



## SMOKING AND HEALTH

BY ALFRED BYRNE, M.D.

*Only on rare occasions has the Royal College of Physicians, which was founded by Henry VIII, exerted its powerful influence in matters of public health. One famous instance was in 1725, when it brought pressure to bear in the House of Commons to curtail "the disastrous consequences of the rising consumption of cheap gin." DR. ALFRED BYRNE, who examines for us the official report on smoking and health, is the medical correspondent for the MANCHESTER GUARDIAN.*

THE Royal College of Physicians of London selected Ash Wednesday of this year to make an ominous public pronouncement on the dangers of tobacco smoking. During the past decade the British public had repeatedly been informed of medicoscientific studies relating lung cancer to smoking and to general pollution of the atmosphere. None of them, however, had been thought sufficiently conclusive to move the government to initiate measures seriously calculated to discourage smoking. Any such movement would, of course, jeopardize the £850 million (\$2.4 billion) which comes into the national exchequer from tobacco taxation each year.

Five years ago the state-sponsored Medical Research Council advised the government that the relationship between smoking and lung cancer was one of direct cause and effect. Even then the Minister of Health evaded responsibility by delegating to his local health authorities the task of publicizing the risk. As a result of the official policy of laissez-faire, local authorities spent only £3624 (\$10,147) on educational material relating to smoking in the years 1956 to 1960. Over the same period the tobacco industry spent £38 million (\$106.4 million) in advertising tobacco.

Cancer of the lung has been startlingly on the increase in the "smoking" countries in the past

thirty years. In Britain it kills sixty-three people every day, a death rate from lung cancer that is the highest in the world. In Britain, too, the tons of smoke, grit, and sulfur dioxide poured into the atmosphere by trains and by industrial and domestic fires is an allied national problem. Hence, in 1959 the Royal College of Physicians decided to set up a representative committee to "report on the question of smoking and atmospheric pollution in relation to carcinoma of the lung and other illnesses."

Their findings on smoking and health, approved by the nine hundred fellows of the college, have now been published in paperback editions in Britain and America.

There are no zealots among the nine specialists under the chairmanship of Sir Robert Platt, professor of medicine at Manchester University, who interpreted the evidence on smoking. (Atmospheric pollution will be examined in a later survey.) Their verdict is presented unemotionally and in language comprehensible to any smoker.

From their scrutiny of the scientific literature, the physicians conclude that cigarette smoking is a cause of both lung cancer and bronchitis. It delays healing of gastric and duodenal ulcers and probably contributes to the development of coronary heart disease, cancer of the male bladder,

and the arterial disorder, found mainly in the legs, known as thromboangiitis obliterans; it may also play a part in causing cancer of the mouth, pharynx, and gullet. Smoking during pregnancy, it is stated, may result in smaller babies than those born to nonsmoking mothers.

WITH these conclusions in mind, the British doctors urge their government to take seven decisive steps to curb the rising consumption of tobacco, especially cigarettes. Their most striking proposal is that a law should be passed to prevent, or at least restrict, the advertisement of smoking, described as "a habit which causes such widespread injury to health." Such action, say the doctors, would prove that the reality of the risk had been officially accepted.

The writers suggest that much more imagination, effort, and money should be devoted to drawing the attention of the public to the dangers of smoking. They consider that special care should be taken with the education of schoolchildren in this respect, and that parents should be continually made aware of their responsibility for dissuading and discouraging young people from smoking.

At present it is illegal in Britain to sell tobacco to children under sixteen years, but the law is widely flouted by small-time tobacconists who sell even single cigarettes to impecunious young patrons, as schoolboys have testified. Besides, there are cigarette machines for the better-heeled. Most smokers seem to adopt the habit during adolescence, but several studies have shown that up to 15 percent of schoolboys, often with the consent or even encouragement of their parents, are already smoking a small number of cigarettes by the time they are ten years old. Hence, the physicians recommend that any educational campaign among young people must be supported by more efficient restrictions on the sale of tobacco to children.

