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from harden e. goldstein

September 20, 1954

Dear Member:

I am taking the liberty of enclosing, for your reference, a copy of "Smoke Without Fear" because I know that you and your sales force will be vitally interested in its valuable contents.

As you may recall, we offered copies of this publication, without charge, for distribution to your entire sales force. Additional copies for distribution to customer or others may also be requisitioned at only 13¢ per copy.

The demand for this reprint has been tremendous. Not having heard from you, however, I thought I might again bring it to your attention since, in a sense, it is an absolutely essential selling tool, that should be in the possession of your salesmen.

Our supply is limited and, accordingly, I suggest that you forward us the enclosed order blank with indication of your requirements, by return mail.

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Harden E. Goldstein

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TRUE
THE MAN'S MAGAZINE

SPECIAL EDITION
25 CENTS

Smoke Without Fear



By **DONALD G. COOLEY**
noted writer on health and medicine

How This Book Came To Be Written

ALONG with many other men and women, I became concerned about the possible injurious effect of smoking on my health, after reading various alarmist reports in the newspapers.

So, I asked my doctor if I should quit smoking.

My doctor is a thoughtful man, and after a little deliberation he said:

"I think smoking does you more good than harm, and I wouldn't suggest that you quit."

He went on to tell me that there is a beneficial side of smoking that is provable, while tobacco has not been proven a killer.

Immediately, I wanted to know more about the arguments and facts in favor of smoking, so I commissioned Donald G. Cooley, famous writer on medical subjects, to write the factual, honest case for smoking.

Every man and woman who enjoys smoking should read this book.

RALPH DAIGH

Editorial Director

True—The Man's Magazine

SMOKE WITHOUT FEAR

IF you are a man or woman who smokes, relax and enjoy it.

If you have tried to give up smoking a dozen times and failed, quit trying.

If you have guilty feelings that you are weak-willed, immoral, and suicidal, begin anew to smoke with peace of mind. Smoke for the pleasure, comfort, relaxation or release you get out of it. Smoking satisfies some inner needs you have. These needs may be unexplainable, unreasonable, preposterous. We may create them ourselves and might be better off without them. However that may be, you continue to smoke because smoking gives you more satisfaction than not smoking.

So, if you are a confirmed smoker, smoke without fear. Smoke like Sir James Barrie, who saw Peter Pan in a maze of smoke rings and captured that elfin spirit, to the eternal delight of English-speaking peoples. Sir James wrote thus of the glorious eruption of Elizabethan life: "I know, I feel, that with the introduction of tobacco England woke from a long sleep. Suddenly a new zest had been given to life. The glory of existence became a thing to speak of. Men who had hitherto concerned themselves with the narrow things of home put a pipe in their mouths and became philosophers. Poets and dramatists smoked until all ignoble ideas were driven from them, and into their place rushed such high thoughts as the world had not known before."

Advice to smoke without fear may seem wildly irresponsible at the present time when the country is swept by a wave of hysteria about cigarettes. Smoking is said to lead to cancer and heart disease and to cut years off one's life. It is implied that every smoker would live longer if tobacco were to vanish from the earth, taking serious health problems along with it. We have a simple one-way formula for attaining mellow old age: never smoke.

It's hardly that simple. You may be, and should be, suspicious of advice to keep on smoking without constant anxiety. Who says so? Can anything good be said about tobacco? The purpose of this booklet is to examine the smoking question by drawing upon evidence that is widely scattered through the biological sciences. Accumulation of scientific facts is so enormous that no single human mind can grasp more than a fraction of them. Most of the cigarette scare-reports are based on *analysis* or interpretation of statistics or individual experiments. The present booklet is an effort in *synthesis*—the bringing together of relevant facts that tend to be overlooked by specialists who are superbly competent in their own specialty.

We can't tell *all* the facts, any more than scare-stories can, for the reason that nobody knows all the facts about anything, the preponderance of scientific ignorance over scientific knowledge being what it is. But it is possible to bring the

BY DONALD G. COOLEY

smoking question into somewhat saner balance. You must in the end make up your own mind. You are a whole man or a whole woman, not a statistic.

It should be very clear that in this booklet we are addressing adult men and women in whom the smoking habit is pleurably established, and who have not been told by their physicians to stop smoking for urgent medical reasons. Nothing in the pages that follow can by any stretch of the imagination be construed as an invitation to any non-smoker, young or old, to begin the habit.

The unconscious biases of the writer, always a proper subject of inquiry, as are those of the reader, may be simply stated: He smokes cigarettes, in mixed company, but with no particular pleasure, and cannot distinguish one brand from another. Perhaps this is because he never learned to inhale, having become a smoker relatively late in life, at about age 30. His preferred addiction is to cigar or pipe. He owns no tobacco stocks, but that reflects his economic status as a writer rather than any aversion to such securities.

The Pusillanimous Obsession

We live in an Age of Intimidation, in which we are not exhorted to love life but to fear death. We're continually told of terrible new things to be afraid of—yesterday it was the H-bomb, today it's cigarette smoke that looms over us in a dreadful mushroom cloud. Thousands of facts can induce exaggerated fear by the very way they're stated. You've heard the familiar warning that "one out of eight will die of cancer." Have you ever heard that "seven out of eight will never have cancer"? The same fact—but what a difference in impact! Hundreds of other direful warnings lead to pusillanimous obsession with the number of one's days rather than the joys and amenities that are in them.

We *can* choose to live meanly, but we *have to* live dangerously. We are allowed no choice. The most dangerous enterprise of life is living

itself. It is an adventure that is sure to end fatally. It is becoming increasingly impossible to know the right things to worry about. This is exasperating, because we can only have one worry, or feel one emotion, at a given instant, and there are so many tempting anxieties to choose from. Perhaps we go through life refusing cigarettes, avoiding germs, never touching liquor, never kissing anyone of the opposite sex (the bacterial content of a kiss is horrifying!), only to trip on the cellar steps and bash our little heads in. We must then feel as cheated and frustrated as the light wave that starts out from a distant star, travels steadily toward the earth for a million years, obeying all traffic rules, but is stopped six feet from the ground by a 98-cent umbrella it never dreamed would be there.

If you want to live as long a life as possible (never mind whether it's happy) you've doubtless considered giving up smoking, but here are some do's and don'ts I'll bet you never thought of:

You should give up your male or female sex hormones and take a neutral view of life. They aggravate prostate or breast cancers.

You shouldn't drive a car, ride in a train, or walk across a street. You have 15 times greater chance of being killed in an accident than of dying of lung cancer.

You should quit eating at home. More accidents occur in the kitchen than elsewhere in the house.

You shouldn't carry matches. Holocausts have started from a single match.

Never sit under a tree. People have been killed by falling branches.

You shouldn't own a dog. He might come home with rabies and bite you.

You shouldn't drink water in Washington, D. C. (it's fluoridated). An impassioned dentist told a Congressional committee, "Senator Taft died after drinking this water for a year."

You shouldn't live in New York. Many more people die in New York than in Kalamazoo.

You shouldn't drink milk. Some peptic ulcer patients who drink four or five quarts of milk a day for 20 years get dangerous calcium deposits in their kidneys.

Well, those are only a few possibly fatal hazards that haven't yet stirred up any mass hysteria. Give me a little time and I could cite ten thousand more, a lot more gruesome, too, for I've had to read countless medical journals and textbooks during the past 25 years and I can tell you you're plain lucky to be alive. It's easier to pick some clear and simple worry, like smoking, and stick to it.

Smoking and Lung Cancer: The Plaintiff's Case

If visions of lung cancer dance in your head whenever you light a cigarette, it proves that you've been reading the newspapers and that newspapers, contrary to some cynics, do print stories that offend important advertisers. Headlines about smoking and lung cancer have been getting bigger and more scary ever since 1950 when Dr. Evarts A. Graham and Dr. E. L. Wynder reported that among 605 men with lung cancer, 96.5 percent had been heavy or chain smokers for many years. But only 73.7 percent of a comparable group of men, hospitalized for reasons other than lung cancer, smoked so heavily.

The bung was out of the barrel for good. A dozen other statistical studies, equally frightening to smokers, burst into medical journals. Dr. Richard Doll and A. Bradford Hill reported that male Londoners over age 45 who smoked two packs of cigarettes a day had 50 times greater chance of developing lung cancer than non-smokers of similar age. Dr. Alton Ochsner, chairman of the department of surgery at Tulane University School of Medicine, stated that "medical men are extremely concerned about the possibility that the male population of the United States will be decimated by cancer of the lung in another 50 years if cigarette smoking increases as it has in the past." Many other studies by med-

ical men of the highest integrity reached similar conclusions.

But all these statistical studies had a serious defect. They were "backward" studies—that is, they began with men who already had lung cancer and looked backward into their lifetime smoking habits. Men who have lung cancer are obviously susceptible to the disease. Other men (controls) with whom lung cancer patients were compared might or might not be cancer vulnerable, regardless of their smoking habits. You cannot get wholly convincing answers by comparing things that are unlike in the very ways you are trying to prove are alike.

Smoking-researchers agreed that what was needed was "forward" statistics. The smoking habits of many thousands of men, all in apparent good health, should be recorded. Then, when these men died, the cause of death could be noted. There would be only one group, unselected, and causes of death and relationship to smoking could be compared within the group. But such "forward" studies, it seemed, would take many years to complete, while the statisticians waited like actuarial morticians for the last man to die.

Then, last June, the bombshell burst at the American Medical Association convention in San Francisco. Dr. E. Cuyler Hammond and Dr. Daniel Horn reported preliminary findings of a superb "forward" study of the effects of smoking, especially of cigarettes, on lung cancer, on cancer in general, and on heart disease. The study dealt with the smoking habits of 187,766 men between the ages of 50 and 70. It involved an immense amount of labor and was made possible by 22,000 trained workers of the American Cancer Society who volunteered their services, beginning in January, 1952. Two and a half years later, 4,854 of the 187,766 men had died, and statistical findings were so startling that they were reported to the public immediately.

In the report, "observed" deaths were those that actually occurred. "Expected" deaths were the number that would have occurred if smokers

had died at the same rate as men who never smoked. Briefly, this was the bad news for smokers:

Men who smoked one or more packs of cigarettes a day had about 75 percent higher death rates than non-smokers.

Men who smoked cigarettes only, regardless of amount, had 63 percent higher death rates from all causes, 82 percent higher for heart disease, 106 percent higher for cancer.

Men who smoked cigarettes and, in addition, either cigars or pipes or both, had 36 percent higher death rates from all causes, 56 percent higher for heart disease, 77 percent higher for cancer.

Men who smoked either pipe, cigar, or both, had only 6 percent higher death rates overall, too small a percentage to be of significance.

In Norway, deaths from heart disease decreased to about one-half the "normal" figure during World War II when cigarettes were almost unobtainable during the German occupation. After the war, when Norwegians could smoke again, heart disease deaths started to increase again. This is an extremely important statistic indeed, but it would have been expedient for those who prepared the report to have omitted it altogether, for it seriously weakens any open-and-shut case against smoking as a major cause of heart disease. Leading authorities on heart disease are well aware of the significant decrease in coronary deaths in Norway and some other occupied countries during the war, but tobacco-smoking plays no part in the hypotheses they have arrived at after studying the evidence. No doubt this is an instance—and not an uncommon one these days when scientific facts and theories accumulate faster than they can be integrated—of one group of accomplished researchers not knowing what another group is doing. We will return to the strange case of the Norwegian hearts when we discuss smoking and heart disease more fully.

Almost simultaneously with the Hammond-Horn report, a similar "forward" statistical study by Doll and Hill was published in the British Medical Journal. Subjects were 40,000 English doctors who described their smoking habits. During a two and a half year period, 789 doctors died, 35 of lung cancer, and all were smokers. Doll and Hill produced a remarkably precise formula for calculating the life-shortening effects of cigarettes. They conclude that among every 1,000 men, 35 years old or more:

Of those who smoke one cigarette a day (you call that smoking?) one will die of lung cancer every two years.

Of those who smoke a pack of cigarettes a day, three will die of lung cancer every two years.

Of those who smoke more than a pack a day, about one will die each year of lung cancer.

What Statistics Do You Read?

The two reports, by Hammond-Horn and by Doll and Hill, furnish the strongest *statistical* evidence yet of an association between smoking habits and death rates. Hammond and Horn express the opinion, and frankly label it as an opinion, that the association of higher death rates with regular cigarette smoking reflects a cause-and-effect relationship. This is a conclusion, and certainly a legitimate one, drawn from a specific set of statistics by highly competent observers.

