

The ease with which the infection was picked up in the laboratory plus the fact that the infection occurs naturally in ticks suggests that there may have been other human cases. The disease is very similar to if not the same as the "Q" fever of Australia. The fact that

two such similar diseases exist at points so geographically far apart leads health authorities to believe that other cases must be occurring in both countries and probably in many countries between here and Australia.

Science News Letter, January 13, 1940

DENTISTRY

Tooth Decay Remedy Made By Sulfanilamide Discoverer

"Zephiran" May Prevent Caries by Stopping Production Of Lactic Acid; Is Powerful Germ Killer and Cleanser

ACHEMICAL weapon against tooth decay that may prove as effective as sulfanilamide is against streptococcus infections was announced by Drs. Benjamin F. Miller, Sigmund Bradel and John A. Muntz, of the Zoller Memorial Dental Clinic of the University of Chicago, in a paper presented before the meeting of the American Association for the Advancement of Science in Columbus.

The new anti-caries chemical, called Zephiran, was made by the man who gave sulfanilamide to the world and who was awarded the 1939 Nobel Prize for this achievement, Prof. Gerhard Domagk, of the I. G. Farbenindustrie in Germany.

Long-term studies of Zephiran on patients suffering from dental caries are now under way, following the promising results of laboratory experiments with it, the Chicago scientists stated.

When it was swabbed on the teeth of patients in preliminary trials, it stopped lactic acid production after two minutes of swabbing, and prevented any increase in general acidity. Since lactic acid in high concentration can destroy tooth enamel and thus give decay a chance to start, Zephiran promises to be a potent weapon against tooth decay.

Zephiran was tried after the Chicago scientists had found that two other chemicals, sodium fluoride and iodoacetate, markedly reduced the amount of experimental caries or tooth decay in rats. These two chemicals, it was believed, checked decay by interfering with enzyme processes involved in the growth or metabolism of bacteria associated with the decay process. Fluorine in drinking water, cause of the ugly mottled enamel condition of teeth, had previously been found by other investigators to play a role in caries prevention.

Search for a better and less poisonous

substance than sodium fluoride or iodoacetate to use on human patients led to the trials of Zephiran. This substance is, in chemical terms, alkyl dimethyl benzyl ammonium chloride. It is a powerful germ-killer. In addition, it acts as a cleansing agent, is relatively harmless to mucous membranes such as line the inside of the mouth, and it lowers the surface tension of water. This last property is important because it means the chemical is a good wetting and penetrating agent and can get into effective contact with the dense mass of germs in the dental plaque. Dental plaques are deposits on the teeth of material supposed to act as a medium for the lodgment of germs associated with the decay process.

Zephiran-swabbed and unswabbed plaques were removed from patients' mouths and studied in the preliminary trials. It was in these trials that the inhibition of lactic acid formation was discovered.

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Diabetics Miss Toothaches

DIABETIC children in general are spared the nagging pain of toothaches and the discomfort of having cavities in their teeth filled, it appears from a report by Dr. George Stein, of the Harvard Dental School.

A group of 82 patients who had acquired diabetes during childhood gave Dr. Stein the information he reported. Examination of these patients showed that caries, or tooth decay, was infrequent. If there was a marked susceptibility to caries at the onset of the diabetes, the progress of the caries and acquisition of new caries was slowed.

Difference in nutrition seems not to be the only reason for the low suscepti-

bility to caries, as all the patients Dr. Stein examined are on a normal mixed diet. Changes in the composition of the saliva and other factors seem to play a part, he said.

Pyorrhea and other diseases of the gums, on the other hand, do afflict diabetics, particularly as they grow older. Pyorrhea was not found affecting the temporary or "baby teeth," but one-fourth of the patients over 18 years of age had pyorrhea or other diseases of gums and tooth sockets, and three of these patients had lost all their teeth by loosening.

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POPULATION

Population Trend Alarming To Statistical Expert

ALARM over the trend toward lower birthrates was expressed by Prof. Raymond Pearl of the Johns Hopkins University in his presidential address before the American Statistical Association in Philadelphia in which he said people in the prime of life are contriving to throw off some of the burden of supporting young and old by having fewer children.

"Just possibly what mankind is slowly and steadily doing," Prof. Pearl warned, "may turn out in the long run to be the moral equivalent of curing a toothache by the effective but disastrous technique of cutting off the patient's head. There is no good in making life easier if there is not going to be anybody around to live it."

The world's population, he said, increased nearly five-fold in the three centuries between roughly 1630 and 1930. This brought about present efforts to lessen crowding and discomfort, which now are showing results in lowered birthrate and increasing numbers of the old.

Analysing the United States' biggest population problems, and citing "such weird economic philosophies" as those currently associated with "ham and eggs" or "\$200 a month," Prof. Pearl said:

"It is plain that the old folks, on the one hand, and the youngsters, on the other hand, by their own lusty bellowings and the supplementary skullduggery of their 'humanitarian' friends are ganging up, as the expressive phrase goes, on the half of the population that does the work, pays the bills and taxes, and in cold fact earns the livings for all."

Counting both young and old, the burden borne by the harassed section of the population between 15 and 50 years old, is actually not so great as it was a cen-