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1888

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"On the Effects of Tobacco on those using it as  
a Luxury."

a Thesis for the Degree of  
Doctor of Medicine

of

Edinburgh University

by

George Franklin Shields M.B.; F.R.C.S.E. (exam)

"On The Effects of Tobacco on those using it as a Luxury"

In choosing this for the subject of my Thesis I have been greatly influenced by the fact that in England, Germany, France, and most of all in the United States of America, it has been the cause of a great deal of controversy both among the medical and general public. The diversity of opinion is most marked. One class of observers look upon the effects of tobacco as highly injurious, another class takes a distinctly opposite view, while a third takes up its position between these two extremes. In spite of the writing in Medical Journals and Daily Newspapers, and the lecturing and arguments which have taken place, it would seem that not even an approximately definite conclusion has been arrived at.

Though I can not hope to add, in any considerable degree, to the large fund of information which is at present in our possession, still by analysing this information carefully and adding the results of some personal investigation I trust that what follows may in some slight measure, be of assistance in helping us to estimate more exactly the light in which we should regard tobacco as an article of everyday use by a large proportion of the inhabitants of nearly every country civilized and uncivilized.

It is not intended to go deeply into the Source, Chemical Composition and manufacture of tobacco; nevertheless it is deemed necessary to devote a short space to the consideration of these points before passing on to our Subject proper, as it may be of help in guiding us to a more correct result in our investigation. First then let us take up,

### The Botanical Sources, Culture, and Manufacture of Tobacco.

Tobacco is the plant and dried leaves of the *Nicotiana tabacum*, and other species of the *Nicotiana*, a genus of the Solanaceae. The name of the genus was derived from Nicot, a French ambassador to Portugal, who in 1560 sent the seeds from Lisbon to France stating them to be those of a plant of great medicinal value, which had been long used in Portugal. The specific botanical name was derived from "tobago" or "tobaco", the native term in Santo Domingo for the tube or pipe through which the smoke from the burning leaves was inhaled.

The genus *Nicotiana* is mostly American, there being some fifty species, mainly herbs with leaves and stems covered with viscid hairs. The calyx is tubular bell-shaped and five lobed: the corolla funnel shaped with a five lobed limb: the stamens are five inserted on and included by the corolla:

the Ovary is two celled and ripens into a two celled Capsule surrounded by the persistent calyx: the Seeds are small, rounded and kidney shaped: the leaves are oblong, lance-shaped and decrease in size toward the Summit of the plant.

In addition to being grown in America, tobacco is cultivated in most of the Southern European countries, Asia, China, and of late it has been grown with success in England and Canada; the *Nicotiana Rustica* being chosen as it is more hardy than the *Nicotiana Tabacum*.

In the Cultivation, the first Step is to sow the Seeds in a seed bed. A spot with a warm exposure and sheltered from the wind is chosen and is richly manured, ploughed and finally raked. On this the Seed, which is very fine, is sowed after having been mixed with sand, ashes, or lime to aid its distribution. After sowing the bed has to be carefully watched, being covered, on cold nights, with mats, and guarded against the inroads of destructive insects. When the plants are about four inches high they are transplanted to a field which has been prepared by the richest manuring and artificial fertilization, as tobacco is a most exhausting crop. The plants average from 4000

to 7000 per acre according to their size. The transplanting is done in cloudy weather, and during the remainder of their growth they receive the utmost attention, the leaves touching the ground being broken off "Priming", the tops are cut off to prevent the strength of the plant going to the flower and seed. "Topping" and buds which appear in the axils of the leaves are removed until they cease to grow "Puckering".

The maturity of the crop is judged of by the feel and colour of the leaves, over-maturity being a worse fault than the opposite condition. When mature the plant is cut down and left lying until it has wilted enough to allow of being banded without injury, but not long enough to become sun-burned.

The plants are now removed to the tobacco houses which are thoroughly ventilated; and where the ventilation is under complete control. Here the tobacco is hung on poles, with the tops downward and sufficiently apart to prevent the leaves touching, until "cured" which takes about twelve weeks. Next they are taken down and the leaves are stripped and assorted, being done up in bunches weighing three or four

ounces which are called "hands". Up to this stage the tobacco is simply the dried leaf and lacks the aroma and other qualities which are brought out by fermentation or "conditioning". This is done by "bulking" or piling up the "hands" on a platform, covering them and pressing them together with weights into bales. It takes from four to six weeks to bring out the desired colour and flavour when the tobacco is ready for the market.

The first step in the manufacture of tobacco in all cases is "stripping" which is the act of dexterously removing the mid-rib or "stem" without injuring the thin leaf. In doing this the hands of the workers, and in many cases the leaf is moistened to prevent its breaking. The "stems" are used for the poorer kinds of cut tobacco and snuff, or for making sheep-slips, or fumigating greenhouses. The leaves are used in various ways. Some are made into rolls, slightly pressed and sold thus to the consumer. More usually they are, by the help of molasses, decoction of figs, or glycerine and water, made into plugs or cakes. Many kinds are flavoured with Cascailla bark, wild vanilla, or other odorous plant, the tobacco being steeped in solutions of them. These plugs are either sold as they are, or

are made into the various kinds of cut tobacco. When cigars are to be made, the more perfect leaves are chosen for "wrappers" while the coarser are used for "fillers." The cigar having been shaped by taking up enough tobacco to give it the necessary size and weight, it is rolled up in its wrapper by a dexterous movement of the hand, which at the same time gives it the necessary taper. After this it is placed in a press until set when it is ready for sale. Cigarettes are made by rolling the cut tobacco in thin tissue paper cases, the paper used being of a very fine quality. Snuff is made by grinding the tobacco into a fine powder either in the dry or moist state.

In the adulteration of tobacco the following substances are used. Molasses, Sugar, Honey, Rhubarb, the birch, the walnut, morses, bran, beet-root, drugs, liquorice, resin, yellow ochre, fuller's earth, sand, salt petre, and common salt. These adulterations are however not so much used as the practice of making tobacco of a poor grade appear and taste like that of a finer quality.

\* In writing this paragraph help has been derived from the article on tobacco in the American Cyclopedic and from information kindly given me by various cigar manufacturers and tobacco merchants.

The Physical properties and Chemical composition of Tobacco.

As it occurs in commerce tobacco is of a yellowish brown colour with a strong heavy peculiar odour, and has a bitter, acrid, nauseating taste. All these properties are imparted to water, and to alcohol, though some of them are lost by boiling.

Vauquelin was the first to make an analysis of tobacco in 1809. He discovered among other ingredients, an acrid, volatile, colourless, oily liquid, slightly soluble in water, and completely so in alcohol. His process was a complex one, but the chief step was the distillation of the juice of tobacco with caustic potash.

Kernstadt also found this principle, and in addition another substance which was volatile, but lacked the acrid properties of Nicotin. This he named Nicotianin. It partakes of the characters of the volatile oils, and is commonly called tobacco camphor. It is said to be the odorous principle of the plant.

Posselt and Reimarus were the first to thoroughly isolate Nicotin ( $C_{10}H_{14}O_2$ ), and to discover its alkaline properties. It is the active principle of the plant. As there seems to have been no very considerable change since their analysis, it may

not be amiss to give their Accents.

In 10,000 parts of the green leaf.

6	parts of Nicotin	26	parts of Albumen
1	" " Nicotianin	26.4	" " a Green Resin
287	" " a slightly bitter extractive	51	" " Mallic Acid
174	" " Gum mixed with malate of Calcium.	8.8	" " Silica
		16.6	" " Phosphate of Calcium
104	" " Substance analogous to Glutin	24.2	" " Lime combined with Acids
12	" " Malate of Ammonium	496.9	" " Sugar
4.8	" " Sulphate of Potassium	7	parts " Starch
6.3	" " Chloride of Potassium		and
9.5	" " Potash combined with Mallic and Nitric Acids	8828	" " Water.

Of all these Substances Nicotin, the alkaloid and active principle, has naturally been the object of the most investigation. The proportion of it in the different tobaccos has been variously estimated.

Orfila (Memoir on Tobacco) places it at 2 per cent in Havana, 2.3 per cent in Maryland, and 6.9 per cent in Virginia. Henry and Burton found it average from 3.8 to 11.28 per cent in the different varieties. Taking an average of the various opinions, it may be said to lie between 2 and 8 per cent, Havana containing the least, while tobacco, grown in the Province of the Lot in France, contains the most of the Alkaloid. It is worthy of note that the growers of tobacco have it always in view to lessen the amount, so that the best tobacco contains the least Nicotin.

On dry, or destructive distillation, and in burning, tobacco yields an empyreumatic

oil of a dark brown colour, and the consistence of Syrup. It is said to contain a large percentage of Nicotin. It has the odour of an old pipe, and is exceedingly penetrating, as all smokers have observed on cleaning a pipe which has been much used. Its taste is acrid and disagreeable.

When burned tobacco leaves a large quantity of ash, amounting to from 16 to 27 per cent. Wolff found on burning 1000 parts of the dried leaves, 197.5 parts of ash, consisting of Potash, Soda, magnesia, lime, phosphoric acid, Sulphuric acid, Silica, Chlorine, and nitrates. On learning this we can not wonder at the call it makes on the soil when growing.

The smoke of tobacco has been analysed by many. Zeise in 1843, and M.M. Vohl and Eulenbeng, came to the conclusion that it does not contain Nicotin, but most of those who have written on the subject more recently, affirm that it does. In addition to Nicotin it contains the Empyrenumatic oil, Nicotianin, Salts of Ammonia, Sulphuretted Hydrogen, Several volatile fatty acids, creosote and phenol, some adding Hydrocyanic acid.

# Sources of information: "American Encyclopedia". "United States Dispensatory". "Handbook of Materia Medica" (Garrod). "Christison on Poisons". "Hinds on the Use of Tobacco".

Having briefly glanced at the sources, culture, and chemical composition of tobacco, let us pass on to the consideration of the uses to which it has been put medicinally, and its physiological action when used experimentally, and finally let us give our attention to the effects it produces upon those using it as a luxury.

### Medical Uses and Physiological Action of Tobacco.

#### Medical Uses.

There is but one official preparation of Tobacco in the British Pharmacopoeia, the *Emula Tabacci*. This was used before the introduction of Chloroform, to assist in the reduction of Hernia, and in the treatment of intestinal obstruction. In addition it has been used in decoctions and Salves for the cure of parasitic skin diseases, and is contained in cigarettes for Asthmatics. Though tobacco must be looked on as a drug of some power, still its dangerous properties, and the untoward results which have followed its application, have rightfully thrown it out of use as a therapeutic agent. I will state here, that it has not infrequently played the roll of a toxicological agent, as is witnessed by the following cases.

Panteuil the French Poet lost his life by some of his friends jokingly emptying his snuff box into his wine. He was seized by violent vomiting and pain and died in fourteen hours.

Externally a decoction of tobacco applied to the head of a boy for *Tinea Capitis* caused his death in three hours (Beck medical jurisprudence).

A man who had taken an unknown quantity of Nicotin, dropped to the floor senseless, gave a deep sigh and was dead in three minutes (Taylor)

Orfila relates the case of Count de Borarimé who was condemned to death for poisoning his brother-in-law with this substance.

Cases occur every now and then where children have been poisoned by sucking the stems of old pipes, and I recently, in my reading, came over a case where a child drank the contents of a glass which contained the juice from a pipe which his father had been cleaning out. He was violently affected, vomiting and being much collapsed, but recovered on the use of emetics followed by demulcent drinks.

## II

Physiological Action

(a) Of Tobacco. When administered to animals, and when taken by those unaccustomed to its use, it acts as a powerful depressant, and is followed by nausea and sickness, accompanied by a feeling of faintness, weakness, and dizziness; when the quantity is larger there is confusion of the ideas, and dimness of the sight, followed by a cold clammy skin, and a rapid feeble pulse, and profuse perspiration: Should the amount be still larger, all these symptoms are increased, with the addition of muscular cramps leading to paralysis, pumping, and finally complete collapse, ending in death from paralysis of the respiration. I have noticed in experimenting myself that there is a great increase in the flow of saliva before the other symptoms began. My experiments were made by chewing tobacco and swallowing the juice. From inadvertently swallowing the juice from the stem of an old pipe, I have had the same symptoms, with the addition of a burning feeling in the pharynx and oesophagus.

When applied externally tobacco acts as an irritant, and as we have already seen may produce all the symptoms of poisoning.

When applied to the eye, it causes

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contraction of the pupil. This result also follows when it is administered internally.

? It must be acknowledged that the prolonged use of tobacco produces tolerance to a very marked degree; this is well instanced by those who chew tobacco and swallow the juice continually, without feeling any of the symptoms above mentioned.

It will be noticed that I have purposely avoided speaking of the physiological action of tobacco smoke, as I desire to refer to it in a later part of my thesis.

(b) Nicotine. The effects of nicotine are very similar to those of tobacco, so markedly so, that it must be considered its main active principle.

Applied externally it produces great local irritation.

When administered to frogs it produces tetanic convulsions, and after a time complete muscular relaxation followed by paralysis. When the dose is toxic, death is caused by paralysis of the respiration.

On warm-blooded animals, the action is the same. The animal staggers about and becomes weak. The breathing is increased in rapidity. There are twitchings and tremblings, which become convulsions on the slightest stimulus. The urine

and faeces are sometimes voided. Pouspiration is excited. In cats there is profuse salivation. The pupils are contracted. Krocker states that there is first contraction, followed by dilatation, but that the pupil does not return to its normal size. Death occurs by paralysis of the respiration, as the heart continues to beat after it has ceased. This has been disputed. After death the nervous system is found to be engorged.

To get a clearer idea of its action on the different organs let us consider them separately.

Brain and Nervous System. Its action on the brain is not clearly made out, when it was removed the convulsions took place as when it was present. The cause of the tetanus does not seem to be of peripheral origin passing centrally, for when the arteries of a limb were tied it did not prevent their occurrence. On the other hand, when the motor nerves were divided the convulsions ceased (Vulpian). The action would appear to be on the spinal cord, in this the observers Vulpian, Rosenthal and Krocker are all agreed, and they are supported by the results of the experiments of others. The peripheral ends of the nerves are affected sooner than the parts nearer the center. All observers are agreed that the motor nervous action is finally abolished. The sensory

nerves are not affected.

Heart and Circulation. The action of Nicotin on the heart is not fully cleared up. The muscular elements of the heart are not affected, says Wood. Ringen tells us that it tetanises this organ and that a drop applied to it produces tetanic convulsion. Dr. W. G. Benham on painting the cut out heart of a rabbit with the pure alkaloid, found that it caused it to beat rapidly. (West Riding Asylum Reports Vol. VI. 1884).

Kraus (Allgem. Med. Central Zeit 1862) injected nicotin into the jugular vein, and kept up the respiration. First there was a fall in the heart's action, and in the arterial tension, then a slight rise in both, then a second fall, and finally a rise. Rosenthal believes this first fall to be due to stimulation of the Vagus, and the subsequent fall to a paralysis of the inhibitory apparatus of the organ itself. He also thinks the changes in the arterial tension are due to some paralytic effect on the vasomotor system.

Added to the blood Nicotin causes disintegration of its corpuscular elements.

Pupil. It causes contraction. Some consider this to be of local, and others of central origin.

Abdominal Organs. It produces marked tetanus of the intestines.

The effects of taking Nicotin on man, have been given by Schroff and by Reil.

Schroff experimented on two men giving them  $\frac{1}{32}$  of a grain. They complained of burning in the fauces, oesophagus, and stomach, and a feeling of heat all over the body, this was followed by giddiness, nausea, and vomiting. The pulse became rapid and feeble, the respiration oppressed and laboured, and there was a sense of general muscular weakness, lastly they became partially unconscious and had all the symptoms of impending collapse.

Reil (Journ für Pharmacoodyn 3<sup>te</sup> p 203), on taking  $\frac{1}{32}$  of a grain of the alkaloid, observed a sense of burning in the throat and stomach, headache with a general feeling of heat. The pulse increased sixteen beats per minute. There was marked oppression of the respiration and general weakness and nausea.

(c) Nicotianin is supposed to have no marked action, still a grain taken by Hermbstadt produced nausea and giddiness.

# Sources of information - "American Encyclopedia". "Handbook of Therapeutics" by Wood. "Ringer's Therapeutics". "Garrod's Materia Medica" "Hinds on Tobacco". "Christian on Poisons" "Deubur. Du Tabac, Son influence Sur la Santé" "Beck Medical Jurisprudence". Various articles in Medical journals &c.

The effects of tobacco when used as a luxury.

That which has been written up to this point is founded on facts brought out by experiment and careful observation. The writers are to a very marked degree at one. Book after book have I taken up, and so like were they, that the writings of any individual, might be taken as the expression of the opinion of all; but now when we approach the consideration of the effects produced by tobacco, on those using it by Smoking, Chewing, and Snuffing, we find that we have entered on an entirely different field. The definite gives place to the indefinite, calm scientific research and opinion to the emotional expression of sectarian and personal feeling. Sides are taken up for and against. War is waged from pulpit and platform, in Societies, by daily papers, the popular press, medical journals, pamphlets, monographs and tracts.

This being the state of the case, it is difficult to know how best to set to work in our investigation. After much thought, I have decided to consider it under the following headings, giving at the end of each the conclusions arrived at,

and finally a Summary of the opinions which my investigations have led me to form.

I The position which tobacco holds as an article of every day use.

II Examination of the literature of the Subject

III Personal investigation as to its effects.

I The position which tobacco holds as an article of every day use.

There is reason to believe that tobacco has been used by the human race since very early times.

Columbus on his discovery of North America, in 1492, found the natives smoking it, and later explorers tell us that in Mexico, and South America the practice was equally prevalent.

The Indians seem to look upon smoking as a part of their religious rites, for they considered all contracts, both civil and military, to be made more binding by smoking the "pipe of peace", moreover all diplomatic meetings are prefaced by its use.

How long before the discovery of America, the use of tobacco was known, is in question, but from the fact that pipes have been found while

excavating ancient mounds, there can be no doubt that it is a very ancient custom.

In Asia and Southeastern Europe, its use is said to have been known before the time of its introduction from America, but this has been disputed. Be this as it may, the practice has spread and become more general, until now tobacco is used in every part of the habitable globe, and as we have already seen, its growth and manufacture are standard industries in many countries.

In England, even since its introduction by Sir Walter Raleigh, the use of tobacco has continued to gain favour, and this in the face of the fact, that in 1660 a law was passed making it criminal, and that since then crusades have been, and are being, made against it. At the present day, its use is general among all classes, professions, and trades (so much so that it is the exception not the rule to find men who do not use it), and its manufacture employs thousands of workmen, while the revenue of the country is greatly added to by the duties imposed on its importation, and a heavy fine is the penalty of those who adulterate it.

What has been said of England, mostly holds good for all the other countries. In France the government has monopolized its manufacture, and looks upon it as necessary for its army, granting each Soldier 100 grammes of tobacco every ten days. In Italy and Austria its manufacture is also monopolized by the governments. In Germany its use is greater and more general than in any of the before named nations. In Turkey both Sexes use tobacco, and it has been estimated that, taking the whole population, the consumption is as high as 3lbs per head monthly. In Holland, Belgium, Denmark, Norway, Sweden, Spain and Russia tobacco is generally used and in the last two countries by both sexes.

Leaving Europe, we find that in both North and South America, and in all other countries the same facts hold good, while in Burma the children are taught to smoke before they have learned to walk.

Professor Hinds states in his book: "The use of Tobacco", that it has been estimated that 900000000 people use it, or nearly  $\frac{9}{14}$  of the population of the world. There is no reason to doubt this statement, which, if it be true, shows us that

tobacco is more used than alcohol, tea, or coffee.

Of course only general conclusions can be drawn from facts such as these. What conclusions can we arrive at?

(1) If we grant, what is held by many, that each plant has some specific use, I take it that what we have seen goes far to prove that tobacco has found its correct place among the luxuries of life.

(2) That the general, almost universal, use of tobacco, and the fact that the governments of nations not only allow, but supervise its growth and importation, make it impossible for anyone to state dogmatically, and generally, that it is altogether harmful and vicious, or that it leads to mental, physical and moral degeneration.

(3) That when the government of a nation like France, considers it necessary for its soldiers, and makes it part of their rations, we might believe that there is foundation for the opinion that its use is in some degree beneficial.

## II Examination of the Literature of the Subject.

There is no lack of literature on Tobacco and its use and effects. We find that the writings can be generally divided into two classes, popular and medical, each of which classes sets forth the opinions of those in favour of, and those against, its use.

