



Ontario Department of Agriculture

WOMEN'S INSTITUTES BRANCH

Written for the Oral Hygiene Committee of the Ontario Dental Society

Diseased Mouths a Cause of Ill-health

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The importance of hygiene and personal cleanliness is becoming more and more generally recognized by all civilized nations. This recognition must be on an ever-increasing scale if disease is to be stamped out, and the health of the public improved. The Provincial Board of Health looks after scientific sanitation, protecting the public from the injurious effects of impure water and impure food, sewage, and overcrowded living conditions, and isolating all persons afflicted with contagious diseases.

Of all hygiene, however, not the least important is the hygiene of the mouth.

Dr. Mayo, the celebrated United States surgeon, says that the next great forward movement to be undertaken in the prevention of disease is the procuring of clean mouths among the people. Now that we know so many diseases are communicable, it is a duty to society, for each one of us to have as healthy and germ-free a mouth as possible.

Probably the majority of the population forget that the mouth, which should be the cleanest part of the body, becomes the filthiest when neglected. There is nothing more disgusting than a mouth that is a stranger to the tooth-brush, or one that is treated only occasionally to a half-hearted scrubbing with this highly necessary toilet article. A person with such a mouth, when sneezing or coughing, forces into the air disease germs, which immediately become attached to dust particles, poisoning the air which others must breathe, with myriads of disease-producing germs—such as pulmonary tuberculosis, pneumonia, diphtheria, tonsillitis, la grippe, the common cold, and many others. Imagine also, if you will, a person with a dirty mouth swallowing this filth with every mouthful of food.

Medical authorities state that fully seventy-five per cent. of disease either originates in the mouth, or enters the system through it.

Unightly teeth and foul breath create anything but a favorable impression in business and social circles, counting much against success in every walk of life. But the value of sound teeth and a healthy mouth must not be judged solely by appearances. There is a more serious result arising from a disease-infected mouth, and that is **THE EFFECT UPON THE GENERAL HEALTH.**

Probably few people have any idea of the enormous number of germs (i.e., bacteria) to be found in the human mouth. Authorities differ as to the exact number, but a conservative estimate is, that the ordinary varieties which are to be found in a diseased mouth number about fifteen. However, bacteria multiply so rapidly that tens become millions in a few hours if the condition of the mouth is favorable to their reproduction.

A noted bacteriologist has estimated that in a certain very unclean mouth there were not less than one billion one hundred and forty million bacteria. Think of the atmosphere of a room inhabited by a person with such a mouth! Some of these germs are more poisonous or disease-producing than others, but it is a fact that the human mouth when in a diseased condition contains many of the most virulent germs known. This is particularly true of germs associated with decayed teeth having abscesses at their roots, and those associated with pus which may be pressed out from around the necks of the teeth. These conditions are exceedingly common, and it is an accepted fact that dental disorders are the most wide-spread that afflict the human race, and that many obscure ailments affecting the general system—such as chronic dyspepsia, gastritis, certain nervous affections, and general diseased conditions of the blood, as pernicious anemia—may be traced to a diseased mouth. This kind of mouth is the result of failure to make proper use of the tooth-brush, and of failing to consult a dentist when decayed teeth, or red and swollen gums are first noticed.

It seems hard to impress the public with the seriousness of these facts. The subject is one of great importance from the standpoint of public health. It is second to none that concern the physical and mental welfare of the people, as it affects the entire community. These mouth troubles are alarmingly frequent in the children of the public schools, and in most localities no adequate measures have been adopted, up to the present, to cure the evil or to arrest its progress. Great efforts are being made to stamp out tuberculosis; much has been done to prevent cholera, diphtheria, rabies, yellow fever, typhoid, meningitis, and other preventable diseases; but how little has been done in most places to rescue the school-children from the dangers of mouth bacteria. Statistics show that over ninety per cent. of the children in public schools have decayed teeth; or abscessed teeth, the pus from which is being constantly swallowed.

In this province, Toronto is one of the few places where the mouths of the children, rich and poor, are systematically cared for. In other places the rich are privileged to have healthy mouths, and even in such cases neglect is frequently the rule.

Without a doubt, the spread of such infectious diseases as diphtheria, influenza, pneumonia, bronchitis and tuberculosis, in the public schools, is greatly increased by the unsanitary condition of the mouths of many of the children. The campaign against the spread of tuberculosis meets with many obstacles that are hard to overcome; but in a campaign against mouth infection all that is needed is regular inspection of the school children's mouths, instruction to the children in the proper preventive treatment, and a dental clinic maintained by the municipality, where the mouths of the children whose parents cannot afford to pay for the work, will be put in a condition of health.

