

Seductive Wiles of My Lady Nicotine

Authorities Discuss Effects of Tobacco on the Body

By IRVING FISHER

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Last year, when THE DEARBORN INDEPENDENT published an article by Luther Burbank on tobacco, certain parties charged that here was the beginning of a new prohibition crusade. Nothing was further from our mind.

Now, however, comes one who is perhaps the best-known economist in the country, Irving Fisher, professor of political economy at Yale University, whose work, "Stabilizing the Dollar," marks a great advance in economic thought—and he also has ideas on tobacco. It is at least interesting to know what a great political economist thinks of tobacco.

This and the succeeding articles have been submitted to authorities in the various fields involved, and have been approved by them.

Irving Fisher has been professor of political economy at Yale since 1898. He has also served the National Association for the Study and Prevention of Tuberculosis, and the American Association for the Study and Prevention of Infant Mortality. Among the many books he has written are: "The Purchasing Power of Money" (1911); "Why Is the Dollar Shrinking?" (1914); "Stabilizing the Dollar" (1919).

Introduction

THERE was a time when the economist felt it no concern of his how beneficial were the things that people bought with their money. He believed he should merely record the facts. It made no difference to him whether the money was spent in healthful or unhealthful ways, in moral or immoral, constructive or destructive ways.

To assess values, we must, however, inquire not only as to what people do buy, but as to what they should buy for their own best good—that is, what they would buy if they were more enlightened. Values depend, in the last analysis, on other than commercial factors. There is a vast difference in the value to society of capital spent in dark-roomed tenements, unclean dairies, adulterated food, gilded saloons, bucket shops, obscene literature and houses of prostitution, and capital invested in purifying the water supply, safeguarding milk against infection, cleaning streets, building sewers, controlling undesirable immigration and building schools and hospitals. There is a vast difference in the value to a diabetic patient of a fake patent medicine which costs him \$100 and a course of genuine and efficient insulin costing the same sum.

Our first task, then, is to discover the essential nature of tobacco. Is it wholesome like food, medicinal like quinine, noxious like opium, or harmless like chewing gum? It has been thought to be each of these four things at different times and by different men.

Blood pressure, as affected by smoking, was also investigated by Dr. Sheldon, of Cornell University Medical College Clinic, in a group of fifty-eight persons of middle or advanced life, all of whom presented hardening of the arteries with high blood pressure. In hardening of the arteries any influence modifying the blood pressure becomes a very important matter. The studies lasted more than a period of three years. The aim was to find out whether or not the use of tobacco gave rise to lasting ill effects, and whether or not those effects were uniform in different patients. It was found that the effects were not uniform. The report of the experiments states that "whereas the risk from any elevation in blood pressure increases greatly the higher the initial pressure in the patient, it is undesirable for anyone having a constant systolic pressure much above 200 millimeters to smoke, and smoking is equally undesirable for anyone having a constant initial pressure above 160 millimeters when the use of tobacco is found uniformly to produce a considerable rise in blood pressure."

Writing on the effects of cigar and cigaret smoking on certain psychological and physiological functions, Robert Lee Bates, of the Psychological Laboratory of Johns Hopkins University, summarizes as follows the results of an investigation: "The effects on healthy adult reactions, of smoking a cigar or three cigarettes, are to produce a rise in systolic and diastolic blood pressure, and in heart rate. This rise varies in amount and in



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PROFESSOR IRVING FISHER

peripheral nerves, inducing finally in the latter a mild degenerative neuritis."

Precision of muscular motions, as demonstrated by drawing a line between two closely parallel lines or lunging at a target with a fencing foil, was shown by the Fisher and Herry experiment to be definitely decreased after each smoking of a single cigar. It was also found that there was an average decrease of twelve per cent in accuracy of pitching a baseball after smoking one cigar, and a loss of 14.5 per cent after smoking two cigars. Given thirty minutes to rest after smoking their cigars, the increase in accuracy caused by this rest averaged nine per cent. The real loss due to smoking while testing was, therefore, twelve plus nine per cent, or twenty-one per cent for one cigar, and 14.5 per cent plus 9, or 23.5 per cent for two cigars. The writers concluded that clear eyes, steady nerves and muscles capable of accurate response do not go with smoking.