I will first give my attention to the popular side of the Subject. From these writings we can not hope to gain more than an idea of the moral and social effects of the weed, as when these writers begin to enlarge on the physiological results of its use, they show in most cases only profound ignorance.

The first thing which strikes one on reading up this subject, is that nearly all who have taken up the pen, have done so with the object of proving tobacco injurious in the extreme. Those who write in its favour, are few but noticeably calmer and more judicious in their arguments and deductions.

In regard to tobacco, as in regard to food, alcohol, tea, coffee and other luxuries, there is a class of so called reformers, who would gladly remove them all, in fact whose

ideal man is the Savage, whose instinct without reason, is his only guide, and whose "modus vivendi" is as near that of a flesh eating animal as possible, to be short they would have us return to the state of the primitive man. This peculiar class of people are named "Craukes" in America, where they are more numerous than in any other country, the "tobacco-crauk" being well represented.

Unfortunately most of the popular writers on our Subject belong to this class, or to a class of evangelical preachers who mix up religion, crime, tobacco and alcohol in a wonderful manner. Those who do not fall under either of these headings, use the argument "post hoc ergo propter hoc", and are thus lead into fallacious conclusions, which they place before us in a most dogmatic manner.

Of course there is a calmer class of writers, and it is to them we must look for any information which may be considered of value.

What I have written may seem strong, but let us examine a few of these works, and I fear that we will reluctantly have to acknowledge that it is grounded on fact.

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One of the first books I came across, was one by Dr. William Alcott, entitled; "The Use of Tobacco, its Physical, Intellectual and Moral Effects on the Human System" (New York 1857).

After describing its physiological action as given in an earlier part of my thesis, and falling into the error of likening the effects produced by the experimental administration of nicotine to animals, to those produced by smoking tobacco, he makes the following statement, which I take the liberty of criticizing.

"He who uses tobacco habitually in any form is often apt to be thirsty"—"It leads to intemperance by rendering water and all simple drinks insipid". What ground is there for this statement? I do not think that anyone can say that tobacco leads to intemperance, of course many intemperate persons use tobacco, for nearly 9/14 of the human race do so, and out of their number I doubt not that there are many who are intemperate. It is a "non sequitur" to say because the two habits are practiced by the same individual, that the one is caused by the other. Moreover it could easily be shown that thousands on thousands of people use

tobacco who are not intemperate, and in many cases do not use alcohol at all.

A little further on comes the statement, "Injurious to both the cause of temperance and religion." Again we ask what ground is there for this conclusion. There can be very little, for there is no doubt that most of mankind, Christians, or otherwise, use the weed, and among their number are the highest dignitaries of the church, and many of the most renowned philanthropists, and expounders of the gospel.

Again we find the following words, "In nothing, however are we more certainly injured by the use of tobacco than in the memory." — "Every form of tobacco is injurious to every faculty of the mind." Here we have dogmatism still to the fore. It seems incredible that, in the face of the fact that some of the greatest writers and thinkers of present and past times, used tobacco, such a statement could be so generally made. Shelly, Byron, Sir Walter Scott, Hood, Locke, Milton, Addison, Thackeray, Robert Hall, Christopher North, and a host of others enjoyed and praised its use. It may be said without fear of contradiction, that the greater number of prominent men in

all professions and callings, are users of tobacco, and I will venture to say that 80 per cent of the students in Germany, and nearly an equal number of those in Great Britain, are smokers. It would be difficult to prove that their memory is impaired, or to show that those who do not use tobacco are more brilliant, either in their student days or in after life.

Again the words "Tobacco is the handmaiden of dissipation and vice". Considering the extensive use of tobacco, we can not look upon such a statement as this as other than fool-hardy.

Later on "The habit of using tobacco is uncleanly and impolite" — "Foul habit." The King of Prussia, the Emperor of Austria, the Prince of Wales, all the Courts of Europe are advocates of its use, and Society throughout the world countenance it. This being the case, it is absolutely wrong to state that it is a foul and impolite habit.

Again "Children Suffer most from tobacco!" These are the only words in the book which rescue it from being worse than useless, through making statements which are not founded on fact.

As a fitting close, Dr. Alcott writes, "No

"London is one of the latter class reading his 'Sun' after dinner, instead of steeping his senses in forgetfulness over a pipe". One would think from this that reading the 'Sun' and Smoking a pipe could not be done at the same time. A side question might be aptly put, as to whether the reading of a double type-headed, Sensational daily paper plettonic with reports of prize-fights, cock mains, murder, crime and anarchy, is not more harmful to the working man than the quiet indulgence in a pipe of tobacco before returning to work.

Still speaking of the "God-carrier," Better the merry song and cheerful talk, the pleasant stroll than this dulling of the senses and the brain in smoke". We ask, what is there to prevent all these pleasures of life in the pipe? Can they not be enjoyed together, and is it not within the bounds of possibility that they are made more enjoyable by its use? For the second time our writer speaks of tobacco as dulling the brain. That it may do so we are convinced but that it always does so there is every reason to doubt.

Next he refers to the use of tobacco in connection with Athletes, "One of the first

things demanded of a young man going into training for a boat race, is stop smoking." This holds good for tea, coffee, alcohol, so that this argument against tobacco might be used with as much force against these other luxuries. But what is the object of going into training? To bring a man's physical system to a state of over-development. I firmly believe it to be highly injurious, for many of the young men, who have gone into training, have found that it has caused them serious illness in after life, such as dilatation of the aorta, aneurism, hypertrophy and valvular disease of the heart. Should this be accepted as a fact, it would be a poor argument against tobacco, to say that its use is done away with to aid in the production of a condition which may lead to a deleterious and abnormal physical state.

Following up this idea of training, Mr Pantou next states that a Soldier should always be in training, and then says, "That two and two make four is not a truth more unquestionably certain than that smoking does diminish a Soldier's power of endurance". This statement is against fact. As we have already seen the

French government thinks tobacco necessary for its army. Soldiers and Sailors, and other men who have to endure hardship, such as back-woodsmen and trappers, are the users of tobacco par excellence. On questioning these men I find that almost unanimously they attribute to tobacco the greatest virtue in making their trials less hard to bear, and aiding them to hold out against hunger and fatigue. Were more evidence of this wanting, general reading would supply it in abundance, for by most writers on travel and adventure, whether in fiction or in fact, tobacco is spoken of in the highest terms of praise.

Leaving the question of its effects on workmen and Soldiers, he passes on to men of learning, addressing more especially the clergy. "He knows in his inward soul that he should not indulge" — "Does it pay to smoke? They know it does not." — There is scarcely one of them who does not know it is wrong." Here are a series of denunciations, which were they true, would show that men of mind deliberately continued the use of an article which they knew to be full of harm. We are aware

that there are such men but can not believe that their number is large enough to give cause for any such general statement.

Regarding the social effects of tobacco he adds, "Ladies are the natural enemies of tobacco". - "Smoking lures and detains men from the Society of ladies". - "Tobacco is woman's rival then successful rival". Were this the case, as it certainly is not, Mr Pantou would have brought a strong reason for the immediate discontinuance of its use. With his usual fallacy he forgets that the social customs of the English speaking countries can not be taken alone in an argument of this nature, and that in many countries the ladies are strong advocates of its use. Even were this not the case, we all know that many men, married and unmarried, who are almost continually in the company of ladies, are smokers. Probably when Mr Pantou wrote these words he had in mind a class of club-men and bachelors who live mostly in the society of men, and desiring to deal tobacco yet another blow, he attributes their mode of life to its use.

Further on are the words, "It takes

off the edge of virility". Now there can be no question as to the possibility of this being the case, but from the extreme rarity of even doubtful examples, such a sweeping conclusion is not justified.

Lastly towards the end of the Section on Smoking we find the following, "Smoking is a barbarism, this is the main argument against what is termed moderate Smoking. There is something in the practice that allies a man with the barbarians and constantly tends to make him think and talk like a barbarian". This is scarcely worthy of consideration. I give it merely to show how an author may defeat his own object, by loose, unfounded statements which detract greatly from any value which might be derived from his writings. He might just as well say because the barbarians and civilized men both drank tea, that they speak and think alike.

Before going further, I desire to state here, that it is not my object to attempt to controvert every statement made against the use of tobacco, as might appear from what

I have so far written, but to exclude as far as possible all groundless dogmatism, for it is only by such a process that we can arrive at a knowledge of the real effects it has on those using it.

Turning now from the works of those who have written totally against the use of tobacco, let us give our attention to a book entitled, "Tobacco and Alcohol" (New York 1868), by Mr Fiske, which was written in answer to the question "Does it pay to smoke?" in Mr Pantous work, which we have just gone over. Though the author is a lawyer, and the book is in a popular strain, it might better have been placed among the medical writings, as all that is said in favour of tobacco has its foundation on its physiological action.

After answering the above question in the affirmative, he begins by basing his arguments on the fact that tobacco like other narcotics is a stimulant when taken in small doses. As a proof of this, "How often has a man, with nerves all unstrung and who is suffering from Sticks (incipient paralysis), been cured by a pipe." That this is no exaggeration,

many smokers will agree. I have seen it act thus in the case of students under the fear of an impending examination, as well as when they have been all cast down and collapsed on learning that they had failed.

But Fiske follows this up with the statement that there are "some people on whom the slightest dose acts as a narcotic or paralytic." This class he advises strongly not to smoke or use tobacco in any form.

Referring to the power tobacco has in relieving strain, "Tobacco, like coffee, cocoa and tea, retards tissue waste and hence may help to do away with weariness. This is shown by the action it has in preventing hunger and fatigue in those who undergo great physical strain." I have quoted this for it is an effect of tobacco which we will find very often mentioned.

There is a great deal more in this work which I will reserve until we consider the medical writings as it can be made of more use there.

In closing he sums up by saying, that leaving out that class to whom tobacco is always a poison, and excluding those

who use it to excess, he believes that its use is beneficial.

As in the medical so in the popular journals the "Tobacco question" takes its place from time to time. The books which we have already criticised express pretty fully that which has been written in book form, so we may now turn our attention to the journals.

In doing this I have, with the assistance of Pooles Index, read all the articles I could find from 1860 to 1885. Many of them are a repetition of others, so I have taken some eight of them as giving us the opinions expressed in all. I shall in most cases only quote the words of the writer, reserving any deductions until the end of the paragraph on the popular writings.

"Atlantic Monthly" August 8<sup>th</sup> 1860. After giving statistics of the consumption of tobacco, the article draws the following deductions, which if not absolutely logical, are at least worthy of consideration. (1) That an article so widely used must possess some peculiar quality producing a desirable effect (2) That an article so widely used can not produce any

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marked deleterious effect." I think, when we consider the almost universal use of tobacco, and the fact, as we shall see later on, that the number of people who suffer from its use are proportionately very small, that these deductions are really very much to the point.

Next comes the sentence "Poisons are to be judged by their effects". This is strictly true, and if we judge tobacco by its effects not in individual cases, but on all who use it, we can not think it is a poison of so virulent a nature as many would have us believe.

Referring to excessive use of tobacco: "The minor, namely the graver affections of the nervous system do follow the use of tobacco in excess"—"We admit this willingly"—"Excess in tobacco is followed by evil effects more or less quickly according to the temperament of the abuser".

Leaving the question of excess and speaking of moderation, "Tobacco may be more properly called a sedative than a narcotic" This is evidently true, narcosis and brain paralysis, as produced by opium for example, namely if even follow the use of tobacco, but a much milder quieting effect. That this is the meaning of the

written is clearly shown by the next sentence:  
 "The pleasure derived from tobacco is very hard to define since it is negative rather than positive and to be estimated more by what it prevents than what it produces". — "It relieves the little vexations and cares of life, soothes the harassed mind and promotes quiet reflection". — "This it does most of all when used sparingly."

Referring to its effects on digestion: "After a full meal if it does not help it hinders digestion".  
 "It settles one's dinner as the saying is and gives that feeling of 'bien aise'."

Regarding social effects: "Smoking is eminently social and favours domestic habits and in this way we contend it prevents drinking rather than leads to it" — "The poor man's pipe retains him by his own fire side as well as softens his domestic asperities."

Regarding the effects of tobacco on the length of life: "Moderate tobacco users attain a longevity equal to that of any other class."

Speaking of the age of those using tobacco: "One point we are sure we shall agree with—and that is a sincere denunciation of the habit of smoking at a tender age."

London Society Oct 1866. p387. An article referring to the effects of tobacco on the length of life, and speaking of a man 136 years of age, says, "If tobacco be a poison we must either admit that it is a very slow one or else suppose that Nathuselah Crill had attained what is technically called a tolerance of its influence".

Lippincott's Magazine Dec 1869, An article on tobacco, after showing that tobacco is in many ways deleterious, especially to those of tender years, goes on to say - "Although this drug when perverted becomes a curse yet when rightly used it is a medicine of the highest value, particularly in the present age of science and scholarly attainments. The brain is apt to be overworked, and in the excited and irritable condition which follows excessive use of this organ tobacco is invaluable. If an appropriate dose be taken the brain is strengthened by the calm through which it passes and is left in a much better condition for work." - "During all seasons of peculiarly urgent demand on our physical and mental natures tobacco may perform a very useful part.

"Once a Week" Dec 1869. Referring to the age of the user, "In the youth the critic

faculty concur in denouncing tobacco as positively injurious".

Speaking of Chewing it is denounced as  
as disgusting.

Quoting the words of the physician of  
Louis XIV. "Tobacco used with judgement and  
moderation may justly claim precedence over  
all other remedies. It makes us forget the cares  
of life, renders us happy in extreme poverty, eases  
our minds and even supplies the want of food."

"North American Review" April 1869 p 515.

"Tobacco by diminishing the destructive natu-  
romplis of the tissues enables mankind  
to support the effects of hunger with less loss  
of strength and less bodily and mental fatigue"

— "Whether therefore we regard the use of  
tobacco in moderation from a Sanitary or  
physiological point of view we find no grounds  
for apprehension which have been expressed  
relative to its deleterious influence, on the  
contrary it is very certain that the moderate  
habitual use of the substance in question is  
often decidedly beneficial."

"Dublin University Magazine" 1871, vol 78,  
page 279. Refers to the use of tobacco as a "vice".

Referring to the age of the user "All Smoking in the young is excess."

This article is generally against the use of tobacco the following being an example of its general tone; "The simple fact is, the idler of today uses tobacco for the same reason that the Savage used it in the forests of America centuries gone by, to kill that time which he has not soul enough to turn to better use" — "Neither food nor force but a waste of both".

I have already I trust shown that any such general condemnation as this is calculated to defeat its own object. A glance into the average student's room, or into the dissecting room of Simpson's Hall, or the laboratory of Professor Carl Ludwig where he would probably see that learned gentleman cigar in mouth at his microscope, would have shown the writer of this article his error.

"Chambers Journal" Aug 3<sup>rd</sup> 1872.

Speaking of the social standing of tobacco. "Fashion has for a long time approved of Smoking,"

Referring to its abuse, "Its abuse is pernicious in every sense". In connection with moderate use "Tobacco is a soothing narcotic to which

we become easily accustomed, the moderated use of which is without danger, and which helps to mitigate many of our troubles."

"Harper's Monthly Magazine" 1885 vol 1

After stating that tobacco could be done without.  
"Tobacco if not a necessity of life has become very essential to human happiness."

I shall request that what I have taken from these books and journals be accepted as the general expression of all the popular literature on the subject, since to quote them all would only end in repetition and waste of time.

There are multitudes of books and papers of the type and style of those written by Alcott and Paine; even since I began to work on the subject, I have received tracts and leaflets, attaching to the use of tobacco a causative influence in the production of vice and crime. From the opinions I have already ventured to express it will clearly be seen, that I do not think we have reason for such belief. I argue, that the existing state of the world in this regard, and the general use of tobacco by mankind throughout all grades and classes of society, added to

the fact that nowhere do we find these dangerous moral, religious, and social effects attributed to its use, except by what may be called mildly the extreme anti-tobacco school, makes it impossible for us to accept such statements as in any way worthy of consideration. I do not fear the charge of dogmatism, when I state that it yet remains to be proved that tobacco has ever been the direct cause of moral, religious or social degradation. No doubt there are numerous instances of men who shun the society of ladies, who break through all the laws of social etiquette, who are profane, who scoff at religion, who commit all kinds of crime, and who smoke, but it remains, as I have already said, to be proved that tobacco is the cause of their shortcomings.

There is one use of tobacco which is, and should be, generally and totally condemned from a social point of view, and that is "chewing", not because it is "chewing", but because it gives rise to excessive salivation, and continual expectoration, an act, which leaving aside any possible injury to the individual, has a bad

effect on his neighbors causing them disgust, and in America, where it is generally practiced, makes entry into public rooms and vehicles positively nauseating.

Leaving this aspect of the question; What have we learned from our examination of the popular writings?

I That both those writing for, and those writing against, the use of tobacco, hold that in those of tender years it is always deleterious.

II That there are certain people to whom tobacco in any form or quantity is a poison, and who shined under no circumstances use it

III That there is little if any ground for assigning to tobacco a causative influence in the production of intemperance, some of the writers believing that indirectly it may have an opposite effect.

IV That when used in moderation, there is no reason for believing that tobacco interferes with, or lessens, memory, or that it tends to produce idle habits.

V That all are agreed that the excessive use of tobacco is deleterious to

health and penicions in the extreme.

VI (a) That many of the popular writers hold that the moderate use of tobacco is without danger or harm, and:-

(b) That the moderate use of tobacco produces certain beneficial and pleasant effects.

(1) Tends to soothe an irritable state of mind and do away with worry.

(2) Helps to rest an overworked brain

(3) Conducive to a state of contentment

(4) Helps to make certain hardships easier to bear, such as hunger and fatigue.

(5) Aids or at least makes the act of digestion a more pleasant process.

VII That there is no reason to believe that the use of tobacco tends to shorten life.

Leaving the popular authors and writers on the use of tobacco, we will now turn our attention to the works of medical men who have interested themselves in the subject. Here again we find "for and against" equally well marked. As in our popular, so in our medical examination, we will first take a work which is against tobacco in every form. I have chosen one written by

Professor John Lizano, entitled, "Practical Observations on the use and abuse of tobacco" (MacLachlan and Stewart Edin 1868), because it is so largely quoted from, and may be regarded as an authority on this side of the question.

We will read through the book taking passages as we proceed and criticizing them.

Page 9. "Many cases of Syphilitic virus introduced into the healthy constitution by Smoking a cigar or pipe used by a diseased person, have come under my notice". This method of contagion is well known to all medical men. It is not however an argument against the use of tobacco, for tobacco is not a factor in the matter. The same may be said of a tablespoon, or knife, or fork, or any other article. It is valuable however as an argument against the filthy habit of two or three persons using the same pipe, which is no better than using the same toothbrush.

Page 9. "It is scarcely possible to heal a Syphilitic sore or unite a fractured bone in a devoted Smoker - his constitution seems to be in the same vitiated state as in one suffering from Scurvy". This of course is a patent mistake. The only case where it could hold good would be where

the Specific Sore was on the lip or tongue, where the mechanical irritation of the pipe, cigar, or smoke might delay or prevent healing. In order not to quote a passage further on, in which he speaks of the difficulty of curing Syphilis in Smokers, I will here say that, except for the fact that the rash may make its appearance on the mucous membrane of the mouth or pharynx, and the mechanical irritation above spoken of may determine the rash or prevent its healing, this statement is without ground and that tobacco has no such effect.

Page 11 "When tobacco is too much indulged in it produces locally and constitutionally the most dire effects." — This we need to be true if we exclude the word locally. Smoking in the healthy manly if even causes any local mischief, beyond occasionally "burning the tongue" or giving rise to slight pharyngitis, both of which are due to irritation more than to any peculiar action of tobacco, and would probably follow the smoking of any other substance. I have no doubt that the ulcers of the tongue, gums, lips and pharynx, which our author refers to on the same page, had their real cause in some constitutional trouble, only being determined locally by the irritation.

Page 11. "Many from Smoking produce carcinoma  
 necenation of the lower or upper lip"—"From this  
 case and other instances it would appear that  
 the cigar induces carcinoma just as readily as  
 the 'cutty pipe'"— It is well known that clay pipes,  
 and even cigars, may by their mechanical irritation  
 cause epithelioma of the lips. I again say that  
 the cause does not lie in the tobacco; though were  
 the pipe not used the irritation would not exist.  
 Yet considering the enormous number of smokers  
 of pipes and cigars, and the comparatively very small  
 number of such cases, it is a question whether age  
 and a predisposing constitutional tendency do not  
 play a more important part than either the  
 cigar or pipe. I for my own part believe this to be  
 the case.

