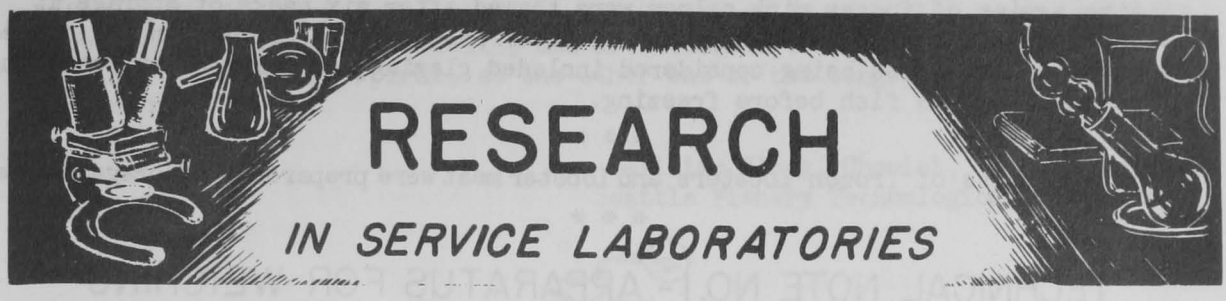

October 1949

NUTRITION: Salmon cannery waste samples collected and processed during the past few months were crated and shipped to the Leavenworth (Washington) hatchery for feeding tests to be conducted next spring.

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Extensive tests were made in connection with adapting vitamin B_{12} assay methods to fishery products. It was considered necessary to make several modifications in the formula of the media being used in order to get consistent results.

PROCESSING: Several series of tests were carried out on preservation of salmon eggs. It was found that a minimum process of 45 minutes at 8 pounds pressure was required to preserve pink salmon eggs in 1/2-pound flat cans. A series of tests were then begun to find out how much this processing could be diminished by combining chemical preservation with the heat process. Various concentrations, either alone or in combination, of several chemicals are being tested.

ANALYSIS: Studies on methods of extracting the vitamin B_{12} from fishery products have been started. Results to date indicate that cold water extraction may be just as efficient as use of enzymatic digestion.

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In tests on the oil analysis in fish meal, a series of experiments were carried out in which fish meal was refluxed with acetone for various periods of time, the solution then filtered through sintered glass crucibles, and the extractives recovered and weighed. It was found that after a comparatively short refluxing period as much or more extractives were obtained than was the case with much longer extraction in soxhlet equipment. Also, slightly more extractives were obtained by the refluxing procedure than could be obtained by the soxhlet extraction plus the extractives obtained after hydrochloric acid digestion.

REFRIGERATION: In connection with the freezing-fish-at-sea project, samples of cod, haddock, hake, and pollock were prepared from fresh, round fish obtained from gill-net fisherman. Samples were frozen in the round in circulating brine maintained at 0° F. while others were frozen in the round at -15° F. under forced air draft. A third set was gutted and iced to serve as a control. Some samples were bled before brine freezing. After a short storage period, the frozen samples were thawed in circulating sea water. Both the thawed and iced samples were cut and the fillets were packaged for freezing and storage. A complete set of weights was taken at each handling of the fish for the determination of yield values.

* * *

Five series of frozen pink salmon were thawed after six weeks of storage at 0° F. and canned in order to study the effect of freezing and storage on the canned product. The variables being considered included glazing, dressing or eviscerating, and freshness of the fish before freezing.

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Several lots of frozen lobsters and lobster meat were prepared for storage studies.

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TECHNICAL NOTE NO. 1 - APPARATUS FOR WEIGHING AND TRANSFER OF MATERIALS

