

AGAR · AGAR

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a sticky business



A KORERO Report

A GAR-AGAR — agar for short — is a vegetable gelatine. This fact may not appear either interesting or spectacular, but the story of its development in New Zealand is typical of the way science has come to the aid of industry to defeat what might have been a paralyzing shortage.

You may have seen on a packet of jelly crystals the warning, "dissolve in hot, but NOT BOILING, water." Jelly crystals are made from animal gelatine, extracted from certain slaughterhouse refuse, and animal gelatine cannot be guaranteed to set, or "gel," after it has been boiled.

However, in canning meat the contents are put into the tin at boiling heat and under pressure in order to ensure that all germs have been destroyed, and where gelatine is required it must be able to stand up to this temperature without losing efficiency. Have you ever noticed the translucent jelly that surrounds the contents in a tin of canned tongues? This is agar, put in at boiling temperature, and setting as the contents cool. Incidentally, ordinary gelatine would not remain set under tropical conditions, and a tin of tongues would become a cold stew.

There is another use for agar, one even less generally known, but nevertheless one of great importance. When a bacteriologist is on the track of the germ that causes a disease, he must have some way of growing colonies of these

germs in order to study their habits. These colonies of germs are called cultures, and since they are hardly the sort of pets one can keep in the back yard, they must be grown in some suitable medium. Gelatine is ideal for this purpose, being translucent and practically colourless, as well as providing food for the growing germs. But, before growing the cultures, the bacteriologist must make sure that there are no stray germs already in the medium—in other words, he must sterilize the gelatine, which is most easily done by boiling it under pressure. For this reason culture media are generally prepared from agar. The vaccine on which the health of armies may depend owes its preparation to agar, as do certain sera for inoculations.

So far, so good, but here arises the difficulty. Before the war, practically all our agar came from Japan and was, moreover, a costly substance. With the outbreak of war, importation of agar naturally ceased, and there appeared to be no other sources readily available.

At this stage a representative of the meat-canning industry suggested to one of the universities that possibly one of its students interested in research might care to look into the agar problem. However, when the university came to consider the problem it realized that some of the world's leading chemists were working on it, and that many of its secrets were still mysteries, and the