

Another important advance in forest protection is the development by the Dominion Forest Service of methods for the daily measurement of the actual degree of forest-fire hazard. In the forest types and regions in which the necessary research has been completed the forest authorities are able, not only to gauge the trend of increasing hazard at any given time but, by the aid of weather forecasts, to anticipate the trend one or two days in advance and so regulate their activities to meet hazardous conditions as they develop.

Since its beginning in 1900, the Canadian Forestry Association has played an important part in securing popular co-operation in reducing the fire hazard. By means of its magazine, which has a large circulation, by railway lecture cars and motor-trucks provided with motion-picture equipment, and by co-operation with radio broadcasting stations and the press, the Association reaches a large proportion of the population of the Dominion. Special efforts are made through the schools, by specially appointed junior forest wardens and other means, to educate the younger generation as to the value of the forests, the devastation caused by fire and the means of preventing such destruction.

### Subsection 3.—Scientific Forestry

The great forestry problem is the management of Crown forests, first under provisional and later under more intensive working plans, so as to ensure a sustained yield. Forest research activities in this direction are now assuming great importance. The Dominion Forest Service operates 5 forest experiment stations with a total area of 277 sq. miles. Here investigations of the underlying principles governing the growth of forests are made and practical methods of management are tested.

About 400 technically trained foresters are employed by the Dominion or provincial forest services or by paper and lumber companies. A considerable number of foresters are actively engaged in commercial logging operations. In addition to administrative work, these men carry on forest surveys either for the estimation of timber-stands and making of maps, or to determine natural growth and reproduction conditions and factors. An outstanding development of recent years has been the extensive use of aerial photography for forest surveys. With the co-operation of the Royal Canadian Air Force and the Hydrographic and Map Service, the Dominion Forest Service has taken a leading part in the development of means for the interpretation of the photographs for forestry purposes. Most of the provincial forest services and many of the timber-owning companies also make extensive use of aerial photographs. It is now possible not only to map the areas covered by the various forest types but to estimate the volume of standing timber with an accuracy that compares favourably with ground surveys. Over 950,000 sq. miles have now been photographed in Canada and of this area forest maps have been prepared for 116,500 sq. miles.

*Research Work in Forestry.*—In a special article on Scientific and Industrial Research in Canada, which appears at pp. 979-1012 of the 1940 Year Book, a comprehensive review of all phases of scientific research work being undertaken by the various Government Departments is given. Specifically at pp. 993-995 research in forest economics, silviculture, forest-fire protection and forest products appears.