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Fortunately, we now have sufficient information regarding the effect of tobacco on the human body to answer these questions with confidence.

The Heart

"Toxic anginas are most frequently brought on by tobacco," is the statement of Dr. Alexander Lambert, writing in Tice's "Practice of Medicine." "There are a large number of persons in whom tobacco causes a precordial pain," Dr. Lambert states, "but this pain does not go to the severity of an anginal attack, nor does it become substernal or radiate in the usual way. Patients who suffer real angina, however, increase the number of their severe attacks by the use of tobacco." He cites instances of patients with this trouble who gave up tobacco with benefit, and of some who later took it up again with fatal results. The most frequent effect of tobacco on the heart is to cause extra systoles—that is, skipped beats—in Dr. Lambert's observation. Sir William Osler cited the cases of three friends of his, apparently strong, healthy men, all of whom died suddenly, and it would seem from the effects of tobacco on the nerves of the heart.

In an investigation made by Dr. George J. Fisher, of the International Committee of the Young Men's Christian Association, and Elmer Berry, professor of physiology of the Young Men's Christian Association at Springfield, Massachusetts, it was found that smoking raises the heart rate and the blood pressure, and that it markedly delays the return of the heart rate to normal after exercise. These effects were caused by moderate smoking, and were produced in healthy, vigorous young men in prime condition.

Effect on Circulation

M. ABEL GY, of Paris, who made a special and very extensive research, found that tobacco gives rise to a series of functional disturbances in different organs, especially the heart.

A survey of the evidence that tobacco affects the heart was made by Dr. J. H. Kellogg, superintendent of the Battle Creek Sanitarium, and the results reported in a book, entitled "Tobaccoism." All of the important experiments were reviewed by him. He found that every authority agrees that tobacco is a heart poison.

Blood Pressure

A great authority on blood pressure, the late Dr. Janeway, of Johns Hopkins Hospital, stated: "Tobacco, or its alkaloid nicotine, has a powerful action on the circulation. Nicotine, in less than overwhelming dose, produces an immense augmentation of blood pressure in animals. Cook and Briggs have called attention to the temporary elevation of arterial tension during smoking. They found it most marked when a strong cigar or an old pipe was used, and continuing an hour or more after the smoke was ended.

on certain psychological and physiological functions. Robert Lee Hales, of the Psychological Laboratory of Johns Hopkins University, summarizes as follows the results of an investigation: "The effects on healthy adult reactors, of smoking a cigar or three cigarettes, are to produce a rise in systolic and diastolic blood pressure, and in heart rate. This rise varies in amount and in rapidity from reactor to reactor, and from day to day for the same reactor."

References to the effect of tobacco on the raising of blood pressure should be very cautious, in the opinion of Dr. Eugene L. Fisk, medical director of the Life Extension Institute. He says, "Recent testimony would indicate that high blood pressure as a rule is not one of the large effects of tobacco indulgence, although in individual cases it might have a distinctly unfavorable influence on high blood pressure. My observation is that tobacco is likely to cause depression of the circulation and disturb the nervous mechanism of the heart and circulation, rather than to produce high blood pressure. Tests made by Dullin indicate that, following the smoking of a cigar or three cigarettes, there is a rise in systolic and diastolic blood pressure and in the heart rate. The rise usually amounts, however, to only a few millimeters, and is hardly greater than the normal variations which occur in the blood pressure from various causes.

Depresses the Nerves

IN A group showing high blood pressure, the proportion of excessive tobacco users was not greater than in the general group of policyholders. Similarly, in a group of excessive tobacco users, the proportion of high blood pressure cases was not greater than in the average group of policyholders. The following differences were shown, however, in the group of excessive tobacco users: There were ten per cent more cases of advanced and serious organic affections, six per cent more cases showing arterial changes, fifteen per cent more cases showing over-rapid pulse, fifteen per cent more cases showing caries of the teeth, thirteen per cent more showing recession of the gums and twenty-seven per cent more showing pyorrhea. These unfavorable mouth conditions are very commonly noted among tobacco users, and are a matter of general observation.

