

In each province, with the exception just mentioned, provincial legislation regulates the use of fire for clearing and other legitimate purposes, and provides for close seasons during dangerous periods. An interesting development in this connection in the Province of Quebec is the organization of a number of co-operative protective associations among lessees of timber-limits. These associations have their own staffs, which co-operate with those of the Board of Railway Commissioners and the Provincial Government. The latter contributes money grants and also pays for the protection of vacant Crown lands lying within the area of the associations' activities.

In the matter of forest fire protection along railway lines, the provincial services are assisted by the Dominion Railway Act administered by the Board of Railway Commissioners. This Act gives to that body wide powers relating to fire protection along railway lines under its jurisdiction in Canada. Certain officers of the various forest authorities are appointed *ex officio* officers of the Board of Railway Commissioners. These officers co-operate with the railway fire-ranging staffs employed by the various railway companies, the compulsory control of all lines coming under the jurisdiction of the Board being one of the requirements of the Dominion Railway Act.

One of the most important single developments of recent years in forest fire protection has been the use of aircraft for the detection and suppression of incipient forest fires. Where lakes are numerous, flying boats can be used for detection and for the transportation of fire fighters and their equipment to fires in remote areas. Specially constructed aircraft equipped with wireless are employed on forest fire-protection operations; these enable the observer to report the location of a fire as soon as it has been detected. As a general rule, aircraft are used in the more remote districts, while lookout towers, connected by telephone lines or equipped with wireless, are established in the more settled and more travelled forest areas. Nevertheless, a large ground staff with its equipment stored at strategic points will always be necessary for the fighting of large fires and for the maintenance in the forest of fire lanes, fireguards, and systems of communication and transportation.

Portable gasoline pumps, which weigh from 45 to a little over 100 pounds each, are important equipment. These pumps can be carried to a fire by canoe, motor-boat, automobile, aircraft, pack-saddle or back-pack and can deliver efficient water pressure as far as seven thousand feet from a water supply and, when used in relays, to a much greater distance. Small hand-pumps supplied by 5-gallon portable containers are also used effectively in many cases.

In addition to these improved measures, the enactment of legislation has tended to reduce the fire menace. The establishment of close seasons for brush-burning, and seasons during which permits are required for setting out fires and for travel in the forest during dangerous dry periods, have been of enormous value as preventive measures.

Prepared lectures illustrated by slides and films are distributed to volunteer lecturers and other educational work is carried on in schools and at public meetings. The various governmental forest authorities also carry on forest conservation publicity work independently and in co-operation with the Canadian Forestry Association.

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.