

of all timbered areas, the cost being distributed or covered by special taxes on timber-lands. 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 Transport 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 Transport Commissioners. This Act gives to that body wide powers relating to fire protection along railway lines under its jurisdiction. Certain officers of the various forest authorities are appointed ex-officio officers of the Board of Transport Commissioners and co-operate with the fire-ranging staffs which the railway companies are required to employ under the Dominion Railway Act.

In certain districts in Canada, aircraft are used to good effect for the detection and suppression of forest fires. Where lakes are numerous, seaplanes or flying boats can be used for detection, and for the transportation of fire-fighters and their equipment to fires in remote areas. Radio-equipped aircraft 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.

In the more settled areas with better transportation facilities, fire detection is carried out by means of lookout towers fitted with telephone or radio for reporting fires. Field staff and equipment are maintained at strategic points ready to deal with fires when they are reported. These staffs, when not engaged on fire control duties, are employed on the construction and maintenance of roads, trails, telephone lines, fire guards and other necessary improvements.

Portable gasoline pumps, which usually weigh between 60 and 100 pounds each, and linen hose are important equipment. These pumps can be carried to a fire by canoe, motor-boat, automobile, aircraft, pack-saddle or back-pack and can provide hose pressures up to 200 lb. per square inch, depending upon the elevation above and distance from the water supply. Hose lines over a mile in length are frequently used. 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 forests during dangerous dry periods, have been of enormous value as preventive measures.

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 danger. 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 fire danger 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.