

PROCEEDINGS

THE WELL-FED TOOTH

HAVING mailed *The Land* a copy of the paper he read at Athens, together with articles he had published in everything from educational and medical journals to the magazine *Esquire*, Dr. Fred D. Miller of Altoona, Pennsylvania, phoned us here at our Maryland office, long-distance. "Do you know that poem of Joyce Kilmer's, 'Trees'?" he asked. "How would this do for a caption for my article?"

"Inlays are made by fools like me forsooth.

"But only God can make a tooth"

We said we thought it certainly had attention-value.

Accompanying his lecture with closeup photos of dental tragedies and recoveries, derived from his private practice and work in the schools of Pennsylvania, Dr. Miller made a spirited contribution to the conference. He had a great deal to say and his own way of saying it. By his photo-slides and a documentary moving picture in color which he had made, himself, he brought a wide array of patients into the conference hall, then took the conferees, as it were, into the mouths and persons of his patients. Seen thus, in colors on a screen, the human mouth is an awesome contrivance. Here are some of Dr. Miller's remarks as he showed these pictures:

... Here are two brothers, Lawrence and James Canan of Altoona. Lawrence was twelve and James was ten when they were selected as a part of a routine sampling of representative school children in their city. The samples of children were chosen in 1937. Both boys had the highest degree of maturity and mineral density of the skeleton found for boys of their respective ages in the study. They had teeth which were perfect in shape and without any carious lesions (decayed areas). Their medical examinations showed that they were both superior in skin texture, musculature, muscle tone, skeletal build, and all other observable evidences of good

physical well-being. Their hemoglobin values were high; their dark adaptation function was superior; and they showed no marks in any respect which would indicate that they had at any time in the past experienced a period of inferior nutrition.

Lawrence and James were tested again at the ages of sixteen and fourteen years, respectively, and were found to have maintained their excellent nutrition records.

Their parents were not exceptional in physical well-being; they were like most other American adults—not particularly high and not particularly low in nutritional status. Both had the minor ailments which beset most of us, and both had teeth which were very far from perfect. In fact, the poor dental status of the mother led the family to consider, before Lawrence was born, that expert help in dietary matters was desirable if the children in the family were to be strong in all respects. Professional advice was sought; after which the parents emphasized natural, unrefined foods in their own dietary, and placed the children when they were born on a rigorous dietary regimen.

Referring at this point to Dr. Chenoweth's previous report on the possibility of feeding good structure into children before they are born, Dr. Miller paid tribute to another woman physician, and fellow research-worker in school nutrition, Dr. Pauline Berry Mack of Pennsylvania State College:

It has been my good fortune to work with this very remarkable woman. She has conducted nutritional status study tests with more than 7,000 children and adults in ten different communities and in ten wage-income groups throughout Pennsylvania. Now we are making tests on about fifty of my patients. . . .

Here are some pictures of a group of retarded school boys and their frightful mouth conditions. . . .

It is highly unlikely that they inherited

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bad teeth. Here, for example, is a mother born in southern Italy, thirty-five years old, with beautiful facial development, and 32 teeth, the full complement, intact. Here is the mouth of her daughter, sixteen, born in America, and brought up on typical American foodless food, processed and refined, devoid of minerals, vitamins, enzymes, ferments. This child now has a narrow, constricted face-form and arch with crowded teeth. She is now under care of an Orthodontist. . . .

Naturally, the teeth is—not are—a beautifully calculated grinding mechanism, each tooth held in contact with its neighbors. There are 144 grinding planes of occlusion. Normal bone supports healthy gums which festoon between the teeth, and the normal mouth is a self-cleansing mechanism.

The loss of a single tooth can wreck the functioning of this once beautiful mechanism—the back teeth tend to drift forward, then the front teeth separate, the contacts are lost, bone absorbs, gums recede, teeth loosen in their sockets because the stresses of mastication are now thrown upon the teeth in wrong directions, with the result that this first stage of digestion—the mastication and insalivation of food is impaired. No longer is this wrecked masticating mechanism self-cleansing, nor is it efficient.

