NOTES FROM THE U. S. BUREAU OF CHEMISTRY.*

BOTULISM FROM CANNED ASPARAGUS.¹

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[ABSTRACT]

CANNED asparagus taken from the jar and served as a salad caused the deaths of four persons in Boise, Idaho, in January, 1919. Cultures from a portion of the salad and from one jar of asparagus canned in the same pack as that used in the salad showed a strain of *B. botulinus*, designated for convenience the "Boise strain." Animal experimentation proved that this strain produces a very virulent toxin. Guinea-pigs, rabbits, and chickens are readily susceptible to the toxin when taken by mouth. Cattle, pigs and dogs, while not susceptible to feeding, succumb to injections of the toxin. The strength of the toxin produced by this strain varies with changes in cultural conditions. At the highest toxicity obtained the minimum lethal dose for a guinea-pig weighing from 330 to 400 grams was an intraperitoneal injection of 0.0001 c.c. of a filtered dextrose beef infusion culture incubated 28 days at 35° C.

The toxin is destroyed by heating to 75° C. or by heating at 73° C. for 10 minutes. Bacilli freed from toxin by washing or spores freed from toxin by heat do not produce symptoms of poisoning when fed or injected, but have been recovered from the feces of fed animals in virulent form. All cultures of this strain have a characteristic offensive odor (putrefactive), which was clearly evident in the canned material connected with this case.

The organism is a heat resistant anærobe, whose optimum temperature is 37° C. It will live and multiply, however, at 12° C. (ice-box temperature). Its spores survive ordinary boiling for an hour or boiling at 10 pounds pressure for 15 minutes. Such an organism, if present, may be expected to survive the heating used in canning and to produce marked evidences of spoilage in the can. When physical evidences of such spoilage are present, the material should be destroyed.

* Communicated by the Chief of the Bureau.

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