As to the effects of an ill-kept mouth on the mouth itself: probably the most common is toothache. Toothache is too well known to require any discussion; the more serious conditions are those that follow the ache. Toothache is succeeded frequently by a swollen jaw, the swelling being caused by pus at the end of the root of the tooth. Generally the pus discharges into the mouth through a so-called gum-boil. Though there may be no discharge into the mouth, the pus is absorbed by the blood and carried to all parts of the body, and sets up many diseases, of which mention will be made later. Swollen glands in the necks are very often caused by pus which travels down to them from the abscessed tooth. The tubercular germ is more or less constant in the mouth, and often becomes

mixed with this pus, and when it enters the glands of the neck it is apt to travel through the entire system, perhaps lodging in a joint, or in the lungs.

The tongue is sometimes the seat of ulcers due to the mechanical irritation of decayed teeth having sharp edges, and to masses of tartar. Ulcers of this kind, when neglected, are often the starting point of cancer. Cancer is much more prevalent than tuberculosis in those above forty years of age, so that it is important to attend to any ragged edges or points of irritation to the tongue.

On account of its close proximity, the throat may be infected from a diseased mouth. It is a fact that periodic attacks of tonsillitis are often a result of an unsanitary mouth. A number of diseases come from infected tonsils, and in many cases the tonsils are infected from the mouth. The spread of diphtheria is much more rapid, and its virulence greater among children with neglected and diseased mouths, than among those whose mouths are in a fairly hygienic condition.

The mouth is never entirely free from bacteria, because they are in the open air, in street cars, on the floors, and in every place. When a mouth is in a neglected and unsanitary condition, it is a veritable hotbed of infection, swarming with organisms which infect the tonsils, the ears, the throat, the bronchial tubes, the lungs, the stomach, and the intestines.

The long-continued ingestion of myriads of disease germs by swallowing them with the food, and during the intervals between meals, cannot but retard the process of digestion. Besides, the constant presence of those poisons in the stomach and intestines will sooner or later infect the lining of these organs, setting up an inflammation in the stomach and the intestines, increasing the danger of appendicitis. The gastric juice of the stomach is not a barrier to the passage of bacteria from the stomach to the intestine. Smithies, an English authority, in an examination of 2,406 people with stomach trouble (indigestion, etc.) found bacteria in 87 per cent.

The bronchial tubes and the lungs are subject to infection from an unsanitary mouth. Pneumonia very often follows the taking of an anæsthetic, due to the passage of bacteria from the mouth to the lungs during the heavy breathing while under the anæsthetic, and at a time when the patient's power of resistance to disease is lowered.

The diseases which may arise by indirect infection through the absorption of bacteria in the mouth into the blood are exceedingly numerous; in fact this possibility covers almost all germ diseases, including those that are considered contagious and infectious and those that are not. Among the more serious of these might be mentioned inflammation of the inner part of the bone, heart disease, kidney disease, pus in any cavity of the body such as in the chest, meningitis, a slow and general poisoning of the blood, erysipelas, diabetes, etc.

Dr. R. Ackerly, of London, England, in a lecture before the Royal Society of Medicine upon "Observations of the Mouth in One Thousand Consecutive Cases of Chronic Diseases," said that he found that 36 per cent. had less than half their natural chewing powers owing to a loss of tooth tissue, and that 22 per cent. had mouths containing pus (which is necessarily disease-laden). He says, "If careful mastication is necessary for those whom we call healthy . . . surely it is more obviously necessary for those who are failing in health and whose nutrition is imperfect, especially in the large groups of chronic diseases in which are marked dyspeptic symptoms . . . diseases of the stomach, bowels and liver, and directly and indirectly most heart complaints, the condition described as gouty and rheumatic, and all those in which there is wasting, or a tendency to waste.

Quite apart from the definite evils following the swallowing of lumps of food, or food imperfectly mixed with saliva, is it not obvious in these cases that, whatever else we do, it is only by attention to mastication that we can hope to improve impaired nutrition? It is quite common for patients to be supplied with a list of articles of food that they must or must not eat, but I find it necessary to tell them, 'It is far less important what you eat than how you eat it.'

The following case is taken from the *Medical Record*, and is reported by Dr. Brandon:—

"Mrs. S. J. W., age 34 years, had always enjoyed the best of health previous to her present trouble. Was suffering almost continually with neuralgia (facial), also dyspepsia, and, as she termed it, sick-headache, nervous prostration, loss of sleep, irregularity of the bowels, etc., etc., so bad that she was compelled to keep her bed for days at a time. She had employed many physicians, with only temporary relief. Upon examination, could detect no constitutional disturbance that could be attributed as the cause of her trouble. But noticing her foul breath, requested to examine her teeth, which were found in a bad condition, several broken down, others with the gums falling away, and so on. Requested her to have the offending members removed. She objected, as it would hurt, and went to another physician for treatment, but finally returned, when, upon assuring her that it would be a great help, she consented to the operation. All the irritated and irritating teeth were extracted. When asked if I was not going to prescribe for her, informed her I was not. Three months later she informed me that she had enjoyed splendid health since the operation."

