

*Supply—Fisheries*

of conservation, protection and development is, of course, knowledge—knowledge as found by scientific research. We have here in our department the fisheries research board of Canada. It is not run as an agency of the department, or staffed with departmental men. We have tried to incorporate in it all those groups who are interested in fisheries in Canada.

On the board the fishing industry is represented. The universities of Canada are also represented, because after all they are the source of most of our research in Canada. Our departmental officers are on the board because they have the job, in the end, of carrying out the regulations. We have advisory representation from the great international commissions which help us conserve our deep-sea fisheries on both coasts.

Last year we made a change in the board. Formerly the chairman had been elected from among these members, who were not full-time members. We have felt however that the work of the board was so important that it deserved a full-time chairman. I am happy to say that we were able to secure the services of one of the outstanding men, if not the outstanding man, in connection with fisheries research in North America. I refer to Dr. J. L. Kask. He is a graduate of the University of British Columbia. He was in the same year as I was actually, out there, but he went on to work with the international halibut commission, the international salmon commission and the international tuna commission, then to the fish and wildlife survey of the United States federal government. He is now heading our research board as permanent chairman.

Our research falls into two parts, the biological part and the technological part. The division is as to whether the fish is living or dead. Our biologists try to learn as much as they can about the movements, the habits, the breeding habits and the life cycle of the fish in the sea. Then our technicians take over from the moment the fish is landed on the deck of the fishing vessel. Their job is to advise industry as to how best to keep that fish in as fresh shape as it is there, on to the housewife's table. Fisheries research is a very difficult field. I do not suppose there are many fields of science where research is more difficult. There is certainly no comparison between fisheries research and agricultural research. At our experimental farm our farm scientists have the crops in the field under their control completely. In the barns they have their livestock. They can feed and cross-breed at will. Our fisheries scientist is very different. He is trying to study fish which move in with the seas and move away, how

they feed, why they come, what is the relation between their movement and the time of the year, the temperature of the water, the salinity of the water. These are things which can be learned only by the most patient biological research.

In the other part, the technical part, we are dealing with organic chemistry. The many sorts of fish we produce in this country are very difficult to study; the main problem, of course, is spoilage, why fish deteriorates. All living animals at death begin to disintegrate. This is a still more difficult field of study, but we try to guide our research as best we can to industry. That is why on our research board we have leaders from the fishing industry of Canada.

There is another basic problem in research. Last week in Cleveland I heard an excellent speech from the president of the United States fisheries institute on the need for research. He quoted the famous Kettering of General Motors, who had pioneered the great research program of that corporation, in which he said that research ought never to be tied down to specific projects; it should be to hunt for general knowledge over the whole field of learning, because out of that general knowledge often came discoveries which had never been suspected, with practical results. I am afraid our fishery research program is not seeking general knowledge quite in that way. We have so many immediate fisheries problems, that we are trying to direct our research pretty well along lines which we think will bring immediate results to the fishing industry. That is why I want to speak with a little detail on some comments which have been made in this house recently about our fisheries research program.

On the other side, the technological side, our scientists are concerned primarily with fish spoilage. They are concerned, too, with the developments in processing, better ways of freezing, glazing and curing, drying, salting and canning. Our inspection service is on top of this work at all times. The fishermen in the small communities cannot be expected to do that work for themselves; but they have been extraordinarily co-operative with our biological research stations and our experimental stations in this work. A lot of this work is done also in our universities. That is why we are happy to have the university representatives on our research board. They have good facilities for research, they also have the eager young students doing research work, who are very happy to have their research theses tied in with major industry here in Canada, and have their works published in the journals of the fisheries research board.

[Mr. Sinclair.]