It is not a conclusion that statistics "say" for themselves. Statistics do not *say* anything. They merely express mathematical relationships of selected information, usually of limited scope and of relatively simple nature, that is poured into the statistical hopper. Since a great deal of the current furore about cigarette smoking derives from purely statistical studies, it might be illuminating to have a look at the advantages and shortcomings of the statistical method.

You could drown wading across a river with

men get lung cancer because spot-welders in Pittsburgh make high wages.

Nobody would make such a boner. It's obviously silly. But conclusions drawn from statistics by identical thought processes have at times won wide acceptance as "established facts." Once it was believed that cigarette smoking was an important factor in causing tuberculosis. Cigarette smokers were held to be especially prone to TB, for most of them inhaled, and the smoke sullied the lungs, and the causative effect was very plausible. But that charge had to be abandoned long ago. Deaths from tuberculosis, which ran to 184 per 100,000 persons in 1900, will be about 10 per 100,000 this year. Since cigarette sales increased enormously during this period, a reckless statistician might assert that smoking prevented tuberculosis. No statistician would actually do so because doctors know of too many solid medical reasons why tuberculosis has been diminishing. Certain facts have fouled-up a simple statistical conclusion.

If parallelism has any validity, then what might be called reverse parallelism should be equally valid. But we hear very little about dangers to human life that have *decreased* while cigarette smoking *increased*. A perfectly good reason for such silence is that there is no evidence to suggest that smoking lengthens life. Yet in 1935, life expectancy in the United States was 59.5 years. Today it is just about 70 years. Doctors are likely to attribute much of the rise in life expectancy to sulfa drugs that were introduced around 1935 and to antibiotics and other remarkable advances in medicine that occurred later. But one indubitable fact—an isolated and probably irrelevant one, but one which makes a whale of a statistic—is that life expectancy has increased (or shortness of life has decreased) along with the increase in use of cigarettes.

Clearly, the kind of information you *feed into* a computing machine makes all the difference in the world, for the statistics you get out of it will simply be an evaluation of the information that

is fed in. It is not humanly possible to collect all information about health, disease and environment. Failure to do so is not wilful or malicious. It is unavoidable. All statistical problems have to be "stacked," in a sense; otherwise the resulting statistics would be a meaningless jumble. It is always proper to ask, "What may have been overlooked in stacking this particular problem?"

Toxemia During Pregnancy

A specific instance, one of many in which medical experts have been led astray by expert statisticizing, may be given. A carefully conducted survey noted that toxemia (a toxic condition of pregnancy) occurs more frequently in pregnant *unmarried* women than in pregnant *married* women. There were no doubts that the statistics were accurate, and that differences between married and unmarried pregnancies were significant.

What would *you* make of those statistics? The physicians who made the survey puzzled over their findings, and produced this explanation: An unmarried woman is, or ought to be, more emotionally upset about being pregnant than a married woman. Her shame and worry and anxiety are great. And the intense emotional stress reacts upon her body in a way to make her more susceptible to toxemia.

This seemed to be a perfectly plausible and valid cause-and-effect relationship—like the association of smoking with cancer—and was well accepted. But after awhile, another group of investigators fed a quite different kind of information into the statistical machine. This information dealt with order of birth, whether the toxemia occurred at the birth of the first, second, third or subsequent child. Statistics ground out an answer to the question asked. Toxemia occurs most frequently during a *first* pregnancy.

So emotional stress as a cause of toxemia, deduced from the first set of statistics, went up in smoke. Pregnant married women are likely to

be carrying a second or third child. Unmarried pregnant women are most likely to be experiencing their first pregnancy, when the incidence of toxemia is highest.

Neither set of statistics lied. Statistics never lie. But obviously, statistics are no substitute for judgment.

Are you afraid, like Dr. Ochsner, that the adult male population of the country will be decimated in a few decades if cigarette consumption continues to increase as it has in the past? To "decimate" is literally to kill one out of ten, and that's a pretty squeamish figure. Some of the less responsible statements about the alarming increase of lung cancer among males suggest that it's the one disease above all that men ought to fear. Is lung cancer really increasing? How prevalent is it? What do the figures seem to say?

Alarming stories never break down the lung cancer figures in the way that physicians and pathologists do. We will attempt to do so, as an important contribution to public information, discussing figures that are usually buried in journals that only doctors read.

The Three Kinds of Lung Cancer

In 1950, according to the official volume, *Vital Statistics of the United States*, deaths from all causes numbered 1,542,454. There were 18,313 deaths from lung cancer. But of these, only 7,618 were specified as *primary*—that is, cancer that originated in the lung. The remaining lung cancers, listed as a cause of death but not specified as primary, may well have originated elsewhere in the body. The thing that makes cancer malignant is its ability to invade tissues, to move cancer cells through the body and to set up cancerous colonies in tissues a long way from the original site. Some lung cancers, for instance, are bone or prostate or other cancers that have migrated to the lungs. We can be reasonably sure, however, that the 7,618 lung cancers specified as primary actually originated in the lungs. This is the type

in which smoking is suspected as at least a contributory cause.

Most of the reports that have so alarmed the public speak of lung cancer as if it were a single, uniform kind of disease, like measles or trench mouth. There are actually three kinds of primary lung cancer. Two of these kinds do not even have a statistical association with smoking; they occur about as frequently in non-smokers as in smokers. The technical names for what might be called "non-smoker's lung cancer" are adenocarcinoma and alveolarcell carcinoma. The type that is associated statistically with smoking is epidermoid or squamous.

We laymen don't have to remember these jaw-breaking medical names. But statisticians ought to. If they fail to make such distinctions, they are failing to feed certain known facts into their computing machines, a defect that could be corrected if they availed themselves of the knowledge of another group of scientific specialists, the pathologists. Dr. Evarts A. Graham, who has contributed some of the most important studies associating smoking with lung cancer, and who can't be accused of leaning backward in favor of cigarettes, is particularly critical of the common opinion that cancer of the lung is a single entity. "The statisticians, who know little, if anything, about pathology, are especially likely to fall into that error," Dr. Graham told a medical meeting at the University of Edinburgh last May.

This failure to distinguish between types of lung cancer could work both ways in drawing statistical conclusions. A considerable number of patients might have primary lung cancers of the "non-smoker's" type. A large proportion of the victims might never have smoked in their lives. From this an inference might be drawn that lung cancer occurs more often in non-smokers. If a particular group of patients happened to have epidermoid carcinoma, and practically all of them smoked, the damning evidence against cigarettes would seem to be overwhelming. Here,

however, we are concerned with the total number of primary lung cancer deaths, which amounted to 7,618 in 1950. How many of these were of the two types that occur with no apparent relationship to smoking? Dr. Graham cites studies that put the figure at 10 to 12 percent. Dr. C. H. Steele, who analyzed 201 cases of primary lung cancer, found that 20 percent had one of the types not associated with smoking.

If we compromise on 15 percent, and deduct this from 7,618, we are left with about 6,500 deaths in 1950 from specified primary lung cancers of the type that may be statistically associated with heavy smoking. This disease that is decimating the male population thus accounted for 6,500 deaths out of a total (for both sexes) of 1,542,454.

Are our statistics absolutely reliable, accurate, wholly correct? Certainly not—no more than any other lung cancer statistics. Some of the unspecified lung cancers might have been primary; some that were specified as primary might not even have been lung cancers. Doctors fill out death certificates; they are human beings, subject to error; they do not always perform autopsies. But it is of such stuff as official reports that statistics are made. When you look into a statistical mirror, and turn and twist it to get the best view, you are quite likely to see something you are looking for.

Smoking and Lung Cancer: A Case for Tobacco

Percentages, it may be noted, may give quite a distorted view, depending upon whether they are for increases or decreases. A statement that heavy smokers have a death rate 100 percent higher than non-smokers is another way of saying that if deaths of smokers were reduced 50 percent, there would be no difference whatever between the death rates of smokers and non-smokers. It's part of the magic of numbers, and the essence of magic is clever deception. When we see a figure as high as 100 percent, we're not unlikely to feel unconsciously that everybody is

included—100 percent is totality. Statisticians, like all specialists, have very precise language of their own, and we must respect it to know what the wild waves of their graphs are saying. Percentages give no indication at all of the *magnitude* of figures dealt with. Ten deaths are 100 percent more than 5 deaths, just as 1,000,000 deaths are 100 percent more than 500,000 deaths.

We have been told so constantly that lung cancer is increasing alarmingly among men, and to a lesser but still alarming degree among women, that the belief is widely accepted as an established fact. Is it?

Many able investigators believe that a real and absolute increase in lung cancer has taken place. *Reported* male deaths from lung cancer have skyrocketed from 0.7 per 100,000 men in 1900 to 19.5 in 1953, more than a 25-fold increase. Some 17,400 men and 3,500 women died of lung cancer (of all types) in 1952. Those are statistics.

The amount of *actual* increase is certainly less than raw statistics indicate. All the experts agree on that. How much less is uncertain, and some authorities, whose voices have been muted by the hubbub, doubt that there is *any* increase.

Dr. D. W. Smithers, radiologist of Brompton Hospital, a famous London center for treatment of chest diseases, rakes his British colleagues over the coals for scarism about smoking: "The startling rise in the recorded death rate from lung cancer is in large part due to change in numbers and age of the population, and to improved diagnosis. It is due in part to a real increase, but we are not yet in a position to say how great that increase is. We should ask ourselves how far we are performing a useful public service by helping to make a public issue of a comparatively small change within that group, which may be due in large part to our own method of recording."

Dr. Milton B. Rosenblatt, of New York Medical College, a specialist in pulmonary diseases,

says: "The recent ability to diagnose lung cancer plus the fact that it occurs only in older age groups, which have increased tremendously during the past two decades, seems sufficient to explain the increased incidence in the disease."

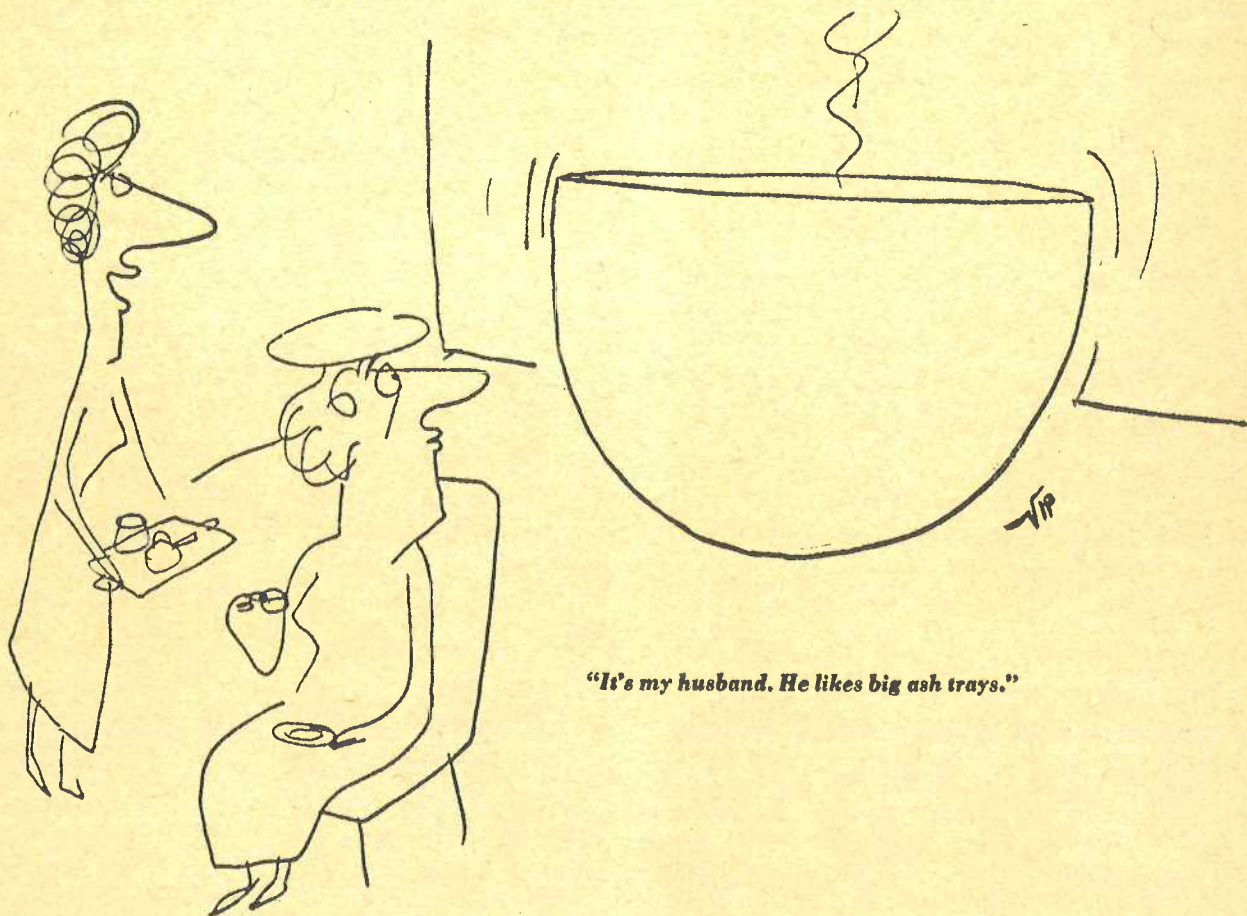
Other experts, equally skeptical, cite evidence along these general lines:

Lung cancer mainly strikes men who have passed the 50-year mark. Lung cancer incidence reaches its peak among men aged 65-69 years. This coincides pretty closely with the end of current life expectancy—the time when you're statistically expected to die of something. (But remember, mass statistics say nothing whatever about *you* personally.) We now have four times as many people, 65 or older, as in 1900.

