

DENTISTRY

Bad Teeth By Inheritance

Part of tooth troubles is due to heredity. If parents have good teeth, children have little trouble with theirs.

By JANE STAFFORD

► IF YOU have a lot of toothaches and have to spend hours in the dental chair getting cavities drilled and filled, you probably drank the wrong kind of water as a child. But then, again, at least part of your tooth troubles is probably due to heredity.

The importance of the parental influence in the liability of teeth to decay is stressed by Dr. Henry Klein, senior dental officer, U. S. Public Health Service. According to his findings, the mother who says, "My daughter gets her poor teeth from me," is right.

A study of the teeth of 5,400 parents and children in 1,150 families furnishes considerable evidence for this view. The families were of Japanese ancestry, studied at the Colorado River Relocation Center.

Inherited Tendency

When both parents had little or no signs of dental disease, their children also had good teeth, Dr. Klein found. When both parents had poor teeth, the children also had much dental trouble. If one parent had good teeth and the other had medium or very bad teeth, the children had more tooth decay than children both of whose parents had good teeth, but less than that seen in children with both parents having poor teeth.

The state of the mother's teeth seemed more closely related to that of the daughter's than the state of the father's teeth did. Susceptibility to tooth decay, Dr. Klein concluded from this study, seems to run in a family, very likely is inherited and may be sex-linked.

The hereditary influence on teeth is probably strengthened by another fact, Dr. Klein's studies disclosed. This is that like tends to mate with like when it comes to teeth as well as eye color and nationality. In this study Dr. Klein was assisted by Dr. Toyo Shimizu, dental officer of the Office of Indian Affairs.

Men and women with large numbers of DMF (decayed, missing and filled) teeth tend to marry men and women who

on the average have more than the usual number of DMF teeth for their age and sex, the dentists found.

The reverse is also true. Those with good teeth tend to marry those with better-than-average teeth.

The dental officers do not think this is a matter of conscious choice, however. Besides observing that their findings are consistent with the view of human biologists that like tend to marry like, the dentists point out that people who marry tend to come from about the same local geographic background. They would therefore have shared the same environmental conditions when their teeth were being formed.

Even with a hereditary start toward poor teeth, a child may escape with only a few toothaches and cavities if he got the right kind of water to drink while his teeth were being formed.

Small amounts of the chemical, fluorine, in the drinking water may help prevent tooth decay. This is a fairly well-

known story now, and several communities are adding fluorine to their water supplies to take advantage of its anti-carries action.

This measure was not expected to help anyone except children born in those communities after the water supply was fluorinated. Fluorine, it has been believed, only protects the teeth of persons drinking fluorinated water from birth and during the period while the teeth are developing in the jaw.

Good Effects Applied

Its good effects, it has just been discovered, can be applied at considerably later ages. First and second molars and second bicuspid that are already erupted in the mouth can be protected by fluorinated drinking water if they are exposed to the fluorinated water soon after eruption.

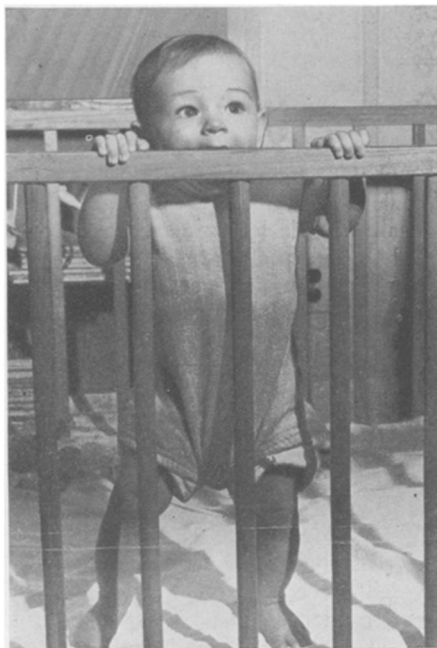
This means that in cities where fluorination has been started, not only the new babies and toddlers, but children up to about 14 years old will have better teeth and fewer toothaches. This finding of Dr. Klein's was also made on some of the Japanese children relocated during the war. The children in this study all had previously lived in Los Angeles and were transferred to centers in California and Arizona.

Tests with Fluorine

At the California center the drinking water contained almost no fluorine. At the Arizona center the water supply contained just about the caries-preventing amount of fluorine. Children between eight and 14 years of age at the time of relocation who went to the fluorine region had considerably fewer new caries in the teeth most susceptible to decay than the children who lived two years in the fluorine-free water region.

Drinking water may also contain substances that make teeth more vulnerable to decay as well as fluorine which protects against caries. Evidence for this was discovered by Dr. Klein in examinations of the teeth of more than 3,000 New Jersey school children. These were made with the cooperation of Dr. J. M. Wisan, New Jersey health department's dental chief, and Dr. John F. Cody of the U. S. Public Health Service.