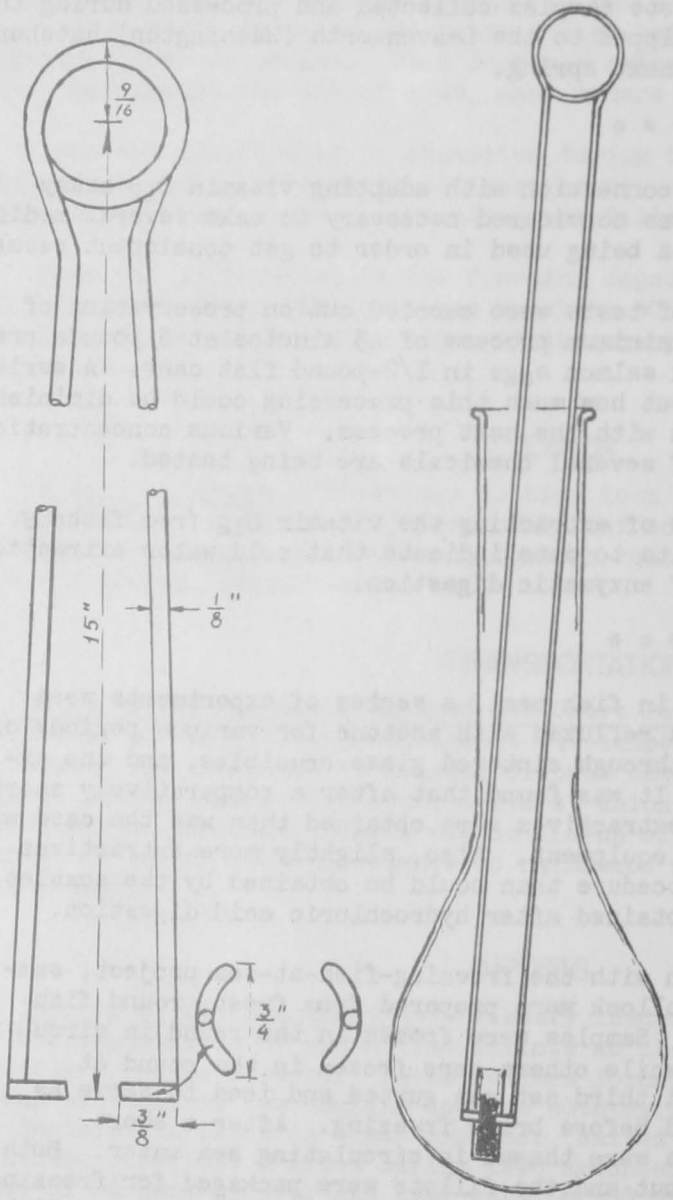

ILLUSTRATION OF THE TONGS AND THEIR USE IN TRANSFERRING A GLASS CELL TO A KJELDAHL FLASK.

In the determination of nitrogen in fish meal by the Kjeldahl method, transfer of the weighed material to the Kjeldahl flask without loss is difficult. This step can be simplified by weighing the sample in a small glass cell and then transferring the cell with its contents to the Kjeldahl flask by means of a pair of tongs especially designed for that purpose. This method has been found to be especially satisfactory for use with other finely divided materials and for use with fish flesh and fish livers varying in consistency from near solid to liquid.

The procedure need not be confined solely to use with Kjeldahl flasks, as the same technique can be employed in the transfer of precisely weighed quantities to containers of other types.

The glass cells can be fashioned from flat-bottom shell vials. For use with 500 ml. Kjeldahl flasks, vials with a diameter of from 18 to 22 mm. are convenient. Ordinarily, these vials as purchased are too long, but they may be cut and dressed to any convenient length - 20 to 40 mm. will usually be satisfactory. When volatile materials are to be weighed, a cap can be made by using a second vial, cut to a suitable length, the inside diameter of which matches the outside diameter of the weighing cell.

The tongs, which have an overall length of 16 inches, can be fashioned from a medium-spring-steel rod,

1/8 inch in diameter. The tips can be made from 1/8-inch flat brass, suitably curved to grasp the glass cells, and are attached to the spring steel rods by brazing. The spring spiral, at the other end of the tongs, has a diameter of one inch.

—William Clegg, Chemist,
Seattle Fishery Technological Laboratory.

SMOKED SALMON ROLLS

1 7-oz. can smoked salmon
1 teaspoon horse-radish
2 tablespoons lemon juice
1 teaspoon onion, grated
4 tablespoons mayonnaise or salad dressing
1 cup prepared pastry mix
Paprika

Drain salmon and flake. Add seasonings and mayonnaise and blend into a paste. Prepare pastry according to directions on package. Divide in half. Roll very thin in circle about 9 inches in diameter. Spread pastry with salmon mixture. Cut into wedge-shaped pieces and roll in jelly-roll fashion, beginning at round edges. Score top of rolls with a fork and sprinkle with paprika. Bake in a hot oven 425° F. for about 15 minutes or until brown. Serve hot or cold. Makes approximately 30 rolls.

A Fish and Wildlife Service tested recipe. This is one in the series of recipes using fishery products tested and developed in the Service's test kitchens.