"Some of the constitutional effects of  
 tobacco have already been detailed under Dr. Carson's  
 Case. But I shall commence their enumeration by  
 generally stating that they are numerous and  
 varied consisting of giddiness, sickness, vomiting,  
 dyspepsia, vitiated taste in the mouth, loose bowels,  
 diseased liver, congestion of the brain, apoplexy,  
 palsy, mania, loss of memory, amaurosis,  
 deafness, nervousness, emasculation and leucorrhoea.

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Here we have an enumeration of the effects of tobacco which, taken at their face value would be ample reason for regarding tobacco as a dangerous poison not to be used under any circumstances. Since, Professor Lizaus goes on to take each of these effects separately, we will not consider them now but will follow and discuss them with him.

He first describes the ordinary acute toxic symptoms of the first indulgence which are practically those described under the physiological action of tobacco. Nausea, sickness, vomiting, clammy skin, giddiness, incoordination all of which symptoms are accompanied by a terrible sense of depression. That these are the usual symptoms of first using tobacco, in any of its forms except snuffing, is true, but after tolerance is established they are rarely felt a second time. Regarding tolerance, I will say here that the tolerance of tobacco is established in man in a manner which is really remarkable. I take it that experience shows that there is scarcely another drug which is so quickly tolerated and which so quickly loses its acute toxic effects. In some cases there would seem to be, as I will show later, a natural tolerance

for it, these acute toxic symptoms never being manifested from the first.

P 12. "If he perseveres he has just to suffer onward until his nervous system becomes habituated to the noxious weed and too often to the bottle at the same time".— I give this passage to show that the idea that there is a connection between intemperance and tobacco is not confined to the popular writers. I have already given some reasons for believing that we have no ground for this idea, and I have yet to read or hear of any instance where tobacco has definitely been proved to have been the cause of intemperance.

P 13. "Dyspepsia from the use of tobacco is accompanied with the same symptoms as when the disease is produced by drinking, or gluttony and want of exercise in the open air"— "The vitiated taste in the mouth is generally a symptom of the dyspepsia"— "Disease of the liver seems to be caused by the tobacco exciting the system and by the dyspeptic symptoms produced".— Hence we have tobacco given as a cause of dyspepsia. This is undoubtedly one of the effects which is attributed to the abuse or excessive use of tobacco especially

in those who have continued it over a long period of time. Even in these cases it is rarely possible to say that any given case of dyspepsia is directly due to tobacco as in most instances there are other factors in its production which are worthy of being mentioned as equally probable causes. As to tobacco being a cause of liver disease, I can find no mention of it in the text books. It is not fairly stating fact, to say that, because tobacco is supposed to have caused dyspepsia and this dyspepsia is followed by disease of the liver, tobacco is a cause of liver disease.

P. 14 "Congestion of the brain occurs almost only in those much addicted to smoking, in whom the cigar is never out of the mouth; but I have witnessed it also to occur in the snuffen of the plant" — "It is denoted by headache, want of sleep or rather restless nights and occasionally flushing of the countenance". — I think the word congestion is exaggerative and tends to mislead. That tobacco does at times, when used to excess, cause all these symptoms, we have ample proof; but:— Are they due to congestion of the brain? When moderately used it may cause increased blood supply to this organ.

I believe Professor Azens is the only medical writer who has given emphasis of the brain as one of the effects of tobacco even when used to excess.

P 14. "The form of palsy produced by excessive smoking is generally hemiplegia and is almost always incurable". — It may be said that this action of tobacco has not been observed in any of the books on the subject and I fear we will have to regard it as the fallacious outcome of a "post hoc ergo propter hoc" argument. One might naturally expect tobacco, when used to excess, to be a cause of paralysis, but such paralysis did it occur would be general and not hemiplegic in all probability.

"Mania is a fearful result of the excessive use of tobacco" — I was much surprised to find that this action of tobacco is spoken of by many of the writers, still some of the highest authorities deny absolutely that it has any such effect stating if anything that it lessens the chances of mania. The burden of the proof lies with those who make this statement. The case which our author gives of two brothers, in whom there was no hereditary tendency and

who were both smokers, going mad at the same time, will I fear, be of little value to them.

914 Loss of memory takes place to an extraordinary degree in the smoker, much more so than in the drunkard evidently from the tobacco acting more on the brain than alcohol. The use of tobacco to excess certainly has this effect in virtue of its influence on the nervous system. That moderate smoking does so, we can not believe, as many men whose brains are active and whose memory is excellent use it, in fact attribute to its use improved power of thought. To compare the excessive use of tobacco to that of alcohol in this regard is simply ridiculous and requires no comment,

"Amnesia is a very common result of smoking to excess, but I have never seen it produced by snuffing or chewing." - The question of amblyopia as a sequence to the excessive use of tobacco is still undecided. The prominent oculists of today are still unable to give more than an opinion one way or the other from the fact that alcohol, itself a producer of the condition in question, is nearly always used by the amnesiac patient. To say the least, even at present we are unable to say certainly that tobacco alone has

Such Cassative influence.

"Deafness is not so common a Sequence to Smoking tobacco as amaurosis." - Professor Ligan as far as I can learn, is the only writer who has given tobacco as a cause of deafness. We are able to see how a pharyngitis spreading to the eustachian tube might have this effect but there do not seem to be many observed cases.

"Nervousness is remarkably common from indulging too much in Smoking, Snuffing, or Chewing tobacco" - This is absolutely true as we shall again and again observe in those using tobacco to excess.

"Emaculation as an effect of tobacco" - If there are cases of this nature they must be of exceedingly rare occurrence and I doubt were we to take any care where it was supposed to be so caused and were to carefully search for some more probable cause we would generally find it.

"I have invariably found that patients addicted to tobacco Smoking were in spirit cowardly and deficient in manly fortitude to undergo any Surgical operation" - Professor Ligan must have had on a pair of very strong antitobacco spectacles when he made this observation.

From what we have seen and read of Saldais and Sailors we have ample proof that no matter what action tobacco may have this is not one of them.

p 15 " By its so general consumption we must become changed in both corporeal and mental faculties — we can not fail to be enfeebled in body and in mind and become a deteriorated race" — The effects of tobacco on the race in time to come is on account of its want of definity, a favourite argument among the extreme anti-tobacco school. We find today those who express the same ideas as those expressed by our author some twenty years ago and by those before him back to the time of its first use in England. Through we can not speak for the future we may say that thus far tobacco does not seem to have had any of the above mentioned effects and that the physical condition of the race is as good, while the mental and moral is far better, this too in the face of the fact that the use of tobacco instead decreasing has continued to spread.

After showing to his own satisfaction that the various armies of Europe have degenerated from the use of tobacco our author before leaving his own experience to pass on to that of others says, —

"So far as the discussion has progressed the three following deductions have been indisputably established by unquestionable medical testimony. (1) That excessive smoking long persisted in is injurious to man in the highest degree physically, mentally, and morally. (2) That the commencement of smoking in early life and indulgence in the practice in the early part of the day can not be too strongly condemned as leading to the most pernicious effects on the constitution. (3) That Smoking even in what is called a moderate degree, is to say the very least of it, indirectly injurious, more especially to the young because it is not denied it acts as an inducement to drinking, thus becoming the source of intemperance and all its accompanying evils. It is notorious that the practices are almost without exception inseparably associated. The remark has become a maxim. 'Smoking induces drinking, drinking jaundice, and jaundice death.'" Here we have a great deal of truth mixed with a great deal of fallacy. Unfortunately even at the present day we have very little "unquestionable medical testimony," nevertheless the first two of these deductions are generally agreed to, should we exclude the moral effect which if it occur at all is only secondary

to some mental or physical change and can not with justice be attributed directly to the use of tobacco. As to the third deduction; there is no ground for stating that the moderate use of tobacco, in those who have no idiosyncrasy and who are otherwise healthy, is directly or indirectly injurious to any appreciable degree.

In this work by the late Professor Sizans we find all, and more than all, that has been urged against the use of tobacco by the anti-tobacco school. This being the case, in considering the works of the other authors, we will give the general gist of their writing in most cases only quoting such passages as may be of help in our investigation.

Professor Hinds, in a small book entitled The Use of Tobacco (Lebanon Tennessee), follows Sizans in attributing bad moral effects to tobacco quoting freely from his writing. After stating that "physiologists are agreed that its use in moderation causes no ill effects" and that youths and certain peculiarly constituted persons are always injured by it, he gives its action on the different organs as follows. Heart and Circulation Palpitation. Nervous System "nervousness", irritability, confusion of the ideas, hypochondriasis and mania.

Digestive System. Dyspepsia. Sight. Dimness of vision.  
Sexual System Emasculation

Professor Brulien of the School of medicine at Besançon in a work, "Du Tabac son influence sur la Santé," (Besançon 1867), writes strongly against the use of tobacco but is judicious in attributing its bad effects to excessive use. Heart and Circulation "L'abus du Tabac à fumer peut produire sur certains sujets un état que j'appellerai narcotisme du cœur, et que se traduit par des intermittences dans les battements de cet organe et dans les pulsations de l'artère radiale: (2) il suffit, dans certains cas, de suspendre, ou du moins, réduire l'usage du tabac à fumer, pour voir disparaître entièrement ou diminuer l'irrégularité dans les fonctions du cœur." I have given the words of the writer as they express so fully and exactly the condition produced by tobacco on this organ. Nervous System Headache, believes also that it may be a cause spinal affective among which he mentions locomotor ataxia and states that he has seen it cause heaviness and inability for brain work when used in excess. Digestive System. Pharyngitis. He agrees that it may lessen the sense of hunger but believes that it does so by paralyzing the gastro-intestinal activity and not by preventing tissue waste or acting as a food. Sight Has been

Cases of anaemia produced by tobacco.

Dr. J. Blanchet, a member of the Society against the abuse of Tobacco, in a book, "Cri d'Alarme du Tabac, au point de vue medical" (Paris 1878), writes very strongly against tobacco, attributing to it causative influence in the production of Cancer of the Stomach, diabetes, intemperance, loss of courage &c. This book however is valuable in so far that it shows clearly that tobacco has a bad effect on boys and youths in the French Schools. He gives its effects on the various organs as follows. Heart and Circulation In virtue of its action on digestion causes Anaemia.

Nervous System. The usual acute toxic symptoms which we have already seen are connected as a rule with the first indulgence. As the result of prolonged excessive use, Hypochondriasis, mania, delirium and idiocy. Digestive System Dries up mouth, tongue, and Pharynx. Discolours and injures the teeth. Causes cancer of the tongue and lips. Gives rise to loss of appetite. Both Smoking and Chewing first increase and then lessen the flow of saliva. Dyspepsia, pyrosis, and gastralgia are frequently caused by its use:—

Some of these symptoms given by Dr. Blanchet we have already discussed but there are some which are worthy of special attention. Regarding the

effects of tobacco on the teeth, it is well known that it tends to discolour them, but contrary to what Dr. Blanchet avers most dentists are of the opinion that it has a preservative influence. Regarding the Saliva; chewing undoubtedly causes an increased flow which may and often does lead to a paralysis of the glands and secondarily to dyspepsia, but the same might be said of any foreign body being held continually in the mouth and chewed. Sigut attributes dimness of vision to the use of tobacco.

Dr. H. A. Depierreis, in a work on Tobacco (Bailliere et Co, Paris 1896), after stating that dryness of the pharynx caused by tobacco is apt to spread to the Larynx and affect the vocal cords, writes as follows: - "Le poulmon est, de tous nos organes, celui que est le plus souvent et le plus directement affecté par l'action du tabac". There can be no doubt but that, in those who inhale tobacco past the Larynx, this is true. The irritation caused by this practice is frequently manifested by a chronic cough. Leaving aside this direct irritation it seems to me that it allows of the more rapid and perfect absorption of the poisonous elements of the smoke and should in my opinion be strongly condemned.

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John Fiske M.A. LL.B., in a work entitled "Tobacco and Alcohol" (New York, Leppoldt & Hoet 1869), writes strongly in favour of the moderate and judicious use of tobacco. Following Dr. Austin he holds that tobacco, like other narcotics, when taken in small doses acts as a stimulant, and that to this action all its good effects are due. Excluding those who use it to excess and those who are of tender years or have some idiosyncrasy for tobacco he gives its effects as follows. Heart and Circulation Stimulates heart increasing frequency and strength of pulse, but when dose is narcotic paralyses vagus and cardiac nerves. Nervous System Increases brain activity through greater blood supply to this organ. Digestive System. Notorious among dentists that tobacco preserves the teeth. Smoking increases the flow of saliva and gastric juice by stimulating the sympathetic nervous system. Infers that it may act on the liver in a similar manner through the vagus. Tends to lessen hunger by decreasing tissue waste. Speaking of chewing tobacco, he believes it dangerous in two ways. From allowing the more ready absorption of the poison in solution by swallowing, and from causing an unnecessary increase in the flow of the saliva.

Dr. Ringen in his work on Therapeutics attributes the following effects to the excessive use of tobacco, stating that they cease soon after the discontinuance of the excess. Heart and Circulation Palpitation, nervous System Restlessness at night and disagreeable dreams. Digestive System Disordered Digestion and loss of appetite. Chronic Pharyngitis and furred tongue. Sight "Amouris is said to occur".

Dr. Pereira in his Materia Medica (vol # p493) writes as follows. "Smoking by those habituated produces increase of Saliva and buccal mucus and a remarkably soothing and tranquilizing effect on the mind, for which it has been so much favoured. I am not acquainted with any well ascertained ill effects resulting from the habitual practice of Smoking."

Sir Robert Christain in his work on Poisons after characterizing it as an "abound practice" says: "Tobacco is used in immense quantities over the whole world as an article of luxury without any bad effect having ever been clearly traced to it"

The books which we have read are only a few of the many on this subject, still they express generally that which has been written. This

being so we may now turn our attention to the medical journals.

In the *Lancet* of December 13<sup>th</sup> 1856 (page 641) we find that Mr Lally, a Surgeon of St Thomas Hospital, in a lecture on paralysis, used the following words:—"I know of no single vice which does so much harm as Smoking. It is a snare and a delusion. It soothes the excited nervous system at the time, to render it more inevitable and more feeble ultimately.— I can always distinguish by his complexion a man who smokes much and the appearance which the faces present is an unerring guide to the habits of such a man.— I believe that cases of general paralysis are more frequent in England than they used to be and I suspect tobacco is one of the causes of that disease". The general opinion regarding the use of tobacco then and now will not allow of its being classed as a vice, unless we are prepared to apply the same term to tea, coffee and many other luxuries of every day life. All excess is vicious not only excess in the luxuries, but in the very necessities of existence, so that when used in excess tobacco like everything else may and should be classed as a vice and as harmful. That the soothing influence produced by the

moderate use of tobacco is followed by an irritable and more febrile state there is no evidence to show but on the other hand much that would go to prove the contrary. As we have already seen smoking may cause a congestion of the fauces, but that this congestion has any peculiar diagnostic value I do not believe. The words which I have quoted, spoken by one of the leading Surgeons of this day, were the cause of a series of letters and a leading article in the Lancet of the following year under the heading of "The great tobacco question". In the controversy Mr Solly and many others took part and we have the expression of all shades of opinion some of which it will be worth our while to consider.

Lancet Feb 14<sup>th</sup> 1857. A letter from Mr Solly. "It is not however to be denied that when the first poisonous effect has passed off, and the system begins to tolerate it that tobacco acts as a slight stimulant." He mentions among the organs thus affected the brain and the generative functions. "In the habitual smoker the heart is irritable and the person nervous the pulse frequently intermittent and irregular in force and frequency". Had Mr Solly added the word excessive to habitual he would

have given an exact Statement of the effects of tobacco Smoking on the Heart.

Lancet 1857 vol i p 227 Dr. Bucknill writing from the Devon County Asylum expresses his opinion that the use of tobacco does good to hand workers, and Says that in no way does it cause insanity but believes that it might with advantage be used in the treatment of this disease: Such an opinion from an acknowledged authority is of more value to us than any number of vague statements by persons who are unqualified to express an opinion firstly because of their ignorance of the disease in question and secondly because of their overruling desire to prove tobacco to be the cause of every known ailment of the human race.

Lancet 1857 vol i p 228 Letter from Dr. Samuel Booth attributes tobacco as a cause of Haemoptois. Excessive, dull, heavy headache. Irritable depressed heart and trembling hands:— This last condition is one which I think worthy of especial notice as I believe it to be one of the most common indications that the use of tobacco has been carried to excess.

Letter from W H Harding avers that all

who have to undergo hardships will speak in favour of tobacco. Thinks that excess is harmful, causing an inevitable condition of the heart and interfering with the digestion as well as bringing about a loss of memory, paralysis &c. Does not think it to be a cause of insanity.

Lancet 1857 vol i p 229 Letter from W.<sup>d</sup>

Gallagher R.N. (nonsmoker). During fourteen years service never saw any bad effects on the sailors except in two cases. They use from 1/2 to 3 lbs per month. He believes that at times it is positively beneficial doing away with fatigue. All the sailors on being asked stated that it did them good:- This letter is of value because we have men all living under the same circumstances and nearly all users of tobacco under the observation of a medical man who in fourteen years time never noticed any bad effects from its use except in two cases. Such an experience as this negatives many of the unqualified statements as to its deterring influence.

Lancet 1857 vol i p 230 Letter from W.<sup>d</sup>

Brettly. Believes that moderate smoking does not act as a poison, but prevents exhaustion of both mind and body. This he thinks is due to its sedative action.

Lancet 1857 vol 7 P 231 Letter from Dr.

Mc Donald. States that no Smoker can think steadily or continuously on any subject while smoking:- We have already sufficient evidence before us to show that this statement is absolutely fallacious.

There are numerous other letters in this volume which attribute to tobacco the most impossible effects one of the writers going far enough to say that he has seen typhoid fever of a very virulent type follow the smoking of a strong cigar. Let us now consider the editorial on this subject which closed this correspondence. It will be found on page 355 vol 7 of the Lancet of 1857. After going over the various bad effects which may be produced by the excessive use of tobacco and strongly impressing on readers the danger of exceeding moderation in its use it gives the following conclusions "I To smoke early in the day is excess. II As people are generally constituted, to smoke more than two pipes of tobacco or one or two cigars daily is excess. III Youthful indulgence is excess IV There are physiological indications which occurring in any individual are criteria of excess." The first conclusion is a wise one were it taken as an advice not to smoke

before breakfast, but Smoking in the early part of the day is not necessarily excess though when the Stomach is empty tobacco like other drugs is liable to produce more marked effects. The second conclusion is erroneous in so far as no general statement or rule can be made as to the amount which may be used within the bounds of moderation this depending totally on the individual as I will have occasion to show later. The last two conclusions are absolutely correct carrying with them nearly all that is to be said, in a short concise manner.

Since the year 1857 until the present time letters on the use of tobacco and its effects have continued to appear in the pages of the Lancet. I will pass over many of them since they are only repetitions of what we have already seen and can be of no material help in our investigation.

In the year 1880 there was another correspondence started in this journal by a letter from the late Professor Parkes. It appeared in the Lancet of January 3<sup>rd</sup> (1880) and is of a markedly different tenor from that of Mr Solly. Coming from this great hygienic authority I consider it of great weight and well worthy of quotation. It runs as follows-

"I have honestly tried to collect evidence from moderate smokers both medical men and others and when tolerance has been established I have never been able to make out any symptoms which implied injury - Even in some cases of enormous smokers, men who rarely went without a pipe or cigar I could learn of no injury. - On the other hand I have seen, like all of us, men complaining of dyspepsia, nervousness, palpitation &c, and who were much better for leaving off smoking, in fact in these cases there could be no doubt of an injurious effect." - I have no comment to make on this, it is simply an unbiased statement of fact based on experience and as such is calculated to be of more service in leading us to a correct conclusion regarding the effects of tobacco than volumes of writing containing hosts of imaginary horrors attributed to the use of this plant.

Let us now look at some of the letters which that of Professor Parkes called forth.

Lancet Jan 31<sup>st</sup> 1880 (p 191). Letter regarding longevity of smokers. "There died in the isle of Skye a woman who had outlived a century by several years, and yet was said 'never to have had the pipe out of her mouth' - Cases like

this added to the fact that we all know very aged people who are constant smokers and that nearly half of Professor Kumpelore's collection of centenarians were tobacco users go far to prove that tobacco as a rule has very little effect on the length of human life.

On the same page we have another letter containing the following case "An intimate friend of my own so suffered from shaking palsy of his hands that an offer of £1000 to fill his wine glass without spilling any would have caused him to shake his head sadly — a few months ceasing to smoke the poison entirely cured his palsy." — As I have already said this unsteadiness of the hands seems to be a common symptom of the excessive use of tobacco and is generally most evident when an attempt is made to hold some light article steadily.

