

been sought on important matters by the Dominion Government, the Board of Grain Commissioners, the National Barley Committee, the Northwest Grain Dealers' Association, the Wheat Pools, and other organizations.

Fundamental investigations on grain problems have been, for the most part, initiated and carried out independently by the co-operating laboratories, but there has always been full and frank discussion of all projects, plans, and results with other members of the Committee. By this means co-ordination without restriction of initiative, and organization without hampering individual freedom of action have been achieved. To date, 175 scientific papers have been published under the ægis of the Committee. Among the matters investigated by the co-operating laboratories, often with financial assistance from the Committee, are drought hardness of cereals, quality of wheat grown on wooded soils, seed injury by fungicidal treatments, prevention of heating of damp grain in storage, proteins and diastase of barley, influence of weather conditions on growth and yield of wheat, and factors influencing the carotene content of wheat.

The Associate Committee on Grain Research co-operates closely with the Associate Committee on Field Crop Diseases, which is interested in the development of high-quality disease-resistant varieties of grain. The latter body deals with the production of the varieties, but collaborates with the former on problems of quality. To provide for this collaboration these Committees meet concurrently once annually, and arrangements are always made for consultation between the plant breeders of the Associate Committee on Field Crop Diseases and the members of the Associate Committee on Grain Research, on all matters affecting the quality of newly developed varieties. By this means it is possible to prevent the economic waste that would result from the distribution to growers of varieties whose commercial qualities might not be of the high standard desired, even though their agronomic qualities were satisfactory. The combined efforts of these two Committees have resulted in the production of the high-quality rust-resistant wheats that are available in Canada to-day.

The work of the committees mentioned so far has many subdivisions, each with its specific interest, and consists of a series of steps, each of which prepares the way for a further advance; in other words their program is one of gradual and continuous development of the field for its scientific as well as its practical value. Other committees have had tasks that had from the first a specific program and one specific objective. An outstanding example of this type of organization was the Associate Committee on Trail Smelter Smoke.

This Committee was formed as a result of a request by the Department of External Affairs that the National Research Council investigate the damage said to be done to crops in Stevens County, Washington, U.S.A., by sulphur dioxide fumes from the stacks of the plant of the Consolidated Mining and Smelting Company at Trail, B.C. Claims aggregating many millions of dollars had been entered. The Government of the United States took up the matter with the Dominion Government, and the problem became one of determining the facts to be put before an international tribunal. The evidence having been collected and presented, the Committee was disbanded after a decision had been made in 1937. Before dissolution, however, the Committee collected the results of this, the most comprehensive study on the subject ever undertaken, in book form, under the title "The Effect of Sulphur Dioxide on Vegetation".

At present there are in existence, in addition to the committees already mentioned, committees on aeronautics, asbestos, coal classification and analysis, fire-