DENTISTRY

# Chemical for Tooth Decay

➤ WITHIN THE NEXT YEAR a harmless chemical solution may surpass sodium fluoride, now being used as a direct application to prevent the decay of teeth. But once decay becomes visible, nothing so far has been found to make drills and fillings obsolete.

Dr. Ward Pigman, one of three biochemists at the University of Alabama Medical Center, Birmingham, reporting work on tooth hardening, told SCIENCE SERVICE that their research has advanced from years of test tube experiment to testing in the human mouth.

"We are working now with a couple of companies on research that we hope will soon result in practical use of chemical solutions in preventing tooth decay," Dr. Pigman said.

But the most to be expected from the application of secondary calcium phosphate dihydrate or synthetic hydroxyapatite, the chemicals being tried experimentally, is that the beginning invisible stages of decay will be discovered in time to prevent further damage.

The limit of softening before repair can be done through natural recalcification of enamel has been the subject of research by many scientists. The Alabama biochemists believe they have discovered this point, the 150 Knoop hardness number.

"The surface enamel of teeth is constantly being formed and reformed," Dr. Pigman said, "and we hope the equilibrium of the oral fluids affecting decay can be kept positive by application of the proper chemicals."

The Alabama experiment showed that fluoride in minute proportions added to the synthetic hydroxyapatite hastened the return to original hardness of tooth enamel in test tubes. But direct application of sodium fluoride alone has not been the complete answer, Dr. Pigman said, since it has only reduced decay 20% to 30%.

Drs. Theodore Koulourides and Heriberto Cueto are the two other biochemists at the University of Alabama with whom Dr. Pigman has been working.

Commenting on the work of the Alabama trio, Dr. David B. Scott of the National Institute of Dental Research, National Institutes of Health, said research of several years had shown tooth surfaces "are not as inert as we used to think," and that if a very small amount of mineral should be lost, it is conceivable it might be returned.

• Science News Letter, 79:101 February 18, 1961

MEDICINE

## Heart Research Program Biggest Ever Planned

➤ THE AMERICAN Heart Association will conduct a $10,000,000 research program for 1961-62, the largest in its 13-year history.

Awards of more than $2,000,000 in fellowships to 179 scientists for heart disease studies will become effective July 1.

The scientists will study in 26 states, the District of Columbia and four foreign countries.

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PUBLIC HEALTH

# Alaskan TB Declines

➤ THE ANNUAL tuberculosis infection rate for native Alaskans has dropped from 24.6% in 1949-51 to 1.1% in 1960, a survey has shown.

Improved standards of living along with case-finding, isolation and treatment with the drug isoniazid may spell an end to the tuberculosis epidemic that has plagued Alaskan residents since the beginning of the twentieth century.

Drs. George W. Comstock and Robert N. Philip of the U. S. Public Health Service said the reduction was so "dramatic" that children whose parents were killed by the disease may live to see tuberculosis become rare.

More than 6,000 native inhabitants of the Yukon and Kuskokwim delta, where the tuberculosis problem has been most serious, are taking part in trials of isoniazid treatment by the Public Health Service. Aim of the trials is to see if a method for reducing the risk of the disease among infected persons can be found.

The first systematic examination of Alaskan natives for tuberculosis, conducted from 1948 to 1951, showed 75% of the children examined reacting positively to TB tests. This percentage, the investigators reported in the current Public Health Reports, 76:19, 1961, revealed a situation in the Yukon-Kuskokwim delta "with few rivals in medical literature."

The disease probably was introduced to Alaska by white visitors and immigrants, coming first to the Aleutian Islands. Brought first to the southern coast and southeastern panhandle by explorers and fur traders in the latter part of the 18th century, tuberculosis was probably introduced into the interior along the northwest coast late in the 19th century by seekers of gold and whales.

The Yukon-Kuskokwim delta is a roughly triangular area, with the Bering Sea on the southwest. About 7,000 Eskimos and fewer than 1,000 white people live in the area of about 30,000 square miles, which makes it the area of densest population of Alaskan natives. It includes 41 villages ranging in size from 30 to 1,000 persons.

Dr. Comstock is chief of epidemiological studies, tuberculosis branch, Washington, D. C., and Dr. Philip is chief, epidemiology section, Arctic Health Research Center, Alaska.

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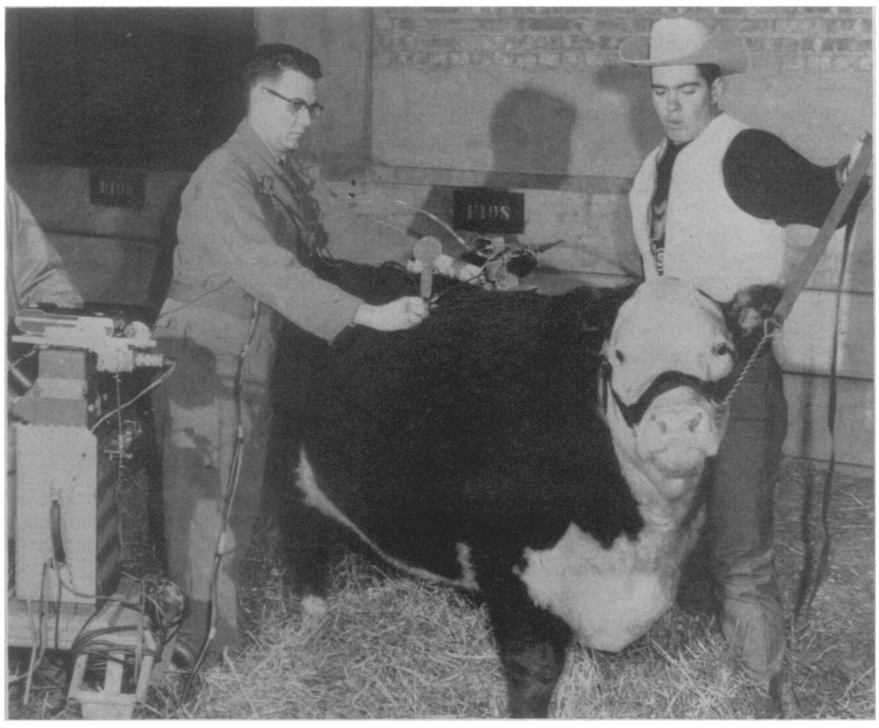

*THE FAT AND THE LEAN OF IT—A device, the Sonoray, developed by Branson Instruments, Inc., Stamford, Conn., locates layers of fat and lean by bouncing harmless sound waves into the animal's tissue. It was used at the 52nd International Livestock Exposition to prejudge the quality of beef.*