Nobody really knows for certain how preva-

lent lung cancer was before 1930. Reliable methods of detecting and diagnosing lung cancer in living patients have all been developed in the past 25 years. Ability of surgeons to invade the chest with safety is relatively recent.

Men died of chest diseases in 1900 in far greater numbers than at present. Fifty years ago, 27 percent of male deaths were classified as infectious diseases of the respiratory system. By 1950, largely due to sulfas and antibiotics, only 6 percent of male deaths were charged to infections involving the chest. About one-fifth of the men who would have died of diseases of the lungs (according to 1900 death-cause expectancies) stayed alive to die of other diseases. Since man is mortal, reducing one cause of death results in a rise of other causes.



"It's my husband. He likes big ash trays."

How many men who died of chest diseases between 1900 and 1930; and whose death certificates read "pneumonia" or "lung abscess" or "tuberculosis," might actually have died of lung cancer? We can never know, but lack of knowledge may give a false picture of the rarity of lung cancer in the good old days. The disease was thought to be so rare that it was hardly looked for, but the varied symptoms of lung cancer can easily mimic those of common chest diseases that doctors of the time were familiar with, and these diseases must have been mistakenly inscribed on death certificates to some extent. Autopsies were uncommon, and are still more unpopular than they ought to be for the advance of medical knowledge.

Physicians, like uranium hunters, find what they're trained to look for. Some medical cynics comment that the lung cancer rate rises in proportion to the number of physicians who care for a population of given size, and others note that the reported cancer rate commonly rises when a hospital installs a pathology department.

The Peculiar Resistances of Women

A perplexing mystery that runs through the smoking-and-cancer statistics is the fact that women are much less liable to lung cancer than men. Lung cancer is preponderantly a male disease, afflicting from six to eight men to one woman.

There is an easy and perhaps too facile explanation of this sex discrepancy: women haven't been smoking enough years of their lives to have earned a lung cancer. Assuming, for the moment, that there is actually some cause-and-effect relationship between smoking and lung cancer, you have to smoke for 20 to 40 years to develop lung cancer. Drs. Graham and Wynder found that it took half a mouse's lifetime to produce skin cancers by painting mouse hides with condensed tobacco tars. In human terms, this would amount to some 35 years of continuous exposure.

Not as many women as men have yet smoked

for half their lifetimes. Yet the phenomenal increase in cigarette sales must be largely credited to women, for men have always smoked more or less unregenerately. The fact that smoking has *increased* more among women, who have less lung cancer, strongly suggests to some researchers that smoking has little if anything to do with lung cancer.

Researchers on the staff of the National Cancer Institute, a division of the United States Public Health Service, are especially prone to take a markedly "show me" attitude in the cigarette controversy. Dr. W. C. Hueper of the Institute staff cites certain facts, accumulated through years of meticulous cancer research, which suggest that cigarettes are more sinned against than sinning, as far as lung cancer is concerned.

Innumerable studies of human cancer associated with cancer-inducing chemicals have been made. Often, these involve the exposure of both men and women to chemicals used in industry. All previous studies show that whenever men and women are exposed to the same "cancer chemical" in their environment, the sexes tend to acquire the disease in equal numbers. If smoking causes lung cancer, the disease should afflict men and women in a ratio that slowly creeps closer to being 1 to 1, as more women take up smoking. Instead, the preponderance of lung cancer in males has become more and more pronounced in recent years. The ratio in disfavor of men is increasing, not slowly decreasing.

"This observation strongly militates against a predominant causal role of cigarette smoking in the production of lung cancer," says Dr. Hueper.

Sex, not smoking, may have something fundamental to do with lung cancer susceptibility as well as other human vulnerabilities. Turkish women have been smoking cigarettes as indefatigably as gentlemen Turks for at least 50 years. They have had equality of exposure, at least within the harem, quite adequate to span the supposed latency-period of human lung can-

cer. But in Turkey the male-to-female lung cancer ratio has not evened up. It has increased from 6 to 1 for males in 1935 to 8 to 1 in 1950.

Dr. William F. Rienhoff, Jr., pioneer lung surgeon of Johns Hopkins University, is one expert who thinks sex needs more looking into, speaking of lung cancer. "At the present time, women are smoking almost as much as men and there has not been a proportionate increase of cancer of the lung in women," he observes. "Just as in cancer of other organs, there must be a sex tendency. For instance, cancer of the breast is very infrequent in men and more frequent, as everybody knows, in women."

Can sex hormones have some influence on cancer, as well as other things you can think of? They certainly can—not only on cancer but on heart disease. The general class of chemicals (sterols) to which the sex hormones belong is today the subject of intensive medical research into fundamental mechanisms of degenerative diseases—one of the brightest, most exciting, filled-with-promise areas of modern research, but completely nonexistent as far as sweeping statistical scares about smoking are concerned. We'll tell you some more about hormones when we talk about your heart.

You rarely see a woman any more who's biting a pipestem or chewing a stogie. Cigarettes are pre-eminently the smoke of females. By rights, the ladies ought to be expiring in droves from lung cancer, if current scare stories which lambaste the cigarette as the principal tobacco-cause factor of the disease have any basis in fact.

Cigars and Pipes Seem to be Harmless

Cigars and pipes come out of the present smoke-scare with a strangely clean bill of health. Surprisingly clean, if not absolutely so. They may be noxious but innocuous. And, as the man said when he found a square egg in a hen's nest, that's a curious situation. For on the whole, pipe and cigar smokers burn up as much tobacco, and often more, than cigarette smokers. If tobacco

induces cancer, why aren't a proper number of pipe and cigar smokers losing their lungs?

There may be unknown errors that distort statistics which are kinder to cigars and pipes than cigarettes, but statistics are the main props of present smoking anxieties and here's what they're made to say: Hammond and Horn conclude that "The death rate of regular cigar smokers was slightly higher than the non-smokers but the data were not statistically significant, and the death rate of pipe-smokers was not appreciably different from the non-smokers." In the same study, over-all deaths of men who smoked *cigarettes only* were 63 percent above the expected deaths. Men who smoked cigarettes but *also* hit the pipe or puffed cigars or both had only 36 percent higher death rates. Obviously, the thing to do is to smoke tobacco in all available forms—cigarettes, pipe, cigars—thereby reducing your chances of premature demise by about one-half. You can even assert that "statistics prove it," if you haven't come by now to look for hidden meanings in statistics.

Doll and Hill concluded from their extensive British statistics that "it certainly appears that the risks are less in pipe smokers." Data collected in a New York state study by Drs. Levin, Goldstein and Gerhardt, indicate that pipe and cigar smokers have no higher incidence of lung cancer than non-smokers. Most other studies, though not all, are of similar tenor.

Why are cigarettes more dangerous, if they are dangerous? Well, most cigarette smokers inhale. Smoke bathes their lungs in greater concentrations. Pipe and cigar smoke is not commonly inhaled. All studies of environmental cancer agree that cancer incidence increases directly with intensity and duration of exposure to cancer-inducing substances. But the inhaling theory doesn't survive analysis, at least by Doll and Hill. In their famous British study, they concluded that inhaling (contrasted with smoking but not inhaling) did not seem to influence the likelihood of acquiring lung cancer. This sug-

gests to Dr. Hueper of the National Cancer Institute that smoking must be of very minor influence in causing lung cancer, if it has such an effect at all.

Tobacco smoke, in whatever form, first enters the mouth and nasal passages and larynx before it reaches the lungs. It is hotter, more concentrated in those areas. Yet there has been no increase in cancer of the larynx or mouth. Those who incriminate the cigarette are prone to say that there has been a wildfire increase in cancer of the lung in males, but no significant increase in any other kinds of cancer. They are not aware of, or choose to ignore, a comparable increase in leukemia, often called cancer of the blood. In commenting upon the great increase of leukemia, comparable to the increase in cancer of the lung, Dr. William Dameshek, noted Boston hematologist, speculates that the disease may be induced by many hazards of environment to which we are exposed today. But he doesn't mention smoking among these.

Alarmists would be ecstatic, and smokers would be miserable, if anybody succeeded in identifying a carcinogen in tobacco or its smoke. A carcinogen, in the biological trades, is any substance that incites or induces cancer.

The Mouse-skin Experiments

No substance of this sort has as yet been chemically identified. It isn't for lack of trying, either. Among those who have been hunting it frenetically are technicians of the tobacco industry, who would love to pounce on a tobacco carcinogen—if such a thing actually exists—so they could filter it out and enable the advertising department to proclaim “our cigarettes are positively noncancerigenic.” Innumerable other researchers, outside the industry, are industriously seeking a carcinogen because it is desperately needed to prove the case against smoking, which is uncomfortably flimsy if left to rest on statistical evidence alone.

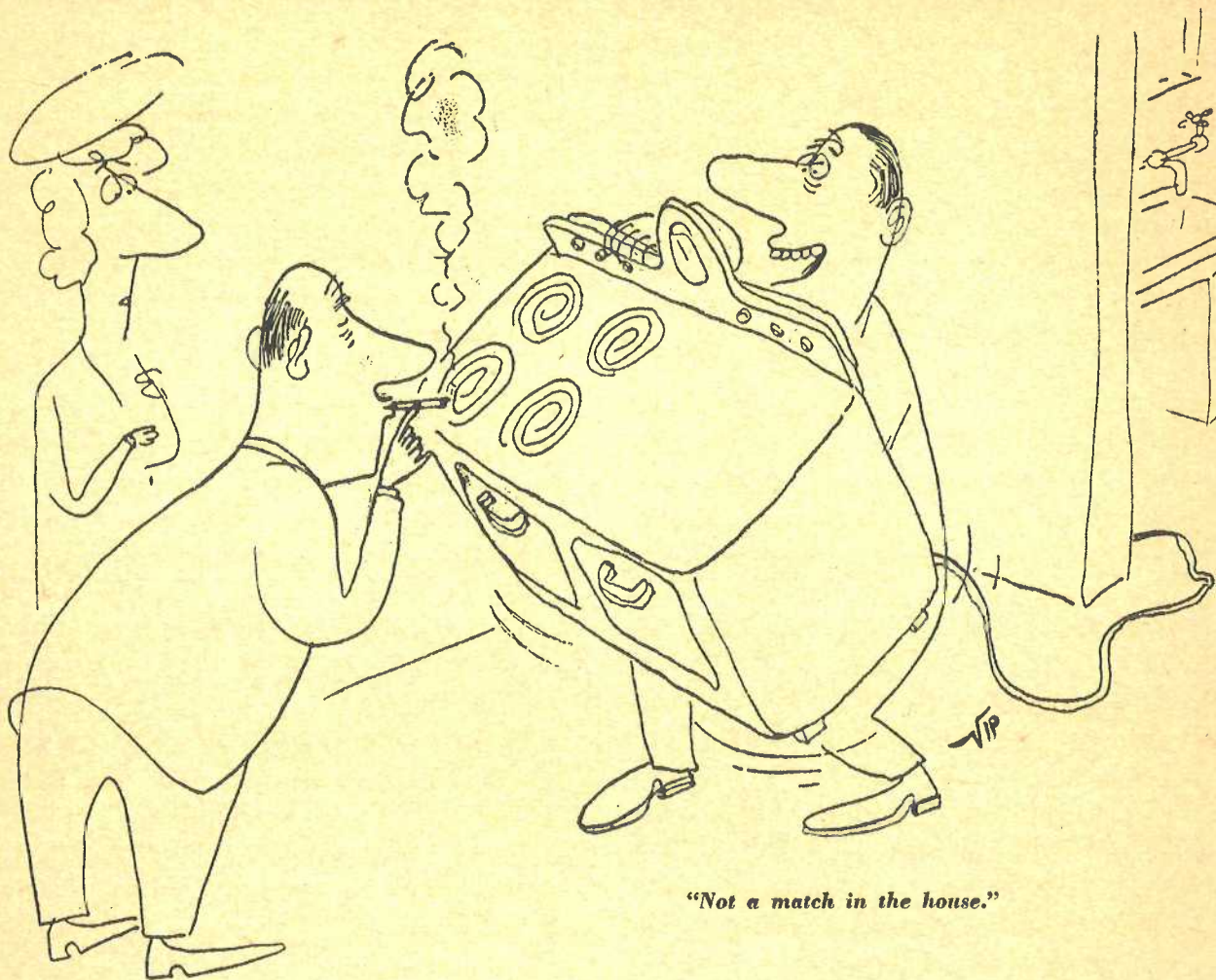
Biological evidence is desirable, and in fact is

indispensable, if smoking is to be held guilty as charged. Most of the evidence thus far comes from mouse skins. Over a period of many years, numerous investigators have painted the backs of mice with tars distilled from tobacco smoke, to see if skin cancer could be induced. Most early experiments of this nature were discontinued as failures. An occasional skin cancer appeared, attributed as much to old age as to tar-painting by some workers.