Lancet Feb 21<sup>st</sup> 1880 p 312 Letter from medical man whose health had been bad from his youth states that he has used tobacco from his fourteenth year without any bad effect. At the time of writing he was seventy years of age, clear in mind, and a county magistrate. He expresses his opinion that tobacco did him good.

Lancet March 13<sup>th</sup> 1880 p 429. Letter

States that he began using tobacco at seventeen & being seventy at the time of writing and in good health. Smokes 1/2 lb of Tobacco per month. Thinks that in some ways it does him good, but has seen bad effects follow its excessive use.

Lancet May 1<sup>st</sup> 1880 p 703. Letter from

Dr. Henry Bowdich - "The use of five or ten cigars a day will very frequently cause pain and uneasiness about the region of the heart and at times palpitation. There will be the most marked if not the only symptoms complained of" - I quote this because it mentions pain over the cardiac region, which though not mentioned by many, is I believe a frequent symptom of excess.

Lancet May 29<sup>th</sup> 1880 Letter. "Tobacco

would appear after tolerance is established, to be a cardiac stimulant (objectively) and a nervous sedative (psychologically and subjectively)." - This agrees not only with the writing of Fiske, which we have already seen, but with the expressed opinion of many medical men, as is shown by the following:-

Lancet June 19<sup>th</sup> 1880. p 984. Letter.

"A gentleman whose daily work caused him to

do much reading and writing at night and who had been a very moderate smoker for about 22 years, found that though a smoke in the day time occasionally produced slight drowsiness yet at night he could read and write with a feeling of steadiness of thought, clearness and absence of drowsiness even as late as one a.m. or later - In this case tobacco seems to have acted as a nerve stimulant and "steadier". Did it arrive from slight acceleration of the pulse?"

Lancet Nov 12<sup>th</sup> 1881. P847, Editorial Annotation

"We have no sympathy with the attempt to restrict the moderate use of this luxury; but it is well that some effort should be made to oppose excessive indulgence in the use of tobacco particularly of the stronger sort - It would be well if the sickness which is generally caused by smoking a very strong pipe were a more common penalty of smoking: then only those who are really cooled and benefited by tobacco would use it." This annotation shows a great change in the editorial opinion of this subject. Here we find a soothing and beneficial effect attributed to the use of tobacco in moderation, and also a recognition of the fact that there are certain people who are not benefited by its use.

## VII

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Lancet Oct 14<sup>th</sup> 1882. Editorial Annotation

quotes the words of Dr. Austin "The effect of tobacco smoking in moderation on the majority of persons who are skilled in the use of the pipe is a marked increase of stimulation, the pulse being slightly increased in frequency and notably in force and the sense of fatigue in body or mind being greatly relieved. This stimulation most assuredly is not followed by depression. On the contrary the smoker seems lighter and more cheerful and the pulse maintains its firmness in many cases for an hour or two and even then yields to no morbid depression. When depression is produced it is produced early and is a sure sign that even the small dose is too much for the smoker's constitution and that he had better not smoke at all."

Lancet Nov 4<sup>th</sup> 1882 page 766. Editorial

annotation referring to tobacco excess mentions excessive salivation and dryness of the throat as common results and also states that the constitutional effects are not produced by an accumulative action but are the result of persistency. "As a rule however we believe they are, (the effects) in the moderate use of tobacco according to the individual taste good instead of evil?"

The *Lancet* is not alone in discussing the tobacco question. German, French and American medical and scientific papers are continually referring to it still there does not seem to be anything new brought to light. The ground we have gone over is gone over again and again with the same results. It will only be necessary for me to refer to one or two articles to show that this is the case.

American Journal of the Medical Sciences Oct 1856. page 315. Dr. W. A. Hammond of New York gives the results of a series of experiments made on himself.

1<sup>st</sup>, Five days. Sufficient food. Mean atmospheric temperature  $80.12^{\circ} F$ . Amount of water consumed 52 oz. Pulse 85, health excellent, appetite good, food well digested.

2<sup>nd</sup> Five days. Sufficient food. 450 grains of tobacco, in the form of cigars, each day. Mean atmospheric temperature  $78.11^{\circ} F$ . Amount of water consumed 52 oz. Pulse 86, health excellent, appetite good, food well digested, perspiration apparently slightly diminished, increase in weight .07 lb.

3<sup>rd</sup> Five days with insufficient food. Mean atmospheric temperature  $80.92^{\circ} F$ . Amount of water consumed 52 oz. Pulse 86, health excellent, appetite good, food well digested, perspiration increased on account of extreme heat of weather. Loss in weight 1.61 lbs.

4<sup>th</sup> Five days with insufficient food. 450 grains of tobacco per diem. Mean atmospheric

temperature 74.09. amount of water consumed 52oz.  
Pulse 90, health excellent, appetite good, food well digested,  
perspiration decreased owing to? Loss in weight .24 lb.

Dr. Hammond allowing for the changes in temperature  
and other possible sources of error concludes that  
the use of tobacco tends to check tissue waste, and  
in his paper gives other reasons for holding that  
the moderate use of tobacco is beneficial.

Medical and Surgical Reporter Phil 1885. Editorial

Resumé of the tobacco question concludes that the moderate  
use of tobacco is beneficial but that excess and  
smoking among the youth may give rise to all  
the symptoms of which we have already read in  
this connection however it is of the opinion that all  
other causes of any given condition must be excluded  
before it can rightfully be attributed to tobacco.

Chicago Medical Journal and Examiner 1885, p 216.

a paper read before the Chicago Medical Society by W F  
Coleman M.D. M.R.C.S. on Tobacco Amblyopia. Dr. Coleman  
is of the opinion that there can be no doubt that  
this condition exists quoting the following authorities  
as agreeing with him McKenzie, Wolfe, Gowens, Wells,  
Vutleship, Noyes, Williams, Stelling & Wittenloef.  
The only two whom <sup>he</sup> knows of who take an opposite  
view are Cauter and Lawson. In addition he tells

as that Dr. Berry of Edinburgh thinks that the moderate use of alcohol tends rather to prevent than to aid in the production of tobacco blindness. This is a point of interest for Professors Fresen and Bruner have shown that Nicotine in Ethylic and Methyllic compounds loses its tetanizing action on the cord and it might be possible that a similar loss of power could hold good for its action on the optic nerve: but since nearly all who suffer from tobacco blindness use alcohol I fear that this theory can not be entertained. In addition to the effects on the Sight Dr. Coleman mentions the usual heart, and nervous symptoms due to tobacco excess and states that Professor Erb of Heidelberg believes it to be a cause of Tabes Dorsalis.

Thanes Bericht (Virchow) 1855 p 128

An extensive paper giving the results of experiments which go to show that a watery solution of Cigars has no effect on artificial digestion. Should this be true I think we might believe that the same holds good for normal digestion in regard to the ferments.

Other articles which I have read but do not deem it necessary to discuss are found in many French and German medical Journals and Archives.

The various medical writings which we have read and quoted from, though by no means all that has been written, give us all that has been said both for and against the use of tobacco. With such a great variety of opinion and so much contradictory evidence it is difficult to arrive at really definite conclusions.

We have seen that there is a tendency among those who have strongly preconceived opinions to attribute to the use of tobacco effects which it rarely if ever produces. There is not sufficient evidence for stating that it is capable of causing such diseases as Apoplexy, Liver disease, or Mania, though in connection with that last mentioned, it is possible to conceive, that the prolonged excessive use of tobacco might in time, be the cause of some change in the nerve cells, which might lead to mental derangement. Still from its extreme rarity we may practically exclude it from our consideration.

Regarding the effects of tobacco on morals and religion. There is no evidence to show that tobacco when used in moderation, has any influence. Taking the word 'immoral' in its fullest sense, there can be no doubt but that the immoderate use of tobacco, that is to the production of physical injury is immoral. To state, however, that it leads

to the demoralization of armies or nations or that it is a factor in the production of crime or of alcoholic intemperance is to state that which is not founded on fact.

Leaving these alleged but undemonstrated effects of tobaccos we find, from what we have read, that there are certain recognized results which follow its use. These may be divided into (a) Those following the first indulgence and up to the time when tollenance is established (b) Those following its use in moderation (c) Those following its immoderate or excessive use (d) Certain Effects resulting from local imitation

(a) The Effects of the First indulgence. The effects of the first indulgence in tobaccos are the same in nearly all cases. They are as we have seen those of acute nicotine poisoning, a description of which we have already given, and vary in severity from slight nausea to extreme collapse. As a rule tollenance is soon established, though there are individuals with whom this is never the case and who, with the youth, are always poisoned by tobacco.

(b) The Effects of the Moderate use of Tobacco. Many medical men, numbering among their ranks such high authorities as Professor Paulk,

Dr. Pereira and Sir Robert Christison, state that they are unacquainted with any bad effects due to it.

We have read that, objectively, it is a stimulant to the nervous system and that this stimulation is not followed by any detrimental reaction.

As a result of this stimulation the heart's action is increased in force and frequency and the blood supply to the brain being greater, the functions of this organ are improved. This explains the enhanced power of thought which is so frequently spoken of by both the popular and medical writers.

The nerves supplying the organs of digestion partake in the stimulation and as a result the digestion is improved.

Psychologically it has a soothing and steadying effect and it is for this action in particular that it is so generally used and esteemed.

There is a general opinion that it checks tissue waste. This opinion is upheld by the fact that it prevents dental decay and by the experiments of Dr. Hammond and of Mr. Fiske, and it explains the power of making fatigue, hunger, and physical strain more easy to bear; a power which we have so frequently read of and which is so

generally attributed to its use.

(C) The Effects produced by the immoderate or Excessive use of Tobacco. The Symptoms caused by the excessive use of tobacco are all of a nervous type and owe their origin to the paralyzing action of tobacco on the nervous system. None of them are peculiar to this plant and are equally liable to follow the excessive use of tea and other substances of a like nature. They are all functional and transitory ceasing when the cause is discontinued and rarely lead to any grave organic change. We will now take up the various organs whose functions we have found mentioned as being affected.

Heart and Circulation We have seen from our reading that one of the most frequent effects of tobacco excess is a disturbance of the cardiac functions through the narcotic action it has on the innervation and more especially on the inhibitory nervous apparatus of this organ. This disturbance is evidenced by by precordial uneasiness, pain, irritable and irregular action, palpitation and intermittency of pulsation. These symptoms have not only been mentioned by writers on tobacco but are recognised by almost all the writers on General Medicine, (Reynolds, Strümpel, Fagge, Roberts, Bristow

Tannen, Niemeyer Bantlow and many others).

Nervous System We have read that tobacco excess may bring about, horrible dreams, insomnia, low spirits, irritability and a number of other symptoms which may be classed under the word 'neurorosis'. In addition to this it may interfere in a harmful way with the memory and often produces a kind of 'paralysis agitans' which is shown by tremulousness of the hands more marked when an attempt is made to hold some light body steadily. Though mania and melancholia have been mentioned as the result of excessive use of tobacco, there is little if any evidence to show that this is the case.

Digestive Functions Through its paralyzing action tobacco excess acting on the gastric nerves not infrequently causes digestive disturbance. In children as we have seen dyspepsia may be caused by a paralysis of the salivary glands and the consequent loss of one of the digestive ferments. It is my own opinion that nearly all the cases of dyspepsia attributed to the excessive use of tobacco, on examination will show some other cause which is far more likely to have aided in their production.

Sexual System In this regard there is a doubtful action attributed to tobacco excess. It is possible to believe that through its paralyzing effect on the cord the functions of the generative organs might be interfered with, this however must be a very rare result of even excessive indulgence in tobacco.

The Sight. We have several times read of impairment of sight as a result of tobacco excess. In connection with the subject of so called Tobacco Amblyopia there is much difference of opinion. There would seem to be ground for believing that tobacco may play a part if not the whole part in the production of amblyopia though since alcohol, itself a cause of blindness, is nearly always used in these cases it is impossible to be absolutely sure. The symptoms of this condition are described as consisting of a gradual impairment and failing of the sight. Ophthalmoscopic examination shows at an early date a congested, slightly swollen, and hazy disc. Later the half of the disc near the yellow spot becomes pale and in the more severe cases this pallor becomes general. The pupils are normal or a little sluggish. The defective vision is most noticeable in bright

light and is more marked in the center of the field as is shown by a central pear-shaped scotoma with a defective perception of the central colours green and red. The blindness is rarely absolute. On referring to the works of Nettleship, Wolfe, Stellway, Loebberg Wells, Williams, Noyes and others, I find that they are all of the opinion that Amblyopia as a result of tobacco excess does exist, but that it nearly always occurs in those who at the same time use alcohol. Doctors Lawson and Carter do not believe that tobacco possesses any causative influence in the production of blindness. Dr. Carter argues in favour of this view that in Turkey, Egypt and India where alcohol is little used and a great deal of tobacco is consumed, tobacco blindness is rare and quotes a letter from Dr. Dickson of Constantinople which goes to support him.

#### (d) Effects resulting from local irritation

We have seen that there are certain local effects which are noticeable among tobacco users and which are not due to any peculiar action of tobacco but to the mechanical irritation of the smoke produced by its burning or of the pipe cigar or quid. As I have already

said the Epitheliomata and numerous patches are in my opinion more due to age and constitutional conditions than to tobacco or pipe though they may act as an exciting cause.

Slight irritation or inflammation of the tip of the tongue are not infrequent results of smoking what is called a 'hot pipe' or cyairs on tobacco which burn rapidly giving off very hot smoke.

Pharyngitis or at least pharyngeal irritation is not an uncommon condition among smokers, and in those who deeply inhale the smoke a similar irritation of the bronchial mucous membrane is apt to result.

Before leaving our consideration of the literature to pass on to the results of my own investigation I desire to refer for a moment to a point which though not exactly under the heading of my thesis is still of interest. In the Gazette Medicale de l'Algerie 1885 vol xxx p 42, Dr Bourdin writes a paper in which he states that the females who work in the tobacco factories in Algeria are more liable than others to anaemia, uterine troubles, and abortion. The same opinion is held by other French writers many of them believing that both the

men and women workmen suffer in their health from their occupation. This theory of abortion is explained on the ground that tobacco and more especially nicotine may cause tetanic contraction of the uterine walls in the same manner as it does in those of the intestines. The attention called to this subject resulted in an investigation ordered by the French Minister of Finance, by which it was shown that there is no reason for such belief (Lancet Feb-7<sup>th</sup> 1883 p 302). The result of this investigation is enclosed by a similar one made by the Royal Medical Society of France, (See Robert Christinin On Poisons, Under tobacco).

The Personal Investigation as to the Effects of the  
Use of Tobacco.

In my investigation I have employed two methods, one of which was to question all the users of tobacco I could meet as to their experience of its effects, the other consisting in sending out a printed list of questions to medical men requesting them to favour me with their opinions on the subject.

I shall firstly give the results of my investigation among the users of tobacco. In this I am fortunate in possessing a large circle of acquaintances in Scotland, England and America who have willingly given me their opinions, and in having, for some months, travelled in the smoking car of an American railway train, a distance of thirty miles twice a day, where I might question even a stranger without fear of being denied an answer. I have not however confined myself to these sources of information but have visited several manufactories of tobacco and have sought information when and where I could.

Since I began, I have questioned some five hundred people of all ages and occupations and I now propose giving the general outcome of their answers and the conclusions which they

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have lead me to arrive at.

The first question which I asked was concerning the experience of the first indulgence. With twenty exceptions, the answer has been a fairly good description of the acute toxic symptoms of tobacco poisoning, the degree of severity varying from slight nausea to vomiting, giddiness, faintness and even involuntary evacuation of the bowels and extreme collapse. The greater number first used tobacco before the age of fifteen many having done so before they had reached the age of ten. In some these symptoms were experienced but once, in others they occurred several times before tolerance was established. The twenty exceptions which I have mentioned were cases where they had reached the age of from eighteen to twenty-four years before they first used tobacco and in which none of the above symptoms were manifested even from the first, showing as I have before mentioned that there are men in whom there seems to be a natural tolerance for this substance. As a striking contrast, I have met nonsmokers who have informed me, that though they had attempted the use of tobacco again and again they could never become accustomed to its use, each trial

being accompanied by the most disagreeable symptoms. As an illustration of this I will give the case of a Hotel Porter, aged 40, perfectly healthy (life insured) who, whenever he attempts to smoke a cigar or pipe, suffers from 'lightness in the head' and uncertainty of gait very similar to that of alcoholic intoxication. This and many other cases show that though there are those who naturally tollerate tobacco there are others to whom it is in any form or quantity a poison.

The next question was asked with a view of ascertaining how far, after tollenance had been established, tobacco could be used without causing a recurrence of acute toxic symptoms. I find that ~~in~~ the great majority of smokers and chewers experience one or other of these symptoms should they smoke or chew before breakfast, also that exceeding a limit which they fix for themselves, or inhaling the smoke when not accustomed to the practice are both capable of bringing about a similar result. The amount which some are capable of using without any such effect is almost incredible. I have met men who chew tobacco literally from morning to night and others who, from their business (that of buying tobacco for the manufacture of cigars) smoke continuously all day long and in neither case was there any acute

toxic effect.

I next directed my inquiry to discover as far as possible the proportion of tobacco users who suffer from the effects of what may be called chronic nicotine poisoning. I think from what we have already seen that I am justified in holding these are only caused by the excessive use of tobacco. This being the case my first object was to find out what might be considered excess. The further I have pushed my inquiry the more convinced have I become that there is no general rule which can be made regarding excess and moderation, both from the fact that tobacco varies so greatly in its strength and quality and that its action differs so much in different individuals. It is not the amount used but the effect of using it which must guide us in estimating excess, providing that we exclude from our consideration those of tender years and those to whom tobacco is always a poison, and confine ourselves to what may be called practical tobacco users. I need only give two cases to show that this is the case. The two men in question are both perfectly healthy and free from nicotine poisoning. One aged 55 years has smoked at least ten cigars a day for thirty-five years. The other

aged 35 years has smoked one cigar after dinner for fifteen years. Here we have examples of the vast difference which may exist in the moderate use of tobacco. Probably were the smokers of ten cigars a day to add five to their number they would suffer from some of the chronic toxic symptoms and I know that in the case of the smoker of one, every increase in the number for two or three days is productive of such symptoms.

Out of the five hundred people examined there were not more than fifty who showed any symptoms of chronic nicotine poisoning or in other words who used tobacco to excess, though the amount used varied from one extreme to the other. I have however noticed that among the more copious smokers whom I have met there was a tendency to irritation of the pharynx which was more marked in those who inhaled or used cigarettes.

Of the fifty who showed signs of having passed the limit of moderation there were not more than half in whom the symptoms were sufficiently marked to cause them inconvenience, the others suffering from occasional transitory attacks of sleeplessness, palpitation or digestive disturbance, which they overruled were quite over-

balanced by the benefit and comfort which they derived from the use of tobacco, only occurring when they smoked 'too much' and ceasing when they lessened the quantity used.

Before giving the opinions of the many smokers I have questioned, as to why they smoked, I will go over some of the symptoms from which the twenty five or thirty who smoked or chewed to excess suffered. To accomplish this I can not do better than to take one or two cases as examples.

49. M. age 27 came under my care three years ago. On examining him I found that he was a heavy smoker of the pipe, cigar and cigarette, and that he had both smoked and chewed since his tenth year. Though his heart was organically healthy he suffered from attacks of palpitation, pain over the heart, and breathlessness on slight exertion. His pulse was frequently intermittent. On rising suddenly from his chair or on rapidly going up stairs he became dizzy and felt as if he should fall. When he smoked late at night he got up in the morning with a foul tongue and no appetite for breakfast. He lacked capacity for any sustained effort. I could find no reason

from these symptoms except tobacco excess and told him he must stop using tobacco altogether or at least for a time. I have forgotten to say that his heart was distinctly hypertrophied. In a month from the time that he ceased smoking nearly all these symptoms had disappeared and when I saw him a week ago his heart had regained its normal size and tone. He feels convinced that tobacco was the sole cause of his ailment and has given up its use altogether.

7.9. age 25. General health good. Has been a heavy smoker for at least ten years. Began to smoke when ten years of age. Heart irregular in action and early set to palpitating; pulse frequently intermittent. Occasional attacks of pain in precordium. Becomes breathless on slight exertion. Pharynx congested. Heaviness after eating. Numbness more or less impaired in last two years. Hands very tremulous. Knee-jerk greatly exaggerated. Bad dreams and starting up at night with sense of impending death. Subject to attacks of evil spirits. This patient has by advice stopped smoking from time to time for two or three months when all the above symptoms disappear when he again begins to smoke and as a result the symptoms reappear.