Arterial changes from tobacco have been noted in various experiments on animals. Gy's experiments showed that tobacco is a poison to the arterial coats, but his observation was that it acts slowly and through hypertension. From clinical observations, some of the world's best medical authorities claim that the same conditions are brought about in man by heavy smoking.

The Nervous System

The effects of tobacco upon the nervous system were investigated by L. Pierce Clark, M. D., visiting neurologist to the Raudall's Island Hospitals and Schools, and consulting neurologist at the Manhattan State Hospital in New York. "Tobacco is primarily a cardiovascular poison," he concludes. "Its acute toxic effects on the neuromuscular apparatus are, first, as an excitant and mild convulsant; second, a motor nerve depressant, and finally a paralyzant of the central and peripheral nerves of the heart and lungs. Its chronic effect on the nervous system, as yet so inaccurately studied, appeared to induce toxic congestion of the brain, spinal cord and

resting was, therefore, twelve plus nine per cent, or twenty-one per cent for one cigar, and 14.5 per cent plus 9, or 23.5 per cent for two cigars. The writers concluded that clear eyes, steady nerves and muscles capable of accurate response do not go with smoking.

Tuberculosis and Tobacco

BECAUSE of the fact that smoking is so widespread among soldiers, Dr. Fisher and Professor Berry investigated the effect of smoking on rifle shooting. They found that the men increased in efficiency after resting without smoking, and decreased in efficiency after smoking; and that the greater the amount of smoking, the greater the decrease. Comparing regular smokers with non-smokers, the smokers were found to be slightly better marksmen, but the per cent loss or gain showed the effect of resting, in the first place, and the effect of smoking, in the second case. The smokers were affected the least, in either case, the non-smokers being more efficient after resting, and losing more in efficiency after smoking.

The Eyes

Among the nicotine affections of the nerves of the brain observed by L. von Frankl-Hochwart, university lecturer on neuropathology, Vienna, the most interesting is that of the nerves of sight. Heavy smokers not seldom complain of specks before the eyes, with which symptom often, but not always, a sense of pressure in the head is associated.

Optical disorders due to a combination of tobacco and alcohol have been observed by Dr. Kellogg, but he claims that there is also a dimness of vision due purely to nicotine. Color vision for red and green is also often impaired by tobacco, he finds, as well as changes in the pupil.

Impairment of eyesight by tobacco was studied by Dr. Francis Dowling, who examined men in a tobacco factory. Their ages ranged from thirty-five to sixty-eight years. They were among the heaviest consumers in a factory. He found a gradual progressive failure of vision in both eyes, persistent contraction of both pupils generally present, and the papilla of the optic nerve more usually red in the early part of the affection. Nicotine was the cause of the mischief, in his belief.

An irritation of the mucous membrane of the eyes is also a common affection in smoking, and caused directly by the smoke.

Tuberculosis, Cancer and Other Affections

The death rate from tuberculosis is higher in the tobacco industry than in any other of 500 occupations except marble and stone cutting, says Professor Roman. Dr. Huber's observations at Columbia University led him to the conviction that unquestionably tobacco predisposes to pulmonary tuberculosis, and that when diseases of respiration have developed, the tobacco habit certainly aggravates them.

The histories of 100 cases of mouth cancer were studied by Dr. Robert Abbe, of New York, who found that there were ten women and ninety men, and that almost every man had been an inveterate smoker. In one of the worst cases of cancer of the tongue in a woman, inquiry showed that the cancer began from a

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bad tooth which had been extracted, but that she had used snuff on that side of the tongue. In thirteen cases that showed cancer of the cheek, it had been the habit of the patients to hold a quid of tobacco at the spot diseased.

Nose, throat and ear affections are promoted by smoking, according to the claims of a number of clinicians.

Acid dyspepsia is common in habitual smokers. In some cases there is a destruction of the capacity to feel hunger. Anemia is often found among excessive smokers, apparently due to the disastrous results of the tobacco poison upon the digestive system.