The most impressive mouse-skin experiments to date have been reported by Dr. Evarts A. Graham and Dr. E. L. Wynder. Victims were 81 mice of an inbred strain which does not develop spontaneous skin cancers. The mice were obtained from the famous Roscoe B. Jackson Memorial Laboratory, headed by Dr. Clarence C. Little, noted researcher in cancer genetics who currently is director of the Tobacco Industries Research Council.

Smoke from burning cigarettes was condensed to a thick tar, thinned with acetone so it could be painted on the mice's skins. After an average of 71 weeks of tar-painting (equivalent to 30 to 50 years of human smoking, Dr. Graham estimates) 36 of the mice developed skin cancers. The sex-ratio completely reversed the statistical association of smoking and lung cancer in men and women. Of the affected mice, 25 were females and 11 males. The rest of the mice that were insulted with tar refused to produce cancers.

The mice that did develop skin cancer had epidermoid types, not unexpectedly since skin is rich with that variety of cells. The most widespread type of male lung cancer is epidermoid, and lung tissue may be regarded as a kind of skin tissue folded inside the body instead of outside. So the findings had some relevance to male lung cancer. But this evidence is too inconclusive to satisfy everybody on either the pro or con side of the cigarette controversy. Human beings get tobacco smoke into their lungs, but they do not inhale thick, concentrated, gummy tobacco tars.



"Not a match in the house."

These tars are so viscous that they have to be diluted with acetone, oils, or other solvents, to make them thin enough for painting on mouse skin; the mice therefore are exposed to something else than pure tobacco distillate, and this may or may not make a difference.

Cautions against drawing extravagant conclusions from mouse-skin data are sounded by several scientists of the National Cancer Institute. Dr. Jonathan L. Hartwell says, "We do not know whether man is more or less susceptible than mice to particular carcinogens. Some animal species, such as the rat, rabbit and dog, are much more resistant to certain chemical carcinogens than is the mouse, and vice versa, while in the monkey none of the powerful carcinogens has

been shown to produce tumors." Are we mice or are we men?

"In the mouse itself," say Drs. Murray J. Shear and Joseph Leiter, "it is now abundantly evident that different tissues respond differently to the same compound. The solvent or vehicle may affect results profoundly. Moreover, the sex of the animal is not without influence on the results. Diet, too, may be an important factor."

A more informative experiment would be to expose mice to "natural" tobacco smoke, rather than distilled tars which neither they nor man are accustomed to inhaling. Such an experiment has been made on C-57 black mice, more comparable with man in their incidence of lung tumor than some other mouse strains used in

smoking investigations. Dr. Russell W. Weller of Hahnemann Hospital, Philadelphia, reported some results of the study to the same convention of the American Medical Association at which Hammond and Horn read the American Cancer Society report.

The mice were regularly exposed to measured amounts of ordinary tobacco smoke, beginning at the age of mouse "adolescence" and continuing up to natural death. At the same time, equal numbers of mice, used as controls, were kept from all contact with tobacco smoke but otherwise lived the same lives as their smoked brethren. When a smoked mouse died, an unsmoked one was killed, and vice versa, and microscopic autopsies were performed.

Out of a group of 132 mice, one lung cancer developed. It occurred in a mouse exposed to tobacco smoke. One primary lung tumor in a group of 132 mice was regarded as falling within the normal range of statistical expectancy and therefore to be of little significance. What *was* important, in Dr. Weller's opinion, was the complete absence of any significant increase in lung cancer in mice heavily exposed to tobacco smoke from adolescence to old age.

Spotlight on Cigarette Paper

"This is indeed contrary to most of the recent reports dealing with the effects of cigarette smoke exposure in animals," Dr. Weller stated. The reasons for the difference, he believes, is that most investigations reporting a high incidence of lung tumors have used animals having a much higher natural occurrence of lung cancer than C-57 mice, and that concentrated distillation products rather than natural smoke have been used.

If no carcinogen has been identified in tobacco, might one not be present in some product used with tobacco—cigarette paper, maybe? Don't think they haven't thought of that!

Thomas A. Edison was violently opposed to cigarettes. He wouldn't knowingly hire a ciga-

rette smoker. He believed that cigarettes made the human brain fall apart. You might think that Edison was opposed to smoking. Not at all—just to cigarettes. He was a cigar smoker. When his desk was opened on the occasion of his hundredth birthday anniversary, out rolled a generous supply of cigars and a man-size chunk of cut plug.

Edison believed that cigarette *paper* was evil. R. B. Tennant, in his monograph, *The American Cigarette Industry*, quotes Edison as writing thus to Henry Ford in 1914:

"The injurious agent in cigarettes comes principally from the burning paper wrapper. The substance thereby formed is called acrolein. It has a violent action in the nerve centers, producing degeneration of the cells of the brain, which is quite rapid among boys. Unlike most narcotics, this degeneration is permanent and uncontrollable."

Edison spread a good deal of light in the world, but not on this subject. Acrolein is not a narcotic, nor is it produced principally by burning paper. Rather, it is created by the combustion of fatty substances, such as glycerols commonly added to tobacco products to retain moisture. It is rather irritating to mucous membranes, but nobody believes any more that it burns holes in human brain cells.

Edison shared a fairly common belief of his time that cigarette paper was rankly poisonous. The idea, which has astounding longevity, may have been abetted if not initiated by disgruntled cigar-makers who didn't relish the competition of new-fangled cigarettes. In any event, widely believed rumors held that cigarette paper was bleached with arsenic and white lead, and, inevitably, finished off with a soupcon of opium or morphine.

Cigarette paper is not made from rice, as many believe, but from flax fibers, left over after linseed oil is expressed. Some chalk is used too (calcium carbonate). Burning speed is controlled by the porosity of the paper—the denser, the more slowly it burns. And that's all there is

to cigarette paper: pure cellulose fibers derived from a vegetable product, plus tiny amounts of chalk. (Precipitated chalk is recommended by many dentists as an excellent dentifrice.)

Many "improved" cigarette papers have got as far as the U. S. Patent Office, but not into industry. One that may possibly get into commercial production is being experimented with by Jimmy Rand, the fabulous Cleveland inventor who developed a low-priced washing machine, a light-weight fabric ten times as warm as wool, a vacuum-cup machine to massage hearts that stop on the operating table, and other successes. I have smoked a couple of cigarettes wrapped in Rand's experimental product. They looked, tasted and puffed like ordinary cigarettes. The main difference I noted was that the cigarette went out rather quickly when I laid it on an ash tray—no doubt an advantage for smokers who are startled by housewifely yelps if a smoldering butt happens to scorch an old Sheraton tabletop.

Why Improve Cigarette Paper?

Instead of cellulose derived from flax, Rand's wrapper uses methylcellulose, a chemically processed derivative. Methylcellulose is not fibrous; it swells into a soft gel when wet, and this property makes it a useful ingredient of some bulk-forming laxatives and of appetite-suppressors that fill the stomach without calories. Chalk is incorporated with the methylcellulose; so far, Rand's experimental wrapper sounds pretty much like regular cigarette paper. However, other substances have to be added to the methylcellulose wrapper to keep it from going to pieces when wet, to overcome brittleness, control burning speed, etc. These are challenges that an inventor like Rand tackles with enthusiasm.

Why should anybody fuss around trying to improve ordinary cigarette paper that has satisfied millions of smokers for many years? Well, if you can prove that regular cigarette paper causes cancer, and that some fabulously purified

paper of your own cannot cause cancer, most of your future troubles are going to be with the income tax man—and with your conscience. For claims that the paper wrapper is the dangerous part of a cigarette, and that a better kind of paper can eliminate the danger, belong at this moment in the realm of science fiction. An exception might be the stroke-of-genius suggestion of a madman of my acquaintance that cigarettes be wrapped in mouse skins. The product would be fantastically promotable on the basis of statistical evidence that mouse skins absorb carcinogens!

A single investigator is said to have induced a number of skin cancers in mice by painting the animals with tars distilled from the smoke of cigarette paper. This work has not been published in a scientific journal, nor has the experiment been repeated by other investigators, but it would seem to make little practical difference if the results were established as true by a thousand researchers. For research along these lines appears to be a blind alley, a bright little road to nowhere, as far as smokers are concerned. This may be a rash conclusion, but there are reasons for it:

We hear a great deal about tobacco tars. Burning of any vegetable substance produces smoke which, when condensed and distilled, leaves residues known as wood tars. Tobacco tars are wood tars. Incidentally, coal is a vegetable product. People who concentrate their ire on tobacco smoke are grossly derelict in public duty. To be rigorously consistent, they ought to be warning us of direful dangers they haven't thought about:

Don't light a fire with a wood or paper match; a portable arc light would be better. In fact, don't light any fires; they smoke. Don't go around sniffing burning leaves in the fall; there might be a lung cancer in a bonfire.

Any combustible vegetable product should be as subject to grave suspicion as tobacco and paper, if suspicions of the latter are justified.

The lad who smokes corn silk may be no better off than his old man who smokes stogies. The worst of it is, it's impossible to go anywhere these days without inhaling something that we should be badly worried about if we were well enough informed.

A logical way to prevent lung cancer would be to stop breathing. Even if we never smoke, and never go into smoking cars or smoke-filled rooms populated by dissolute characters, we inhale into our lungs a variety of things that chemists view with alarm. A chemical known as benzpyrene is definitely proved to be carcinogenic, or cancer-inducing. It is produced in small amounts by incomplete combustion of hydrocarbons, in oil and gas furnaces and automobile engines, especially poorly adjusted idling ones. Dust from asphalt roads and rubber tires is also suspect. "Smog" has become such a familiar and dirty word that it's civic subversion to mention it in Los Angeles.

What Are You Breathing These Days?

Impressive charts have been drawn up, showing that car registrations, gasoline consumption, installation of oil and gas furnaces, and miles of asphalt roads, have increased to about the same degree as cigarette sales and deaths from lung cancer. Obviously, such statistics do not prove that air pollution causes cancer, any more than similar statistics restricted to smoking. But all clues have to be tracked down if we're to find the murderer, assuming that there is a murderer. Many conscientious cancer researchers are disturbed by the smoke screen raised by the cigarette controversy, for professional reasons: too many members of the posse are riding off hell-for-leather in pursuit of tobacco, leaving only a few laggards to think about other suspects and speculate that maybe they went that-away.