R.B. age 28. General health good. Life insured. Suffers from palpitation, Shaky hands, bad dreams, poor appetite and short sharp irritabile cough all of which symptoms disappear on giving up Smoking. He prefers however to suffer from them rather than give up the use of tobacco.

R.D. Age 27. General health good. Heart irregular in action, pulse intermittent, frequent pain in precordium. Physical examination shows the heart to be hypertrophied. These symptoms pass off on giving up tobacco for a week or two, but he prefers to continue its use.

a.T.R. Age 27. Asthmatic. Heart irregular in action, pulse intermittent. Frequent attacks of sharp pain in precordium. Tremulous hands. These symptoms disappear when he gives up tobacco but as his asthma is made worse he continues to smoke heavily (nearly 3/4 oz per diem).

S.L.W. age 27 Organically healthy. Nervous temperament. Suffered from irregularity of heart's action, pain in precordium, atonic dyspepsia, sleeplessness, low spirits, tremulousness of hands and lack of capacity for sustained effort all of which symptoms he knew to be due to tobacco excess but he would not give it up. Two months ago he acquired

Syphilis and as the eruption made its appearance in his mouth and throat he was forced to stop smoking. All his tobacco symptoms ceased and he feels so much better that he avers he will not again begin its use.

H age 36 a tobacco buyer. He has to smoke cigars in his business in order to close the better kinds. He has consumed from ten to twenty cigars per day for three months out of the twelve for the last fifteen years. This man manifests nearly every known symptom of tobacco excess, the functions of his heart, stomach, brain and spinal cord all being interrupted with. He is the only individual whom I have met who could be said to suffer from Amblyopia. His sight is bad in bright light, the disc is hazy and the pupils are sluggish but he unfortunately for the theory of tobacco amblyopia uses alcohol pretty freely.

M age 18 an Express man. Organically weakly. His heart is irregular in its action to a marked degree. Pulse intermittent. Easily made breathless. Hands tremulous. He suffers from an inevitable cough. This lad has smoked cigarettes for ten years and inhales each 'puff'. His face is pasty and pale and he is very thin for his height.

I have in my note book the records of some seventeen other cases of people who suffer or have suffered from the results of tobacco excess but to give them would avail us nothing as it would only be a repetition of the cases to which I have already drawn attention. These few examples, in which I have eliminated every other possible cause for the symptoms shown, demonstrate to my mind that there can be no doubt of the existence of harmful results following the excessive use of tobacco and that these results are evidenced not by organic but by functional disease which passes off when the habit is discontinued. I am of the opinion however that the long continued disturbance of the cardiac functions may and does lead to hypertrophy which may in its turn result in some more serious organic trouble.

The one case of questionable tobacco amblyopia which I have observed joined to the expressed opinion of the Surgeons of the New York Ophthalmic Hospital, all of whom I have interviewed and the want of definiteness shown in the textbooks and discussions on this subject, lead me to the opinion that the influence of tobacco in the production of

Amblyopia is still Subject to doubt. Still I think that, since recovery of the sight in some cases follows the discontinuance of tobacco, there is some reason in giving it as a cause of the blindness.

Regarding the use of tobacco and more especially of cigarette smoking and inhalation among the youth, the one case I have given and the pale, pasty, dwarfed appearance of hundreds of boys one sees in the streets of New York with pipe, cigar or cigarette in mouth are enough in themselves to show that it is radically harmful to them. Were more proof wanting of this, the books we have read and the reports of the cause of rejection of youthful candidates for the navy and training schools of the United States would supply it. Ten out of twenty candidates for cadetship at West Point were recently rejected on account of 'tobacco heart' brought on by cigarette smoking. It will be difficult for one who has not visited America to understand this. What I refer to is not the secret smoking which one sees among the boys in England and Scotland but the open, habitual and allowed use of tobacco in America which can not fail to draw the attention of even the casual observer.

I have made no mention of the quantity of tobacco used in any of the cases I have given and I have done this purposely for my experience has taught me that it was, within certain limits, very little influence all depending upon the individual; the old saying 'What is one man's food is another man's poison' holding very true for tobacco.

The fifty out of five hundred whom I found to suffer in one way or other from tobacco excess would give a percentage of 10%. This I believe would be fallacious were it applied to all who use tobacco. There are a very large number of moderate smokers who only smoke at certain times in the day and who never enter smoking cars or smoke in public. Such men as these are numerous and may from the regularity and sparing manner in which they use tobacco be classed as moderate smokers. I believe, that taking all users of tobacco, the number who are immoderate or excessive smokers or in other words show symptoms of acute or chronic nicotine poisoning, can not be over five per cent possibly very much less, and were I asked to give an estimation I would not feel justified in placing it over 2%.

IX

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Of the four hundred and fifty who used tobacco and did not as far as I could learn suffer from any of the symptoms of chronic nicotine poisoning I asked the question - Why do you smoke? What good does it do you? The answers would fill volumes. Some said they smoked because they had fallen into the habit. Others that they could do mental work better while using tobacco. Others that it soothed and rested their brain after a hard days mental work. Others that it aided their digestion and helped to regulate their bowels. Others told me that they and their comrades, during the late civil war, would almost rather have had tobacco than food as it 'kept them up' and that not infrequently they did actually trade the one for the other. Others that they could not sleep without a smoke before going to bed. And so on, some of them attributing to tobacco effects which it could not possibly produce. Still taking their answers as a whole they go to support the conclusions which we have drawn from our reading.

Wishing to discover if the individual whom I was questioning was healthy I always asked the question, - Is your life insured? I can not be sure

as to the exact number, but certainly one hundred of the men questioned answered in the affirmative.

This lead me to make inquiries which resulted in my learning that, by none of the insurance companies, is the use of tobacco, or even the existence of tobacco-heart, held sufficient to vitiate the value of any given life. When Companies whose business it is to weigh the length and value of human life without feeling, and merely with the object of discovering as far as possible how long a man will live and what risk they run in insuring him, do not discriminate against tobacco, we have very strong reason for believing that it can not be such a dangerous poison as many would have us believe. The age of many I have met, ranging from fifty up to eighty years, showed me that tobacco could have very little to do with the length of life. One man, a lawyer, aged 50 told me that his father, grandfather and three uncles, who were all smokers or chewers, lived until they were over eighty years of age. Moreover it is a strange fact that the greater number of very old people whom we meet, especially among the poorer classes, are fond of their pipe.

From conversation with tobacco merchants I find that they notice no bad effect on the workers. Those who work among the moist bales of tobacco during 'conditioning' are at first apt to feel a sensation of nausea which soon passes off. One of the manufacturers who had been in the business for forty years, very aptly said that the ailments of those working among tobacco are the same as those of others who work at other trades where they are confined to close rooms and do not get enough of fresh air and physical exercise. Personally the workers seemed to me to look as healthy as other artisans.

Such are the results of observation lasting over three years and of a series of questions systematically put to every user of tobacco I could meet during the last three or four months. Though not of much value as results they do go to show that an investigation of this kind is fraught with difficulties which are practically impossible to overcome since in many cases we have to suppose our subject healthy from his own statements and not from a careful examination of his physical state. Moreover the habitual smoker or chewer when questioned regarding the habit is apt to think that

## When Tobacco is Used by Smoking or Chewing:

What, in your opinion, constitutes "tobacco heart"?

Do you find "tobacco heart" of common occurrence?

Which are the more liable to it—smokers of pipes, cigars, or cigarettes?

About what percentage of smokers suffer?

Is it more common in nervous or in phlegmatic people?

Have you ever seen it lead to hypertrophy or valvular disease, or to both?

Does it produce marked irregularity of the pulse?

Does the use of tobacco increase or lessen the chances of dental decay?

Is pharyngitis more common in smokers than in others?

Does it increase or lessen the digestive functions?

Have you ever noticed a case where it certainly acted as a laxative?

Can you attribute any case of dyspepsia directly to its use?

Have you reason to believe that smoking has any direct effect on the lungs?

Does it increase or lessen mental activity?

Does it commonly cause insomnia?

Have you ever seen a case where the brain has been permanently affected by its use?

Does it tend to increase or lessen the activity of the spinal cord?

Does it cause tremulous hands?

Have you ever seen a case of tobacco blindness where alcohol was not used?

Do you believe it causes emaciation?

Has it more effect on those over than on those under twenty years of age?

Do you think the moderate use of tobacco hurtful or beneficial?

Have you ever seen a case where smoking may be said to have been the direct cause of shortening life?

Signed

Please add any points on the subject which you may consider of interest.

one has it in view to detract from its virtues and as a result he will attribute to it effects which it does not produce, thus leading one into error.

Be this as it may I feel that the opinions I have expressed are in the main justified by the grounds on which I have based them.

Let us now turn to the outcome of my investigation among medical men. The method pursued in obtaining their views was as follows. I had printed a list of questions which include all the effects of tobacco of which we have heard. I then took the list of membership of the best representative medical Society of New York, the Academy of Medicine and sent each of the five hundred and three members a copy of the questions requesting the favour of an answer. This resulted in my receiving 113 more or less completely answered lists, a much smaller number of replies than I had expected, still such as they are I will give them in full noting at the end of each list of answers any points I may consider of interest.

In writing the answers I will place them under the headings of the different Systems and in the order of what I consider the frequency with which they are affected.

Answers received to questions asked concerning the effect of tobacco on those using it by Chewing and Smoking and conclusions arrived at.

Firstly as it is effects on the Circulatory System.

What in your opinion constitutes "tobacco Heart"?

- (1) Frequent, feeble, often irregular. Generally accompanied with attacks of local pain.
- (2) Muscular walls enfeebled so that the heart flutters around instead of beating regularly.
- (3) Intermittency and irregularity
- (4) Irregularity of pulsations
- (5) Irregularity from dyspepsia from excessive smoking in neurotic individuals.
- (6) Irregularity of action, palpitation, intermission, cardi-  
algia varying with different individuals.
- (7) A weak heart with irregularity of pulsation having only this etiological significance when associated with other symptoms: aggravated cases are rare and often depend on individual peculiarities of the patient.
- (8) Irregular, intermittent, jerky impulse.
- (9) There is a certain jerky uneasy restless action to the heart that is characteristic. As a rule the heart is irregular in its beat.
- (10) Derangement of Innervation.
- (11) Irregular and irritable heart.

- (12) Defective innervation from depression of nervous force.
- (13) A weak irritable heart irregular in its action.
- (14) Irregular cardiac action, with consequent anxiety and depression coming at various times of the day and night.
- (15) A state of palpitation on slight exertion or even when quiet, organic diseases being excluded and neurvoses of other kinds being eliminated.
- (16) Palpitation, irregularity, hypertrophy.
- (17) Characterised by an irregularity and irritability of action and function.
- (18) An irritable heart.
- (19) An anhythmic, intermittent heart with accentuation of the first sound; absence of murmurs.
- (20) An irregular action directly traceable to excessive use of tobacco.
- (21) Irritable heart action not depending on organic trouble which disappears when the use of tobacco is discontinued.
- (22) Have never seen it am certain when heart is weak tobacco acts as a poison that it tends to paralyse.
- (23) Functional disturbances of cardiac action such as palpitation with slow and intermittent action of heart.
- (24) Frequency of pulse 100-120. Soft compressible with either a complete loss of a beat or one of less strength than the preceding or following.

- (25) A nervously irritable functional action of the organ aggravated by each indulgence in the use of tobacco.
- (26) Intermittent and feeble heart.
- (27) Weakness and irregularity.
- (28) Rapid and irregular beats easily set to palpitating on slight excitement.
- (29) Asthenia of Cardiac muscles as evidenced by the weak slow and irregular hearts action. Depression of the Circulatory System.
- (30) Simple muscular debility.
- (31) Nicotin poisoning acting upon the Sympathetic nerves.
- (32) Irregularity of the hearts action only.
- (33) Generally speaking depression.
- (34) An occasional irregular action of the heart without any organic disease
- (35) Rapid feeble but irregular and intermittent cardiac action.
- (36) Is not organic but functional and Sympathetic.
- (37) Irritation of nerve centers.
- (38) Palpitation upon slight exertion not connected with organic disease.
- (39) An irregularity of hearts action.
- (40) A weakened impulse and irregularity due to specific action on the Vagus.
- (41) Irregularity, palpitation Syncope vertigo oppression about the heart.

- (42) Hand pulse often quickened, Irritable heart with palpitation and in cases of great excess a soft weak but full pulse, weak heart - giddiness or faintness.
- (43) An irritable condition with palpitation on exertion and frequently without exertion.
- (44) Intermittent pulsation only constant symptom.
- (45) An irritable condition of the heart characterized by occasional attacks when the pulse is rapid and irregular with pain over the precordium, dizziness and sometimes dyspnoea.
- (46) A flabby heart whose second sound is often feeble.
- (47) Palpitation relieved by ceasing to smoke or chew.
- (48) Faintness in smokers.
- (49) Weakness of second sound increased frequency of action irregular pulse.
- (50) A nervous disturbance of the organ attended by sometimes irregularity of action and always quick impulse and distress in the precordium.
- (51) Irregular rhythm, easily excited to increased frequency by slight causes.
- (52) Occasional functional derangement of heart with irregularity of pulsation.
- (53) A feeling of discomfort in cardiac region with or without intermittency.
- (54) Palpitation and intermittency.

- (55) Rapid feeble irregular heart.
- (56) Palpitation and other symptoms of irritable heart.
- (57) Anaemia of Cardiac nerve centers.
- (58) Palpitation and irregularity.
- (59) A Stimulated acting heart.
- (60) I know of no pathological changes that distinguish a "tobacco heart"
- (61) A neurosis
- (62) Never saw one.
- (63) Reflex vaso motor phenomenon
- (64) Hypertension.
- (65) A heart acting with violence or with irregularity under the stimulus of the active principle of tobacco.
- (66) An irregularly beating heart with the occasional omission of a beat or two.
- (67) Increased rapidity of heart's action.
- (68) A heart beating irregularly in an inveterate smoker relieved by its discontinuance.
- (69) There is no such thing but it increases frequency of heart.
- (70) Diminution in strength of muscular contraction, interference with inhibitory nerve force; pulse quick, weak, frequent and more or less irregular.
- (71) The effect on the heart is to produce temporary disturbance, as shown by irregularity.

- (72) The "tobacco heart" is the result of the prolonged sedative action of tobacco upon the nervous system. The symptoms are feeble and intermittent action with a distressing dull pain in the precordial region, especially provoked by great mental or physical fatigue.
- (73) Palpitation and irregularity.
- (74) Weak intermittent pulse, occasional dyspnoea and mild symptoms of angina pectoris.
- (75) Weak, rapid sometimes intermittent and if long standing moderate hypertrophy.
- (76) palpitation mild angina and intermittent pulse.
- (77) "weakeners" or depression of cardiac nerves.
- (78) Weak irregular action without organic lesion.
- (79) A weak irregular heart with frequent systole.
- (80) Exercise use.
- (81) Irregular Rapid Pulsation.
- (82) Is purely functional. The action of the tobacco mainly reflex.

These eighty-two answers endorse the impressions which we have already formed. All who have answered seem to exclude organic lesions and to regard it as a functional derangement characterized by irregularity, irritability, palpitation and intermission. Some have mentioned the uneasiness and pain which we have before noticed. The majority attribute the disturbance of function to the action of tobacco on the nervous system.

Does it produce marked irregularity of the Pulse?

- |   |  |
|---|--|
| (1) not always but in many cases.   | (22) Yes   |
| (2) Yes and intermittency.  | (23) Yes   |
| (3) Occasionally.   | (24) No  |
| (4) It may.   | (25) Generally   |
| (5) Yes   | (26) It may  |
| (6) Yes   | (27) No  |
| (7) Yes   | (28) Yes   |
| (8) Yes at times.   | (29) Marked but not lasting.   |
| (9) Yes   | (30) Yes   |
| (10) In some cases  | (31) Yes when used to excess or by those who have a special idiosyncrasy otherwise no. |
| (11) Yes in minors  | (32) Yes but more often increased frequency.   |
| (12) Increased frequency.   | (33) Intermittency.  |
| (13) Often the pulse intermits  | (34) Yes   |
| (14) No   | (35) Sometimes.  |
| (15) Not commonly.  | (36) Shows it am satisfied.  |
| (16) In some cases  | (37) Frequently.   |
| (17) No   | (38) Yes   |
| (18) Yes  | (39) Yes   |
| (19) It does frequently. Not only irregularity but intermission one of the most common causes | (40) Yes especially after active exertion.   |
| (20) Yes  | (41) Very rarely.  |
| (21) Only when abused.  |  |

- (41) occasionally
- (42) Yes
- (43) Yes
- (44) Many cases
- (45) When used excessively
- (46) Yes
- (47) Sometimes
- (48) During the attack yes.
- (49) Yes and intermittent pulse
- (50) Yes
- (51) Yes
- (52) Yes
- (53) Only in a few instances.
- (54) Not generally certain cases yes.
- (55) In some it does, but generally only temporarily, especially in neophytes or in moderate and constant smokers, in the latter it may become chronic.
- (56) No-slowness and weakness
- (57) Yes
- (58) In some cases
- (59) Yes

- (60) no
- (61) at times
- (62) In some cases very marked.
- (63) Yes when patient is already weak
- (64) Yes exceptionally.
- (65) Yes
- (66) Yes sometimes.
- (67) It may.
- (68) It may.
- (69) at times
- (70) Frequently.
- (71) Yes
- (72) Yes
- (73) Yes
- (74) Frequently even intermission
- (75) Yes frequently.
- (76) Yes
- (77) Yes often
- (78) Yes
- (79) No except occasionally.
- (80) Yes
- (81) Not that I have noticed.
- (82) at times.
- (83) In advanced stage.
- (84) Yes.

(85) Yes

(87) Yes

(86) Yes

(88) Increases frequency.

This question was asked with a view of ascertaining whether intermittence, which some regard as a constant symptom of tobacco excess, is generally recognized by medical men. I did not use the word 'intermittence' in my question as I did not desire to lead to an answer. After sending the questions off I regretted having used the word 'marked irregularity'. As will be seen several have stated that it does produce intermittence, one (19) regarding it as one of the most common causes.

It is interesting to notice that some have stated that increased frequency, others that an opposite condition of the pulse is the result of the use of tobacco. I explain this difference of opinion on the ground that in the one case the tobacco exerted its stimulating and in the other its depressing or narcotic action.

One (30) mentions the idiosyncrasy for tobacco of which we have frequently taken notice.

There is evidence in these eighty-eight answers of considerable difference of opinion both as regards the effects of tobacco on the pulse and the frequency with which the pulse is affected.

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Have you ever seen it lead to hypertrophy or  
to valvular disease or to both?

- |   |                               |
|---|-------------------------------|
| (1) no                                    | (23) never                    |
| (2) no                                    | (24) no                       |
| (3) Yes to hypertrophy                    | (25) no                       |
| (4) no                                    | (26) no                       |
| (5) one fatal case of dilated heart       | (27) no                       |
| (6) no                                    | (28) no                       |
| (7) no                                    | (29) no                       |
| (8) no                                    | (30) no                       |
| (9) To hypertrophy never valvular.        | (31) Yes to valvular disease. |
| (10) no neither.                          | (32) no                       |
| (11) It does not produce organic disease  | (33) no                       |
| (12) no                                   | (34) no                       |
| (13) 1. hypertrophy 2. fatty degeneration | (35) no                       |
| 3. dilatation 4. Mitral insufficiency.    | (36) never                    |
| (14) no                                   | (37) no                       |
| (15) no                                   | (38) hypertrophy              |
| (16) no                                   | (39) no                       |
| (17) not positive.                        | (40) No not positively.       |
| (18) hypertrophy                          | (41) no                       |
| (19) no                                   | (42) no                       |
| (20) never                                | (43) no                       |
| (21) never                                | (44) no                       |
| (22) no                                   | (45) no                       |

- (46) no
- (47) no
- (48) no
- (49) Both
- (50) no
- (51) no
- (52) no
- (53) never
- (54) no
- (55) Hypertrophy.
- (56) no
- (57) no
- (58) no
- (59) no
- (60) no
- (61) no
- (62) Hypertrophy with dilatation
- (63) no
- (64) Slight hypertrophy amounts to nothing from palpitation
- (65) No hypertrophy.
- (66) no
- (67) no
- (68) no
- (69) no
- (70) no, more apt to cause dilatation
- (71) never
- (72) no
- (73) not positive.
- (74) no
- (75) no
- (76) no
- (77) neither
- (78) no
- (79) no
- (80) I think I have several cases of valvular disease due to tobacco.
- (81) no

Do you find "Tobacco Heart" of Common Occurrence?

