THE MAINE SARDINE INDUSTRY.⁵**By F. C. Weber.**

[ABSTRACT.]

A SPECIAL study was made of the existing methods of canning sardines, special attention being given to the transportation of the fish from the fishing grounds to the canneries, and methods worked out for the improvement of the pack at the various steps of the packing process.

A chemical and bacteriological study of the food of the sea herring from which the Maine sardine is made showed that two organisms, *Bacillus Walfischrauschbrand* and a bacterium designated as *Bacillus B*, are associated with this food. Ammonia and amines were determined as end products of their growth. The difficulty with "swells," experienced by the packer, has been traced to the presence of these bacteria. Suggestions for the prevention of decomposition of the fish have been made.

Many uses for the unavoidable waste, including the preparation of fish meal for animal feeding purposes, are suggested, as well as ways to eliminate the avoidable waste of edible portions of the fish.

It is believed that by heeding the Bureau's suggestions, the Maine sardine packer may greatly improve his output and compete more successfully with the foreign packer. Some of the suggestions have already been adopted by the sardine industry, with gratifying results.

ORANGE VINEGAR—ITS MANUFACTURE AND COMPOSITION.⁶**By H. D. Poore.**

[ABSTRACT.]

THE results of experimental work conducted by the Citrus By-Products Laboratory show that there is no reason why orange vinegar, put up in quart bottles under well-established brands, can not compete with the fancy grades of cider vinegars, which retail in quart bottles at from 80 cents to \$1.40 a gallon.

Samples of orange vinegar submitted to jobbers making a

⁵ U. S. Dept. Agr. Bull. 908, issued January, 1921.

⁶ Published in *J. Ind. Eng. Chem.*, 12 (1920), 1176.

business of handling vinegar have been pronounced as fine as the best grades of their product. The color, odor, and taste are practically the same as those of apple vinegar, no distinguishing characteristic being noted.

OTOPA BUTTER.¹

By Walter F. Baughman, George S. Jamieson and Dirk H. Brauns.

[ABSTRACT.]

OTOPA BUTTER, the fat expressed from *Myristica otoba*, has been used for many years by the South Americans as a medication for skin diseases of domestic animals. A sample from Colombia, South America, has recently been investigated in the Bureau of Chemistry. When received it had a brown color and a disagreeable odor. It was found to contain 9.3 per cent. of essential oil (obtained by steam distillation) with the following characteristics: Specific gravity at 20°C., 0.89067; specific rotation, $[\alpha]_D^{20}$, -32; and refractive index at 20°C., 1.4180. This essential oil appears to be composed of sesquiterpenes. The unsaponifiable constituents other than the essential oil which are present in large amounts are two crystalline isomers, otobite and iso-otobite. The remainder was a very viscous, yellow resin-like mixture which was not further investigated.

Composition of Unsaponifiable Constituents.

Constituent.	Carbon	Hydrogen	Oxygen	Molecular weight	$[\alpha]_D^{20}$	Calculated for		
						C ₂₀	H ₂₆	O ₁
						C	H	O
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>			<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>
Otobite ...	74.10	6.19	19.71	310	- 35.7	74.05	6.21	19.74
Iso-otobite.	74.29	6.06	19.64	315	+ 5.3			

These otobites did not give the phytosterol tests. When brominated, both gave penta-bromides. The Zeisel method showed that otobite contained one meth-oxy group, and the iso-otobite, none.

Chemical and Physical Characteristics of the Fat.

Specific gravity, at 20°/20° C.	0.9293
Refractive index at 40° C.	1.4710

¹ Published in *J. Am. Chem. Soc.*, 43 (1921), 199.