The truth is, tobacco lowers the whole tone of the body and decreases its vital power and resistance. This is well shown by the fact that, in surgical emergencies, patients accustomed to smoking have been observed to suffer a great handicap in their chances for recovery. This is doubtless because the poisons of tobacco tax the vital resistance and require the expenditure of power by the liver, kidneys and other organs to neutralize and eliminate the poison.

Physique

Physical measurements of students at Yale and at Amherst brought out the fact that those not using tobacco during the college course gained over the users of tobacco in weight, height, growth of chest, and lung capacity. Doctor Seaver made the tests at Yale University. He found that smokers, though averaging fifteen months older than non-smokers at entering, averaged only 1.4 kilograms heavier than the younger non-smokers, that they were 7 millimeters shorter, and also averaged 80 cubic centimeters less in lung capacity. He found non-smokers to gain during college life 10 per cent more than habitual smokers in weight, 24 per cent more in height, 26.7 per cent more in chest measurements, and 77 per cent more in lung capacity.

Dr. Hitchcock made a similar study at Amherst, and found that non-smokers increased in weight 24 per cent more than the smokers increased; that in height the non-smokers surpassed the smokers 37 per cent in their gain, and in chest girth 42 per cent. In lung capacity there was a difference of 8.36 cubic inches (that is, about 75 per cent) in favor of non-smokers, which was 3 per cent of the total average lung capacity of the class.

The influence of tobacco upon the physical and mental characteristics of 223 college students was studied by Dr. George L. Meylan, of Columbia University, who found that there was a slight advantage in the average measurements of the smokers—due, he believed, to the fact that they were eight months older—but that the average scholarship was lower.

Athletics

Professor Pack, of the University of Utah, found

boys. Business men in many other parts of the country are following their examples, the league states.

Tobacco Leads to Alcohol

The drug effects of tobacco apparently lead to a craving for other drugs, including alcohol. Dr. Alexander Lambert, one of the best authorities in the world on drug addiction, writes that many heavy drinkers who are endeavoring hopelessly to cease their periodic sprees are really cases of chronic tobacco poisoning. This is seen, he says, more frequently among the incessant cigaret smokers than among those who usually smoke a pipe or cigars, and most frequently among those who always inhale their tobacco smoke.

"You cannot break them from their periodic sprees unless you stop their smoking," Dr. Lambert asserts. "They are much poisoned by tobacco, being sensitive to nicotine, and alcohol is the quickest diffusible narcotic they can get hold of to ease their discomfort."

Longevity and Death Rate

A recent study by Dr. Albert H. Burr, on the relation of longevity to sex, is reported by him as indicating that the tobacco habit is "one of the very significant reasons why fewer men than women attain old age."

The New England Life Insurance Company published in 1911 the following data from 180,000 policyholders, covering 60 years: Where the maximum of expected deaths was 100, of tobacco abstainers only 59 died, of rare users only 71 died, of temperate users only 84 died, and of moderate users 93 died. Excessive users were

not accepted by the company. We must remember, however, that tobacco users commonly use alcohol also and have other life-shortening habits.

Summary

We see then that tobacco is injurious to the human body. It injures the heart, it disturbs the blood pressure, it poisons the nerves, it hurts the eyes, it lessens resistance to tuberculosis and other diseases, its use sometimes induces cancer, it often leads to the use of alcohol, it reduces muscular power and accuracy, it impairs working efficiency, earning power and athletic power, it stunts the growth of the young, it probably shortens life, it probably reduces fertility, it probably reduces appreciably the vigor of the offspring of the heavy smoker. In short, tobacco acts as a narcotic poison, like opium and like alcohol, though usually in a less degree.

No question seems to exist as to the harmful effects of the "excessive" use of tobacco. Habitual smokers will generally admit this fact. As to the "moderate" use, it cannot be truthfully said that such use will do more than moderate damage.