Ten years ago, the U. S. Public Health Service showed that skin cancer could be produced in animals by extracts of tarry matter collected

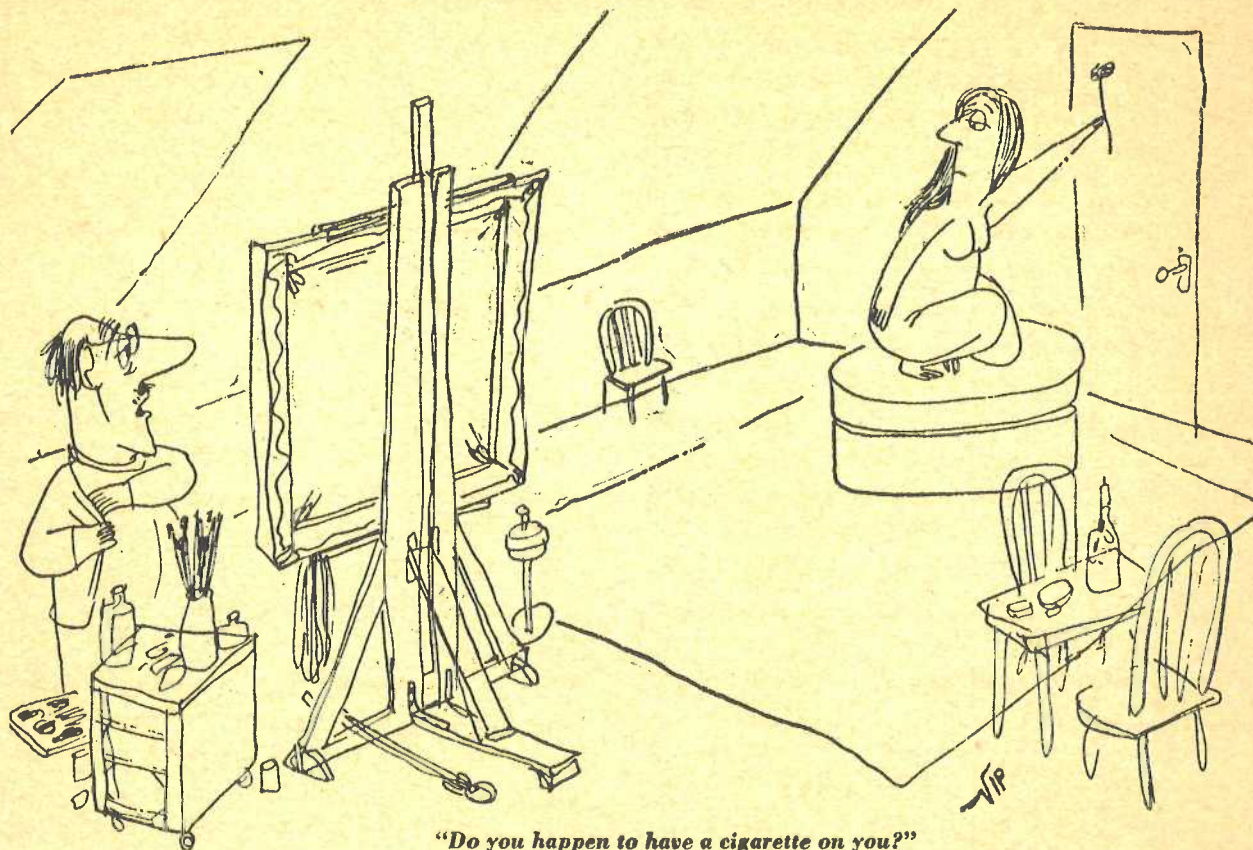
from the air of eight different United States cities. The New York City Department of Health estimates that 176 tons of solid matter, including more than half a ton of tarry materials, settle onto each square mile of Manhattan every month.

Lung cancer incidence is higher in urban than rural areas, higher in industrialized than agricultural states. Greatest proportion of cases occurs in a belt of industrialized states extending from New England to the Midwest. This may reflect many factors, including errors in gathering statistics or in interpreting them, for certain statistical differences from city to city are hard to reconcile. Why, for instance, should the lung cancer death rate be 39.1 per 100,000 males in New Orleans, but only 13.4 in Atlanta?

Exposures to polluted air may of course vary within a city, and be further affected by whether we work indoors or out, and even by how hard we work. If you work in a dirty section of a city, and labor outdoors, your lung cancer risk is sharply greater than if you are an indoor worker in a relatively clean part of town. At least this is true of Chicago, in the opinion of Dr. Clarence A. Mills, professor of experimental medicine at the University of Cincinnati.

Dr. Mills, an authority on effects of air pollution, analyzed the lung-cancer death statistics of various Chicago districts. "Physical workers, expending the greatest amounts of energy and breathing the largest amounts of dirty air, face the greatest hazards," he concludes. Outdoor laborers have death rates from lung cancer $2\frac{1}{2}$ to $3\frac{1}{2}$ times higher than professional groups, in both clean and dirty Chicago areas. The lung cancer death rates among laborers who work in dirty districts are almost twice as high as in those who labor in clean districts.

One study of railroad workers disclosed that three-fourths of those who had lung cancer were exposed to inhalation of soot from coal-burning engines. The number of lung cancer deaths in English towns is reported to increase in pro-



"Do you happen to have a cigarette on you?"

portion to the number of chimneys per acre.

Air pollution, which is widespread, arouses no mass hysteria comparable to the personal pollution of tobacco. Perhaps one reason is that we all contribute to fouling the nest, and find our contributions just as hard to give up as the smoking habit. We insist on driving cars, and heating our homes; we hate the belching smokestacks of power plants but we expect our lights to go on when we push a button. It's easier to kick the tobacco octopus, and anyhow, some people seem to derive pleasure from smoking, an added incitement to the evangelistic. A real, red-hot anti-cigarette zealot behaves as if he believes the old saying was worded "where there's smoke there's ire."

Of course atmospheric pollution doesn't kill off people in droves. Nor does smoking. The case of

the Boston smoke-eaters suggests that we have a good deal to learn yet about lung cancer carcinogens. Dr. George Smithey, associate to the medical examiner of the Boston Fire Department, contributes some interesting facts about firemen of a large city.

"This group is exposed repeatedly to irritants of all sorts, as products of combustion," he points out. "A great number of them are heavy smokers. When they are not combating fires they are constantly exposing their lungs to cigarette smoke."

So what happens to them? For the past 10 years there have been 2,400 firemen per year on the rolls of the Boston Fire Department, on the average. During those 10 years, 485 firemen died. Thirteen deaths were attributed to lung cancer. Six of the 13 who died of lung cancer were non-smokers.

The whole problem of inhaled carcinogens is much more complicated than studies focused on smoking alone would suggest. The British Empire Cancer Campaign, in its report last spring, reiterated that air pollution may carry carcinogens, but honestly acknowledged: "It's hard to choose the culprit, since both tobacco and coal tars are vegetable products."

And many baffling cancer-factors are not inhaled at all.

Dr. Evarts A. Graham, whose studies were a fuse that ignited the cigarette controversy, reminds us forcefully that "No one maintains that smoking is the only cause of lung cancer." He and Dr. E. L. Wynder feel that men in "hot metal" trades, exposed to metallic fumes, are especially liable to lung cancer. Indeed, a great deal of work has been done in studying occupational or environmental cancer. The history dates back more than a century, when chimney soot was incriminated as a cause of cancer of the scrotum in London chimney-sweeps.

Where Do You Work and How Old Were Your Parents?

Workers in chemical trades, plating establishments, welders, steamfitters, sheet metal workers, marine engineers, oilers and wipers, painters, asbestos workers, plumbers, workers in lead, zinc and copper trades, uranium miners, may be exposed to substances that lead to lung cancer after long exposure.

An analysis of 518 cases of male lung cancer, collected from 11 California hospitals and reported in the American Journal of Public Health, disclosed that 72 percent of the patients had smoked at least one pack of cigarettes a day over the preceding 20 years. An equal number of men, hospitalized for reasons other than lung cancer, served as "controls." There were striking differences in exposure to metallic fumes and particles, between the two groups. Of the 518 lung cancer patients, 77 had worked for 5 years or more in occupations suspected of having a casual role in

lung cancer. Analysis indicated that welding was significantly associated with lung cancer, separate and apart from cigarette smoking habits. Similar findings, though slightly less significant, were associated with boilermakers, steamfitters and asbestos workers. There weren't enough oilers, wipers, engineers, painters, ore workers or sheet metal workers to yield much evidence one way or the other.

How would you explain the phenomenally high death rates from lung cancer among male citizens of Deer Lodge County, Montana? The death rate there is 145.7 per 100,000, from lung cancer. But in Gallatin County, right next door, the rate is only 5.2 per 100,000. Do the Deer Lodge County boys smoke 25 to 30 times as many cigarettes as Gallatin men? Statistics saith not. Meaningful facts give a plausible answer: Gallatin is an agricultural county. Deer Lodge County has extensive smelting operations of arsenic-containing copper ores, and arsenic can be carcinogenic.

Regardless of smoking habits, the mortality rate among professional men is about 20 percent less than that of men in general, of comparable ages. Mortality rates of unskilled workers are about 50 percent higher than rates at comparable ages for all gainfully employed men. From this isolated statistic, you might conclude that if you are unskilled, you are shortening your life about as much as if you smoked a pack of cigarettes a day, and that you ought to go to college to live longer. Stranger conclusions have been drawn from isolated statistics, squeezed hard to make them yield information they do not actually contain.

While you're calculating how much it shortens your life to smoke 10 cigarettes a day instead of 5, figure out how old your mother was when you were born. Animal studies show that the mother's age influences cancer susceptibility of offspring, and the Yale Journal of Biology and Medicine publishes a plea to scientists to collect more information to throw light on mysterious

and unknown aspects of cancer vulnerability. Susceptibility of mice to one kind of chemically induced cancer varies according to the order of the litters (reflecting increasing maternal, if not parental, age per litter) and also according to the size of the family.

Susceptibility to diseases, at various stages of life, is strongly affected by heredity and "built-in" constitutional factors. Heredity is mysterious enough to the experts; it plays almost no part in training for and practicing medicine; and it is terra incognita to the mill-run of statisticians except those in specialized fields.

The Part Heredity Plays

Vastly more is known about heredity tendencies toward lung cancer in mice than in human beings. One scientist who knows so much about mice that he has begun to wonder about men is Dr. Walter E. Heston, head of the general biology section of the National Cancer Institute. Speaking of mice, he says: "The role of genetic factors has been generated more clearly in the development of lung tumors than in the development of any other type of tumor. It has been shown that multiple genes are involved in the inheritance of lung tumors, and the effect of specific identified genes has been demonstrated." These particular "cancer genes" seem to act only in the lung and have no effect in other body sites.

Such "clear-cut observations on the inheritance of pulmonary tumors in mice point to the need for genetic studies on lung cancer in man." Some men and women who never smoked in their lives develop lung cancer; others who smoke like chimneys for years die in old age of some other cause. The large number of chain-smokers in our population, and the very small proportion of these millions (U. S. cigarette smokers number 60,000,000 to 70,000,000) who actually acquire lung cancer, suggests that some mysterious mechanism protects the body, if tobacco has any influence as a cancer-igniter. We

have practically no scientific answers to such speculations.

An indication that we all have mysterious, built-in strengths and weaknesses, of which scientists know little or nothing, comes from Dr. Ian Aird and his group at the University of London. They find that cancer of the stomach is significantly more common in persons who have blood type A than in persons who have blood type O. Blood groups are of course inherited.

Most of the mice used in cancer research in this country come from the noted Roscoe B. Jackson Memorial Laboratory at Bar Harbor, Maine. The laboratory breeds about a million mice a year, of fixed hereditary strains. Dr. Clarence C. Little, director of the laboratory, is a world leader in the study of hereditary susceptibility or resistance to a host of diseases. "If smoke in the lungs were a sure-fire cause of cancer, we'd all have had it long ago," he states. "The cause is much more complicated than that."

Dr. W. C. Hueper, who perused some 900 medical studies in preparing a monograph on lung cancer, says: "It may be concluded that the existing evidence neither proves nor strongly indicates that tobacco smoking, and especially cigarette smoking, represent a major or even predominating causal factor in the production of cancers of the respiratory tract. . . . If excessive smoking actually plays a role in the production of lung cancer, it seems to be a minor one if judged from the evidence on hand."

But such reassurances to smokers deal only with lung cancer. After all, lung cancer affects only a very small part of our population, compared to the toll taken by other diseases—though the cigarette controversy was precipitated by exaggerated anxieties about lung cancer alone. But now smoking has been dragged into the statistical court room to answer an indictment that it causes heart disease. And heart disease affects a whale of a lot of people indeed.

Coronary disease is a notorious killer of adult

males. Deaths from diseases of the heart and blood vessels number about 600,000 annually. The Hammond-Horn statistical report presented at the convention of the American Medical Association linked smoking with heart disease for the first time, as far as an apprehensive public was concerned. The scope of the indictment against smoking was enormously increased. But paradoxically, by bringing heart disease into the picture, the case against tobacco is more weakened than strengthened.