Wallis, of London, England, who was one of the original investigators of the conditions of school children's mouths, is of the opinion that diseased mouths in children have a most detrimental effect upon the health. *The British Journal of Dental Science* quoted him as follows:—

"He had considerable opportunity in the last few years of watching the effects of oral sepsis in London County Council school children. In certain schools there were dental charts showing the weights and the average ages of the children, and these clearly showed that the children with the most septic (diseased) mouths were not only below the average weight of their class, but were below the average intellectual status of their age. Those with the most highly septic mouths were frequently two standards below what they ought to be in accordance with their age. With regard to oral (mouth) sepsis, it has been his plan at the hospital to have the patients weighed weekly after wholesale extractions of teeth, and, in spite of their being left unable to masticate their food, they progressively increased in weight, and at the end of a few months they had in nearly all cases gained several pounds. That seemed to show that the really serious matter was not so much the want of mastication as the fact that they were constantly swallowing the products of decomposition and the micro-organisms of disease."

Swallowing food before it is properly masticated is generally supposed to be a habit only, and, while it does become a habit, it is frequently necessitated by a tooth which has a large cavity, and which is tender, or an inflamed tooth which has a swelling at the root, and which also is tender. It is impossible to masticate the food properly if too many teeth have been extracted, or if the teeth are decayed away, leaving only the roots. If the food is not masticated a sufficient length of time the proper amount of saliva is not mixed with it, which is necessary to digest certain elements in the food. When food, imperfectly masticated and improperly mixed with saliva, is swallowed, fermentation is soon established, with

the formation of gases, which cause discomfort or pain. Proper mastication cannot be accomplished without good teeth. Normal digestion is impossible without proper mastication. Perfect assimilation is impossible without normal digestion, and without proper assimilation there cannot be sufficient nutrition. True, there are a great many who are strong and healthy, and who have few teeth or none at all, but these persons are exceptions. A popular slogan runs thus: "Chew your food, your stomach has no teeth."

Mr. Peter Danial, the well-known surgeon of London, England, in speaking of his experience with diabetic patients, says that, in his opinion, this disease occurs most frequently in people who neglect the care of the mouth.

It is also recognized that a great many nervous affections, some of which last for years, are due to unsanitary mouths. In patients about to undergo an operation, the part to be operated on is made thoroughly clean, and the surgeon has all his instruments disinfected, but if the patient's blood is infected from a diseased condition of the mouth, that infection being carried to all parts of the body, may, and very often does, infect the wound of the operation and cause blood-poisoning. Operations, especially upon the stomach or intestines, including the appendix, should not be undertaken until the mouth has been put in a thoroughly healthy condition, when there is time for it, otherwise the patient is apt to be infected by the swallowing of the disease germs which are in the mouth.

There is another condition of the mouth which is almost entirely unknown to the general public—a condition which, while not common, has far-reaching effects when it does present itself. It is a result of impacted teeth. An impacted tooth, instead of growing into the mouth in the regular way, is lodged entirely in the jaw-bone. It is often caused by the teeth growing sideways in the jaw instead of growing into the mouth. It does not appear through the gum at all. The tooth, by taking up a position and occupying space which was not intended by nature, causes a pressure on the nerves, resulting in a severe nervous irritation. The results of this irritation in various parts of the body are very many; there may be pain around the tooth or pain elsewhere, as in the eye, the ear, etc., or the trouble may manifest itself in the form of insomnia, melancholy, or insanity. Prof. H. N. Upson, in the investigations into the relationship of dental diseases to moral aberration, found that irritations of practically a painless character were frequently responsible for moral deficiencies, just as they were for mental deficiencies.

"In the course of an investigation into the subject of impacted teeth as a cause of insanity," says the Professor, "I examined eighteen of the younger inmates of the Cleveland Workhouse with the special view to the impaction of teeth. Of the eighteen cases, ranging from eighteen to twenty-five years of age, twelve showed multiple impactions (of teeth)."

He reports the following cases:—

"A robust mechanic, age 28 years, three weeks before being seen had been moodily accosted by his wife, who said that she believed she was losing her mind. It immediately occurred to him that he might be losing *his* mind. He slept little that night or the succeeding nights, gave up his work, and spent his days in fear of the asylum. Tonics and assurances were of no avail. The only lesion that could be discovered was dental caries. The filling of a deep cavity extending into the pulp of the tooth was followed by prompt recovery, and he returned to work. At no time had there been toothache or other pain, but dizziness and sweating had been noted."

