

MEDICINE

Treatment Saves Sub Victims From Loss of Feet or Legs

"Immersion Foot," Similar to Frostbite, Affects Men Adrift in Sea Even in Warm Florida Waters

RESCUED victims of submarine or other sinkings, who have been adrift on the seas in open rafts or life-boats, might be saved the subsequent loss of toes, feet and even legs by a treatment presented by Dr. J. Ross Veal and Dr. Roy G. Klepser of Washington, D. C., at the meeting of the American Medical Association in Atlantic City.

These shipwrecked mariners often suffer a condition known as "immersion foot." The blue, cold and painful condition may extend halfway up to the knee. It results from exposure to cold and damp without enough exercise to keep up the blood circulation. Actually it is the same as frostbite, though it afflicts men shipwrecked in the warm gulf stream waters off Florida as well as those shipwrecked in the icy waters off the New England coast. Frostbite does not mean freezing, Dr. Veal declared, citing many cases of frostbite of toes and feet seen in even as mild a climate as that of the District of Columbia. The condition may occur when the outside temperature is as high as 50 degrees Fahrenheit. This temperature, however, is still enough below the body's normal temperature of 98 and 6/10 degrees to constrict the arteries carrying blood to the feet, hands, and other exposed parts of the body unless counteracted by exercise to stimulate circulation.

In civil life, the frostbite condition very often follows an alcoholic spree. Experiments with rats showed, Dr. Veal reported, that when enough alcohol is drunk to put the rat, or man, "out" the frostbitten condition will occur even at mild temperatures, particularly if there is exposure to dampness.

The treatment which might save the feet or legs of shipwrecked mariners, as it is now saving frostbitten feet of people in civil life, is an operation in which the sympathetic nerves to the affected part are permanently disconnected. These nerves regulate the contraction of the blood vessels. By cutting them, the blood vessels are put into a state of dilatation instead of contraction. As a result, there is no check to the blood flow.

Gangrene is prevented and the toes, foot or leg are saved. These can be saved by proper treatment even as long as six days after exposure if permanent damage to the tissues has not occurred. First treatment for a person with the frostbite condition is to warm him all over by blankets, hot-drinks, and even whiskey. Great care must be taken, Dr. Veal emphasized, to warm the affected parts very gradually.

Science News Letter, June 20, 1942

NUTRITION

Frozen Foods With Flavor Produced By New Method

A NEW quick-freezing machine that freezes foods four times as fast as the fastest previous methods, that keeps the flavor in and provides a protective coating on the food, has been developed by research at the University of Texas. This was announced by Prof. W. R. Woolrich and Luis H. Bartlett of the University of Texas to the American Society of Mechanical Engineers.

Foods, to retain their freshness and flavor, must be so quickly frozen that no chemical or physical changes occur during the process.

"Many cases are on record," the scientists said, "of products which have been frozen by methods that required as much as a week for complete solidification, yet they were labeled 'quick frozen'."

After investigating thoroughly the causes of damage to foods by slow freezing, and studying all existing commercial procedures, the scientists developed their own method which they call polyphase or flash freezing. It is a modification of the immersion method in which the food is floated on a thick chilled syrup or brine. This is a very fast method and was found by the research divisions of the Tennessee Valley Authority to give exceptionally good results for berries, peaches, vegetables and fish. For fish, the salt solution is used.

The modification introduced in the polyphase method is seemingly slight—

but it makes a great difference. The solution, of sugar or salt, is so adjusted as regards temperature and concentration that it contains all three states of matter, the solid, liquid and vapor states. These states the chemist calls phases. Hence the term "polyphase."

As the liquid is cooled and slowly agitated, minute crystals of ice are formed and thoroughly distributed throughout the liquid. These ice crystals so increase the heat conductivity of the mixture that heat is carried away from the immersed food twice as rapidly as by any other fluid at the same temperature.

The polyphase mixtures can be used at temperatures from minus 2 to minus 10 degrees Fahrenheit. Syrups used in food freezing are seldom operated below plus 3 degrees. The investigators found that with a polyphase composition at minus 10 degrees, the freezing was four times as fast as with an ordinary syrup at plus 1.5 degrees.

Freezing is in fact so fast by the new method that juices adhering to the food surfaces are at once frozen, forming an ice coating that keeps the juices and the flavors in. After the fruits or vegetables are fully frozen and removed from the machine, they are dusted over with a small amount of dextrose. This changes the ice coating to a plastic material that adheres tightly to the food and preserves it perfectly.

Science News Letter, June 20, 1942

ENGINEERING

Rubber Off the Roads Could Be Salvaged

ENOUGH rubber can be scraped up from the streets of our cities to make a significant contribution to the retreading material for our tires, according to Dr. Carl Omeron of Los Angeles. He made the experiment of scraping up and weighing rubber from the streets of his native city, and estimated that at least one pound of rubber wears off from each tire on the city streets and highways in a year. This rubber is found principally at boulevard stops and on curves.

In Los Angeles, there are 1,000,000 registered motor vehicles. These should leave about 4,000,000 pounds of rubber on the streets each year. Dr. Omeron estimates that one-fourth of this could be recovered. He suggests the scraping be done with large wire brushes attached to motorized sweepers, and says the rubber can easily be separated from the oil, tar and other residue scraped up with it.

Science News Letter, June 20, 1942