Because of individual variations, the line separating "excessive" from "moderate" is an elusive boundary, and there is always a tendency toward increasing the use; "moderate" use seldom stays moderate. From every indication, it behooves the man who wishes to keep physically fit to omit tobacco from his daily schedule.

(The mental effects of smoking, and a review of the reasons why men smoke, will be presented in the next article.)

A National Peace Carillon for America

By UTHAI VINCENT WILCOX

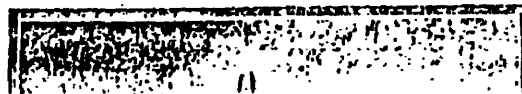
BELLS have long been associated with mystery and have even acquired a kind of sacred character. In olden times, and even now in some countries of Europe, the new bell is consecrated by appropriate ceremonial. Many believe that the ringing of these consecrated bells helps to disperse storms and pestilence, drive away enemies and bring good influences.

Plans are now completed which recognize the place of the bell in the national life of this nation. These plans will give to America a great carillon far surpassing the great carillons of the Old World. It will be erected at Washington. As is usual when this country accepts an

idea, be it new or old, it will immediately plan to make the reality either the biggest or the greatest or the most gorgeous. America wants the best.

The design of the National Campanile is typical of the nation. It consists of a great tower 360 feet high, rising from a 60-foot base. It will be built of white marble with colored stone for contrast effect. The whole is designed by Paul P. Cret who created the famous Pan-American Building that many aver is the most beautiful public building in the United States. He also designed the granite arch at Valley Forge.

This great shaft of white and colored marble, while simple in design, will be a thing of beauty and pleasure to the eye. The playing of the bells will make it an equal pleasure to the ear. Equipped with fifty-four musically perfect bells, it will be capable of playing any sort of music from simple hymns to Chopin or opera. It will lend itself to great holidays and the expression of the feelings of the nation in the times of public rejoic-



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Athletics

Professor Pack, of the University of Utah, found that tobacco-using athletes were decidedly inferior to abstainers. The following points were brought out by his investigations: (1) Only half as many smokers as non-smokers were successful in the "tryouts" for football squads. (2) In the case of able-bodied men, smoking was associated with loss in lung capacity amounting to practically ten per cent. (3) Smoking was invariably associated with low scholarship.

Smokers Versus Non-Smokers

A DIFFERENCE between smokers and non-smokers in athletics was also brought out in a study made by Dr. Meylan, who found that 41 per cent of smokers, and only 34 per cent of non-smokers achieved success in varsity athletics; but that of varsity athletes 56 per cent were smokers, as against 52 per cent of the student body; also that smokers and athletes had lower scholarship records than other students.

Smokers were only half as successful as non-smokers in athletic honors, according to studies made by Professor E. L. Clarke at Clark College.

Connie Mack, the famous baseball hero, made it a rule not to sign up baseball league men who smoked.

Clark Griffiths, as manager of the Washington Nationals, said that "any player who insists on smoking cigarettes is through."

The fact that most conscientious athletes do not smoke when "in training" shows that they realize that tobacco is injurious. They little realize, however, how great and how lasting the injury is.

