf.

From the combined vegetal remains in Bat Cave, the scientists have been able to reconstruct the ancient corn plant from which the tiny ears came. It was a short, slender plant, at most two feet high, bearing a few kernels at the base of the tassel and a miniature ear just below the tassel.

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