Improper mastication impairs digestion. But the trouble goes deeper than that. If the teeth are ill-fed, the whole body is ill-fed. And a dietary that is adequate to maintain the mouth, the teeth, the supporting bone and gums in healthy condition, is adequate for the nourishment for the rest of the body.

In his prepared paper Dr. Miller broadened the argument:

DENTITION AND NUTRITION

AMERICA is a nation of "Candyholics" and soft drink addicts, of food adulterators, processors and refiners. Having practiced dentistry for more than thirty years I am thoroughly convinced—speaking from the biological point of view, not the moral aspect—that refined white flour and its products—bread, crackers, cookies, pastries—and refined sugar and its products—candies, hard candies and soft drinks—are doing more harm in this country than hard liquor.

I said this some years ago in a lecture before a dental group in St. Louis, and the reporters had me saying next morning that if you want bounding health and energy, whiskey is the thing! Now I ask you? Many really believed that I had made that ridiculous and perfectly unscientific statement. But I do stand by my first statement.

Only a few days ago I went to a wholesale candy store run by one of my patients, and what do you think I saw? In addition to the piles of all kinds of candy in every shape, size and form, I saw an interesting shelf of patent drugs: exlexes, tummy-tums, bar-turins, alphaselzers, alkaline myths and whatnot. Yes, that's right; all these things sold by the same wholesale candy man. They certainly work both ends against the middle, get you coming and going! Sadly I told my friend, the candy man, that he needn't worry about the few intelligent people I could influence; there would always be more than enough foolish people who would fall for his products.

Education is a slow process. And arrayed against any program of education is the fact that people decline to exercise the kind of sense which should be common, but which is far from common. I was visiting recently with Dr. Victor Heiser in his office in New York. "You know," he said, "I am on the National Advisory Council of Nutrition. I go to Washington frequently, and all morning I discuss with other members of the

PROCEEDINGS

Council all phases of nutritional problems.

"At noon we go to lunch. You should see the meals these nutrition authorities eat! Meat, bread, potatoes, topped off with apple pie a la mode and washed down with cups of coffee.

"I tell you it is discouraging! These men who are experts eat meals that you and I would not think of eating. I have seen this happen time after time. They do not eat fruit or green leafy salads. They do not drink milk. How are we going to educate the general run of people when their dietary leaders eat like that?"

Changing people is difficult. Dr. Alexander Bryce once said: "Nothing offends patients more than to be asked to change their habits of life. Their desire is to be able to break every known law of health; then when they are called upon to pay the penalty, they accept complete absolution in a bottle or two of medicine. They do not want to be cured, but are content to be patched up sufficiently to continue their practice of self-indulgence in various forms."

I know that I can prevent dental decay. I can arrest it and rebuild the insides of teeth and change them from soft malacotic tooth structure which is hypersensitive to hard dense sclerotic tooth structure, highly resistant to decay and not the slightest bit sensitive, even to a drill. But I can only do this for from 10 to 20 per cent of my patients, or for about half of them fairly well. The balance of my patients are a chronic pain in the neck. The basis of real reconstruction must be *nutritional*.

A recent statement by Dr. Harold Hillenbrand, editor of the American Dental Journal, gives some idea of the colossal situation confronting American dentists. Briefly: There is a back log of a half a billion cavities in the mouths of our children and adult population. New cavities developing each year amount to about 100,000,000 more; some 25,000,000 extractions of hopelessly diseased teeth are indicated. The prosthetic appliances neces-

sary to restore these missing teeth would be about 11,000,000 per year. If we had the manpower in dentistry to accomplish the restoration of these mouths, the cost would be about five billion dollars, ten times as much as Americans ever spent in a peak year on dental care. We only have 70,000 dentists in this country; we are graduating about 1,700 inexperienced dentists and losing from death and retirement about 2,200 experienced dentists a year.