The children lived in five communi-



CHARACTERISTIC POSE — This youngster is using the rail on his play pen as a teething ring.

ties of southern New Jersey. In three of these communities the water supplies contained enough fluorine to favor resistance to tooth decay. In the other two, the water was considered fluorine-free.

Fluorine Benefits

Of the 3,000 children, 1,307 had been born outside the five communities and moved into them at various ages. Of those moving into the fluorine communities, the younger the child was at the time he arrived there and the longer he lived there, the less his teeth were attacked by decay. This showed the now generally recognized effect of fluorine in drinking water in favoring resistance to tooth decay.

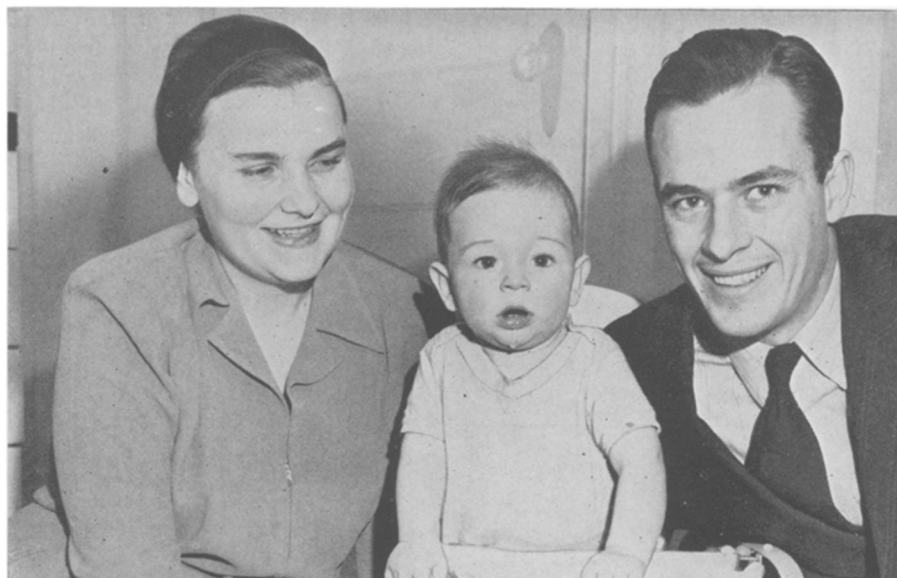
By contrast, among the children moving into the fluorine-free areas, the most recent arrivals had the best teeth while those who had lived in the area the longest had the worst teeth so far as decay was concerned.

Decay Cause Sought

Scientists are now actively searching for the substances in the water of the communities that make teeth more vulnerable to decay. Superficial examination shows that the nonfluorine waters in the communities are acid enough to need treatment with alkali and that they contain so much excess iron that it is necessary to aerate the water to remove it. An unusually high content of nitrates has also been found in these waters.

Regular use of an anti-decay chemical treatment of the teeth of all children is now recommended by the American Dental Association.

The chemical is sodium fluoride. It would be applied by the child's dentist in a 2% solution to the crowns of the teeth twice a year after a preliminary series of at least four treatments for each tooth.



HANDED DOWN—Babies fortunate enough to have parents with good teeth are likely to have few toothaches and spend little time in the dentist's chair.

Because sodium fluoride is a poison, the treatment should be given by a dentist who is in position to guard against use of too strong a solution or other potential dangers.

The treatment is advised as a general preventive measure, but does not have any 100% guarantee that it will prevent tooth decay in all children. It has cut down the occurrence of decay as much as 40%, dentists who have tried it have reported.

The treatment is not effective on the teeth of grown-ups, so far as present evidence goes.

The mechanism by which fluorides inhibit tooth decay is unknown. Current theories are that the fluorides provide a protective factor in tooth enamel and that the drug inhibits the growth of acid-producing bacteria believed to be a cause of dental decay.

Science News Letter, April 19, 1947


METALLURGY

Alloy for Aircraft Saves Weight, Gives Strength

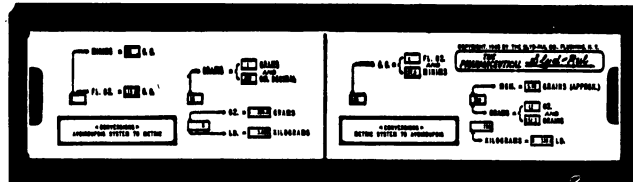
➤ A NEW zinc-magnesium-copper-aluminum alloy was described to the Society of Automotive Engineers in New York by George Snyder and Frank J. Crossland, Boeing Aircraft Corp., which can be used in certain aircraft structural applications to save weight and increase strength. Its most significant advantage, they stated, is increased strength for both compression and tension. It is claimed to be about 55% stronger than the present standard aircraft material.

The metal, designated 75ST, contains approximately 5.5% zinc, 2.5% magnesium, and 1.5% copper. Its maximum physical properties are obtained by a special heat-treatment followed by artificial aging.

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