Smoking and Heart Disease

The defense happens to have a vast amount of evidence, furnished by endocrinologists, biochemists, pathologists, cardiologists, enzymologists—a literal army of many thousands of varied specialists who in recent years have been intensively, whole-heartedly, devotedly, probing into fundamental factors of heart disease. Few of their studies deal specifically with tobacco. None of them discounts the fact that smoking has measurable, if very variable, effects on the circulatory system. None of them demolishes or impairs the superb statistical study of Hammond and Horn in the least. It is simply that a large number of facts, or at least facts generally accepted as such by most scientists, have been accumulated by workers in the front lines of research. These facts—some are big facts, some are little ones—do not enter into the Hammond-Horn study in the least. Their report, properly enough, was single-mindedly focused on statistical associations of smoking with disease.

Reported deaths from lung cancer have skyrocketed, more or less parallel with the increased consumption of cigarettes. Here there are surely honest grounds for suspicion. There are no comparable grounds for suspicion as regards heart disease. There is no parallelism of heart deaths with mushrooming cigarette sales. True, there are numerically more *deaths* from heart disease. But the population is larger, older; diagnosis is better. Coronary heart disease wasn't described

as a pathologic entity until Dr. James Herrick published his classic paper in 1911. Before that, people who died of coronary disease had to die of something else.

Taking all factors into account, the American Heart Association concludes that, "During the past three decades, the risk of dying from diseases of the heart and circulation has *decreased* for ages under 45. In the age group above 45 there has been little change." Your statistical risk of dying of heart disease is no greater than it was 50 years ago, whatever you may read about the deadly pace of modern living—or smoking.

Earlier in these pages we mentioned the strange case of the Norwegian hearts and promised to tell you more about it. Hammond and Horn laid these incontestable facts on the line: In Norway, cigarette consumption during the German occupation fell off. Almost immediately, deaths from heart disease began to fall off, too. Pretty soon, they had dropped to only 57 percent of the pre-war heart disease death rate of men up to 60 years of age.

In short, cigarette consumption fell off. Deaths from heart disease fell off. And there's not even a microscopic rift, flaw, or defect in those statistics.

In fact, there are similar statistics from several other countries showing a decline in heart disease deaths during the German occupation. These statistics have indeed yielded important evidence to researchers in heart disease. But these researchers—one-sidedly, perhaps—paid no attention to the falling-off in cigarette consumption. They found another falling-off that seemed quite adequate to explain the decline in heart disease deaths.

There was a falling-off of body fat from previously well-fed Norwegians.

Fats were almost unobtainable in Norway during the occupation—even harder to get than cigarettes. Deprived of dietary fat, Norwegians scrounged for comestibles as best they could. Foods they did eat were far lower in concentrated

calories than fat foods. Most Norwegians couldn't get enough fatty foods to sustain excess blubber on their frames. Perforce, they lost excess body fat. And took a load off their hearts. And didn't die off from heart disease as fast as they'd been dying when they ate all they wanted.

This association of fat, diet, overweight, with heart disease is generally accepted by nutritionists as a very satisfying explanation of a wartime decline in Norwegian heart deaths. The nutritionists didn't give a thought to cigarette consumption, which declined coincidentally. Of course, like the smoking statisticians, the nutritionists may have overlooked something that a different set of statistics could throw some light on. For instance, soaps are made from fats, and soap was also scarce during the German occupation. Perhaps Norwegians had quit bathing, thereby retaining sediments, grime, salts and detritus which sealed the skin and prevented

body fluids and nutrients, possibly beneficial to the heart, from evaporating wastefully from their skin.

But the nutritionists seem to be dealing with something tremendously important, in focusing on the metabolism of fats. Statistical associations of fat and overweight with heart disease are even more devastating than statistical associations of smoking and heart disease.

Let's put two respectable sets of heart disease statistics side by side and see how they mesh. One set is provided by the famous Hammond-Horn study, the other by statisticians of the Metropolitan Life Insurance Company. Life insurance companies don't charge higher premiums for men who smoke. This is a hard-headed actuarial "no" answer to the question, "Does smoking shorten human life?" Naturally, life insurance companies want to keep their cus-



"Dam' rain."

tomers alive and paying premiums as long as possible, and if they thought that smoking killed their policy-holders, they'd hike the premiums for smokers in a flash. They do increase or rate-up the premiums of persons who are too fat, or turn them down flatly as bad risks.

In the tables that follow, 100 percent is taken to be the percentage of deaths that would normally be expected to occur among large numbers of men of comparable ages. In the Hammond-Horn study, 100 percent represents the deaths among non-smokers. In the Metropolitan Life study, 100 percent represents deaths among men of normal weight. Percentages given are for "excess deaths"—those that occur above the 100 percent that would be "normal."

The two tables are not statistically identical. The Hammond-Horn study was of men over 50 years of age. The Metropolitan study included men (and some women) of all ages. Not all the deaths in the Metropolitan study were due to heart disease, but the excess was largely accounted for by high death rates from heart and artery disease. The statistics do not "prove" that people who overeat die twice as fast as people who smoke. But they do suggest that overweight is a factor that is strongly associated with high mortality from heart disease.

This factor is not considered in the Hammond-Horn smoking study.

Underlying the most widespread and serious forms of heart and artery disease is a condition known as atherosclerosis. Patchy deposits of fat-like materials are laid down inside major blood vessels. The patches may slowly change, enlarge, "harden the arteries," clog the flow of blood or block it completely. The coronary arteries that feed the heart muscle are especially vulnerable.

If the problem of atherosclerosis could be solved—and it may be—the life expectancy of men and women would be extended much more effectively than by any other medical advance that doctors can now imagine. So a tremendous amount of research into atherosclerosis is being done by many thousands of brilliant investigators, who have turned up innumerable important facts that seem to have little or nothing to do with tobacco smoking.

Atherosclerosis was prevalent at least 3,000 years ago, before cigarettes were invented. Dr. Irvine H. Page, one of the country's top specialists in heart disease and high blood pressure, tells us that ancient Egyptians suffered from atherosclerosis identical with the kind we have today—and as imperfectly understood.

"At least it was not attributed to tobacco, since Egyptians didn't smoke," says Dr. Page.

Whence comes atherosclerosis? A prime suspect is cholesterol, a lipide (fat-like substance)

| Hammond-Horn | | Metropolitan Life Insurance Company | |
|---|----------------------------------|-------------------------------------|---|
| | Excess Deaths from heart disease | Policy Holders | Excess Deaths largely from heart and artery disease |
| Men who smoke cigarettes only | 82% | 20% overweight | 42% |
| Men who smoke cigarettes and in addition either cigars or pipes or both | 56% | 30% overweight | 51% |
| | | 40% overweight | 78% |
| | | 50% overweight | 134% |
| Men who smoke either pipe or cigar or both | 0% | 60% overweight | 182% |
| (actual deaths 362, expected, 361) | | | |

present and apparently necessary in every human body. We obtain cholesterol from animal fats in our diets—from foods such as eggs, cream, cheese, meat fats. But our bodies also make cholesterol from simpler ingredients that are always abundant. A high intake of food fats of any kind, animal or vegetable, may overtax the body's ability to handle cholesterol. Dr. Ancel Keys of the University of Minnesota, and many other physiologists, believe that a consistently high intake of dietary fat is significantly associated with diseases of the heart and arteries.

This factor is not considered in the Hammond-Horn smoking study.

Dr. Page and others point out that atherosclerosis, particularly the coronary type, tends to run in families. Complex hereditary factors may have a great deal to do with an individual's ability to metabolize fats.

This factor is not considered in the Hammond-Horn smoking study.

Background to Heart Disease

Bodily make-up is statistically associated with greater or lesser susceptibility to coronary disease. Dr. William H. Sheldon, director of the Constitution Laboratory of Columbia University, has analyzed the three components of body build (endomorph, mesomorph, ectomorph) and these proportions of the human constitution are becoming useful tools in many physiological researches. Sprague, Gertler, and Garn find that the muscular, compact, "male" type of man—the so-called mesomorph—is especially likely to have a coronary attack. The ectomorph is a slender, light-boned, somewhat fragile male, often fussy and dyspeptic. Many foods may not "agree" with him. Smoking may make him sick, and he may never smoke because he doesn't like it. Yet the ectomorph, of all body builds, is most likely to live to be ninety, and is somewhat less prone to early heart disease.

This factor is not considered in the Hammond-Horn smoking study.

Habits of physical exercise—whether one is sluggish or a spendthrift of energy—have something to do with heart affections, though probably not in the direction you think. Recently the health records of 2,500,000 English and Welsh workingmen were analyzed. Some were sedentary workers, doing such light work as office filing, hair-dressing, sitting at a desk, etc. Others did heavy muscular work—mining, digging, etc. There were significantly *fewer* heart attacks among the men who did heavy, sweaty, muscular labor.

This factor is not considered in the Hammond-Horn smoking study.

What were the occupations of the 187,766 smoking and non-smoking men canvassed in the American Cancer Society report? There might be correlations with heart disease as significant as those observed in London bus conductors and bus drivers. The drivers, sitting at the wheel all day, had more heart attacks, and at an earlier average age, than conductors who had to climb around doubledeckers all day long to collect fares. It would take a different set of statistics to tell us about that.

This factor is not considered in the Hammond-Horn smoking study.

How many diabetics were among the 187,766 men covered in the study? Diabetes has quite a marked tendency to produce premature hardening of the arteries.

This factor is not considered in the Hammond-Horn smoking study.

The above remarks about a few of many important factors that were not considered in the American Cancer Society's smoking survey are not uttered in a surly, captious, or vindictive spirit. They are merely intended to suggest to you what you probably already know—that it is rash to draw flat conclusions from any collection of statistics dealing with anything so fabulously intricate as human physiology. It is not humanly possible to include or assess all the known facts, let alone the unknown ones, in a survey focused

on a single aspect of human behavior such as smoking.

Nor is there any internal evidence that rash and sweeping conclusions were intended. Drs. Hammond and Horn wound up their report with a statement that "there is evidently a great variation in susceptibility among people to agents responsible for disease."

What Kind of Hormones Do You Have?

Dr. Charles S. Cameron, medical and scientific director of the American Cancer Society, stated: "Personally, I am not convinced that the Hammond-Horn theory of cause-and-effect relationship between heavy cigarette smoking and increased susceptibility to death from cancer in general is as yet entirely proved. One cannot at this time exclude the possibility that heavy cigarette smoking and the tendency to cancer are both expressions of a more fundamental cause of a constitutional or hormonal nature."

Similar expressions by other authorities about constitutional and hormonal factors may sound vague and evasive to you. Actually, they cut straight to the heart and center of today's most promising area of medical research: The seething, incredibly intricate chemical activities of the living cell, and the enormously potent chemical communications between cells we're made of.

Since you have sex hormones (both male and female hormones, whether you're a man or a woman), we might take a discreet look at some of their effects that have little to do with sexuality. At least two common kinds of cancer (which is not *a* disease, but a family of diseases) are powerfully influenced by sex hormones. Cancer of the prostate gland in males flares up and becomes worse under the influence of male sex hormone, testosterone. Doses of female hormone often cause prostate cancer to remain quiescent and keep the patient comfortable for long periods of time, without actually curing him. Another way of suppressing male hormone

to relieve prostate cancer involves a constitutional alteration: Surgical castration.

Cancer of the female breast, however, is made worse by *female* sex hormones, and here the palliative treatment is exactly the reverse of prostate cancer. The female patient is given doses of male hormone.

Scientists can, in fact, turn some kinds of animal cancers on and off at will by means of sex hormones. Dr. George Woolley of Sloan-Kettering Institute worked with strains of mice that had a most remarkable trait. If the sex glands—testes or ovaries—were removed from baby mice immediately after birth, cancer of the adrenal glands invariably appeared within six months. Cancer could be "turned on" by removing the sex glands. Dr. Woolley found a way to turn the cancer off, too. Male or female sex hormones given for two months after sex gland removal prevented adrenal cancer from developing.

Your adrenal glands produce more than two dozen steroid hormones. Steroid refers to the chemical nucleus which is identical in all steroid compounds. Your male and female sex hormones are steroids. So is cholesterol, incriminated as a suspect in hardening of the arteries. So is digitalis, an ancient heart medicine. We all have within us a surging, ever-changing, ever-active supply of mighty chemicals that powerfully affect our bodies in some ways that are known and in many ways that can only be guessed at. That is one of the meanings of the experts who speak of constitutional and hormonal factors.

It should not be surprising to find that sex hormones play a part in heart disease. Coronary disease predominantly affects men. Women are relatively immune—until after the menopause. Then they are almost as liable to coronary attacks as men. Their production of female hormones slowly diminishes after the change of life. Apparently they lose some mysterious protection which female hormones afford against heart disease.

