

ORAL PROPHYLAXIS.

BY HERBERT W. ADAMS, M.D., D.D.S.

It would be difficult to say just when the idea of preventive dentistry was born, or to whom, if to any one person, the credit belongs, but it would be safe to say that it is due to Dr. D. D. Smith of Philadelphia that today hundreds of dentists are practicing along these lines.

Decay of the teeth is caused by the fermentative action of bacteria, producing an acid which causes a destruction of the inorganic constituents of the teeth. It is necessary for the production of caries or decay of the teeth for the bacteria of decay to become fixed upon or attached to the surface of the teeth in order to carry on their destructive work. This necessary fixation of the bacteria of teeth decay is accomplished by the property which they possess of surrounding themselves with an adhesive substance which glues them to the enamel in protected places, forming what is known as gelatinous plaques.

Preventive dentistry is the practice of placing the mouth and teeth in such a condition as to make decay almost impossible. This is accomplished by the removal of every foreign particle from the mouth. The teeth are cleaned, filled and polished not only above the gum, but below as well, wherever a pocket may exist, and are left in glistening condition, which makes lodgment of food, tartar and germs impossible. Particular attention is paid to the surfaces and edges of old fillings that they may offer no lodgment for foreign substances.

To be successful, prophylactic treatment entails frequent visits to the dentist; this is one of the essential features. To be ideal, the treatment should start with the eruption of the deciduous teeth.

Great as the factor of cleanliness is, we cannot overlook the fact that caries is seen frequently in mouths in which the strictest prophylaxis is maintained; while the converse is true, namely, that many filthy mouths are perfectly immune to caries. Cleanliness is, therefore, a factor in the determination of the condition of immunity and susceptibility, and in some cases is the controlling factor, while in many other instances, but one of several influences which, by their combined effects produce a condition which is favorable or unfavorable to caries.

We know, however, that by proper mouth prophylaxis, by the best modern reparative measures, and by the use of food requiring a great deal of mastication, we may resist the action of caries in the average individual. It is said that the natives of countries where hard food is eaten have broad, strong jaws and sound teeth. Thus by mechanical measures we produce a partial or complete immunity, in spite of unfavorable conditions which may exist in the mouth.

Until a better method be found, we must continue to fight caries by the best prophylactic and

reparative measures which we can command. By keeping the mouth in a healthy condition and the teeth free from tartar, smoothing the edges of old fillings, and replacing gold caps and bands that irritate the gum, we can, in the vast majority of cases, prevent the so-called pyorrhea alveolaris, which is a molecular disintegration of the investing structures of the teeth, sometimes, but not always, accompanied by the formation of pus.

The physician will always be the adviser of the public in things pertaining to the health, and when he awakens to the fact that the teeth are more essential to health and happiness than has been supposed, his natural position as mentor of the public health will cause him to educate the people as to the insidious nature of oral sepsis in the same manner that he has taught them the dangers of drinking from a public cup.

The human mouth is a habitat and breeding ground of many bacteria which are the cause of definite pathological conditions. They have here all of the elements necessary for their existence, food, moisture and warmth. They are found between the teeth, under the gums surrounding each tooth, in cavities of carious teeth, under ill-fitting crowns, bridges and plates, defective fillings, pyorrhea alveolaris pockets, tonsils and abraded pathological mucous membranes. Among the germs that frequent septic mouths are the following: bacillus tuberculosis, bacillus influenza, bacterium coli communi, pneumococcus Freeland, pseudo-diphtheretic bacillus, staphylococcus albus, staphylococcus citreus, streptococcus, Vincent's bacteria, and others.

From the mouth may be distributed the pathological factors named to the rest of the body by continuity of surface, absorption through tonsils, pathological surfaces and concealed pus foci by blood and lymph streams, inhalation into the bronchi and lungs and ingested into the stomach and intestines, producing auto-intoxication. The passage of the discharges of a septic oral cavity into the stomach, along with ill-masticated food, due to defective dental organs, leads to disturbances of function. The proper function of that organ is rendered inefficient, because the contents of such a stomach undergo fermentation of putrefaction, instituted by the micro-organisms that have come from the septic mouths. The irritating products of incomplete digestion are not in a proper state to be turned into blood. This may give rise to almost every disturbance.

During the resting period, when hydrochloric acid is not being secreted, the discharge and contents of septic mouths passes into the stomach, producing a streptococcus and staphylococcus gastric infection. The contents of such a stomach pass into the small intestine and repeat the process there with the initiation of enteritis or septic enteritis and affect the gall ducts, kidneys, spleen and pancreas. That impaction and constipation contribute their share in the production of fecal toxemia from this retention of resi-

due in the large intestine may well be appreciated when we remember that one-third of the total weight of the solids of normal feces may consist of bacteria.