- |  |  |
|--|--|
| (1) no                                 | (25) no  |
| (2) never                              | (26) no  |
| (3) not very                           | (27) no  |
| (4) no                                 | (28) not very  |
| (5) no                                 | (29) not very common   |
| (6) Rather common                      | (30) Of rather common occurrence   |
| (7) no                                 | (31) Yes   |
| (8) Yes                                | (32) Among young smokers yes.  |
| (9) no                                 | (33) Yes chiefly in those under 30 years of age                                    |
| (10) Fairly so                         | (34) No  |
| (11) Yes                               | (35) Yes among those who smoke more than the average and nervous subject           |
| (12) no                                | (36) no  |
| (13) Yes                               | (37) no  |
| (14) Only in excessive smokers         | (38) Yes in those who smoke to excess.   |
| (15) Yes in those who work in tobacco. | (39) Not in my practice  |
| (16) no                                | (40) no  |
| (17) no                                | (41) not very.   |
| (18) no but is not rare.               | (42) not very except in old, fat or weak   |
| (19) Yes                               | (43) yes   |
| (20) Quite common                      | (44) not very  |
| (21) Yes                               | (45) no  |
| (22) No                                | (46) Not so common as the frequency of the Smoking habit would lead one to expect. |
| (23) no                                |  |
| (24) no                                |  |

- (47) No
- (48) Yes
- (49) Not of common occurrence
- (50) Yes
- (51) No, cigarette smoking  
Boys seem more affected.
- (52) Yes
- (53) Yes
- (54) Moderately so
- (55) Yes
- (56) No
- (57) No
- (58) Quite
- (59) No
- (60) Yes
- (61) Very
- (62) Yes
- (63) No
- (64) Quite frequent
- (65) Frequently in those who  
indulge irregularly in  
excess.
- (66) No
- (67) No
- (68) No
- (69) Yes
- (70) Yes
- (71) Very uncommon.
- (72) Not common
- (73) No
- (74) No when compared with the  
number of smokers.
- (75) No
- (76) Not in proportion to the  
number of those using tobaccos.
- (77) Not very considering the  
frequency of the habit.
- (78) No
- (79) No
- (80) Yes
- (81) Yes.
- (82) No.

It will be noticed that the greater number of those who have answered this question are of the opinion that 'Tobacco Heart' is not of common occurrence, and I believe that when compared with the number of tobacco users the condition must be rare thus agreeing with two or three whose answers are in this list.

Those who are of the opinion that it manifests itself chiefly among excessive smokers and among the youth endorse the opinions which we have already formed and I should say that these disturbances of the cardiac functions are among the earliest signs of tobacco excess.

Is it more common in nervous or phlegmatic people?

- |                                     |   |
|-------------------------------------|---|
| (1) nervous                         | (25) nervous  |
| (2) nervous                         | (26) Either in very nervous people or in the phlegmatic where there is fatty degeneration of the heart. |
| (3) nervous                         | (27) nervous  |
| (4) nervous.                        | (28) nervous  |
| (5) nervous                         | (29) nervous  |
| (6) nervous                         | (30) nervous  |
| (7) nervous                         | (31) nervous  |
| (8) nervous                         | (32) unquestionably nervous   |
| (9) nervous                         | (33) nervous  |
| (10) nervous                        | (34) Phlegmatic   |
| (11) nervous                        | (35) nervous  |
| (12) nervous                        | (36) nervous  |
| (13) nervous                        | (37) nervous  |
| (14) nervous but phlegmatic also    | (38) nervous  |
| (15) In nervous people              | (39) nervous  |
| (16) nervous                        | (40) nervous  |
| (17) Common in both more in nervous | (41) nervous  |
| (18) nervous                        | (43) nervous  |
| (19) nervous                        | (44) nervous  |
| (20) nervous                        | (45) nervous  |
| (21) nervous                        | (46) Temperaments do not affect the results of use of tobacco.  |
| (22) nervous                        |   |
| (23) nervous                        |   |
| (24) nervous                        |   |

- |  |                              |
|--|------------------------------|
| (47) Nervous   | (71) Nervous                 |
| (48) Nervous   | (72) Phlegmatic              |
| (49) Phlegmatic  | (73) No difference           |
| (50) About the same  | (74) Phlegmatic              |
| (51) Nervous   | (75) Among this and Nervous. |
| (52) Nervous   | (76) In Nervous.             |
| (53) Nervous   |                              |
| (54) Nervous   |                              |
| (55) Nervous   |                              |
| (56) Both especially weak and fat.   |                              |
| (57) Nervous   |                              |
| (58) Nervous   |                              |
| (59) Nervous   |                              |
| (60) Nervous   |                              |
| (61) Nervous   |                              |
| (62) Phlegmatic.   |                              |
| (63) More common in <del>neurotic</del> but<br>not uncommon in phlegmatic. |                              |
| (64) Nervous   |                              |
| (65) Nervous   |                              |
| (66) Nervous   |                              |
| (67) Apparently no difference  |                              |
| (68) Nervous   |                              |
| (69) Nervous   |                              |
| (70) Nervous   |                              |

A glance at these seventy-six answers shows us that there is little difference of opinion in the belief that people of a nervous type are more liable to suffer from the effects of tobacco excess than those who are phlegmatic. This is of course quite natural since an individual whose nervous system is naturally liable to functional derangements will be more susceptible to the action of a substance which produces its effects through the nervous system.

Which are more liable to it Smokers of pipes, cigars,  
or Cigarettes?

- |  |   |
|--|---|
| (1) Have seen it most in cigarette smokers                                 | (20) Cigarettes   |
| (2) Not the form but the amount used, In my experience it has been cigars. | (21) Cigarettes   |
| (3) Smokers of Cigarettes.   | (22) Smokers of pipes   |
| (4) 1 <sup>st</sup> Cigarettes 2 <sup>nd</sup> pipes.                      | (23) Cigarettes next strong cigars  |
| (5) Those that "inhale"  | (24) Cigars if strong in constant smokers                                     |
| (6) Cigar & Cigarette inhalers   | (25) Cigarettes next pipes  |
| (7) Cigarettes.  | (26) Cigarettes next pipes.   |
| (8) Cigarettes   | (27) pipes  |
| (9) Cigars   | (28) 1 <sup>st</sup> Cigarettes, 2 <sup>nd</sup> pipes 3 <sup>rd</sup> cigars |
| (10) 1 <sup>st</sup> Cigars 2 <sup>nd</sup> Cigarettes.                    | (29) Cigarettes as used by children & youths                                  |
| (11) Cigars & Cigarettes   | (30) Cigar smokers  |
| (12) Smokers of pipes  | (31) Cigars   |
| (13) Cigars  | (32) Cigars   |
| (14) Simply a question of the amount                                       | (33) Cigarettes because of inhalation.  |
| (15) Cigarettes.   | (34) Cigarettes poison quicker.   |
| (16) Cigars and Tobacco workers.   | (35) Rank pipes & cigars  |
| (17) Cigars  | (36) Depends on degree of indulgence.   |
| (18) Smokers of strong cigars and chewers.                                 | (37) Cigarettes   |
| (19) Cigars  | (38) Cigarettes   |
|  | (39) Cigarettes   |
|  | (40) Cigars   |
|  | (41) Pipe   |
|  | (42) Cigars & Cigarettes especially such smokers as use cigars to very end.   |

- |   |   |
|---|---|
| (43) Cigars   | (60) Cigars                             |
| (44) Cigarettes   | (61) Smokers of Cigarettes              |
| (45) Cigars   | (62) I should say Cigarettes last often |
| (46) Pipes  | (63) Cigarettes                         |
| (47) Cigarettes   | (64) Cigarettes                         |
| (48) Pipes and Chewing                                    | (65) (1) Cigarettes when young smokers  |
| (49) Cigarettes   | (2) Cigars when smoked to excess.       |
| (50) Cigarettes most of all                               | (66) Strong Cigars                      |
| (51) Cigarettes I think                                   | (67) (1) Cigars (2) Cigarettes          |
| (52) Cigarettes   | (68) Cigarettes                         |
| (53) Cigars   | (69) Which even the smokers abuse.      |
| (54) Cigarettes became most<br>indulged in by adolescents | (70) Cigarettes.                        |
| (55) Smokers of Cigars                                    | (71) Cigars                             |
| (56) (1) Cigars (2) Cigarettes                            | (72) Cigars.                            |
| (57) (1) Cigars (2) Cigarettes (3) Pipes                  |   |
| (58) Cigarettes   |   |
| (59) Cigar Smokers  |   |

The answers to this question are of particular interest. We find cigarettes are most mentioned as a cause of the ill effects of tobacco. I am of the opinion that this is true both from the fact, which some have mentioned, that they are more used by the youth and

that they are more available and handy. It is so easy for a man to light a cigarette, smoke a few puffs and then throw it away that he is apt to fall into the habit of continually having one in his mouth. There is still another danger in cigarette smoking; as a rule they are made of light tobacco, which, to get the full taste of, the smoker is frequently given to inhaling thus allowing the tobacco a more ready means of entrance into the system and at the same time irritating the pharynx, larynx and bronchi. Next in order come cigars which I believe might be placed on the same level as the pipe were the smoker to use a mouthpiece and throw away the last half inch or so of it which is apt to be saturated with the oil produced by burning.

I think that the least harmful of all the methods of using tobacco is use of the Turkish water pipe, next a long stemmed porous clay frequently changed, next the ordinary briar-root and the cigar and lastly the cigarette. Though I make this distinction between the various methods of using tobacco I still firmly agree with those who express the opinion that the effects are chiefly dependant on the quantity of tobacco used.

About what percentage of Smokers Suffer?

- |  |  |
|--|--|
| (1) All who inhale                       | (24) About 40% of inconstant smokers   |
| (2) Not over 20 per cent                 | (25) About 1%                          |
| (3) A very small percentage              | (26) About 10 to 20%                   |
| (4) Very small in my experience          | (27) All                               |
| (5) Roughly about 2 or 3%                | (28) probably 50%                      |
| (6) About 3%                             | (29) 5%                                |
| (7) One percent                          | (30) 2%                                |
| (8) All who smoke to excess at times     | (31) About 5%                          |
| (9) One half at least of excessive users | (32) Very small                        |
| (10) Percentage is calculably small      | (32) Very small                        |
| (11) A large number                      | (33) A very small percentage certainly |
| (12) Only those who smoke to excess      | (34) Probably not one in fifty         |
| % very small.                            | (35) About 5%                          |
| (13) Not very large percentage           | (36) About 20%                         |
| (14) About 10%                           | (37) A very small number               |
| (15) A very small one indeed.            | (38) 1/10 %                            |
| (16) A very small one                    | (39) Small proportion                  |
| (17) Unable to say but very small        | (40) Not many                          |
| (18) 20% at times.                       | (41) 10%                               |
| (19) More than half possibly 9/10        | (42) One in five included.             |
| (20) Half.                               | (43) Very small                        |
| (21) Very small percentage               | (44) Nearly all more or less           |
| (22) 1/2 of 1% to 1%                     |  |
| (23) Very small                          |  |

The fact that only forty-four have given any answer to this question and many others have stated that they could give no estimate does not surprise me for I do not believe it possible to give more than a vague idea of what the percentage would be taking into consideration all who smoke or use tobacco. Those who have placed it at ten per cent and upwards, are I am convinced, far above the true proportion, even five per cent is in my opinion too high an estimate.

# XI

the Effects  
depends on  
using it as  
pure  
4.7. Shiel

## Secondly as to its effects on the Nervous System

### Does it increase or lessen mental activity?

- |   |   |
|---|---|
| (1) It increases the activity if moderately used.   | (12) Lessens.   |
| (2) I should say lessen, every time.  | (13) Does not increase.   |
| (3) It depends on the Subject and the quantity of Tobacco.  | (14) Lessens.   |
| (4) Decidedly lessens it.   | (15) Unconstant.  |
| (5) Increases it.   | (16) Increases it temporarily.  |
| (6) I have seen both effects, it depends upon the temperament, state of Stomach &c.                               | (17) Increases in habitues.   |
| (7) Increases   | (18) Yes increases as a rule.   |
| (8) Sometimes it causes mental torpor to a greater or less degree. In other cases it causes nervous irritability. | (19) Generally increases it when used in moderation. In my own case the reverse.  |
| (9) Tends often to increase when systematically included in for that purpose.                                     | (20) Lessens.   |
| (10) Decreases  | (21) When a emotion is engaged in mental work I find that the use of tobacco in the shape of smoking a cigar aids him in the pursuit of his labour. Exceptions to this rule have, however, been frequently noticed by me. |
| (11) I think like all narcotics of the family Salmacae it lessens or has a tendency to lessen mental activity.    | In the course of time I believe the effect of tobacco to lessen mental activity in the majority of cases.   |

- (22) Lessens.
- (23) Soothes and quiets rather  
lessens.
- (24) Direct effect is to increase  
it. Secondly a diminution.
- (25) Lessens.
- (26) Stimulates it.
- (27) Like all cerebral stimulants  
first increasing afterward  
lessening.
- (28) First increases then lessens.
- (29) Yes & No it depends on the  
temperament.
- (30) Increases "the flow of ideas"  
in many smokers.
- (31) Lessens.
- (32) Acts differently in different  
persons.
- (33) Neither, but used moderately  
it steadies it.
- (34) Lessens.
- (35) Both.
- (36) Lessens as a rule.
- (37) Neutral.
- (38) Lessens.
- (39) Rather tends to increase  
it.
- (40) In some it lessens and  
in some increases.
- (41) Both.
- (42) Increases commonly.
- (43) Increases (in moderation).
- (44) Decreases in those not  
used to it, increases in  
those used to it.
- (45) I think the smoker loses  
considerable energy he might  
otherwise display.
- (46) In some increases other it  
lessens.
- (47) It does both on either  
according to the individual.
- (48) Probably increases mental  
activity for habitual smokers.
- (49) Lessens.
- (50) Appears to increase with  
many.
- (51) Lessens.
- (52) Increases when used occasion-  
ally. After habit is formed no effect.

- (53) Decidedly makes a slow thinker.
- (54) Equalizes it.
- (55) Increases in nervous people and lessens in phlegmatic.
- (56) Temporarily increases often followed by lessening.
- (57) Increases it temporarily in case of habitual smokers.
- (58) Moderate use no effect. Excessive use positively lessens mental activity.
- (59) It increases it but does not sustain it. Immoderate smoking disturbs it very much in many people.
- (60) Increases.
- (61) It soothes and probably lessens.
- (62) Tends to lessen.
- (63) Lessens.
- (64) Both.
- (65) Increases in some
- (66) Lessens.
- (67) In moderation it helps an exhausted brain.
- (68) In some cases it increases and in other cases lessens mental activity.
- (69) Increases.
- (70) Increases
- (71) During mental labour, in writing I think it increases the mental activity in my case.
- (72) In many cases it increases mental activity.
- (73) In hand workens sometimes increases but more often lessens.
- (74) I think in some it aids by stimulating.
- (75) Generally increases.
- (76) Lessen
- (77) Lessen decidedly.
- (78) Increases.
- (79) Decreases.
- (80) Increases.
- (90) Depends on individual.
- (91) may do either.

To this question the answers would seem to be decidedly contradictory. Should we divide the ninety-one answers into thirds, we find that about a third state that tobacco increases the brain activity, a third that it decreases, and a third that it may act in both ways. A few refer to its steadying and soothing action while one or two think it neutral in regard to this organ. Now though contradictory, I am of the opinion that all who have answered this question are right. Tobacco acts in different ways on different individuals, in some it increases the power of thought, and brain application directly, in others it rests and soothes the brain. One fact I am assured of is that brain workers are the users of tobacco, who, next to those undergoing physical hardships, give tobacco the most praise for the good it does them. When used to excess, I am convinced that it interferes with memory and tends to destroy the power for sustained mental application.

There are individuals of whom it may be said, that the tobacco they use acts on the brain, as it does on the other organs in a neutral manner, neither stimulating nor depressing its function.

Does it cause insomnia?

- |   |   |
|---|---|
| (1) Only if used to excess                                      | (24) no   |
| (2) not commonly  | (25) It may do so   |
| (3) I think so  | (26) No   |
| (4) No  | (27) No but frequently disturbs sleep                             |
| (5) Sometimes   | (28) It often does  |
| (6) Yes   | (29) I think not  |
| (7) Often   | (30) No   |
| (8) No  | (31) No   |
| (9) Yes   | (32) Often  |
| (10) I think so   | (33) Yes  |
| (11) No   | (34) Not in my experience.  |
| (12) Yes in excess.   | (35) No   |
| (13) No   | (36) Not commonly but with a few markedly so.                     |
| (14) No   | (37) No   |
| (15) No except in excess  | (38) No   |
| (16) Not commonly   | (39) It does not  |
| (17) No   | (40) When used immoderately especially at night it does.          |
| (18) Excessive smoking may                                      | (41) No   |
| (19) Rarely   | (42) Smoking Hatten promotes sleep. Excess will produce insomnia. |
| (20) I believe it to be a common cause. It does in my own case. | (43) No.  |
| (21) No   |   |
| (22) No   |   |
| (23) No   |   |

- (44) Hardly ever
- (45) To those accustomed to it,  
it seldom does
- (46) Yes in a great many cases  
who are inclined to be nervous.
- (47) I do not think so
- (48) Yes especially in nervous.
- (49) Rarely.
- (50) No.
- (51) No.
- (52) Frequently in the nervous  
exhausted.
- (53) The reverse.
- (54) No
- (55) No
- (56) Frequently when used before  
bed time.
- (57) No
- (58) No
- (59) No
- (60) By abuse yes.
- (61) When it is not habitually  
used.
- (62) I think not
- (63) In excess yes not otherwise.
- (64) Very often. In my own case.
- (65) No.
- (66) No.
- (67) In my own case yes.
- (68) No.
- (69) No-often the opposite.
- (70) Yes.
- (71) Among young smokers.
- (72) No unless moderately used.
- (73) In some cases
- (74) Not in my 50 years observation.
- (75) No
- (76) Sometimes yes.
- (77) I think so.
- (78) Yes if used freely in evening
- (79) Yes
- (80) Have never seen it but  
often the opposite effect.
- (81) Yes
- (82) Only when abused.
- (83) In some but not in  
the majority.
- (84) Frequently.

During the time that I was questioning people concerning the effects of tobacco I received several times the answer that if they smoked late at night they suffered from sleeplessness. This lead me to ask this question. As will be seen most of the answers are negative though many have noticed this effect. It seems to me that tobacco excess would be very apt to lead to an inevitable state of the nervous system one of the symptoms of which would be sleeplessness.

Have you ever seen a case where the brain has been permanently affected by its use?

- |   |                                       |
|---|---------------------------------------|
| (1) no.   | (23) no.                              |
| (2) never.  | (24) no.                              |
| (3) no.   | (25) yes.                             |
| (4) no.   | (26) Duller not organically affected. |
| (5) no.   | (27) no.                              |
| (6) Yes but there were other<br>concomitant causes. | (28) not to be certain of it.         |
| (7) Yes.  | (29) no, except functional dementia.  |
| (8) no.   | (30) no.                              |
| (9) no.   | (31) never.                           |
| (10) no.  | (32) no.                              |
| (11) no.  | (33) Rarely.                          |
| (12) no.  | (34) no.                              |
| (13) no.  | (35) no.                              |
| (14) no.  | (36) no.                              |
| (15) no.  | (37) no.                              |
| (16) no.  | (38) no.                              |
| (17) no.  | (39) no.                              |
| (18) no.  | (40) no.                              |
| (19) no.  | (41) never.                           |
| (20) no.  | (42) no.                              |
| (21) no.  | (43) no.                              |
| (22) Only through the general health.               | (44) no.                              |
|   | (45) no.                              |

(46) No.

(47) No.

(48) Yes.

(49) No.

(50) No.

(51) No.

(52) In my official report as Superintendent of the State Lunatic Asylum of Ohio

for the year 1851. I find under

the head 'Cause' Tobacco 5.

(3 male 2 female), but at

this distance of time I do

not recollect anything about

them.

(53) No.

(54) Yes.

(55) No.

(56) No.

(57) No.

(58) No.

(59) No.

(60) No.

(61) Not certainly.

(62) No.

(63) No.

(64) No.

(65) No.

(66) No.

(67) Alone No.

(68) No.

(69) No, that is to say I have <sup>never</sup> been able to exactly swear to it but believe it just the same.

(70) No.

(71) No.

