

SHALL WE USE TOBACCO?

The increase in tobacco using is astounding. In the past eighteen years, it has been 2,000%. And whereas America used 7,000,000,000 cigarettes a year before the war, she now uses 60,000,000,000.

by
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BYOND question or doubt, tobacco to-day represents one of the greatest of all menaces to the physical, mental, and moral stability of the human race. Of more recent discovery, tobacco escapes the direct scathing denunciation that alcohol receives in Holy Writ. In the years that reformatory attention has been directed toward the abatement of the alcohol menace, the equally degenerating tobacco habit has been fastening its death-dealing grip more and more firmly upon an ever-increasing army of victims.

Because of its more subtle deception, the effects of tobacco have not been so visibly manifest as have those of its criminal copartner, alcohol. But for some years now, tobacco has been dragged into the limelight of thorough scientific investigation; and as it is studied from absolutely every angle, and one after another of the masks in which it has paraded is torn off, its true nature and its frightfully destructive powers become more and more apparent.

A "Committee of Fifty to Study the Tobacco Problem," many of whom are among the ablest scientists in the world, are now busily engaged in investigating every phase of the tobacco question. Some of their observations and conclusions are already available; and in due time, all the findings will be published to the world.

The tobacco habit probably originated in China. Tobacco was used in Persia as far back as the year 1260. The smoking of tobacco has been practiced in China, Hindustan, Burma, and

other countries of the East, for many centuries. Sir Walter Raleigh was responsible for the introduction of tobacco into England. He acquired the habit of smoking through contact with the North American Indians.

Many kings and governors have attempted to restrain the consumption of tobacco, by various edicts. The sultan of Turkey, Amurath IV, condemned to death those found guilty of smoking. In Russia, smoking was prohibited, the first offense being punishable by the knout, and the second offense by death or by the cutting off of the noses of the smokers. King James I had a strong dislike of smoking, as shown in the following extract from his famous "Counterblaste": "Surely smoking becomes a kitchen far better than a dining chamber, and yet it makes a kitchen oftentimes in the inward parts of men, soyling and infecting them with an unctuous and oily kind of soote, as hath been found in some great tobacco takers, that after their death were opened."

The tobacco habit has spread to every civilized and almost every uncivilized country of the world. It is now indulged by more than seven hundred million people, or half the population of the entire world. In Russia, it is practically universal from the cradle to the grave. The rapidity of the growth of this habit, particularly within the last few years, is almost beyond belief. This is especially true in the United States.

The per capita consumption of tobacco in the United States in 1880 was 80 ounces. In 1920, the per capita consumption was 180 ounces. A table compiled by the Census Bureau shows the enormous increase in the cigarette habit. In 1902, there were manufactured in this country 2,971,360,447 cigarettes; and in 1920, 62,000,000,000, or an increase, in eighteen years, of more than 2,000%, 46,000,000,000 of them consumed in this country, or an average of about 460 cigarettes for every man, woman, and child in the United States.

The Poisons Found in Tobacco

The list of virulent poisons found in tobacco leaf, and those generated in the burning of tobacco, seems almost incredible. Chief among the poisons are nicotine, furfurole, collidine, prussic acid, carbon monoxide, and ammonia.

Nicotine is one of the most violent poisons known, closely resembling prussic acid. All animals rapidly succumb to its effects, in whatever way it is administered, whether by the intestinal canal, under the skin, or in a wound, the animal being quickly overcome, and dying in excessively severe convulsions.

According to the *British Medical Journal*, cigar smoke contains less nicotine than smoke from a pipe, because the nicotine is condensed in the cigar stump, until, as shown by analysis, the stump contains five times the original amount of nicotine. A cigarette, when smoked, gives off more than a half grain of nicotine. As observed by Dr. Spitzka, inhalation of cigarette smoke results in the absorption of as much as 79% of the nicotine contained in the smoke. The black, semiliquid matter condensed in the interior of pipes contains nicotine in large quantities.