It may well be appreciated that the number of fecal bacteria are increased under the condition of oral sepsis due to faulty mastication by decayed, deformed and deficient teeth.

The long continued absorption of perverted digestion, decomposition and putrefaction, along with bacteria of low toxicity, produces and contributes to headache, malaise, lassitude, sciatica, epilepsy, eclampsia, dermatitis, various forms of nervous diseases, chlorosis, anemia, nephritis, arteriosclerosis and rheumatic fever.

The important result of preventing such absorption is shown in the following case:—

CASE 1. A dentist was called to do what was absolutely necessary to relieve the discomfort of a patient who had been confined to her bed with intestinal infection. While placing two cement fillings the operator noticed a congested condition of the mucous membrane, and on pressure pus was seen to exude from the gingival margin. After three or four days' treatment and the use of a mouth wash every hour or so, the patient was able to leave her bed and take her meals with the family. Her improvement from that time was rapid.

Dr. William Hunter of London, in October, 1910, published in the *Lancet* of Jan. 14, 1911, the following: "My clinical experience satisfies me that if oral and naso-laryngeal sepsis could be successively excluded, the other channels by which 'medical sepsis' gains entrance into the body might almost be ignored. Sepsis as an important and prevalent cause of disease in medicine would almost cease to exist, instead of being, as in my judgment it is at the present time, a more important and prevalent cause of disease in the domain of medicine than it is in that of surgery."

Dr. Evans, Health Commissioner of Chicago, says, "For a long time, in watching cases of scarlet fever, in order that the community might be protected, we watched the skin. We have learned now that it is more essential to investigate the condition of the mouth, the nose and throat, and the teeth." Then again he says, "We have learned that there is not so much danger of diphtheria from a child that is actively sick as there is from a child who has not been sick at all, but who harbors diphtheria bacilli. These individuals are capable of inducing diphtheria in others, because the bacteria may remain latent in the nose, throat, tonsils, and in the cavities of the teeth, a fact which is not thoroughly understood by the practitioners of medicine.

In 1904 Dr. J. F. Hoverstadt of Boston read a paper before the Massachusetts Dental Society in which he said that he had given his services for eight years to the children of the West Roxbury Home. There were 53 to 60 children,

ranging from two to fourteen years of age. When he began to give his services the teeth of the children were in a deplorable condition. Diphtheria and many other diseases were prevalent.

Here is a letter written by the superintendent.

West Roxbury, April 3, 1904.

DEAR DOCTOR:—If the inclosed record is of any use to you, I shall be pleased at any time to vouch for the correctness of the following statement or record:—

Since the time that you have taken care of the children's teeth in our institution, the health record has been remarkably improved. There has been no more typhoid or diphtheria. For this we have to thank, in the first place, God, but it is also due to the scientific and conscientious work that you have done for the children. The doctors' and drug-store expenses for the past nine years have been as follows:

1895.....	\$89.97	1900.....	\$33.29
1896.....	70.94	1901.....	2.88
1897.....	49.78	1902.....	3.80
1898.....	45.61	1903.....	8.86
1899.....	303.39		

The reason that the expenses were so much higher in 1899 than in the preceding years, was due to the fact that two newly arrived children had brought the measles and whooping-cough into the institution, and eighteen children were affected by same; the sum includes pay for nurse. The great decrease in physicians' and drug expenses is most markedly shown by the last three years, as the same has been reduced from \$89.97 in 1895 to \$2.88 in 1901, \$3.80 in 1902, and \$8.86 in 1903.

(Signed) REV. F. WILHELM, Superintendent.

I spoke with the doctor a week or two ago and he told me that there had been no case of infectious disease at the home since he wrote the paper.

SCHOOL INSPECTION AND DENTAL CARIES.*

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PHYSICAL examination of school children in Boston for the year 1911-1912 reveals the fact that 51,340 pupils, or 43.3% of the school population, were recorded as having defective teeth. This report is made as a part of a complete physical examination and, of course, indicates only gross and glaring defects. No one doubts that if such an examination were made by dentists instead of physicians, the percentage of defective teeth would be considerably increased.

Similar examination made in the City of New York shows 58.1% of the school population afflicted with defective teeth. In Chicago, 40% are so recorded. In Philadelphia, 50%. In short, a compilation of statistics made by Dr. Thomas Wood, Professor of Physical Education in Columbia University, places the school population of this country at about 20,000,000, and of

* Read before Norfolk District Medical Society, October 29, 1912.