Men and women either smoke or don't smoke. It is a lot easier to gather statistics about their smoking habits than about the state of their hormones, though the latter might be an engaging enterprise.

The principal alkaloid of tobacco, as everybody knows, is nicotine. Nobody thinks that nicotine induces cancer. But it does have measurable effects on the nervous and circulatory systems. In general—although there are great variations among individuals; some people are more unpleasantly affected by smoking than others, and presumably they're the folk who don't smoke—nicotine causes a transient increase in pulse rate (the heart beats slightly faster), a rise in blood pressure, a decrease in skin temperature at the fingertips indicating lessened volume of blood.

Is Smoking a Drug Habit?

Gene Tunney once wrote an anti-smoking article in which he declared that the lift you get from a cigarette is exactly the same kind you get from cocaine, heroin or marijuana. Gene must have been pharmacologically punch-drunk. The lift you get from a cigarette, if you actually get a lift, comes from a temporary rise in blood sugar. This is believed to result from stimulation of the adrenal glands, so we've come full-circle back to smoking and hormones again.

Smoking is not a drug habit like addiction to morphine or heroin, at least in the strictest sense. For no intense, severe, body-wracking symptoms ensue if tobacco is withdrawn, as is the case with narcotics. Not that the smoker who is swearing off is perfectly comfortable. He still craves a smoke, but he isn't physically sick.

Dr. Torald Sollmann, author of a classic text on pharmacology, puts it this way: "Deprivation of tobacco induces in habitual users a condition of nervousness, analogous to the craving of the more serious drug habits, that interferes with work, especially with mental effort and concentration."

Perhaps that aspect—mental effort and concentration—explains why men of literature have on the whole been friendly to tobacco. Thus we find Robert Louis Stevenson admonishing women never to marry a teetotaller or a man who does not smoke. Smokers, he thought, made the most contented husbands. But Stevenson, plagued for a lifetime by tuberculosis, was never a man to give up the day's joys for a problematical tomorrow.

The heart does not have an unlimited capacity to absorb nicotine. Dr. E. M. K. Geiling, chairman of the department of pharmacology at the University of Chicago, removed a guinea pig heart and kept it alive by passing nutrient fluids through it. The fluids contained radioactive nicotine, which enabled absorption of the drug to be measured. At first the heart absorbed almost all the nicotine in the fluids. But after a few minutes it refused to accept any more nicotine. Seemingly, the heart is able to protect itself against nicotine poisoning in automatic ways.

Nicotine has a constricting effect on blood vessels. Strangely, this might work to the advantage of the heart, according to a communication by Dr. Morris Wilburne in the *Journal of the American Medical Association*. We have seen that regular heavy exercise gives some statistical protection against coronary disease. Theoretically, this protection may be afforded by building new networks of communicating blood vessels (collateral circulation) around coronary arteries that need more help to pump enough blood to the heart muscle. Dr. Wilburne does not advocate that people take up smoking to strengthen their hearts, but he does suggest that habitual smokers may develop a better supply of blood to the heart as a compensating benefit of blood vessel constriction induced by smoking.

Opinions of Heart Specialists Vary

Opinions of eminent heart specialists run the gamut from strict "No smoking" orders for every

patient, to moderate use of tobacco by any patient in whom smoking does not cause actual chest pain.

Dr. Robert L. Levy, head of the cardiology department at Columbia-Presbyterian Hospital in New York, has said: "Patients with any form of heart disease are usually advised to abstain from tobacco. Yet it has been our experience that over a period of years most of the individuals can smoke moderately without apparent harm. If one may judge by the amount of tobacco consumed, smoking affords a good deal of pleasure to a large number of persons; for many it provides emotional stability." Emotional stability is surely a beneficial effect, whether produced by tobacco or anything else.

Another dissenter to the idea that heart patients should never smoke is Dr. Robert S. Berghoff of Loyola University. "I know full well," he admits, "that, the country over, cardiologists insist that once you have a coronary thrombosis, tobacco is prohibited. I feel to the contrary that an individual who has used tobacco through a lifetime can smoke in moderation, always provided it does not lead to coronary pain."

Is there any way of telling if you are personally hypersensitive to tobacco? Dr. Levy suggests a simple smoke test: If your pulse rate increases by more than 25 beats per minute after inhaling the smoke of one regular cigarette, you had better leave tobacco alone.

British physicians write with vigor and occasionally administer delightful rabbit punches to each other. Here is a sample from Dr. Ronald Bodley Scott, lately physician to the King's Household: "Much of the writing on the medical aspects of tobacco smoking has come from the pens of non-smokers or of those who have renounced the habit and are basking in the sunshine of their own righteousness."

Dr. Scott, like others, can find no evidence that smoking *causes* heart disease. He found that 69 percent of 1,000 men over 40 who had coronary artery disease were smokers—but so were 66 per-

cent of an equal number of men who had normal hearts. Another study of middle-aged men showed that only 1 percent of non-smokers had evidence of coronary disease, compared to 5.9 percent among heavy smokers.

"It is hardly necessary to point out," Dr. Scott points out, "that these observations do not imply a causal relationship. Everyday experience suggests that the kind of man who has a coronary thrombosis before he is 50 is the kind of man one expects to smoke 25 cigarettes a day."

There appears to be but a single blood vessel disorder that is unquestionably aggravated and perhaps caused by smoking. Fortunately, it is an extremely rare condition that apparently affects only the very unusual person who is extremely hypersensitive to tobacco. The affliction has a jawbreaking name, thromboangiitis obliterans, or Buerger's disease. Blood vessels in the leg become so constricted that blood to toes, feet, or leg may be almost completely shut off, resulting in gangrene. Generally the condition may be held at bay if the victim refrains from smoking. But some patients, given a choice of no smoking or having no toes, have made a hard decision: "Take 'em off, Doc."

Smoking, Weight, and Digestion

A common complaint of people who have quit smoking is, "I'm getting as fat as a pig." Frequently this is a factual statement.

The theme "Reach for a Cigarette Instead of a Sweet" enraged the candy industry some years ago. Now some confectioners are making hay while the cigarette scare is on, and a few frankly urge worried customers to reach for a bonbon instead of a smoke. It's hard to say who has the edge in this snide warfare between industries. Persons who quit smoking often do put on weight, and we've just seen that overweight is no royal road to longevity.

Why does smoking help to control weight, if it does? There are many folklore explanations: "Smoking poisons you. It plays the devil

with digestion. It spoils the digestive juices.”

What smoking does, mainly, is to diminish the appetite. Various appetite-suppressing drugs are dispensed these days to weight-conscious reducers. Tobacco seems to be a predecessor of such drugs, just as alcohol, a very effective hypnotic, is an age-old predecessor of sleeping pills.

Koehler and Marsh, of Santa Barbara Hospital in California, made a laborious study of digestive juices yielded by smokers who averaged more than 25 cigarettes daily. They found no support of the idea that smoking ruins digestive juices to such a degree that food is not properly assimilated.

“Excessive smokers who were underweight all manifested a certain indifference to foods,” they report. “Cessation of smoking definitely improved the appetite, and increased food intake was the main cause of weight gain.”

If you want to gain weight, by all means quit smoking. You’ll be hungrier.

Peptic ulcer patients are often told to quit smoking because tobacco increases acid secretions in the stomach. There are many studies of smoking and stomach-acid secretion, and you can make up your own mind about as well as the experts. For every thorough, well-controlled study that says smoking does increase acid secretions, there’s another that says smoking doesn’t make any difference acid-wise.

Does smoking *cause* peptic ulcer? Gastroenterologists do not think so, although there is an association of smoking with ulcer. The typical peptic ulcer patient (to the extent that any patient is typical of anything) is inwardly tense, hard-driving, ambitious. This may lead him to smoke heavily because he thinks it will relieve his tensions. If you want to plunge overboard with some exponents of psychosomatic medicine, smoking doesn’t cause his ulcer but his ulcer causes him to smoke.

There’s no real evidence to prove or disprove that assertion. But the built-in difficulty is one

which entangles almost all serious studies of smoking and disease.

Nobody knows for certain which is the cart and which is the horse.

Impact of the cigarette scare on the industry is seen in the mad scramble of every maker to produce a filter tip that will convince the public that one brand is a whale of a lot better than any other brand.

The catch is that nobody knows exactly what baneful substance, if any, should be filtered out of a cigarette.

Furore About Filters

In fact, one imaginative investigator suggests that tobacco smoke may contain protective particles that shouldn’t be wasted. The smoke is largely composed of finely divided carbon particles. Many chemical substances adhere to fine particles of carbon and become deactivated. Toxic chemicals in tobacco may adhere to smoke particles. They may be carried into and out of the lungs as free-riders. If that is true, filters and holders that screen carbon particles out of tobacco smoke may do more harm than good. This idea, like so many assertions about smoking, remains unproved, but it shows how the crystal ball gets clouded when scientists start looking into it.

There’s nothing new about king-size cigarettes and filter tips, except their growing popularity. King-size cigarettes were popular in the 1900’s. The Russians, who claim to have invented everything else, used cigarette filter tips as long ago as the Crimean War—a plug of cotton stuffed into the mouth-end.

Filter tips and cigarette holders vary considerably in the proportions of nicotine and tobacco tars they entrap, according to impartial studies by American Medical Association experts. Undoubtedly, all filter tips will be getting better, the red heat of competition being what it is today. Materials used change almost from day to day.

One filter that got a Grade-A rating in the American Medical Association study was so tight that smokers could hardly draw through it, and it had to be loosened a little. A high-dudgeon editorial in the *Journal of the American Medical Association*, lambasting some manufacturers' claims, remarks tartly that a completely efficient filter would leave the smoker inhaling nothing but hot air.

Tobacco itself is a good filter, if you don't smoke a cigarette down to your lips. A good deal of nicotine and tarry stuff is tossed away in a fairly long cigarette butt. Another fair filter is the human mouth, if you don't let tobacco smoke get far past it. Some nicotine is absorbed through membranes of the mouth, but smokers who inhale absorb about ten times as much nicotine as non-inhalers. Denicotinized tobaccos contain about half as much nicotine as regular kinds. It is impossible to take all the nicotine out of tobacco and still have tobacco.

Violent poisons such as prussic acid, pyridines, and others are found in tobacco smoke, but in such minute amounts as to have no physiological effect. Deadly carbon monoxide is also present. But a very heavy smoker absorbs no more carbon monoxide from his smoke than a man walking in a city street filled with auto traffic.

The modern blended cigarette, containing flue-cured bright tobacco, Burley, Maryland, a little oriental, began to get a foothold in 1912 and soon swept the country and indeed the world. Proportions of various tobaccos are trade secrets, and other ingredients are added. "Flavoring" agents, which actually have more to do with the aroma when the package is opened than with taste or the smoke, are generally added to Burley tobacco. Burley is especially good for soaking up cocoa, chocolate, ginger, licorice, vanilla, molasses, rum, brandy, maple syrup, honey, and scores of other additives—the majority of which are very good to eat and certainly not poisonous.

Whatever it is that's filtered out by filters, it isn't the element that affects the circulatory sys-

tem. Dr. Irving S. Wright, past president of the American Heart Association, tells of a patient who had that rare, tobacco-influenced disease, thromboangiitis obliterans. The man was impressed by filter ads and started smoking again. Pretty soon he had gangrene of the toes. "There is absolutely no evidence that there is any protection in terms of vascular disease from these brands," says Dr. Wright.

Clearly, a person with thromboangiitis obliterans should never smoke. Nor a man or woman with an acute heart attack, or bronchiectasis, or any other condition in which a physician concludes for sound medical reasons that smoking represents a clear and present danger.

Scare Aspects Are Exaggerated

But, as stated in the beginning of this booklet, we assume that you are not a man or woman who belongs in the above category. You are not a person who has never smoked and is tempted to begin the habit. You are already a smoker; the habit is pleurably established; you feel no discomforts or ill effects that you are aware of; you would like to continue to smoke enjoyably, sociably, as you have in the past, except that frightening stories about cigarettes have made you wonder guiltily if you are smoking years off your life.