Furfurole is an aldehyde — that is, a liquid intermediate between an alcohol and an acid. Smoking tobacco causes the conversion of the alcohol in the tobacco into an aldehyde, of which furfurole is the most prominent and poisonous. Aldehydes are very volatile and poisonous. When in contact with the mucous membrane of the mouth and the nose, they enter and invade the blood streams much more readily even than nicotine.

Furfurole is one of the most poisonous of the toxic agents in cheap, immature whisky. There is as much furfurole in one Virginia cigarette smoked as in two fluid ounces of whisky. From the standpoint of poisonous properties, furfurole is a drug of extreme danger. It is fully fifty times as poisonous as alcohol, and even in very small doses, causes symptoms of transient irritation. Larger doses produce convulsions closely resembling those of epilepsy. The Virginia cigarette is seen to be more harmful than its worst enemies had pictured it.

Collidine is a liquid of very penetrating odor, being the principal substance giving the odor to tobacco. It is an alkaloid as poisonous as nicotine. The twentieth part of a drop will quickly kill a frog. If breathed for a few seconds, as shown by Le Bon, who isolated collidine, it produces muscular feebleness and vertigo.

Prussic acid is the most powerful poison known. To the presence of prussic acid in the tobacco, certain phenomena are due; namely, vertigo, headache, and nausea.

What Makes the Heart Beat Faster

Carbon monoxide is another element of danger to the smoker. This is the same gas that causes deposit in the cylinders of automobiles, and the foul-smelling fumes from their exhausts. The cigar smoker, by keeping his cigar in his mouth when he talks and breathes, interferes with its burning, because the saliva runs along the filler, and dampens the inside of the cigar. The imperfect combustion results in the production of carbon monoxide. This is a highly active blood poison. It destroys the red

cells of the blood, and also prevents their absorbing oxygen, which is so necessary in the nourishment of the cells of the body, thus producing a condition closely akin to suffocation.

Numerous experiments have shown very conclusively that tobacco smoke greatly diminishes the vitality of plants, as evinced by the thinness of the stem, the assuming of a horizontal or inclined position, and by the peculiar morbid appearance the plant exhibited.

Molisch experimented upon low forms of animal life, and found that tobacco exerts a more deadly influence upon these organisms than upon plants.

Good for Lice, Ticks, Pigs, and Poultry

The editor of the *Scientific American* makes this observation in commenting upon these experiments: "If the living substance of plants and the minutest animals is so strongly affected by very small doses of tobacco smoke, it is hardly credible that saturation of the mouth and organs of respiration with tobacco smoke, continued many years, can be entirely free from injurious effects." The learned Dr. Harvey W. Wiley, in *Good Housekeeping*, remarked, "I can say only one good thing about tobacco, and that is, a decoction of tobacco is speedy death to lice and ticks, and makes an ideal dip for pigs and poultry."

With the number of virulent poisons demonstrated to be contained in tobacco, it is utterly impossible for the body of the smoker to escape the physical and mental deterioration and degeneration that the filthy habit involves. From the nausea, pallor, giddiness, and muscular weakness that come so promptly as an accompaniment of the first smoke, to the day of the habitual smoker's death, the poisoning process goes on insidiously, but none the less certainly. There is not a cell or tissue of the body that escapes the baneful, pernicious influence of tobacco poison.

The age-worn and musty story that John Smith smoked all his life and died at eighty or ninety, has no weight in argument. He was simply, as Sam Jones said, "uncommonly tough." He is the old devil's "exhibit A" to divert attention from the myriads who have gone to premature graves via the nicotine route. The tobacco habit has unquestionably been a large contributing factor in maintaining the present frightfully high mortality in the world from easily preventable disease. Frederick Hoffman, the greatest statistician of all times, has collected volumes of data convincingly proving that fewer people are attaining old

age, and that deaths from diseases due to tissue degeneracy, such as insanity and kidney, liver, and heart disease, are easily maintaining the death rate up to and beyond the point where it was when death-dealing scourges from acute infections swept the world. To be somewhat more specific, we will note —

Effects of Tobacco upon the Heart and the Blood Vessels

Experiments undertaken upon animals demonstrate the constant production of hardening of the arteries. Bylac injected daily, for thirty-eight days, twelve drops of a ten per cent infusion of tobacco into the veins of a rabbit. The rabbit developed arteriosclerosis — that is, hardening of the arteries — and degeneration of the aorta, evidenced by the production of aneurysm.

