In naval practice the aluminum alloys frequently come to grief, due to the great chemical activity of aluminum when exposed to sea water. Atmospheric oxygen, water and salt transform an aluminum hydroplane skeleton into a mass of white powder. This oxidized powder may still retain its original form on account of the dried varnish shell about it, and accordingly be a source of deceptive danger. Inasmuch as resistant metals are all relatively heavy, little hope is offered of an alloy that will stand actual contact with the sea. New varnishes are in prospect, however, to meet the situation with light-metal alloys.

HEAT-RESISTING BACTERIA EVOLVED IN LABORATORY

The bacteria produced by selective breeding may display as scientifically startling qualities as any white mouse or guinea pig of hand (or laboratory) picked ancestry. Dr. C. A. Magoon of the Bureau of Plant Industry in the U. S. Department of Agriculture has recently announced through the Journal of Infectious Diseases that he has been able by a process of selection to produce a strain of bacterial spores twenty-five times as resistant to heat as the original spores with which he started his experiments.

It is a phenomenon familiar to scientists that in a given strain of bacteria a few hard-boiled individual spores are much more resistant to heat than others. A spore is a heat and cold resisting form developed by bacteria that in many ways may be compared to the seed of higher plants.

Since a large amount of food spoilage and sometimes food poisoning is caused by the bacteria that develop from heat resistant spores it is essential that as much as possible be learned of the reasons for this variation in heat resistance and the factors influencing it.

Dr. Magoon began his experiments with spores of one of the common soil bacilli that had survived seven minutes in an oil bath at the temperature of boiling water. Breeding from the most resistant spores each time, he then proceeded to produce several generations the spores from each of which would stand a longer period of boiling without being killed than the preceding ones. Their period of germination was found to vary considerably, some starting growth within twenty-four hours while others required more than twelve days.

Dr. Magoon says in conclusion: "Preliminary studies only have been made to determine the basis for these differences in thermal resistance among spores and the evidence in hand is insufficient in amount to warrant definite conclusions. More information upon this important subject is greatly needed, for until more is known of the reasons for these differences, satisfactory and reliable methods of spore destruction cannot be developed, and the technology of food preservation will continue to be subject to the laws of chance".