Curtailing smoking in public places is a further suggestion made by the authors. Before their report appeared, smoking, though forbidden in some theaters, was customary in movie houses and shops and was the rule rather than the exception in trains and the subway. Apart from the fact that prohibition might contribute to the comfort of nonsmokers, the doctors feel it might alter social acceptance of smoking.

Perhaps the most ambitious and optimistic of the physicians' recommendations is that the government should impose a differential increase in the taxation on cigarettes while reducing the tax on pipe and cigar tobacco. Here the object is to persuade smokers who cannot give up the habit

completely to change over to safer forms of smoking. There is, for instance, a lower mortality from lung cancer and bronchitis in Scandinavian countries, where for many years cigar smoking has been more popular, and cigarettes less so, than in Britain.

As there is reason to assume that the harmful effects of cigarette smoking may be due to volatile irritants and nicotine in the smoke, the physicians further raise the possibility of the state's introducing regulations whereby the purchaser of any brand of cigarettes can see for himself the average amount of these substances produced by a single cigarette under standard smoking conditions. An official testing agency would establish the figure to be stamped on the packet. But whatever is disclosed by analysis, no claim should be made that one particular brand of cigarettes is safer than any other.

To help those who wish to give up smoking and find it a painful procedure, the report suggests that the Ministry of Health, through the National Health Service, might consider organizing experimental antismoking clinics at hospitals and chest clinics throughout the country. At such centers people striving to break the smoking habit would receive expert treatment and advice, and also obtain assistance from other people who had freed themselves from addiction to tobacco. There have been favorable reports of such clinics pioneered in Sweden, where the nicotinelike drug lobeline is administered to patients to ease withdrawal symptoms once tobacco is stopped. Some U.S. workers have even used injections of nicotine for the same purpose.

The report warns that victims of bronchitis, peptic ulcer, and arterial diseases should be advised to stop smoking. A common reason why so many of these patients continue the habit despite its obvious disadvantages is that they have not been given really firm advice by their doctors about the need to stop. On the significance of so-called smoker's cough, the investigating committee points to the evidence indicating an association between chronic bronchitis and lung cancer. Some authorities believe, says the report, that the pathological changes found in the lungs of heavy smokers are in fact precancerous. As such, they would be expected to cause chronic cough and expectoration.

All but two of the nine physicians responsible for the recent report were once cigarette smokers, but now five do not smoke at all. Sir Robert Platt, aged sixty-two, forsook the habit as the evidence against cigarettes began to accumulate eight years ago, after smoking twenty a day for thirty years. Dr. Ronald Bodley Scott, fifty-five, physician to the Queen, enjoys an occasional cigar

or a pipe, but not cigarettes. Dr. Neville Oswald, fifty-one, a chest specialist, once smoked twenty cigarettes a day but now has only an occasional cigar. Two small cigars a day are the habit of Dr. J. N. Morris, fifty, professor of social medicine, who stopped smoking twenty cigarettes a day in the course of the inquiry. Dr. John A. Scott, sixty-one, principal medical officer of health and principal school medical officer of the London County Council, uses only a pipe.

During adult life nearly 75 percent of men and 50 percent of women in the United Kingdom are regular smokers. Men who smoke cigarettes consume an average of nineteen, and women eleven, cigarettes a day. There are many more heavy smokers among men than among women. Smoking habits of doctors contrast notably with those of other men. Professor (now Sir) Austin Bradford Hill and Dr. Richard Doll, who pioneered and conducted the main British epidemiological studies on smoking in relation to lung cancer, sent a questionnaire in 1961 to five hundred male doctors who had been practicing for ten years or more. Ninety-two percent replied. Their answers showed that half the doctors are nonsmokers, compared with only about a quarter of other men of the same ages. Less than a third of the doctors smoke only cigarettes, compared with more than half of all other men. Doubtless the mounting mass of scientific data indicting cigarettes as a serious menace to health influenced many of the doctors to give up smoking.