No one, least of all the writer, can conscientiously *urge* you to smoke. But if you do smoke, it is entirely proper to urge you to smoke without fear. Better to give up smoking completely, no matter how terrible the struggle, than to smoke with a sinful sense of guilt, contemplating each cigarette as if it were another nail in your coffin, your day made stressful and unrewarding because you are thinking of a thousand possible and unguessable misfortunes of the morrow. Smoking satisfies some inner need you have, and you need not feel apologetic if you cannot put a name to it. If you had no such need, unconscious, unrecognized, unreasonable, you could give up smoking without a pang and probably never would have

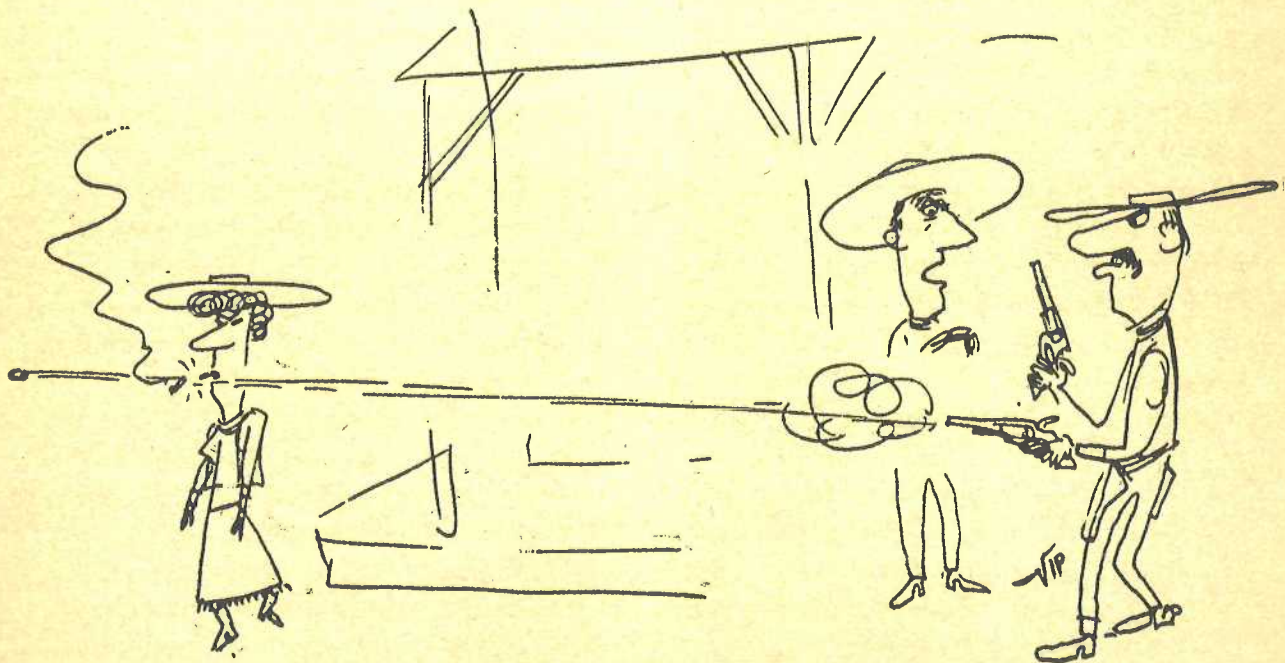
begun. It is enough that smoking give some pleasure or satisfaction. If it does neither, it is hard to believe that you are a smoker.

Scare aspects about smoking frankly appear to this writer to be sensationalized, exaggerated and distorted by non-professional interpretation of highly specialized studies. Some of the evidence given in this booklet may help to restore a saner balance and to abate undue hysteria. It is, of course, the other side of the picture; the fearsome side has been presented by others all too vividly. You are not only entitled to agree or disagree—you are compelled to. You will make up your own mind.

Dr. Morris Fishbein recently remarked that the human being is given to crusading. His observation was inspired by a vigorous campaign to bar the sale of soft drinks on the grounds that they dissolved human teeth. But he could have said it about smoking: "Much of the time of mankind is wasted in abortive campaigns against the little pleasures that contribute their small part to making life a little more salubrious."

Certainly mankind has, in the past, too, indulged in flamboyant witch-hunts and crusades against tobacco. It is possible that a recounting of some of these might tend to bring a fair perspective on the current campaign.

Current attacks on smoking—which arise from meticulous studies by medical men of the highest eminence and integrity, however their carefully phrased statements may be distorted by extremists—are mild and tepid compared to venomous campaigns of the past in which diatribes flowed like water. Like the advance and recession of glaciers, there is a fairly rhythmic ebb and flow of anti-tobacco crusades throughout our country's history. Early colonists of Virginia were petulantly ordered by kings of England not to waste their time raising filthy tobacco plants. Since then, many anti-tobacco crusades have come and gone, and after each one subsided—up to now, at least—people smoked more than ever. Perhaps they were so worried that they hit the pipe to calm themselves.



"Still object to women smoking, I see."

Tobacco is strictly a New World product, despite the opinions of some that it may have been indigenous to the Old World because pipes existed before Columbus. The oriental hookah or water pipe is an example. What the sultans smoked, however, wasn't tobacco, but hashish, a rather disturbing plant drug from which we get our word "assassin." Legend has it that the water pipe, with its long reclining mouthpiece, was cleverly contrived to enable an indolent smoker to enjoy his pipe simultaneously with the fruits of the harem.

Anti-tobacco campaigns were going strong in the middle 1800's but were blighted by the Civil War. Smoking, instead of chewing or snuffing, gained widespread popularity during and after the Civil War. Perfection of portable matches (Lucifers) helped the new custom along. Another bad time for tobacco began around 1890 and extended into our century. World War I ended that campaign. By 1920, a fiery crusade—an instance of where there's fire there's no smoke—was on again, dwindling down in less than a decade.

Fear-Campaigns Are Not New

And the things they said about tobacco! James I, King of England, set the pattern in 1604 when he published *A Counterblaste Against Tobacco*. He excoriated smoking as "a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless." James, however, happened to be a Scot. He discovered that people wouldn't give up tobacco, but they would gladly pay high taxes to get it. So he rented out the tax rights for a fat profit and held his peace.

A few cullings from the centuries reveal that tobacco has been blamed for everything under the sun, from female mustaches to the birth of monstrosities. Sexual effects were luridly proclaimed. One Orson S. Fowler asserted that "the

fierce passions of many tobacco-chewers, as regards the other sex, are immensely increased by the fires kindled in their systems, and of course in their cerebellums, by tobacco excitement." The poor fellow evidently thought this would discourage men from chewing.

On the other hand, tobacco was held to be a certain cause of impotence and sterility. According to U. S. Public Health Service figures, sterility seems to be an unlikely consequence of smoking. In 1940, the birth rate was 73.5 children per 1,000 women. In 1948—and during the intervening years, cigarette consumption had increased steadily—the birth rate was 104.8 per 1,000 women. Any increase in male impotence appears equally improbable, in view of the husbands' necessary cooperation in producing the statistics.

Even though smoking couples did succeed in having children, they were doomed to regret it, by some dissenters. Was the baby born with two heads? "The infant born of a mother who is a cigarette addict is sure to be a defective." Does the child wear glasses? "Most all bespectacled children have tobacco-using fathers."

John Hancock was too gentlemanly to spit and his death was readily explained as a consequence of swallowing tobacco juices. Napoleon didn't smoke but he was an avid snuff-user, obviously a cause of his demise. Tobacco turned decent men into drunkards, through steps of degradation listed by a writer of the 1850's: "Users of tobacco frequent soda fountains, and from drinking soda water get to drinking beer, and then brandy, and finally whiskey."

Hudson Maxim, who invented a silencer but seems never to have used it forensically, said flatly that "the cigarette is a maker of invalids, criminals, and fools, not men." P. T. Barnum was violently opposed to tobacco, but his prize property, the midget General Tom Thumb, confessed that he couldn't live without the weed. The only bet Barnum ever overlooked was his failure to assert that smoking had stunted Tom Thumb's growth.

Tobacco itself was described as a revoltingly adulterated product tolerable only to those who had lost all sense of decency. Tanginess and strength was allegedly acquired by storing tobacco in privies. It was widely believed that opium and morphine were generously added to tobacco products. The charge of doping, though completely false, pops up continually through the long history of tobacco's tribulations. As late as World War I, Dr. Clarence True Wilson, then head of the Methodist Board of Morals, raised a ruckus by charging that the "tobacco trust" was showering the boys in the trenches with doped cigarettes.

The most fabulous crusade of all was probably the one led by Lucy Page Gaston, a zealous reformer who in 1920 planned to run for President on an anti-tobacco platform. Children's crusades were organized, marching like an army with banners. Youngsters were instructed to sneak up and yank "stinkers" from the mouths of startled citizens. Naturally, "stinkers" came to be a satisfying description of the repellant urchins themselves, and it remains a useful addendum to the American vocabulary.

Early campaigns were largely directed at chewing tobacco, and were kept going by the fact that female dresses dragged the floor and too many chewers couldn't calculate a trajectory. But when cigarettes came into fashion, they became the primary objects of attack and have continued to be.

Cigarettes Became the Whipping-Boy

Do you feel that you have a natural right to smoke a cigarette? It is more of a grudging privilege than a right, and it was won reluctantly from stubborn adversaries who have by no means given up the battle. Some state legislators insisted that the punishment to fit the crime of smoking a cigarette was imprisonment at hard labor. Fourteen states banned the sale of cigarettes and prescribed punishment for violation of the law.

Not until 1927 was the last cigarette prohibition law repealed. Until 1880, it was illegal for anyone to carry a lighted pipe or cigar in the public streets of Boston. In 1937, North Dakota finally repealed a law that made smoking in public places a misdemeanor.

Cigarettes are about one hundred years old, but the modern blended cigarette that has swept the world is a relative infant, born in 1912. Tremendous increase in cigarette consumption is a phenomenon about 40 years old, dating from the introduction of the cigarette as we now know it. Before that, the cigarette was widely regarded as beneath the dignity of he-men, suitable, perhaps, to grade-school truants or frail women who chose to flaunt it as a token of accessibility. Cigarette smoking was a minor vice for minors, and the *New York Times*, in 1884, remarked that "a grown man has no possible excuse for thus imitating the small boy."

Prevalent male contempt for the cigarette was expressed by John L. Sullivan, who was inadvertently knocked out by Jim Corbett, a cigarette smoker. "But then I had the booze," John L. explained in his virtuous later years. "Who smokes cigarettes? Dudes and college stiffs—fellows who'd be wiped out by a single jab or a quick uppercut."

But cigarettes caught on, and cigar-makers, unhappy about seeing grown men smoking like sissies when they ought to be puffing a perfecto, were charged with inciting ruthless word-of-mouth campaigns. One lie, aimed at the factory that produced the first blended cigarette, asserted that lepers were employed. The rumor swept the country like wildfire. Another charge was that cigarettes were made from reclaimed butts, salvaged by sifting street sweepings in an era when horse-drawn vehicles were common. The old charge of doping with narcotics cropped up again. Eye-gouging tactics, crop burnings, night riders, rampant hucksterism, have burst out sporadically throughout tobacco's history.

Some smoking snobbery about cigarettes still persists. You might, for instance, feel apprehensive if you were walking alone on a dark street and there loomed ahead of you the shadowy figure of a youth with a cigarette dangling from his lips. You might feel differently if he were smoking a cigar or pipe. But snobbery is also reversible, and many women who are chain cigarette smokers consider a "filthy pipe" or "vile cigar" to be nauseous. Degrees of olfactory insult are difficult to measure, but it is not unlikely that a good deal of female disdain for cigar or pipe arises from the fact that these indulgences are still socially forbidden to the fair sex, as cigarettes once were.

So, that is the story, or I believe, a fair appraisal of it.

The conclusion:

If you like smoking, relax and enjoy it. If you have tried to give up smoking and failed, quit trying.

If you have guilty feelings that you are weak-willed, immoral and suicidal, begin anew to smoke with peace of mind.

Smoke for comfort, relaxation or the release you get out of it. Smoking satisfies some needs you have. These needs may be unexplainable, unreasonable, preposterous. We may create them ourselves and might be better off without them. However that may be, you continue to smoke because smoking gives you more satisfaction than not smoking.

So, if you are a confirmed smoker, smoke without fear.

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Donald G. Cooley has been reporting advances in medical science to lay readers for more than twenty years. He has been science and medicine editor of the *Literary Digest* and, since 1938, managing editor of *Your Health* magazine, *Your Life* magazine, and associated publications. His articles on health and medical subjects—about which he says he is “just an interpreter between scientists and the layman”—appear frequently in large-circulation magazines of the country. He is author of *The New Way to Eat and Get Slim*, a best-selling book on nutrition, and of *Predict Your Own Future*, *Your World Tomorrow*, and *The Science Book of Wonder Drugs*. A native of Minnesota, he attended the public schools of St. Paul and the University of Minnesota, but for the past fifteen years has lived in Scarsdale, New York, where he has a “spare acre” that he prods with a spading fork between stints at the typewriter. He is a member of the National Association of Science Writers.

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