

other cases both this Department and the Department of Industries and Commerce have been consulted by persons contemplating the prosecution of a trade in eels. A great deal of work has been done and a considerable amount of relevant information has been collected by the Department of Industries and Commerce through the agency of the High Commissioner for the Dominion in London. An attempt may now be made to set forth some of the considerations bearing on the question of the possibility of bringing the eel definitely and permanently into the ranks of our commercial fishes. Among the first of the pros and cons it may be said that its merits as a food should place it high among the useful fishes, as it is in other countries which have been mentioned: as also it is in the estimation of Maoris and a not insignificant proportion of the white population of these Islands, though to too many people a strange prejudice, apparently on account of its bodily form, prevents a recognition or even a trial of its edible qualities. If the flesh of the eel could be grown on the skeleton of a flounder it would doubtless be among the most highly valued of our fishes. Eels are rich in fat, but so is the herring, the pilchard, and the mullet, and it is the oil of the eel, with its unusually high vitamin content, that forms one of its most important constituents from the aspect of nutrition. In spite of all this, however, one must conclude that it is as a commodity for export rather than for domestic consumption that the most promising market is offered. This involves some process of preservation, for although live eels shipped across the North Sea constitute practically the whole of the eel imports into England, and Canadian eels have been shipped alive to London and to Hamburg on steamers carrying special tanks, the long voyage over tropical oceans would appear to make this impracticable for shipments from New Zealand.

Freezing and canning are the two alternative methods of treatment. The canning of New Zealand eels has been carried out before this, both for private consumption and as a preliminary to contemplated commercial projects, and the product has proved quite acceptable, bearing comparison according to some judges with such high-priced fish as salmon. It may be mentioned in passing that the oily fishes, such as salmon, herrings, pilchards, and sardines, for example, are more satisfactory for preserving in tins than are the non-oily fish like blue cod. The existence of the Greytown Canning Co., with a plant specially intended for the treatment of eels, indicates that in one quarter at least the period of tentative small-scale trials is over and the industry definitely launched. It is to be hoped that this will lead to an increased domestic consumption of a fish of New Zealand origin in place of some part of the considerable quantity of tinned fish that is imported from abroad. The introduction of a new foodstuff is notoriously difficult and uncertain, and in the case of eels the conservatism of the average consumer is attended also by the sort of prejudice to which reference has already been made. It is possible that with the passage of the former period of prosperity and plentiful food-supplies we may be living under conditions in which this prejudice will be forgotten—as has happened in many other instances.

With regard to refrigeration we already have the knowledge that frozen eels are acceptable in Germany and also in England although in the latter case only preliminary trial consignments from New Zealand have been handled. Improvement in the quality of these trial consignments is certainly possible and probably necessary—in fact certainly necessary if lucrative prices are to be obtained. Frozen eels command lower prices than are paid for live eels which at present hold the markets at any rate in London. It will be useful here to give some of the requirements and desiderata from the consumers or retailers end of the chain and consider how far they can be met. There is naturally some variation in the requirements according to difference in individual points of view or local conditions. First of all, with regard to the most popular and therefore the most profitable sizes of eels—the bulk of the eels marketed in London are used in the stewed-eel trade, and for this purpose fish of small sizes are in request. From information obtained through the High Commissioner it is evident that eels weighing between $\frac{1}{2}$ lb. and 1 lb. each would be in greatest demand for the London market, and there would be a limited demand for eels between 1 lb. and 2 lb. In Germany, where eels are very largely retailed in the smoked state, the chief demand is for eels of 1 lb. to $1\frac{1}{2}$ lb., but those up to 2 lb. are quite acceptable.

There is an objection to the larger-sized eels on account of the toughness of the skin, which is apparently a greater drawback in frozen eels than in fresh ones. It is most essential that eels, or any other fish, should be frozen *quickly*, which involves exposing them to a very low temperature in not too great bulk. For the London market it has been recommended that the fish should be frozen singly, not when packed in bulk, and that brine-freezing should be employed. This is certainly a better method for fish than air-freezing, but at present there is no brine-freezing plant in New Zealand, and quite satisfactory results have been obtained by freezing in air in an ordinary refrigerator chamber at about 5° F. It seems likely that freezing at about 10° F. followed by storage and transportation at 15° F. would give good results if the fish were frozen singly or in shallow pans so that each fish was rapidly frozen throughout. Canadian eels for the Hamburg market are frozen whole, but London experts recommend beheading, cleaning of entrails and kidney tissue, wiping the outside clear of slime, and then wrapping each fish in waxed paper. This wrapping enables the fish to be easily taken singly from the package, prevents drying, and moreover helps to check the development of rancidity which tends to take place in most oily or fatty articles of food if they are stored for a long time in contact with air even when the temperature is kept low. In describing the different runs of each sex in the lower Wairarapa reference was made to the silvery coloration of the undersides of the males of both species which is assumed immediately prior to their emigration. While at the immature stages, feeding and growing in fresh water, both sexes are more monotonously coloured though variation according to environment is shown. Yellow eels is the trade name for such fish in England. Silver eels are the most highly esteemed in the market; therefore this, as well as suitability of size, places a premium on the catching of the male eels on their spawning migration to the sea. In passing, it may be mentioned that it is a general rule for male fish to become mature at a younger age and smaller size than females. It is more than probable that all large fresh-water eels are females. Since