Industrial Output, Business Efficiency

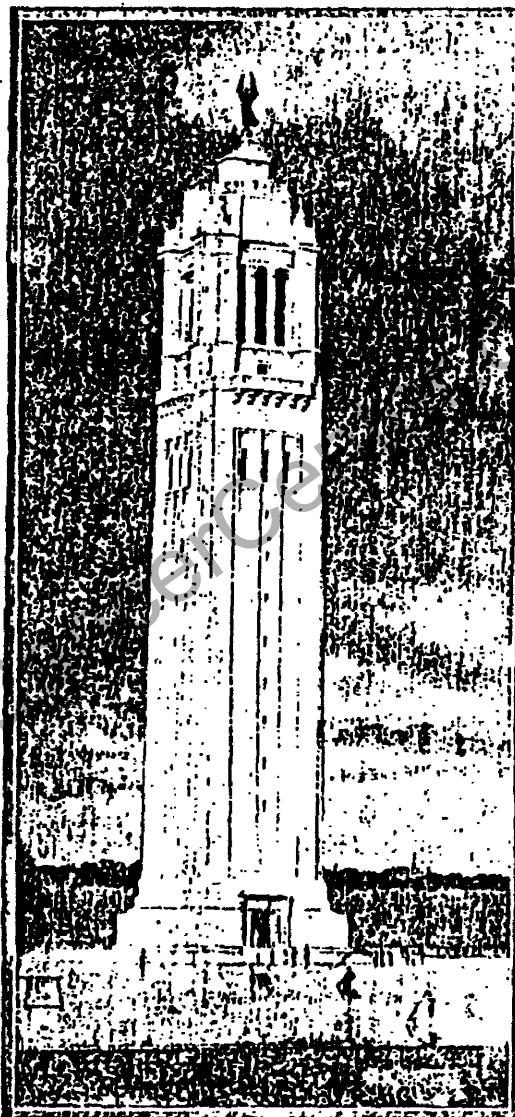
Muscular power begins to diminish 5 to 10 minutes after beginning of smoking, according to a study made by Professor W. P. Lombard, professor of physiology, of the University of Michigan. In an hour, when the cigar was burned, muscular power had fallen to about 25 per cent of its initial value. The total work of the time of depression, compared with a similar normal period, was 24.2 compared with 44.8.

An output study of users and non-users of tobacco in a strenuous physical occupation was made by J. P. Baumberger, Edna E. Perry and E. G. Martin, of the Laboratory of Physiology in Stanford University. The study was made in a large glass-bottle manufacturing plant, which operates 35 bottle-making machines and employs more than 500 persons. It was found that workers who chewed tobacco had a much lower output than those who only smoked, or who did not use tobacco in any form.

That working efficiency is lowered by cigaret smoking in the young is attested to by the fact that in Chicago, according to a bulletin of the Health Education League of Boston, there is a large organization of business men pledged not to employ any cigaret-smoking

drive away enemies and bring good influences.

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This great carillon is to be a memorial, dedicated to peace among men and to the ideals of liberty and justice. That it may be truly national in scope there will be a bell for each state and special bells for other memorials. The state bells will be dedicated and inscribed with the coat of arms of the state.

The largest bell will weigh ten tons, and will be called the Bell of the Allies in honor of the nations recently associated with America. This great bell will be tuned to E flat. When men from these nations visit Washington, symphonies in this key and played on this bell will be given.

Ascending in the chromatic scale will be the bells of the states. The smallest bell will weigh under twenty pounds and be pitched to A flat. With the fifty-four bells there will be a range of four and one-half octaves. Each bell will be carefully cast, tuned to a single vibration, and will have five tones—the main tone, three overtones and one undertone. Thus with 54 bells there will be 270 tones that are perfectly matched.

To most Americans unused to bell music the first reaction is to protest that bells are all right but that it is just a bit childish to expect much from the ringing of bells. Yet in Europe, in such countries as England, Belgium and Holland, carillons are fairly common, and it is not unusual for thousands of persons to hear operas and concerts played by the great bell masters. There are such men as Professor Brees, who climbs 450 steps of the great tower of Antwerp Cathedral each day to play the bells to which thousands reverently listen, and Sir Edward Elgar, the noted musician, who has composed many famous carillon pieces.

There are an almost endless number of changes that can be rung on a peal. Such a carillon would hardly have been possible in early times when the casting of bells and the obtaining of definite tones were left more nearly to chance. Bell makers of today regulate the pitch by the thickness of the striking part in proportion to the diameter. Working by such mathematical rules, perfect instruments of music are now produced.

On such a national occasion as Lincoln's birthday it will be possible to have some master carillon player reproduce the favorite hymns of the great President. Not only will the residents of the capital be able to hear such music, but, by means of the radio, a whole nation will have the opportunity of listening.

As a national memorial the carillon will also be democratic, for each day at morning, noon and night it will, by means of an automatic arrangement, render selections from the world's masterpieces. It will thus contribute to that ideal wherein good music shall be popular and popular music good.

The cost of the National Peace Carillon is estimated at \$3,000,000.