Today, many growers in apple areas of Ontario employ the jacketed system and others in Quebec and Nova Scotia are using it for storage of cabbage, carrots and turnips. Not only has it extended the marketing season for these fruits and vegetables, but it has resulted in larger returns to producers. Consumers can now obtain Canadian-grown produce of better quality generally at a lower price than imports.

As food in its natural state remains edible for only short periods, its preservation has engaged humanity's attention from earliest times. Prehistoric peoples preserved cereals by parching, vegetables and fruits by drying, milk in the form of fermented products or as cheeses, and fruit juices as cider or wines. Hunters learned to dry or salt game and fish, and for as long as arctic regions have been inhabited, fish, game and other meats have been preserved by freezing. As populations grew and spread throughout the world more efficient methods of food preservation become a necessity, and as science advanced, the biological causes of food spoilage became better understood.

It is not surprising then that NRC, Canada's national research agency, has been involved in food technology since its establishment in 1916. "Probably the high point in terms of maximum manpower devoted to food work was during the second world war," says Mr. Lentz, "when work was carried out on a particular type of bacon for export to Britain and on developing a stable form of powdered eggs." But perhaps the most important work concerned refrigeration because not all ships of the time had cold storage facilities. A portable refrigeration unit which could be installed and connected up on a ship's deck was designed and developed in the Division, making it possible to transport more perishable food across the Atlantic. This, in turn, led to work on railway car refrigeration. "The main result of this work," continues Mr. Lentz, "was that we were able to provide knowledge to the railways on how their refrigerated cars really worked and the temperatures that were actually maintained in them." Later, at the suggestion of the railways, a survey on the refrigeration of trucks was undertaken. The trucking industry believed it could maintain refrigerated trucks at $-18°C$ for both long and short runs. The railways were convinced that this simply was not being done. Surveys on several hundred trucks on runs of varying lengths

Bruce Kane, PIB/DIP

The use of "chips" from a Munsell color chart to record the changes in meat color with time — a handy and practical method used to determine optimal conditions for meat storage.

Utilisation d'éléments pris dans un catalogue des couleurs Munsell pour noter les changements de couleur de la viande en fonction du temps. C'est une méthode commode et pratique pour déterminer les conditions optimales de stockage des viandes.

proved the railways right. The problem was not just poor truck design but also poor operator understanding. This work resulted in the design and development of a full-scale refrigerated truck which used a modification of the jacket system. Several hundred were built, and many may still be in operation. The work of the Section improved food transportation in that companies installed better quality insulation, compressors, and so on. "And while these systems are definitely not as good as the jacket — it is still the ideal — they have improved a lot," concludes Mr. Lentz.

Work on poultry began in 1954 when Agriculture Canada's Poultry Marketing Division came to the Section with a grading problem. A turkey producer in southern Ontario was using a new process of freezing which masked surface features used by inspectors in grading. The Section found that it was necessary to give a quick surface thaw so that these characteristics would show up again, "but," says Mr. Lentz, "inspectors did not want to carry a bucket of hot water around with them." After this first look at the new process, it became apparent that there were a number of other problems. Work on cooling, freezing and handling methods and their relation to quality and appearance followed. As a result, what became known as the immersion freezing technique was developed and this method spread across Canada until within five years every major and even medium-sized poultry plant was using the process. It is now being used in the United States and in Europe.

Following the route of an egg from chicken to table, the Section solved another mysterious problem — the height