

contains moulds that carry undesirable products into the brewhouse; milling and baking tests showed that severely weathered wheat gives flour that is low in baking strength and inferior in dough and loaf qualities. Supervision of moisture testing and of equipment in Inspection offices was continued as one of the Laboratory's responsibilities, and during the year the number of C.A.E. electrical moisture meters installed was increased to 17. Electrical moisture meters are being used in Inspection offices to segregate grain of low moisture content that would otherwise require testing by the longer Brown-Duvel method. The Laboratory completed conversion charts for the 3.5 inch cell, to be used with meters in the Inspection office at Chatham.

#### VARIETY TESTING

As in previous years the Laboratory took a major part in studies of the quality of spring wheat, durum wheat and malting barley varieties grown by Canadian plant breeders. These annual studies are sponsored by the Associate Committee on Grain Research. Three spring wheat varieties that have been studied for several years are now being tested, in comparison with Marquis, in a large collaborative study by chemists in Great Britain, Germany, the Netherlands, Belgium, Japan, the United States and Canada. Each chemist will make independent tests by his own methods, and it is expected that their reports will be available for study early next year. Testing procedures for spring wheat varieties are being expanded to include methods that are in general use in some importing countries. Information obtained from these supplementary tests is expected to broaden our knowledge of what constitutes quality in bread wheats, and should be useful in selecting better quality material for use as parent stock plant breeders. Good progress has been made in developing laboratory dehulling techniques for detecting loose-hulled varieties of barley, and pearling and pressing tests have provided useful data for evaluating barley that is used for processing as food. Good use continues to be made by plant breeders of data from small-scale prediction tests developed by the Laboratory for segregating promising durum wheat and barley hybrids in early generation material, and studies are being continued to develop similar methods for spring wheat varieties. In addition to the annual variety studies mentioned, the laboratory has continued to make quality tests on varieties grown in the Uniform Quality Nursery. This Nursery is maintained by Canadian plant breeders to provide material for quality tests on parent stock required in the breeding program. The resulting catalogue of quality characteristics for a wide range of varieties helps the plant breeder to select parents for new crosses that will combine desirable agronomic and quality characteristics.

#### SERVICES TO OTHER ORGANIZATIONS

Requests for laboratory services and technical advice by the Canadian Wheat Board, the Grain Division of the Department of Trade and Commerce, and other Government bodies have continued to increase somewhat over the previous year. A good portion of this liaison work relates to promotion of sales of Canadian grain and often involves comparisons with grain from other countries. Frequent requests for information on the quality of different grades and types of Canadian grain were received from various sources, and considerable time was required to deal with them.

Close co-operation has been maintained with the Brewing and Malting Barley Research Institute, Winnipeg; with the Cereal Quality Section, Canada.