It was in May, 1950, that the first frightening evidence against tobacco as a carcinogen was publicly announced. From the Department of Surgery, Washington University, Dr. Ernst L. Wynder and Dr. Evarts A. Graham reported on the smoking habits of 605 men affected by various types of carcinoma of the bronchus. Only 1.3 percent of them had been nonsmokers, by which was meant they each had averaged less than one cigarette a day for the last twenty years, whereas 51.2 percent of the lung-cancer cases had smoked more than twenty cigarettes a day over the same period. In contrast, 14.6 percent of male general hospital patients of the same age composition were nonsmokers, and only 19.1 percent smoked more than twenty cigarettes a day. From these figures, the inference was drawn that smoking was closely associated with the lethal disease that had sent the smokers to the hospital.

Since 1950 there have been at least twenty-one investigations in nine countries where persons with lung cancer were interrogated about their smoking habits. All confirmed that among such patients there is a higher proportion of heavy smokers and a lower proportion of light smokers or nonsmokers than in comparable control groups.

Cigarettes seem to be even more lethal in the British study than in the others. One possible explanation is that the British smoke more of each cigarette than do Americans, and so receive a larger dose of smoke, as well as lose the filtration effect of a long stub. Exposure of the British to air polluted by chimney smoke is another contributing reason, for there is an association between lung cancer and atmospheric pollution.

Since it is not practicable to ascertain experimentally if exposure to the products of tobacco combustion either initiates or promotes malignant changes in the human lung, the case against tobacco rests largely upon epidemiological evidence. Several authoritative independent agencies had already scrutinized the evidence before the publication of the recent report. That the relationship between lung cancer and smoking is established was agreed by the British Ministry of Health, the Medical Research Council of Great Britain, the U.S. Public Health Service, the U.S. Study Group of Smoking and Health, 1957, the National Cancer Institute of Canada, World Health Organization, and the Netherlands Ministry of Social Affairs and Public Health.

**T**HE forms of counterpropaganda are interesting to examine. It has been suggested by some prominent doctors that smoking may not cause cancer but may only determine the site at which it will appear in subjects prone to cancer for some other reason. That possibility is disproved by the fact that other forms of cancer are not less common among smokers than among nonsmokers.

Since heavy smoking and heavy drinking so often go hand in hand, another suggestion is that alcohol may be the common factor associated with both. However, several studies have indicated that the association of lung cancer with smoking is independent of alcohol consumption. Again, motor-vehicle exhausts are often speculated on as an important cause of the recent increased incidence of lung cancer, but the report rejects this possibility, since there is no increase in lung-cancer death rates among road workers, who would be expected to have excessive exposure to such gases.

On the grounds that heredity may be to blame, Sir Ronald Fisher, retired professor of genetics at Cambridge University and scientific consultant to the Tobacco Manufacturers' Standing Committee, has been supporting the hypothesis that subjects with a hereditary tendency to lung cancer also have a hereditary tendency to smoke cigarettes. Four surveys have proved that smoking habits of identical twins are more alike than those of non-

identical twins, so there may be a hereditary desire to smoke. Sir Ronald's argument would imply that the tendency to give up smoking, as well as the tendency to smoke, is determined by heredity. To explain the increase in lung cancer during recent years, he does not propose that there has been any sudden simultaneous development of inherited liability to lung cancer in many different countries but that smokers have an inherited susceptibility to some other unidentified environmental influence which has recently arisen in every country where incidence of the disease has increased.

The physicians consider this theory difficult to reconcile with the results of a comparison between members of the nonsmoking sect of Seventh Day Adventists and a control group of other people, which was conducted in California by Dr. Ernst L. Wynder and coworkers. They found that the incidence of lung cancer among the Adventists was one eighth that for the control group. A remarkable finding was that the only two male Adventists with lung cancer were both converts who had been cigarette smokers until middle age.

