

Marketing. Poor storage and transport facilities cause gluts at landing centres while there are shortages in other areas. Fish distribution takes place mainly through the wholesale and retail market, St. John's Fish Market, Colombo, which is now completely out-of-date and too congested to be run hygienically.

Colombo city itself is well supplied with Municipal Fish Markets, one in each ward, selling both wholesale and retail. House to house selling is done by individual vendors carrying fish baskets on foot or on bicycles.

Fresh fish plays a very important role in the nutrition of people in Colombo and surveys have detected a heavy uncovered demand for fresh fish showing that consumption will increase greatly if fish prices were more reasonable and reliable supplies readily available.

Traders. Packing, transport, distribution and sales are in the hands of a chain of middlemen who are very backward in their techniques.

Poor facilities make it difficult to apply the basic principles of hygiene and fish preservation which has led in general to an indifference towards improvements and an over-concern with profits. Traders form an important and essential section of the industry and need better facilities to overcome the various difficulties and problems with which they are faced.

The financiers among the traders are the key personnel of fishing villages. The financier ("mudalali") advances money to fishermen to enable them to make preparations for fishing, arranges to take over and sell the entire catch, and offers loans to tide over poor seasons. These services are of great benefit to the fishermen but are too often marred by the disproportionate gains derived by the financier for his assistance.

3. DRIED FISH

History. The manufacture of dried fish in Ceylon at the beginning of the seventeenth century has been recorded as one of the major industries of the Island. Among the causes which led to its decline were the imposition of taxes on the product and repressive levies on the salt upon which the industry depended. Through the years, improvements in storage, transport and distribution of fish increased the consumption of fresh fish and reduced the amount of raw material available for curing. Various attempts were made to revive the industry such as the abolition of the fish tax, an import duty on dried fish and a scheme for subsidised salt but all these had very limited success. The industry today is in such a poor position that it supplies only about 17 per cent. of the Island's requirements of dried fish, mainly because better facilities exist for marketing most of the raw material in its fresh state. In addition the cost of manufacture especially of the cheaper varieties very often makes the local product more expensive than that imported from India, Pakistan and Aden.

Consumption and Production. The quantity of dried fish consumed in Ceylon in 1957 was 36,500 tons while the quantity produced locally was 7,500 tons.

The local production during 1957 was distributed as follows :— south coast 17 tons, west coast negligible production, north-west coast 4,400 tons, north coast 2,400 tons and east coast 700 tons.

Methods of Preparation. In Ceylon fish are cured commercially by three main methods namely, drying without salting, dry curing of salted fish and wet curing of salted fish. Other types of curing such as smoking are done on so small a scale that their output is negligible.

On the hot sands of the beaches of the Dry Zone, small fish such as sprats and prawns are dried whole without any treatment or addition of salt. By its nature this method has a very limited application.

Dry curing of salted fish is practised during the dry seasons as the method relies on a hot sun for drying and is thus altogether dependent on the weather. In this process the fish are cleaned, salted and sun-dried. In certain areas, untreated fish (from large catches) are buried under one foot of sand on the sea beach for up to 3 days while awaiting processing. In all other cases, fresh fish in good condition is used. Although the product keeps for only about a month after curing, there is a better market for this than the wet cured fish.

Wet curing of salted fish can be made independent of the weather as sun drying is not essential. The fish are cleaned and placed in wooden barrels or glazed earthenware jars containing saturated brine, contact with metal being avoided. In most cases the dried fruit pulp of *Garcinia cambogia* (local name "goraka") is added to the brine in varying quantities usually about 2 per cent. of the fish. This ingredient tones down the sharp taste of the salt in the final product. The active agent in "goraka" seems to be an acid which makes the cured product a type of pickled fish. Methods of preparation and variations in flavour from district to district suggest that this method is a complicated curing involving a fermentation. Wet curing takes about two to three weeks and the product can be stored in brine for two to three months. The wet cured product is not so popular as dry cured fish. It requires containers for its preparation and transport unlike the dry product. A further disadvantage is that poor quality fish are sometimes used in wet curing.

The chief smoked product is Maldive fish which is made on a very small scale as the price of the local product is higher than that imported from Maldive islands. This is partly due to the higher initial cost of raw material in Ceylon. The method is applied only to skipjack. The fish are cleaned, boiled and smoked before being sun-dried. The process gives a hard cured product which is in great demand as a seasoning in food and as an ingredient in local sauces and savouries.

Quality. No scientific tests of any nature are applied to the finished product. Completion of curing is judged by appearance, odour and firmness to the touch. The extent of decomposition as well as fitness for human consumption are judged similarly.

Dried fish on the local market has characteristic odours and flavours to which the public have grown quite accustomed. Very often the consumer shows a preference for the slightly decomposed product and so long as this decomposition is not due to or accompanied by disease-causing bacteria, the marketing of such products is allowed. Standards of quality are difficult to lay down and in view of consumer preferences regulations seek to govern only the hygienic aspects of dried fish manufacture and sale.

It must be admitted that all the methods used in Ceylon for preparing dried fish have remained antiquated and unhygienic and result in a product of poor quality. Rehabilitation of the industry therefore necessitates not only an improvement in methods of manufacture but also the education of the producer to a recognition of the need for sanitary curing yards, clean utensils and the use of clean salt and undecomposed raw material.

An improved method for making dried salt fish was worked out in the laboratory. When samples of fish cured by this method were put on the market they were found to appeal more to the educated group than to the working class group. The appeal lay primarily in the hygienic appearance of the product (which was in a polythene wrap) while the complaint against it was that it lacked the flavour of the market dried fish which arises mostly from fermentation during curing. As far as the local consumer was concerned, the sample offered him was different from the market varieties with which he is familiar and therefore had to be accepted on its own merits as a new product. This means that it may take time to establish a sound market for a hygienically prepared unfermented product.

Importance of the Industry. Fresh fish requires special facilities, such as ice or refrigeration for its transport and storage, which limit its distribution and thus the dried product is the only form of fish available in many areas. The dried fish industry remains one of the best means of meeting the protein deficiency of the poorer classes all over the Island.

Curing fish is also a useful cottage industry as it often supplements the meagre income of fishermen enabling them to make the best use of their occasional surplus and their unpopular varieties of fish. Further, several fishing areas such as the islands off the northern coast are out of contact with the fresh fish markets and curing is the only way of utilizing the catch. In trawler landings there is often a good proportion of rough (unpopular) fish and the economic utilization of these varieties is one of the important problems of local commercial trawling. Curing will partly solve this problem by the conversion of such unmarketable fish into marketable dried fish.

In many quarters dried fish is regarded as a commodity in itself and not merely a substitute for fresh fish so that there will be a continuing demand for the dried product even when fresh fish is available. Thus in spite of its present small output the dried fish industry plays an important part in the economy of this country.