Boveri produced arteriosclerosis in ten rabbits out of sixteen. Brooks made post-mortem examinations of fifty-four tobacco users, and found damaged heart muscle in nearly every case. "Smoker's heart" is recognized by all physicians, with its characteristic symptoms of rapid and irregular action accompanied by pain and shortness of breath.

The heart does a prodigious amount of work, equal to the lifting of one hundred twenty foot tons daily. A very small dose of tobacco increases the work of the heart by contracting the arteries and raising the blood pressure. Janeway has shown that a single cigarette or cigar causes a rise of blood pressure ten to fifteen points. This means an increase in the working of the heart amounting to more than ten per cent, or a total of ten tons of work thrown away; and continued smoking makes this effect permanent, until the work of the heart is more than doubled.

Dr. Daniel Lichty says: "High blood pressure will account for some of the flights of genius and descents into iniquity of some great minds otherwise blameless. Tobacco toxæmia is more to blame than alcohol. A man usually knows when he is drunk, but rarely knows when he is tobacco inebriated."

The late Lauder Brunton, a most eminent English physician, said: "Tobacco seems to bring on an affection of the heart characterized by extraordinary irregularity. A curious point about it is that very little tobacco will keep up this irritability."

It has been demonstrated that tobacco destroys red blood cells, thus tending to anæmia, and also disintegrates the white blood cells, the chief defenders of the body against invasion by disease germs.

Tobacco and the Kidneys

There is doubtless a very close connection between the great increase in kidney disease and the use of tobacco in recent years; and it is significant that the increase of deaths from Bright's disease has been greater among men than among women, in spite of the great extra tax thrown upon a woman's kidneys incident to childbearing. Analysis of the urine of smokers shows a very constant result of about ten per cent suffering from Bright's disease.

Tobacco and the Brain and the Nerves

Insanity has increased more than three hundred per cent in the last fifty years. There are over 300,000 insane people confined in the asylums of this country, and an equal number of feeble-minded children in institutions caring for this class of defectives. The three chief factors in this form of tissue degeneracy are alcohol, tobacco, and diseases of immorality.

The more delicate the instruments of precision perfected for measuring the effect of nicotine upon the brain and the nerves, the more apparent it becomes that tobacco damages the fine structures of the brain, diminishing the acuteness of thought, quickness, and accuracy, and ability to make the nicer discriminations and distinctions of life.

A series of interesting experiments recently undertaken by Fisher and Berry at Columbia University show conclusively the physical effects of smoking on neuromuscular precision. The results were a surprise to all who had any part in them, and are all the more impressive because there was no effort to establish any preconceived theory. For details, the reader is referred to Fisher and Berry's book "The Physical Effect of Smoking." In their conclusions, they state that "all smokers showed a loss in physical precision immediately after smoking. Five of the seven smokers showed improvement during the interval when not smoking. Smokers showed a greater lack of neuromuscular control after exercise than non-smokers. Non-smokers showed the greatest loss in physical precision after smoking."

Fisher and Berry further say: "The experimenters have returned results remarkable for their uniformity and general consistency, showing that smoking raises the heart rate and blood pressure, that it markedly delays the return of the heart rate to normal after exercise, and that it impairs the neuromuscular control as indicated by delicate finger exercises and gross muscular coördination. The results seem hardly believable. On the other hand, we are forced to accept them. There

is no escape from the firm, steady, scientific insistence of the figures. If these results are true and accurate, it is high time that our young men be aware of the truth. If such results are produced on healthy, vigorous young men in prime condition by moderate smoking, what is the effect of the widespread use of tobacco upon the manhood of our land?"