In support of the hereditary or constitutional theory, Dr. Joseph Berkson at the Mayo Clinic has stressed the number and variety of diseases which especially affect smokers and suggests that nonsmokers are a highly selected group who are "biologically self-protective" and endowed with "robustness in meeting mortal stress from disease generally." Professor Hans Eysenck at the Maudsley Hospital in London has selected the "accelerated rate of living" of cigarette smokers as a possible explanation for their higher death rates. But this hypothesis fails to account for the disproportionate increase in death rates among smokers from lung cancer compared with other causes.

There is evidence that general atmospheric pollution plays a part in causing lung cancer, for the disease is more prevalent in urban areas. That, however, does not exonerate cigarettes, because the incidence of lung cancer among the populations of urban and rural areas is still proportionate to the cigarette consumption of the individual. A striking vindication of the case against tobacco exists in statistics for the Channel Island of Jersey. Tobacco is cheap there, and the inhabitants smoke more of it per head than anywhere else on earth. They also have a death rate from lung cancer as high as that in Britain and an exceedingly high rate for women. Yet the island has no air pollution problem, and during a three-year period, no case of lung cancer was recorded in a nonsmoker.

As most other unbiased investigators have done before them, the Platt committee accepts the

statistical evidence as indicating that habitual cigarette smoking over many years is an important cause — *though not the only one* — of lung cancer. That conclusion is supported by compatible laboratory and pathological evidence that there are known carcinogens present in tobacco smoke, that skin cancer can be produced in animals by the repeated application of tobacco tar, and that microscopic changes have been found in the lining of the bronchi of smokers, of the kind that may precede the development of cancer. By implication, if the habit ceased, the death rate from lung cancer would fall to a fraction, perhaps to one fifth, or even, among men, to one tenth of the present level.

However stated, the risks run by any smoker are pretty daunting. The London scientists Doll and Hill estimate that among heavy smokers the total risk of dying for a smoker of twenty-five or more cigarettes a day is one in fourteen between the ages of thirty-five and seventy-four, and one in nine between the ages of thirty-five and eighty-four. The risk of a smoker who has discontinued the habit for ten years is considerably less than that of a continuing smoker.

With such risks in mind, the nine physicians describe several preventive measures calculated to reduce the morbidity and mortality caused by smoking.

For the confirmed smoker who has difficulty in abandoning the habit, they suggest that stubbing out every cigarette before the second half is burned would almost certainly curtail the risk. The unburned part of a cigarette acts as a filter, so that as the cigarette burns down, smoke condensed in the second part is redistilled. In that way, the smoke from the second half contains a higher and steadily increasing concentration of potentially toxic substances than the smoke from the first half. Therefore, throw the more dangerous half away.

An obvious way to remove the harmful substances from tobacco smoke is to fit cigarettes with efficient filter plugs. Technically speaking, the manufacturer could make plugs to remove all the smoke, but the resulting "draw resistance" would not satisfy the consumer. Cigarettes with increasing filtration efficiency are being introduced in the United States, and after serious sales resistance at first are becoming more widely accepted. In recent years there has been a great increase in sales of filter-tipped cigarettes in Britain. From information supplied to them by the Tobacco Manufacturers' Standing Committee, the authors of the report say that present-day filters have a greater efficiency than the corresponding length of tobacco in a plain cigarette. About 18 percent of smoke particles are retained in a tobacco stub

of average length (18 mm), whereas 25 percent was the average retention by the filter alone from twenty representative tipped brands tested by the industry.

