

go far to account for the sometimes mysterious spread of the disease.

It is well to be warned by science of the possibilities of danger, but it is also well to remember that nature herself supplies the best preventatives as well as remedies against all physical ills. If people would live temperate in every habit, complying with natural laws, the violation of which always is made manifest in some way or another, they would preserve in their system the vigor and strength needed for the successful resistance of any deadly microbe. Medical science has rendered invaluable services lately by tracing to their sources many diseases; it will complete its work some time by pointing out how to live so as to be rendered impervious to the agents responsible for the premature loss of life. Then it will be found to be the eloquent exponent of the Word of Wisdom.

TALKS TO BOYS.

VI.—TOBACCO AND THE BRAIN, NERVES, ETC.

In stating some of the physical ills which are a direct result of the tobacco habit, Dr. Richardson says: "In the organs of sense, it produces dilation of the pupils of the eye, confusion of vision, bright lines, luminous or cobweb specks, and long retention of images of the retina, with antagonistic symptoms affecting the ear, viz., inability to define sounds clearly, and the occurrence of a sharp, ringing noise like a whistle. In the brain, it impairs the activity of the organ, oppressing it if it be nourished, but soothing it if it be exhausted; it leads to paralysis in the motor and sympathetic nerves, and to over-secretion from the glands which the sympathetic nerves control."

The brain and the nerves control and harmonize the workings of the body. The brain is a collection of nerve centers; it is the instrument of all thought, motion and feeling. In the sense of intelligent existence, it is the man. Whatever maintains its healthful activity is beneficial; whatever impairs it is an enemy to man; that which soothes it merely by stupefaction such as is produced by tobacco, aids in the work of destruction, instead of building up—hence it is that a well-nourished brain is oppressed by narcotics.

Like the rest of the body, the brain is supported by the food we take into the system. The effect of proper food is well told in the old German proverb, "As a man eateth, so is he." If the blood is filled with irritating condiments it causes irritability and nervousness; if it is supplied from an excess of animal food, it produces nervous excitability, especially of the lower faculties of the mind. For the perfect health of the brain, it is absolutely essential that the stream of vitalizing blood must come pure and undiluted, laden with that which sustains, not destroys, life. If the blood from the heart be impregnated with nicotine, distilled from the pipe or cigar, or absorbed by the lining membrane of the mouth from the quid so often rolled as a delicious morsel, can the diseased vital stream communicate the

healthful activity which it does not possess? Sometimes paralysis of the brain results from the use of tobacco or liquor. This is in extreme cases. Partial paralysis of that organ is a more correct term for what is sometimes called the soothing influence of the pipe or cigar; and at all times the tobacco habit has a weakening, benumbing effect upon the brain, rendering it incapable of that full amount of work it should perform in a healthy person.

That the deadening influence of tobacco smoking on the brain and nerves sometimes may lead to serious results from independent sources, by rendering them in a degree inactive and thus preventing the quick movement which at times is necessary for self defense, may be realized by considering this incident: A few years ago an eminent chemist was making experiments with an extremely explosive compound which he had discovered. He had a small quantity in a bottle, and was holding it up to the light, looking at it intently; whether by a shake of the bottle or warmth of the hand, it exploded, and the bottle was shivered into thousands of minute fragments, driven in every direction. The chemist's first impression was that they had penetrated his eyes; but to his intense relief he found that they had lodged in the outside of his eyelids. In the infinitesimally short interval between the explosion of the bottle and the particles reaching his eyes, the mandate had gone forth and was obeyed, and his eyes saved from destruction. If his brain and nerves had been under the stupefying influence of tobacco, the chances are a thousand to one he would have been rendered sightless.

Various forms of nervous disease have been traced directly to the use of tobacco. People in countries where the habit prevails are generally familiar with the tremulous hand or the smoker. It often is the case that persons whose business requires a steady hand are compelled to abandon the use of tobacco on this account, just as great singers have renounced the drug because of its injury to the vocal organs. When the hand trembles the difficulty is not in the hand, but in the nerve centers which control the muscles of that member. This nervous trouble is a common symptom of nicotine poisoning in the nerve cells, and is not infrequently a warning that the heart is affected also; that organ often is found to tremble as well as the hand, and sometimes is subject to paroxysms of pain from this cause.

The effect of tobacco on the motor and sympathetic nerves has been noted. The motor nerves are those which transmit impulses outward. They are the nerves of work, controlling heart, muscles, stomach, kidneys, etc. The sympathetic nerves derive their name from the fact that by their connection with the different parts of the body, a close sympathy is established between its various organs. The sympathetic nerve centers are chiefly distributed to the mucous membrane and the nerves of nutrition. From an understanding of this relationship it will be recognized how paralysis of these nerves injures health by disturbing the work of and

destroying the harmony between the various organs.

Mention has been made, in connection with the organs of respiration, of the fact that tobacco smoking is destructive of the sense of smell. The ends of the olfactory nerves, located in the upper portion of the nasal cavity, are bare so that the odorous particles by which they are excited may come into immediate contact with them, thus rendering them easy victims to the cigarette, cigar or pipe. The nerves of taste, too, are affected by smoking and chewing, the sense of taste being seriously impaired. So susceptible are these delicate nerves to the influence that even moderate users of tobacco are not capable of following the business of tea-tasters, in which it is necessary to recognize delicate flavors.

Tobacco smoking also operates injuriously on the auditory nerves, or sense of hearing, particularly when cigarettes are used; and the sense of touch is likewise subjected to a paralyzing effect from the same cause. The optic nerves, connected with the useful sense of sight, lose their power through tobacco, a form of disease now becoming common being that known as tobacco blindness. Among the first symptoms are those noted by Dr. Richardson, before quoted, and color blindness, which is followed by haziness of vision, and finally partial or complete loss of sight.

In view of the uniformly bad effect which the tobacco habit has been proved in our investigation to have upon the whole human system, it may not be inopportune to quote the words of an ardent advocate of the weed—a writer in the latest edition of *Encyclopædia Britannica*—just to show how some persons, in their eagerness to say something in justification of the habit, will go to any length to excuse their gratification of an unwholesome appetite. The writer referred to says: "Allowing that such incidental evils may arise from even comparatively moderate indulgence in tobacco, they are after all as nothing compared to the vast aggregate of gentle exhilaration, soothing, and social comfort, extracted from the Virginian weed." Yet in the same paragraph he states that its use "specially produces symptoms of anemia, palpitation, intermittent pulse, and other affections of the heart and circulation; it is an admitted fact that a disease of the vision—tobacco amblyopia—is contracted by smokers, and is not uncommon." It is easy to understand that a conscientious writer would not flippantly describe as "nothing" heart disease, kidney complaint, lung trouble, blindness, nervous disorders, and other deadly physical ills, that he might praise as a virtue the stupefying influence which the drug has upon the brain, and which is of itself an evil at which every man who loves health and freedom from the slavery of appetite stands aghast.

Careful and thorough investigation of the subject has shown that so far as the physical organization is concerned, the Lord declared to man an important truth when He said: "Tobacco is not good for the body." Men of skill and learning have demonstrated by their inquiries the accuracy of the divine statement, and have added their solemn warning to their fellow-