So what? Thirty-five years ago Dr. H. P. Pickerill of Australia wrote in a book, *Prevention of Dental Caries and Oral Sepsis*:

... The prevalence of caries is due to the habitual consumption of "artificial" as opposed to "natural," articles of diet. Most of the forms in which starchy and sugary foods are taken at the present time can only be regarded as luxuries, and, moreover, as dangerous luxuries—at least as dangerous as alcohol, for instance; and, like alcohol, they should be taxed. The manufacture of sweetmeats, confectionery, and fine white flour, should be carried on only in bond; and all such articles should be subject to Excise, either when manufactured at home or imported from elsewhere. The amount of the taxation should be sufficient to appreciably diminish the demand for such commodities, and the moneys so collected should be applied to the cheapening of other equally nutritious and less harmful forms of food—not less harmful only, but actually preventive of dental disease. Particularly the culture, carriage, freight, and importation, of fruit and fresh vegetables (and of meat in some places) should be fostered and aided, so that such articles may come (especially fruit) to be regarded as common, ordinary, and necessary constituents of every meal, instead of being, as at present, regarded as unnecessary and too expensive for common and constant use. Such legislation might well accord with a back-to-the-land or closer-settlement policy, the desirability of

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which, on economic grounds, is so much advocated.

This Australian practitioner, mind you, wrote that in 1911. Prevention, not patch-work, is even more vitally needed now. He went on to say that systems of inspection and advice are good and necessary, but in themselves futile, almost useless, to stem the tide of this national disease." For: "No enormous expenditure of public money for the treatment of disease can be justified unless that treatment strikes at the cause of the trouble, and gives some reasonable hope that the incidence of the disease will be materially lessened. If the simile may be pardoned, such schemes are as if an army of small boys were pelting a glass house with stones, and the owners, instead of attacking and dispersing the cause of the trouble, employed an equally large army of workmen to be constantly repairing the damage as it went on. There would be two inevitable results: the vigour and number of the attackers would increase daily, and the work of the workmen would deteriorate."

This to my mind is just as true today as it was when written thirty-five years ago. We have not yet learned the simple truth Mother Nature knows best.

Somebody said, "It is only while we are green that we grow, when we think we are ripe we are beginning to get rotten." Let's grow!

In conclusion, here is a simple formula to follow if you want to build and maintain your teeth and your health: If you want tooth health, the main thing Nature asks of you is the kind of nourishment that protects exposed tooth enamel from these initial entries in which bacteria begin their destructive work. She asks you to save your face by saving the face of your teeth, by proper eating of natural foods that do not foster destructive bacteria and deprive your vital teeth of needed elements.

A lot of authorities have filled a lot of books on this point—interesting books filled

with facts the average man does not have time to assimilate. But what it all amounts to is that every adult ought to have daily the following:

A minimum of a pint of milk.

A generous portion (or two) of fresh citrus fruits and/or freshly opened tomato juice or vine-ripened tomatoes or crisp, fresh cabbage.

A generous portion of fresh green leafy vegetables (the greener in color the better).

An egg.

A serving of meat (the organs once a week) or cheese. (If you take a quart of milk per day you'll need less meat, which seems better for some people.)

A half-dozen helpings of other fruits and vegetables, some of them raw, and including one potato.

Several pats of butter.

Then, after you are sure you are going to have all that, enough whole grain bread or whole wheat toast to produce energy for the day's work and none left over to make you overweight.

In addition:

Some sweets in their natural forms—honey, figs, dates, brown and maple sugar.

Cod liver oil (for Vitamin D),—very essential for children while they are building teeth. This may or may not be essential for adults. Unless you are exposed to direct sunlight on your skin a lot, there is no reason why you should not be on the safe side with some Vitamin D capsules in the winter. (It is difficult to get enough Vitamin D in food other than fish oils.)

The above diet gives a variety especially essential to Americans who are now consuming some foods, possibly many foods, grown in mineral-improverished, improperly fertilized soils. To avoid mineral deficiencies, safety lies only in a wide variety of foods from many soils.