ALTHOUGH the British press during the previous twelve years had published all the important developments linking lung cancer with cigarettes, the somber facts have had little apparent effect on the smoking habits of the general public. Indeed, sales of cigarettes continued to soar. Yet there was a feeling in Fleet Street that the Platt report might finally stimulate the government to take some positive measures to deter people from killing themselves with tobacco. Without exception, the newspapers gave the physicians' booklet full coverage — even where it obviously hurt to say anything impolite about the tobacco industry. The British Broadcasting Corporation, which carries no advertising matter, had one of the nine physicians explain the grim facts on its influential dinnertime television program called *Tonight*; the secretary of the doctors' committee, who is a skilled broadcaster, gave an impressive denunciation of smoking on the program *This Week*, run by one of the independent television companies that flourish on advertising.

In reply to the doctors' charges, spokesmen of the tobacco industry said that the evidence summarized in the report was well known and added little to that quoted by the Medical Research Council in 1957. Moreover, they asserted that the report produced an incomplete assessment of the problems involved by deferring consideration of air pollution. They claimed that there is a growing body of evidence that smoking has pharmacological and psychological effects that are of real value to smokers, but they did not specify what these properties were. As only a minority of even heavy smokers contract lung cancer or chronic bronchitis, the manufacturers say there may well be predisposing factors in both smokers and non-smokers who contract these diseases. They therefore suggest that a study of environment and personal characteristics, as well as past medical histories, might throw new light on these diseases. Further investigation into the chemistry and biological effects of tobacco smoke is also required, so as to identify and eliminate any substance in smoke that may be injurious to health.

Dealing with the doctors' recommendation that the advertising of tobacco goods should be restricted, the Tobacco Advisory Committee said that the manufacturers' expenditure in the press and television is devoted entirely to competitive brand advertising; furthermore, it is only about half the national average spent in these media in

relation to retail sales. They emphasized that the cigarette tax in Britain — 46 cents on a 63-cent pack — is already the highest in the world. Any further increase would penalize the many millions who derive pleasure and solace from smoking and who do not develop lung cancer. On the question of analyzing the contents of cigarette smoke and marking the results on the package, the industry declared it would strongly oppose this proposal, since the harmful constituents, if any, are not known.

There were, however, detectable signs of anxiety after the dire effects of smoking on health were thrashed out on the BBC's *Panorama*, a television feature reaching almost nine million viewers in the evening. It was followed by a bout of small selling orders on the Stock Exchange which began to depress the prices of tobacco company shares.

The decline was not arrested by what the Minister of Health had to say when he stood up in the House of Commons to answer questions about the physicians' recommendations. Enoch Powell, a nonsmoker by conversion, said the government accepted the Royal College's report as demonstrating "authoritatively and crushingly" the causal connection between smoking and lung cancer, and the more general hazards to health of smoking. Both he and his counterpart in Scotland would ask local health authorities to use all channels of health education to publicize the risks. They were giving the health authorities guidance and free publicity material and would support the report in every possible way.

Simultaneously, Sir David Eccles, Minister of Education, sent a circular letter to all the country's local education authorities urging them to warn children and young people of the risks from smoking and to dissuade them from forming the smoking habit. He asked the teachers to seize every opportunity to secure the support of parents in discouraging smoking by their children.

Next day, the first of 400,000 posters were sent out by the Health Ministry. On them the word "Danger" is printed in red on a black background with a smoldering cigarette on one side and the caption "You have been warned." The posters are supplied with any one of three cautionary messages stating the risks from smoking. But they are curiously small, measuring only about fourteen by nine inches, whereas those advertising tobacco are often twenty by nine feet. In describing them to its 14.5 million readers, the *Daily Mirror* remarked that "the present posters are hardly likely to warn a mouse, let alone a man."

Even so, they were some indication of the way the wind was blowing. That day the Independent Television Authority, which controls all television except what comes from the BBC, decided to

investigate the effect of television advertising on smoking habits.

The most significant pronouncement on the whole subject came from the government's Lord President of Council, Viscount Hailsham, Minister of Science, in a six-and-a-half-hour debate in the House of Lords. In a sober, forceful speech he said his serious conviction was that the case against cigarettes as they are now made had been proved beyond any reasonable doubt whatever.

