

DENTISTRY

Gumifrices Tested

► **STUDIES** on Pennsylvania prisoners who volunteered to chew bubble gum indicate that diseased gums may provide a route for dangerous infection to enter the blood stream.

Periodontal (gum) disease is known to cause the loss of more adult teeth than all other factors, including tooth decay.

For the experiment, Dr. Morris V. Shelanski, director of the Industrial Biology Research and Testing Laboratories, Philadelphia, and Dr. William Shoulberg, a Philadelphia periodontist, selected 50 volunteer convicts with gum disease mild enough that none had sought dental advice. After each of two gum-chewing sessions that resulted in gum bleeding, 11 of the 50 had bacteria in their blood streams.

The investigators then tested the ability of two products, called "gumifrices," just as tooth pastes are dentifrices, to toughen the gums to the point where they no longer bleed and formed open wounds through which bacteria could enter the body.

The 11 subjects were divided into three groups; one group was instructed to rub their gums every two hours with a gumifrice, Gum-Kare, designed to improve resistance to gum bleeding. A second group used the same procedure with a similar preparation, Bio Gum-Kare, containing a mild anesthetic and the antibiotic, neomycin. The three remaining subjects brushed their teeth regularly with tooth paste.

After two weeks of this treatment, all the gum-rubbing subjects had no bacteria in their blood samples, while those who

brushed their teeth with regular tooth paste tested positive for bacteria.

"Although this study was performed on a small number of subjects," the doctors concluded, the gumifrices, when compared to tooth paste, "were effective in reducing the presence of bacteria in the systemic blood stream by treating the source of infection, namely, by treating the infected gums."

The gumifrices used in the Pennsylvania study have no competitors on the market at present. The manufacturer, Crane-Hall Corporation, said that the antibiotic gumifrice, sold only under prescription, has shown promise in combating cases of trench-mouth. The products are not claimed to be cure-alls, but may be effective as home-care aids for periodontal disease.

This infection starts when the gums become inflamed, swell, and form open pockets between tooth and gum. The pockets are deepened, sometimes to a fifth of an inch, by bacterial toxins that eat away the fine filaments connecting the tooth to supporting gum and bone. Eventually the tooth foundation is weakened and the tooth itself is lost.

About 84% of the U.S. population has periodontal disease. Because the condition usually is chronic rather than acute, many persons are not aware of its presence. But they are often brought to painful realization when the dentist, in an effort to save the teeth, must cut away the portion of the gums that serves only as a disease pocket.

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"275 did not have detectable quantities of arsenic in the air."

Dr. Prindle admitted the possibility of lung cancer being caused by the arsenic in tobacco sprays, but says without Federal regulatory authority the spraying laws are up to the states.

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MILITARY SCIENCE

Infantry to Get Better Sniperscopes

► A "SNIPERSCOPE" infrared gunsight will soon help the infantryman see farther in the dark. A new model to go into production soon has a target image twice as big as those used in World War II.

The battery supply for the unit will weigh 13 pounds; the older models weigh 28. The unit, developed by the Raytheon Company at its Santa Barbara, Calif., operations, is designed for the M-1 carbine.

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READY FOR A MOON STROLL

ASTRONAUTICS

Moon Suit for Astronauts Functions as House Too

► A TWO-PIECE moon suit that can be used by astronauts to scout around, dig or do other chores, and will serve as a house as well, has been developed by Republic Aviation Corporation, Farmingdale, N. Y.

The suit, exhibited in the Science and Industry Exposition on Long Island, could be used when astronauts have to get outside the space vehicle that brought them to the moon. When the operator of the suit wants to rest, he can withdraw his legs from the lower trouser-like sections and rest and sleep within the suit.

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MEDICINE

Arsenic Linked to Cancer

► **ARSENIC** in both coal smoke and cigarette smoke as a cause of lung cancer gets new emphasis from Dr. Henry S. Satterlee of Newport, N. H., in the New England Journal of Medicine, Vol. 263:676, 1960.

Going back to the arsenic-poisoning epidemic of 1900 that affected 6,000 beer drinkers in the Manchester-Salford-Liverpool district of England, Dr. Satterlee applies a background feature of the investigation by the Royal Commission on Arsenical Poisoning to the flue-curing of tobacco today.

A time-honored British practice, he says, was drying the malted barley in the fumes of arsenic-containing malting fuels to impart a smoky flavor to English ales.

This cause of arsenic poisoning was further proved in 1902 when another epidemic of arsenic-beer poisoning in Halifax, Nova Scotia, was shown to be the result of using gasworks coke as a malting fuel high in arsenic content.

Dr. Satterlee traces conflicting reports that alternately place arsenic high and low among recognized causes of cancer.

He says there has been a tendency to remove arsenic from serious consideration as a cancer-causing influence in city environments because it appears to be a negligible component of air pollution.

Dr. Satterlee blames faulty methods of sampling for this attitude, and says special investigation is needed. Pointing out that the arsenic concentration in expired air is nearly three times the tolerance limit, he conjectures on the arsenic content of the confined atmosphere in crowded vehicles, movie theaters and crowded sleeping quarters of low-class dwellings.

Dr. Richard A. Prindle, deputy chief of the U. S. Public Health Service Division of Air Pollution, Washington, D. C., minimizes the danger of arsenic in the air, in response to an inquiry.

"We regularly take samplings from the air of 31 cities across the country in a search for arsenic and other contaminating elements," Dr. Prindle said. "This is a small part of the 200 stations for sampling that we maintain because so little arsenic is found.

"Out of 520 analyses in 1954," he said,