Space forbids more than mere mention of tobacco blindness, tobacco deafness, smoker's sore throat, tobacco neurosthenia, and smoker's consumption.

Smoking Affects the Smoker's Children

We must note for a moment the hereditary effect of tobacco, by way of emphasizing that "no man liveth unto himself," and that no man or woman can rightfully form any habit that deprives their offspring of the inalienable right to be well born.

Dr. Herbert H. Tidswell, member of the Royal College of Surgeons of England, made some most interesting and enlightening studies and observations relative to the hereditary influences transmitted by smokers to their offspring. These observations will be all the more significant in the future, in the light of the enormous increase in the use of tobacco by women. Dr. Tidswell noted that to a thousand women, wives of non-smokers, there were born 7,362 live children, with 394 miscarriages and 210 stillbirths. To a thousand women, wives of smokers, there were born 6,859 live-born children, with 1,035 miscarriages and 263 stillbirths. This table clearly shows that the low birth rate was not attributable to lack of fertility among the wives, as the number of conceptions among the wives of smokers was 191 greater; but in the birth rate of mature infants, there was a deficiency of 503. In other words, the number of miscarriages among the wives of smokers was nearly three times as great as that among the wives of non-smokers, and the stillbirths were 53 more. The husbands and wives in these two classes were strictly on a par healthwise with the exception of the use of tobacco, great pains having been taken to exclude syphilis, alcohol, tuberculosis, and other elements which might ordinarily enter in.

If these figures be multiplied in terms of the entire population, it will be comparatively easy to compute the terrible loss to every nation in the number of births, and offer a ready explanation of the great decline in the birth rate so apparent in every country. The decrease in the annual birth rate in the United States has been one per cent a year for the last two decades.

Another very striking feature, too, is the difference in mortality rate among the children of smokers and non-smokers. The

mortality rate for 1,000 children during the first four years of life among children of non-smokers was 153, and that of smokers was 227, a difference of 74. Again multiplying in terms of nations, what a frightfully increased mortality there is among children because of this one factor alone, giving conclusive evidence of a vicious heredity transmitted by a smoking father to his child.

In the light of the great array of accumulating facts as to the destructive, degenerating, and demoralizing effects of tobacco, it is inconceivable that any human being with a love for genuine life, in the pursuit of real happiness, and with any proper conception of his duty to his family, to his fellow men, to the world, and to his God, could longer spoil his body and stain his soul by the filthy practice of tobacco using.

The Devil's Smoke Screen

The psychology of what Dr. Kellogg calls the "pipe dreams" is strikingly pictured by Dr. Tracy in the *Medical Review of Reviews* of December, 1917, where he says: "Tobacco intoxication is an egotistic narcosis. Tobacco makes the user feel like parading the narcosis and the manner and act of taking the narcotic. Tobacco narcotism is a grandeur narcosis. It is intrusive and obtrusive. It is good-naturedly aggressive. It is so care-freeing to its user that it creates the impression that those with whom the user comes in contact are also free from care. It creates the impression that that which is so pleasant to the user is without question pleasant to everyone else. In the narcosis there is not the least thought of possible impropriety in its use, or in anything connected with its use. And in still less degree is there anything like self-censure. So far, in fact, does this grandeur impression carry, that to the user of tobacco any opposition to its use at once suggests that there is mental abnormality in those who would interfere with the practice."

The most weighty of all arguments against tobacco is that it defiles the soul temple, and benumbs the nerves, the only avenue of communication between a soul and the divine Spirit. Tobacco is undoubtedly one of the most efficient means in the hands of the devil in separating a man from his God. It is the literal smoke screen he throws out lest "they should see with their eyes, and hear with their ears, and should understand with their heart, and should be converted." "Know ye not that your body is the temple of the Holy Ghost?" "What man is he that desireth life, and loveth many days, that he may see good? . . . Depart from evil, and do good."