His suggestion was that it would be to the tobacco manufacturers' credit if they got together in their board rooms and realized that the merchandise they are selling is in its present form dangerous and, taken to any degree of excess, potentially lethal. They might consider it wise to switch their advertising to pipes, snuff, and cigars — or even consider manufacturing other things altogether. Regarding their present "agnostic" outlook, he warned the trade that it is in their own interest to recognize the truth before they are compelled to do so.

Lord Hailsham's criticism of the tobacco manufacturers' attitude toward the danger of lung cancer was taken by many to indicate that the government was finally about to do something practical to reduce the toll of lives being taken by tobacco. "Nervous" selling by small investors immediately after the delivery of Lord Hailsham's speech resulted in \$70 million being wiped off the paper value of three of the biggest companies — Imperial Tobacco, British-American, and Gallaher — in one day.

With so many recommendations by the physicians to consider, there was no knowing what the government might decide to do. A news story in *The Sunday Times* stated that the government was considering action to restrict the sale of cigarettes to children through automatic vending machines. For anyone who did not know it, the account added that under the Children and Young Persons' Act, 1933, magistrates' courts can order a shopkeeper to take precautions to prevent his automatic cigarette machine from being used by children under sixteen and can order the machine removed.

Whether or not as a result of this hint, Carreras-Rothman announced that they were withdrawing their own 800 cigarette vending machines from public places and stopping supplies to 5200 more owned by others. Annual turnover from the machines was about £1 million (\$2.8 million). In addition, the company said it would not advertise its brands of cigarettes on television until 8 P.M.

Not to be outdone, five other companies, which between them make more than 90 percent of the cigarettes sold in Britain, agreed not to advertise on television before 9 P.M., by which time it was

assumed that small fry would be in bed. The firms in question are Imperial Tobacco, Ardath, Gallaher, Wix, and Godfrey Phillips. Philip Morris followed suit the next day. That decision was less heroic than it might sound, as there is virtually no tobacco advertising on television on weekdays and none during children's programs. The manufacturers also undertook to warn traders about the law against selling tobacco to children and said they were seeking an early meeting with the government to see if the 60,000 cigarette machines, half of which are owned by the industry, should not be taken off the streets altogether.

There were other reactions to the doctors' report. In London, Manchester, and Bristol local authorities began to examine the prospects of prohibiting smoking in buses and places of public entertainment. The chairman of the British Transport Commission started a survey to see if the proportion of nonsmoking cars in trains ought not to be increased.

Sales of cigarettes fell while those of pipes boomed. A twenty-five-year-old sailor who had been in the habit of smoking ninety cigarettes daily died from lung cancer, and the Admiralty decided to review the issue of duty-free cigarettes to men in "the Senior Service." In the 280 youth hostels in England and Wales, the sale of cigarettes was banned. In Chatham a middle-aged heavy-smoking docker was so disturbed by the doctors' findings that he committed suicide. Antismoking clinics were opened, and others already there were discovered by the national press. Employees of the firm making the exotic cigarette named Balkan Sobranie were put off work for two weeks, but Players started a new three-hour shift for women in the filter-tip department.

With the government rested the power to show the most decisive reaction of all. "Why not in the coming Budget?" asked the *Lancet*, referring to the idea of making a relative increase in the tax on cigarettes. It was a thought that must have cost the Chancellor of the Exchequer many a troubled night, for the tobacco levy is about one third of the total revenue from taxation — just enough to run the entire National Health Service.

Mr. Selwyn Lloyd's hour came on April 9, when he explained carefully the administrative difficulties there would be in putting a discriminatory tax on cigarettes. He was not prepared to make a further, penal increase in the general rate of duty that would put smoking, even in moderation, out of the reach of many people of limited means. Sadly, it seemed that the resolutions of the Chancellor's fellow ministers to do battle with lung cancer were destined to failure. But the anxiety regarding the effects of cigarette smoking remains.

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