(72) Not to my knowledge.

(73) No.

(74) Yes, in great excess.

(75) No.

(76) No.

(77) No.

(78) No.

(79) No.

(80) No.

(81) No.

(82) No.

(83) No.

(84) No.

(85) No. (86) No. (87) No. (88) No.

The general negative tendency of the answers to this question, added to the fact of its not being mentioned in the text-books, justify me in thinking that brain trouble must be a very rare result of tobacco excess. That the moderate use could be followed by any such result is to my mind out of the question.

One of the answers (52), from the former Superintendent of an Asylum, states that five cases were attributed to the use of tobacco. I firmly believe that there must have been some error in diagnosis. The extreme rarity of such cases, seems to me, to make it very doubtful that there could have been five cases of this nature admitted to the wards of a single Asylum in a single year.

In the reports of St Thomas' Hospital, London, I believe there are three cases of Delirium, similar to that of alcohol recorded as due to tobacco. I have been unable to consult these records, but trust I will be pardoned in stating the opinion, that I should be inclined to regard these reports with doubt, and that I think it would be possible to find some other equally probable cause.

Does it increase or lessen the activity of the Spinal cord.?

- |  |  |
|--|--|
| (1) Indirectly increases it.   | (15) Lessens.  |
| (2) Lessens.   | (16) Lessens and diminishes Sexual power.  |
| (3) Probably lessens especially if used to excess.   | (17) Lessens.  |
| (4) Probably increases.  | (18) May lessen or increase.   |
| (5) I believe if anything it has a tendency to lessen the activity of the whole Cerebro-Spinal System. | (19) Lessens   |
| (6) Increase.  | (20) Neither.  |
| (7) Increase.  | (21) I have seen the Sexual desire abolished by its use, to return after leaving it off. |
| (8) Lessen.  | (22) Moderately increase immediately lessen.   |
| (9) Increases.   | (23) Increases.  |
| (10) It lessens when used to excess.   | (24) Lessens.  |
| (11) Lessens it if ability to work and inclination for Sexual intercourse and the like are meant.      | (25) I have thought it increased the activity of the cord in most cases.                 |
| (12) May lessen activity.  | (26) Lessens.  |
| (13) Lessen.   | (27) Lessens.  |
| (14) I should think it lessens by over stimulation.  | (28) Lessens   |
|  | (29) Lessens   |
|  | (30) It may produce a state of inevitable weakness of Spinal functions.                  |

- |  |   |
|--|---|
| (31) Sometimes one sometimes the other.                    | (41) Moderate use increases, excess decreases.                            |
| (32) Do not know of marked effect in either direction.     | (42) Lessens.   |
| (33) Perhaps over stimulates.                              | (43) Tends rather to lessen.  |
| (34) I think it increases the reflex activity of the cord. | (44) First increases and then secondarily lessens.                        |
| (35) It increases it.                                      | (45) If used in great moderation perhaps to increase otherwise to lessen. |
| (36) Should think lessens.                                 | (46) Increases.   |
| (37) Lessens it.   |   |
| (38) Neither.  |   |
| (39) Increases.  |   |
| (40) Increases.  |   |

I have asked this question chiefly with the object of discovering whether medical men had noticed any action of tobacco on the sexual system, or in regard to the act of defecation. One or two seem to have noticed a deleterious action on the sexual functions. The others are divided in opinion some attributing increased and others lessened spinal activity to the use of tobacco.

Does it cause tremulous hands?

The effects of  
excess on those  
using it as a  
stimulant  
E. F. Smith

- |  |  |
|--|--|
| (1) I have known of one case very marked.  | (18) Have seen one case  |
| (2) Yes.   | (19) Yes.  |
| (3) Yes.   | (20) It may in certain subjects.                                 |
| (4) Have never observed it except in persons who used at the same time excessively alcoholic drinks. | (21) Yes when used in large quantities or by neurotic subjects.  |
| (5) Yes.   | (22) Yes.  |
| (6) Yes.   | (23) Yes at times.   |
| (7) Yes.   | (24) Yes.  |
| (8) Yes sometimes if there is a susceptibility.  | (25) It may.   |
| (9) Yes  | (26) Yes.  |
| (10) Yes if used to excess.  | (27) Yes.  |
| (11) Yes often. Have seen this in excessive use of cigarettes frequently.                            | (28) Yes.  |
| (12) No  | (29) Yes decidedly   |
| (13) By abuse.   | (30) Yes.  |
| (14) Yes   | (31) At times.   |
| (15) Yes. often.   | (32) Yes.  |
| (16) Yes.  | (33) I have seen a case that I attributed to the use of tobacco. |
| (17) Yes.  | (34) Yes.  |
|  | (35) Yes.  |
|  | (36) Yes.  |
|  | (37) Yes.  |
|  | (38) Yes in excess.  |
|  | (39) Sometimes.  |

- (40) Used immoderately it does.
- (41) Sometimes.
- (42) Only when abused.
- (43) Yes.
- (44) Lack of it does in an habitual smoker.
- (45) Yes.
- (46) Yes.
- (47) Yes.
- (48) Often.
- (49) Sometimes
- (50) Yes.
- (51) Yes.
- (52) at times
- (53) In some cases
- (54) Yes when used to excess.
- (55) Undoubtedly
- (56) Quite often I believe.
- (57) Yes.
- (58) Yes.
- (59) May do so.
- (60) Doubtful.
- (61) Yes rarely.
- (62) Yes.
- (63) Not by itself.

- (64) In some cases.
- (65) It does emphatically.
- (66) Rarely.
- (67) Used to excess it certainly does as operations upon the eye know too well.
- (68) Owing to its frequent use with alcohol hard to answer.
- (69) Often.
- (70) When used to excess.
- (71) occasionally
- (72) In excess yes.
- (73) Yes.
- (74) Yes.
- (75) Yes.
- (76) Yes.
- (77) Yes.
- (78) No.
- (79) Excessive smoking in youth.
- (80) Yes.
- (81) It may
- (82) Yes.
- (83) It seems to me that it sometimes does; the trouble is to exclude alcohol as a cause.

- |  |                 |
|--|-----------------|
| (84) Yes if used to excess.              | (89) Yes.       |
| (85) Yes.                                | (90) no         |
| (86) Yes.                                | (91) Not alone. |
| (87) Yes, though not so much as alcohol. |                 |
| (88) Yes                                 |                 |

The answers to this question are nearly all in the affirmative and carry us out in the opinions we have already formed. There can however be no doubt that, in cases where alcohol is used to excess as well as tobacco, we would be more justified in attributing the condition to the former habit.

Kindly as to its effects on the alimentary system  
Does tobacco increase or lessen the chances of dental decay?

- |  |   |
|--|---|
| (1) Have never noticed any effect.   | (18) Lessens.   |
| (2) Chewing increases.   | (19) If any influence lessens it.   |
| (3) Lessens if anything.   | (20) It diminishes the chances according to experience and observation.   |
| (4) Lessens it.  | (21) Increases.   |
| (5) I don't think it has any action.   | (22) Lessens.   |
| (6) Smoking retards, Chewing induces to decay in virtue of the molasses &c which the tobacco contains. | (23) No effect.   |
| (7) I believe it lessens.  | (24) Lessens.   |
| (8) Probably increases by its producing dyspepsia.   | (25) Lessens.   |
| (9) Has no influence.  | (26) Blackens but no other effect.  |
| (10) Habituals rarely have good teeth.   | (27) Lessens.   |
| (11) Lessens.  | (28) Increases both directly and indirectly through digestion.  |
| (12) neither.  | (29) Lessens.   |
| (13) Lessens   | (30) Lessens.   |
| (14) Increases.  | (31) Should say lessens.  |
| (15) Said to lessen.   | (32) Chewing lessens the liability to decay, Smoking has no perceptible effect, either way. Chewing or smoking equally lessens liability to dental decay. |
| (16) Dentists inform me that it lessens.   |   |
| (17) Lessens.  |   |

- |   |                               |
|---|-------------------------------|
| (33) Decreases I think.   | (46) No effect                |
| (34) Lessens.   | (47) Lessens sensitiveness    |
| (35) I think it decreases.                                      | (48) No effect.               |
| (36) Generally believed to lessen.                              | (49) Lessens as an antiseptic |
| (37) Chewing retards while smoking<br>increases.                | (50) Lessens.                 |
| (38) Decay is not so rapid where<br>tobacco is habitually used. | (51) Lessens.                 |
| (39) Lessens.   | (52) Neither.                 |
| (40) Increases.   | (53) Increases.               |
| (41) Lessens.   | (54) Increases.               |
| (42) Increases.   | (55) Indefinite.              |
| (43) Increases.   |                               |
| (44) Lessens.   |                               |
| (45) No effect.   |                               |

I had expected when I asked this question to find nearly all of the opinion that tobacco lessened the dental decay. One of those whom I asked referred to his dentist, who stated that he thought it had a preventative action. It is evident, that were tobacco to cause dyspepsia, the dyspepsia would tend to render the teeth more liable to destructive change. Personally I feel convinced that it is either neutral or preventative in this regard on the ground that it is an antiseptic.

Is pharyngitis more common in smokers than in others?

- |  |   |
|--|---|
| (1) Yes.   | (23) Yes.                                 |
| (2) Yes  | (24) Yes.                                 |
| (3) I think so.  | (25) Yes decidedly so.                    |
| (4) Yes markedly so.   | (26) Very common in cigarette<br>smokers. |
| (5) Yes.   | (27) Decidedly more common.               |
| (6) Yes very common.   | (28) Decidedly so.                        |
| (7) Yes.   | (29) Yes.                                 |
| (8) Yes.   | (30) Not more common.                     |
| (9) Yes.   | (31) Yes.                                 |
| (10) Certainly.  | (32) Yes.                                 |
| (11) Yes.  | (33) Yes.                                 |
| (12) It is.  | (34) Yes.                                 |
| (13) Very much more so.  | (35) Yes.                                 |
| (14) Yes.  | (36) I think so.                          |
| (15) Yes.  | (37) Decidedly so.                        |
| (16) Yes.  | (38) Yes.                                 |
| (17) Yes.  | (39) Yes.                                 |
| (18) No.   | (40) Yes.                                 |
| (19) Yes, that is to say simple<br>relaxation or passive congestion<br>of the mucous membrane. | (41) Not within my experience.            |
| (20) Decidedly more common.  | (42) Yes.                                 |
| (21) Yes.  | (43) Yes.                                 |
| (22) Yes.  | (44) Much more.                           |
|  | (45) Yes.                                 |

- (46) Yes
- (47) Yes.
- (48) Yes.
- (49) It undoubtedly is.
- (50) I believe so.
- (51) Yes.
- (52) Yes.
- (53) Have not found it so.
- (54) Not so much as in alcoholics.
- (55) Yes.
- (56) Yes.
- (57) No.
- (58) It is.
- (59) Yes.
- (60) Yes.
- (61) Yes.
- (62) Decidedly.
- (63) Yes.
- (64) Do not think so.
- (65) Yes.
- (66) Yes.
- (67) Yes.
- (68) Yes.
- (69) Yes.
- (70) No.

- (71) Yes.
- (72) Yes - decidedly
- (73) Yes.
- (74) Yes.
- (75) Yes.
- (76) Yes I think so.
- (77) I think twice as frequent as in other persons.
- (78) Not at all.
- (79) Yes.
- (80) Yes.
- (81) Yes.
- (82) Yes.
- (83) I think so.
- (84) Yes.
- (85) Only in those who inhale.
- (86) Decidedly.
- (87) Yes.
- (88) Yes.
- (89) Yes.

These answers carry us out in the opinion that pharyngitis or at least pharyngeal irritation is a common condition among smokers. Many of those answering are specialists in diseases of the throat.

Knowing this, we have a good reason for advising those who suffer from throat troubles, and more especially those who have syphilis, not to smoke, and particularly not to inhale.

Does it increase or lessen the digestive functions?

- |   |  |
|---|--|
| (1) It rather lessens them especially in beginners.     | (17) Rarely impairs digestion when used to excess.   |
| (3) No effect except in excess when it decreases.       | (18) Often improves.   |
| (4) Increases them when not carried to excess.          | (19) Increases.  |
| (5) May lessen, it depends when and how indulged in.    | (20) Increases.  |
| (6) Decidedly accelerates it.                           | (21) In moderation it increases.   |
| (7) Lessens.  | (22) Lessens if excessively used.  |
| (8) Lessens them.                                       | (23) Lessens.  |
| (9) Impairs digestion in people with weak stomachs.     | (24) I believe it aids digestion.  |
| (10) Increases if accustomed to use; otherwise lessens. | (25) Lessens.  |
| (11) I think it helps digestion.                        | (26) Immediately before meals it lessens. After meals increases.                           |
| (12) Lessens.   | (27) In excess it lessens.   |
| (13) Helps digestion if moderately used.                | (28) Often increases the digestive activity.   |
| (14) Generally it lessens the digestive functions.      | (29) Generally slightly lessens.   |
| (15) Much lessens, a little seems to have no effect.    | (30) It increases the digestive functions in some cases.                                   |
| (16) Lessens.   | (31) In nervous exhausted people it increases the digestive function when used moderately. |
|   | (32) Lessens them.   |
|   | (33) Increases in some, lessens in others.   |

- (34) Lessens.
- (35) Excessive use lessens.
- (36) In moderation probably not much effect.
- (37) Sometimes both.
- (38) Lessens.
- (39) When in moderation used it disturbs digestion sometimes very seriously.
- (40) Rather lessens.
- (41) Lessens.
- (42) Generally lessens.
- (43) Usually increases them.
- (44) Lessens.
- (45) Lessens decidedly.
- (46) neither.
- (47) Lessens.
- (48) Lessens.
- (49) Excessive smoking lessens.
- (50) As a rule lessens.
- (51) Primarily increases, eventually lessens.
- (52) Lessens.
- (53) Chewing certainly lessens.
- (54) Different in different persons.
- (55) Lessens.
- (56) Probably lessens only if in excess.
- (57) In excess it retards digestion.
- (58) Lessens.
- (59) Lessens.
- (60) Lessens.
- (61) May act in either way according to circumstances.
- (62) Lessens.
- (63) At first may stimulate later impairs digestion.
- (64) Interferes with function.
- (65) Both actions.
- (66) Lessens.
- (67) It weakens them.
- (68) It may do both.
- (69) Its tendency is to impair digestion.
- (70) In large amounts disturbs.
- (71) A little tobacco is good a great deal bad.
- (72) Lessens.
- (73) Lessens.
- (74) In many cases it lessens; especially in children.
- (75) Yes and No - it depends on temperament and surroundings.

- (76) Lessens
- (77) Increases
- (78) Lessens in the end.
- (79) Lessens.
- (80) It lessens generally
- (81) Lessens
- (82) Is apt to lessen
- (83) It always interferes with, digestion.
- (84) Moderately used it seems to increase.
- (85) Can not say it does either.
- (86) Lessens them
- (87) Lessens somewhat.

- (88) Lessens
- (89) Certainly lessens
- (90) Lessens when used to excess.
- (91) Increases in moderation
- (92) If moderate increase, if excessive decrease.

The general tendency of these answers is to support us in the belief that when moderately used tobacco may and frequently does aid digestion

many are of the opinion that when used to excess it interferes with the digestive functions and one (26), with whom I thoroughly agree, thinks that the use of tobacco immediately before meals is deleterious.

Can you attribute any case of dyspepsia directly to its use?

- |  |   |
|--|---|
| (1) No, or perhaps only in a few<br>whose dyspeptic symptoms<br>improved or even disappeared<br>after giving up the use of<br>tobacco. This I notice more<br>in chewers than in smokers. | (17) No.<br>(18) Yes.<br>(19) Yes.<br>(20) No.<br>(21) Yes plenty.<br>(22) Yes. |
| (2) No.  | (23) No.  |
| (3) Yes often.   | (24) Yes.   |
| (4) I am inclined to think, yes.   | (25) No.  |
| (5) Only when chewed to excess<br>or inhaled.  | (26) No.<br>(27) I can.   |
| (6) Yes.   | (28) No.  |
| (7) Yes.   | (29) No.  |
| (8) No.  | (30) No.  |
| (9) Yes.   | (31) Doubtful.  |
| (10) I can not.  | (32) No.  |
| (11) Have noticed no inconveniences<br>after stopping use especially<br>among chewers.   | (34) Yes to chewing.<br>(35) Yes.<br>(36) Yes.                                  |
| (12) No.   | (37) Transitory yes.  |
| (13) Yes many.   | (38) Yes.   |
| (14) Yes.  | (39) Yes.   |
| (15) Yes.  | (40) Yes.   |
| (16) Yes.  | (41) Yes.   |

- (42) Many.
- (43) Yes in Chewers.
- (44) No.
- (45) Yes.
- (46) Yes.
- (47) From the result of long observation it is my impression that it is a decided cause of dyspepsia.
- (48) No.
- (49) Yes.
- (50) No.
- (51) Not its use but its abuse.
- (52) Yes.
- (53) One case where both tobaccos and tea were used to excess.
- (54) Yes.
- (55) Yes.
- (56) Yes.
- (57) Yes.
- (58) Yes.
- (59) I have seen some cases of temporary indigestion caused by it.
- (60) No.
- (61) No.
- (62) I believe it frequently causes dyspepsia by retarding the digestive process. Yet I know of an instance where a cigarette smoked after each meal was thought by an eminent physician to have cured him of a very troublesome dyspepsia which nothing else relieved.
- (63) No, but it is often a good adjunct.
- (64) Yes nearly every one who smokes much has dyspepsia.
- (65) No.
- (66) Yes.
- (67) I have known many cases of most severe dyspepsia caused by it.
- (68) Yes.
- (69) Yes.
- (70) Not directly.
- (71) Not with certainty.
- (72) Many.
- (73) No.

- (74) Yes.  
(75) Yes.  
(76) Yes.  
(77) Yes.  
(78) I think so.  
(79) Yes.  
(80) Quite a number.  
(81) Yes.  
(82) No.  
(83) Yes.  
(84) Have seen several.  
(85) Yes.  
(86) Yes from chewing.  
(87) Only one case.  
(88) No.  
(89) Yes.

The answers here would certainly support the opinion that the use of tobacco in excess may cause dyspepsia. Several have referred to chewing as a more usual cause and for reasons which I have already given I am of the same opinion.

XIII

The effects of  
sarcos on those  
using it as a  
purgative  
W. F. Shue

Have you ever noticed a case where it certainly acted  
as a laxative?

- |  |                                      |
|--|--------------------------------------|
| (1) Yes.   | (22) Never.                          |
| (2) Yes.   | (23) No.                             |
| (3) No.  | (24) Rarely.                         |
| (4) No.  | (25) Yes - several.                  |
| (5) Yes.   | (26) No.                             |
| (6) Yes - several, where something<br>a sign would immediately cause<br>a desire to go to stool. | (27) No.                             |
| (7) Occasionally.  | (28) I have seen it act in this way. |
| (8) Yes.   | (29) Yes.                            |
| (9) No.  | (30) No.                             |
| (10) No.   | (31) Yes often.                      |
| (11) Many cases.   | (32) No.                             |
| (12) No.   | (33) No.                             |
| (13) Yes.  | (34) Many cases.                     |
| (14) Very often.   | (35) Yes.                            |
| (15) Yes one.  | (36) No.                             |
| (16) Yes.  | (37) Yes.                            |
| (17) One.  | (38) Yes.                            |
| (18) Yes.  | (39) No.                             |
| (19) Yes in many people.   | (40) No.                             |
| (20) No. Often heard patients say so.  | (41) Yes.                            |
| (21) As a rule tends to constipation   | (42) Yes.                            |
|  | (43) No.                             |
|  | (44) Yes.                            |

- (45) Yes frequently.
- (46) Yes.
- (47) Yes - especially a strong cigar.
- (48) Yes Several careful observers have told me that a morning cigar has this effect.
- (49) Yes.
- (50) Yes a pipe and a glass of water is used for that purpose by many Germans.
- (51) I have thought so.
- (52) Yes.
- (53) Yes - that is where smoking prevented constipation.
- (54) Yes.
- (55) Yes.
- (56) Yes.
- (57) Yes Several.
- (58) No.
- (59) I have.
- (60) Yes - in my own case.
- (61) Yes.
- (62) Frequently.
- (63) Yes.
- (64) Yes.
- (65) Frequently.
- (66) Yes a large number.
- (67) No.
- (68) In my own case at times.
- (69) Yes.
- (70) Yes.
- (71) Yes.
- (72) Several.
- (73) Yes.
- (74) Yes.
- (75) No.
- (76) No.
- (77) Yes especially in those who are not long accustomed to it.
- (78) Yes.
- (79) Yes.
- (80) Yes Several.
- (81) Frequently.
- (82) I have.
- (83) No.
- (84) Yes.
- (85) Considerable number.
- (86) No.
- (87) Yes Several cases.
- (88) No.