"An unmarried woman, aged 27 years, a teacher, for a year had been profoundly melancholy, with intractable insomnia, delusions of various deadly sins, and entire hopelessness of recovery. Restlessness was extreme; tonics and local uterine treatment were of no avail. As a last resource the teeth were examined. They were apparently in good condition. An X-ray showed, however, an impacted right upper third molar tooth pressing against the second molar—a condition obviously capable of causing irritation. The tooth was removed, and in about a week the symptoms began to improve. Recovery was complete in six or eight weeks, and has persisted for six months."

He says, further: "The inference is warranted that the teeth in melancholics, neurasthenics, and those afflicted with insomnia should share the honors of a medical examination equally with the contents of the chest, abdomen and pelvis, and, when diseased, should be cured."

Another case, ". . . . one of insomnia and mild melancholia in a merchant of 40 years of age. Trouble began four or five years ago in occasional attacks of sleeplessness and mental depression. Two years ago depression and insomnia became persistent and annoying. At times depression was followed by elation, also attended by insomnia. These conditions were improved by rest, and became worse by work and worry. Had no headache, no neuralgia and no toothache, except occasionally from an ulcerated tooth, which was relieved by evacuating the pus. Had parted with three molars during the last four years on account of abscess at the roots. An X-ray showed left upper third molar was impacted against the roots of the second molar, high in the jawbone. The second molar was dead, but showed no evidences of abscess. Both teeth were extracted. The patient made a progressive recovery. Sleep was better two nights after the operation. Depression has disappeared, and the patient has made a practical return to health."

A fourth case, ". . . . is one of severe delusional and suicidal melancholia in a teacher of 27 years old. When first seen she had been profoundly melancholy for more than a year. Had persistent insomnia and many delusions that her mind was gone, had never been quite sane, and that she had committed various dreadful sins. Treatment by tonics, by suggestion, change of scene, and other treatment were of no avail. After a year of useless effort the teeth were examined, and found in apparently normal condition. X-ray showed an impacted upper third molar, which was removed. Patient had never in her life suffered from toothache or any other disease of the teeth or the jaws. She began to sleep well within a week or ten days after the extraction of the tooth. Her return to normal health was steady, and was typical in the fact that the delusions persisted longer than the melancholy. In such patients it is practically invariable that the emotional health is recovered first and the delusions are got rid of after. The only physical disease in this case was the impacted tooth, the other viscera throughout being healthy. The recovery has been complete."

The same results, only not to such a serious extent, may be caused by irregular or crooked teeth.

If unsanitary mouths are so common, and if they contain so many disease germs, it may seem strange that we are not infected with more diseases than we are. And so we should be but for the forces in our bodies which combat disease and render the germs harmless. These forces are spoken of as our powers of resistance, or our immunity from disease. A person may consume typhoid-infected milk or water for years, and finally, owing to a lowered resistance due to some cause, lose his immunity and fall a victim to typhoid. It is the same with many

other diseases, the germs of which are found in the mouth. The person with a germ-laden mouth is taking the chance of getting almost any disease when his system is run down and his power of resistance is lowered. Also, he might carry the germs in his mouth, and, while not taking the disease himself, might transmit it to others through his breath or sputum. This was shown to be the case lately in this province when fifteen meningitis "carriers" were isolated from the rest of the soldiers at the Toronto camp during the outbreak of that disease there. Though some people might live a long life with the germs of a great many diseases constantly in the mouth, it would be extremely unwise for the rest of us to take such a chance. The germs of pneumonia are to be found in the mouths of one-third of us, but in order to contract pneumonia there must be a properly balanced relation between the virulence of the infection and our power of resistance.

With our present knowledge of the specific organisms of so many diseases, is it too much to suppose that each disease may have specific bacteria as its cause (with the exception, of course, of inherited defects and injuries)? Whether they all have or not, we know of a great many that have, and almost all of these may enter the system through the mouth, especially if that organ is not kept in a hygienic condition. As to the number of mouths that are unhygienic, Dr. Gilmore, of Chicago, an authority on this subject, says that 25 per cent. of the population are suffering from pus at the roots of one or more teeth. This pus may find its way into the stomach or intestines by being swallowed, or may be absorbed into the blood and circulated to all parts of the body. The health of any person with an unclean mouth is ALWAYS in danger. The time is sure to come, sooner or later, when, owing to a cold or other cause, the individual is "run down," and his power of resistance is lowered, and some serious illness is contracted, the infection of which came from the mouth.

To prevent as much as possible therefore, the contracting of disease, two rules must be observed. First, keep the mouth as free from bacteria as possible. This condition can best be obtained by the proper and regular use of the tooth-brush, using it in such a manner as to brush every part of the mouth, the spaces between the teeth, and the top of the tongue. Second, keep at a distance from those suspected of having unclean mouths, especially if they are in the habit of coughing or clearing their throats. The power of resistance can best be maintained by proper mastication of the food with a good set of teeth, and by closely observing the proper laws of living.