During the time that I was questioning different people as to the effects tobacco had on them, I was frequently informed that it acted as a laxative. This led me to put the question to medical men. A glance over the answers, will show that even from so small a number, as eighty-eight, there are many who have observed this effect, which I would attribute to an increase in the activity of the spinal reflex.

Do you believe it causes emaciation?

- (1) Yes.
- (2) Only in young people when the smoke is inhaled.
- (3) Yes.
- (4) Not directly.
- (5) No.
- (6) Yes if used to excess.
- (7) Sometimes not often.
- (8) Yes.
- (9) I do: with some persons.
- (10) No.
- (11) Indirectly Yes: by interfering with assimilation.
- (12) Sometimes and sometimes the reverse.
- (13) No.
- (14) Yes.
- (15) By lessening the desire for food.
- (16) No.
- (17) Yes.
- (18) By impairing appetite.
- (19) Yes.
- (20) Have seen repeated evidence of reduction of weight. Particularly from chewing.
- (21) Used to excess yes.
- (22) Yes at times.
- (23) Yes may when the habit is abandoned. I have known marked increase in weight. One case 30 lbs in three months.
- (24) If used to excess.
- (25) Yes if used to excess.
- (26) Yes.
- (27) It only increases the tendency.
- (28) In young men under 21 and boys (especially such as are of nervous temperament) it does often cause emaciation.
- (29) If persistently used, yes.
- (30) Yes to some extent.
- (31) Not as a usual result.
- (32) Yes.
- (33) Yes.
- (34) Yes.
- (35) Yes.
- (36) In some cases yes.
- (37) No.
- (38) Chewing yes Smoking No.

- (39) No except when used in excess.
- (40) Yes.
- (41) Yes.
- (42) Not in the habitual user.
- (43) Often.
- (44) Only indirectly.
- (45) No.
- (46) No.
- (47) Yes.
- (48) Only by interfering with digestion.
- (49) Not alone.
- (50) Only when large quantities of nicotine are swallowed or there is profuse expectoration.
- (51) Yes by impairing the appetite.
- (52) Yes when the stomach does not bear it well.
- (53) No unless the digestion is profoundly disturbed.
- (54) No.
- (55) No.
- (56) No.
- (57) Excessively used, yes.
- (58) No.
- (59) No.
- (60) Depends on amount used. Excess of emme produces emaciation.
- (61) Only when used in excess.
- (62) In some cases, certainly not always.
- (63) Reduces flesh but does not cause emaciation.
- (64) Yes if used to excess.
- (65) No.
- (66) Excessive cigarette smoking and inhaling the fumes do.
- (67) No.
- (68) No.
- (69) No.
- (70) Yes.
- (71) as a result of dyspepsia, yes.
- (72) Frequently.
- (73) Sometimes.
- (74) No.
- (75) Excessive use yes.
- (76) Yes, especially in the young.
- (77) Not when it does not cause loss of appetite.
- (78) Yes in those who spit a great deal.
- (79) No.
- (80) Yes.
- (81) Yes if in excess.

- |   |  |
|---|--|
| (82) No.  | (87) Yes   |
| (83) no.  | (88) No, rather the contrary.                                    |
| (84) Yes.   | (89) Rather the contrary, for the                                |
| (85) Yes in certain cases to excess.                | immense number of smokers I got acquainted with in my long       |
| (86) I have thought so where chewing was practiced. | life (67 years) are corpulent. I might say securely 80% of them. |

Here we have a variety of opinion. It would seem that loss of weight is more to be remarked in the youth and among those who use tobacco to excess especially by chewing, the loss being brought about through intemperance with the digestion. Some state that tobacco has no such effect and one (89) goes as far as to say that it is an opposite action and that 80% of smokers are corpulent. Personally I believe that, excepting the youth and very excessive smokers, the average user of tobacco is as well nourished as others. My reason for asking the question at all was that I had frequently read, in the writings of the Anti-tobacco School, that smokers and chewers usually were thin and poorly developed.

Regarding its Effects on the Respiratory System.

Have you reason to believe that smoking has any direct effect on the lungs?

- |   |  |
|---|--|
| (1) No except the person is predisposed to lung disease.                                  | (15) No.   |
| (2) No.   | (16) I think it is an irritant in weak lungs.          |
| (3) no.   | (17) Yes.  |
| (4) Yes but it depends on the manner of smoking.  | (18) No.   |
| (5) Not smoking but inhaling the fumes.   | (19) No.   |
| (6) No.   | (20) No.   |
| (7) I have not.   | (21) No.   |
| (8) Yes it irritates the bronchial mucous membrane especially cigarettes. I have seen it. | (22) Not except inhalation of cigarettes.              |
| (9) Yes by inducing bronchitis and subsequent phthisis                                    | (23) No.   |
| (10) Decidedly No.  | (24) No.   |
| (11) Inhalation of smoke causes a peculiar bronchitis.                                    | (25) No.   |
| (12) No unless the smoke is inhaled.  | (26) Not direct but secondary by producing cough.      |
| (13) no.  | (27) No.   |
| (14) In some cases.   | (28) No.   |
|   | (29) No.   |
|   | (30) none.   |
|   | (31) Yes when smoke is inhaled into the lungs.         |
|   | (32) No.   |
|   | (33) No except cigarette smoking which certainly does. |

- (34) No.
- (35) No.
- (36) No.
- (37) No.
- (38) Yes.
- (39) Favourable if not to excess.
- (40) No.
- (41) No.
- (42) Yes.
- (43) No if not inhaled.
- (44) No.
- (45) No.
- (46) Not in moderation.
- (47) None in my opinion.
- (48) No.
- (49) No.
- (50) Cigarette Smoking - Yes.
- (51) No.
- (52) No.
- (53) No.
- (54) No.
- (55) Yes.
- (56) No.
- (57) If the Smoke is inhaled  
Yes positively.
- (58) It relieves asthma.
- (59) No.
- (60) No.
- (61) Yes.
- (62) If Smoke is inhaled yes.
- (63) Yes it will prolong bronchitis.
- (64) Yes.
- (65) No.
- (66) No favourable perhaps.
- (67) Not if healthy.
- (68) When inhaled yes.
- (69) No.
- (70) Have not seen any.
- (71) Yes irritant
- (72) I think no effect.
- (73) Doubtful.
- (74) Only a sedative in asthma.
- (75) No.
- (76) By producing bronchitis.
- (77) Sometimes - have seen persistent  
local bronchitis recover on stopping  
Smoking.
- (78) No.
- (79) No. (80) No. (81) No. (82) No.
- (83) Yes if Smoke is inhaled, especially  
cigarettes.

There are a considerable number who have answered this question in the negative and except where the Smoker inhales I think they are right, but as many have said, it seems to me, that when the Smoke, by inhalation, is brought into direct contact with the delicate mucous membrane of the bronchi, some irritation and even emphysema and inflammation must result. As I have already stated, I feel sure that I have noticed a peculiar Shump, Shunt, cough in those who continually practice this habit.

As to the Effects on the Sight

Have you ever seen a case of tobacco blindness where alcohol was not used?

- |   |   |
|---|---|
| (1) No.   | (22) Have seen cases attributed to tobacco in subjects who denied the excessive use of alcohol. |
| (2) No.   | (23) No.  |
| (3) No.   | (24) Never (oculist).   |
| (4) No.   | (25) No and do not think it exists (W. Moore oculist)   |
| (5) No.   | (26) No.  |
| (6) Not personally but have seen one in the practice of a friend. | (27) No.  |
| (7) Never.  | (28) No.  |
| (8) No.   | (29) No.  |
| (9) No.   | (30) No.  |
| (10) Only in combined use.  | (31) No.  |
| (11) No.  | (32) No.  |
| (12) No.  | (33) No.  |
| (13) Several cases (Henry Royce oculist).                         | (34) No.  |
| (14) No.  | (35) No.  |
| (15) No.  | (36) No.  |
| (16) No.  | (37) No.  |
| (17) No.  | (38) No.  |
| (18) No.  | (39) No.  |
| (19) No.  | (40) No.  |
| (20) Not that I can recall.                                       |   |
| (21) Several (F W King oculist)                                   |   |

- (41) No.
- (41) No.
- (42) No.
- (43) Yes.
- (44) No.
- (45) Yes.
- (46) No.
- (47) No.
- (48) No.
- (49) No.
- (50) No.
- (51) No.
- (52) No.
- (53) No.
- (54) No, have seen a very few cases where smoking was indulged in to excess and very little alcohol use. Vision not entirely lost (occulted).
- (55) never.
- (56) Yes.
- (57) Yes. General.
- (58) Yes.
- (59) No.
- (60) No.
- (61) No.
- (62) No.
- (63) No.
- (64) No.
- (65) No.
- (66) No.
- (67) Have known impaired sight from use.
- (68) No (Charles May oculist).
- (69) No.
- (70) No.
- (71) Can not recall such a case.
- (72) No.
- (73) Yes.
- (74) No ophthalmologists deny it.
- (75) I have seen sight return when the habit was left off.
- (76) No.
- (77) No.
- (78) Yes but it is not common.
- (79) No
- (80). No, but I have seen those in which alcohol was only used very moderately. It is difficult to say it is not used at all in any instance (Thomas Pooley oculist)

I have noted the occulists who have answered this question. Only two of them have stated that they have seen cases in which alcohol was not used, the others being doubtful. The answers by general practitioners are negative. I will here say, that the American profession as a rule deny that Tobacco Amblyopia exists, and that at a recent meeting of the New York State Medical Society, it was decided that more evidence of the existence of this condition is wanting. In any case it is an exceedingly rare result of Tobacco Smoking even when practiced to excess.

Regarding the age of the user

Has it more effect on those over than on those under twenty years of age?

- |   |  |
|---|--|
| (1) Under Twenty years of age.                                  | (22) Under.  |
| (2) Far less.   | (23) More on those under.  |
| (3) More under.   | (24) Under.  |
| (4) I am inclined to think under.                               | (25) Under.  |
| (5) Rather on the young.  | (26) Under.  |
| (6) Under.  | (27) Under twenty but they stand a better chance of recovery if they stop. |
| (7) Under 20.   | (28) Under.  |
| (8) Under.  | (29) Under   |
| (9) On those under.   | (30) Under   |
| (10) Lessens as age advances but the old are usually excessive. | (31) Under.  |
| (11) Under.   | (32) Under.  |
| (12) Under.   | (33) More on those under.  |
| (13) Under.   | (34) More under.   |
| (14) Under.   | (35) Under.  |
| (15) Under 20 years.  | (36) Under most decidedly.   |
| (16) Under.   | (37) Under.  |
| (17) More on boys under 20.                                     | (38) Under.  |
| (18) Under.   | (39) Younger more affected.  |
| (19) Over.  | (40) Under   |
| (20) Decidedly on those under 20.                               | (41) No matter which.  |
| (21) Under.   |  |

The effects of  
 on those  
 it as a  
 4.7 Shills

- (42) Under 20.
- (43) Under.
- (44) Have seen its worst effects on those over.
- (45) Under 20 years.
- (46) Under.
- (47) Under.
- (48) Under.
- (49) Under.
- (50) Under.
- (51) Under.
- (52) Under.
- (53) Under.
- (54) None prejudicial under 20.
- (55) Under.
- (56) Under.
- (57) Those under 20 years.
- (58) Under 20 and over 60.
- (59) Under 20.
- (60) Most in the decline of life.
- (61) Under.
- (62) Under.
- (63) Over 20.
- (64) over.
- (65) Under.
- (66) Under.
- (67) Under.
- (68) Under.
- (69) Under.
- (70) Under.
- (71) Under.
- (72) Under.
- (73) Under.
- (74) Under.
- (75) Much greater effect under 20.
- (76) Under.
- (77) Under.
- (78) Under.
- (79) Under.
- (80) Under.
- (81) The younger the subject the more fruitful.
- (82) I believe it has more effect on those under 20 years.

These eighty-two answers certainly sustain us in our opinion, formed from reading and personal investigation, that Smoking or using tobaccos in any form by the young is harmful in the extreme and I am of the opinion that no youth under seventeen years of age should be allowed to indulge in the use of tobacco. It would be better to place the age at twenty or twenty one, but from seventeen upwards it is next to impossible to control the tastes or habits of the average Anglo-Saxon youth.

Regarding the longevity of the user.

Have you ever seen a case where smoking may be said to have been the direct cause of shortening life?

- |                                      |   |
|--------------------------------------|---|
| (1) Yes by producing Angina Pectoris | (23) Yes.   |
| (2) never                            | (24) No.  |
| (3) No                               | (25) No.  |
| (4) Yes                              | (26) No.  |
| (5) No                               | (27) No   |
| (6) No                               | (28) No.  |
| (7) No                               | (29) No.  |
| (8) No                               | (30) No   |
| (9) Yes                              | (31) No.  |
| (10) Yes.                            | (32) No.  |
| (11) I think I have.                 | (33) One case where person would<br>28 years a day. |
| (12) No.                             | (34) No.  |
| (13) No.                             | (35) Yes.   |
| (14) Yes.                            | (36) No.  |
| (15) No.                             | (37) No.  |
| (16) No.                             | (38) No.  |
| (17) No.                             | (39) No.  |
| (18) No.                             | (40) No.  |
| (19) No.                             | (41) No.  |
| (20) No.                             | (42) Yes.   |
| (21) Yes.                            | (43) No.  |
| (22) No.                             |   |

(44) no.

(45) yes.

(46) no.

(47) no.

(48) yes.

(49) no.

(50) yes.

(51) no

(52) no.

(53) no.

(54) no.

(55) no.

(56) no.

(57) no.

(58) no.

(59) yes.

(60) yes.

(61) no.

(62) no.

(63) yes.

(64) no

(65) no.

(66) no.

(67) no.

(68) no

(69) yes.

(70) never.

(71) no.

(72) no.

(73) no.

(74) no.

(75) no.

(76) no.

(77) no.

(78) no.

(79) no.

(80) no.

(81) no.

(82) no.

(83) no.

(84) I think so.

(85) no.

(86) no.

(87) no.

nearly all who have answered state that they have never seen a case where tobacco has been the direct cause of death. Many of those who have answered in the affirmative, have noted that it was only one of other factors. As we have already seen, smokers seem to reach as great an age as others. So that we can not regard it as a very strong factor in fatal diseases.

From time to time we see in the daily papers cases where smoking has been the supposed cause of death, and in the work on Poisons by Sir Robert Christieson, he quotes Gemelin, who has recorded two cases of death, one caused by smoking seventeen, and the other eighteen pipes, at a sitting.

Regarding the Effects of the use of Tobacco generally.

Do you think the moderate use of tobacco harmful or beneficial?

- |   |  |
|---|--|
| (1) Its use is never beneficial           | (19) Harmful.  |
| (2) Neither                               | (20) Harmful.  |
| (3) Depends on circumstances.             | (21) Beneficial to most workers                          |
| (4) Slightly harmful                      | (22) Not harmful.  |
| (5) Beneficial to some used reasonably.   | (23) Beneficial  |
| (6) Harmful                               | (24) Generally harmful                                   |
| (7) Neither                               | (25) Not harmful a luxury                                |
| (8) Some beneficial others harmful        | (26) Depends one or other                                |
| (9) Harmful if anything                   | (27) Beneficial  |
| (10) a great comfort                      | (28) Indifferent   |
| (11) Seldom beneficial generally harmful. | (29) Depends   |
| (12) Harmless in some persons.            | (30) Not beneficial, namely harmful                      |
| (13) Not harmful in moderation in adults. | (31) Neither   |
| (14) Beneficial                           | (32) Neither   |
| (15) Beneficial                           | (33) neither   |
| (16) Neither                              | (34) neither.  |
| (17) Not harmful                          | (35) Beneficial in some cases                            |
| (18) Some beneficial others harmful       | (36) Neither   |
|   | (37) Generally harmful possibly beneficial in some cases |
|   | (38) may be either.                                      |
|   | (39) Harmful.  |

- (40) Neither
- (41) Neither
- (42) Not hurtful
- (43) Beneficial
- (44) Neither.
- (45) A little does no harm.
- (46) Better without it.
- (47) Don't advise its use
- (48) Neither.
- (49) In some one way in others  
the other.
- (50) Neither
- (51) Injurious to some beneficial  
to others.
- (52) Hurtful
- (53) As a rule neither one  
or the other.
- (54) Always hurtful
- (55) Neither
- (56) Neither
- (57) Hurtful
- (58) Moderately hurtful but  
not greatly so.
- (59) Beneficial
- (60) Beneficial

- (61) Indifferent
- (62) Hurtful
- (63) As a rule beneficial
- (64) Hurtful in the majority
- (65) Neither
- (66) Beneficial in adults.
- (67) Beneficial to some.
- (68) depends on Subject.
- (69) Beneficial to many hurtful  
to few.
- (70) Beneficial
- (71) Beneficial if use regulated
- (72) Not Beneficial.
- (73) Beneficial
- (74) Some beneficial others harmful
- (75) Not hurtful and often beneficial
- (76) Decidedly beneficial
- (77) Beneficial
- (78) Beneficial
- (79) To some beneficial.
- (80) Not hurtful but  
certainly not beneficial.
- (81) Neither
- (82) Beneficial to adults
- (83) Neither

Shortly after I had closed my thesis I received the following letter, from W. Barber of the New York Prison at Sing Sing, which I think worthy of being added to the list of answers which I have given.

"In regard to my observations of the use of tobacco in the Sing Sing Prison I may say:-

1<sup>st</sup> that by far the largest proportion of the convicts in this prison are in the daily use of tobacco.

2<sup>nd</sup> These men are mostly employed in uniform daily labour, with regular habits of eating and sleeping.

3<sup>rd</sup> They are cut off from the use of alcoholic stimulents.

4<sup>th</sup> I have, for the past eight years, considered this tobacco question in this institution and am clearly of the opinion that, grouped together in a large body as these convicts are, with all their surroundings and influences, a moderate allowance of tobacco is not inconsistent with their physical and mental welfare."

The opinions here expressed, I take it, go to endorse the conclusions which I had already arrived at.

- (84) neither
- (85) neither
- (86) Beneficial
- (87) neither as a rule
- (88) Huntful
- (89) Once or twice a day  
beneficial
- (90) The Human race does  
not need it.
- (91) Huntful
- (92) Huntful in most cases.

- (93) Huntful
- (94) Not Huntful.
- (95) Neither

The answers to this question are most noticeable from the fact, that the greater number seem to look upon the moderate use of tobacco as fraught with neither good nor evil. I have noticed, that there are a great many, who use tobacco more from habit than from any good they feel that they may derive from it, still I am convinced, that it would never be so generally used, were it neutral in its action; and I think that in the large majority of cases, where it is properly used, by adults who are free from idiosyncrasy, it has a beneficial action, slight though it may be. Still it must be admitted, that the beneficial action of tobacco is not a

being well marked one, excepting perhaps in the case of brain workers.

To my request that they should add any points which they might think of interest, very few responded. Several gave their own experiences, and one or two spoke strongly against tobacco, referring to it as a vile habit and as leading to intemperance. One stated that the attacks of irregularity in the action of the heart, lead to a partial Stasis in the small vessels of the kidney, and eventually to Bright's disease, a theory which I do not think we are prepared to accept.

The small number of answers, and their want of detail was a disappointment to me, but they go, in the main, to support the result of my reading and personal investigation.

Having now gone over the subject in question as thoroughly as I could, and having expressed, as clearly as I was able, what I considered to be outcome of my reading and personal observation, I will now give a short summary before I close my thesis.

## Conclusion

That the use of tobacco is so general, and that in spite of the death penalty of the Sultan Amurath, the writings of King James I, and the laws and popular crusades against it, this use has continued to spread, are facts which show that tobacco must fulfil some human want.

The human race have from the earliest times employed narcotics.

I believe tobacco to be a mild narcotic which the average adult quickly tollentes and which, taking into consideration its almost universal employment and the general health of those using it, can not be looked upon as harmful.

Excluding the youth, and individuals who have an idiosyncrasy, I feel justified, from my reading and observation, in stating that, when used in moderation and at times when the stomach is not empty, tobacco has a beneficial effect.

Like all other luxuries the use of tobacco is liable to be abused, this abuse being evidenced by disturbance of the cardiac, mental, digestive and other functions due to a paresis or paralysis of the Cerebro-

Spinal and Sympathetic nervous Systems.

George A. Shiel