

wages prevail, such a system to be effective must be tremendously expensive. This is as inevitable in forest protection as it is in other forms of organized human activity such as manufacturing, transportation, or military affairs, from all of which in the modern world this system has long since disappeared.

Contrasted with this method of protection are the various more or less elaborated systems of specialization that have been developed by the leaders in forest protection. These developments differ in no material respect from those that have taken place in other large-scale activity but, owing to the nature of the work, they have followed more closely the methods of organization employed in military operations rather than those of most industrial activities. The most striking characteristics of a specialized staff is that instead of being a constantly moving patrol, each man confined to a limited area within which he performs all functions, it becomes very largely a stationary staff, each member of which performs only one function but may extend his activities over a large number of the old-time beats. Thus, instead of each man being individually responsible for detecting fires, certain men are specially assigned to this work and are located permanently on prominent lookout peaks or towers; instead of each man being responsible for putting out such fires as occur, special men, selected, equipped, and located with this one end in view are placed at strategic points and are despatched only to such fires as are discovered by the lookout men; instead of each man getting in his own supplies for himself or a fire-fighting crew, a special man operating over a large area with suitable equipment and assistants takes care of all the supplies and transportation. In short, to establish a specialized forest protection staff means nothing more or less than the extension of division of labour on the modern basis of function to the work of protecting forests from fire.

Communication

When we speak of communication in connection with forest protection we may have in mind one or the other of two rather distinct concepts. On the one hand, communication refers to the conveyance of materials or of men from one place to another. In this sense communication becomes a problem of transportation and lines of communication become roads, railways, trails, etc. With this type of communication, although it is of vast importance in forest protection, this article is not concerned.

Communication in the other sense means the conveyance of information from one place to another. Obviously this does not necessarily involve any transfer of material substance, and lines of communication become tele-

British Columbia's Fire Loss

NEARLY 70,000,000 feet of timber was burned by forest fires in British Columbia in 1921, according to figures issued by Hon. T. D. Pattullo, Minister of Lands. The number of forest fires fought during the summer of 1921 was 1,330, an increase of 6 per cent. over 1920. The fires burned over a total area of 145,800 acres, killing a total of 68,076,110 feet, board measure of which 39,500,000 feet is salvable. The net stumpage loss is valued at \$73,000. About three quarters of all fires were extinguished by provincial fire fighters before they had grown to ten acres. Thus, of the 1,330 fires fought, 554, or 41.6 per cent., were extinguished before they reached a quarter of an acre, 436 or 32.8 per cent. before they reached ten acres.

Further figures show that 1,160, or 80 per cent. of the fires were extinguished before they had done damage to the extent of \$100; 134, or ten per cent., before they did \$1,000 worth of damage, and only two per cent. exceeded \$1,000 damage. The total cost of fire fighting was \$98,500, as compared with \$257,126 in 1920, Mr. Pattullo announces. The average cost per fire is thus \$74 as compared with \$205 in 1920, and \$139 in 1919.

Campers are still chiefly responsible for fire outbreaks in the forests of the province, Mr. Pattullo's statement adds. Careless campers have caused 308 or 23.2 per cent. of the total fires. The remainder were caused by railroad trains, lightning and industrial operations in the order named. Slash destroyed during the year amounted to 74,800 acres, compared with 53,500 acres in 1920. During the year over 1,200 miles of trail were cleared and constructed.

phone or telegraph wires, wireless installations, or signals of an almost endless variety. In this sense, communication is one of the prime essentials in specialized forest protection. Without well-developed means of transmitting information rapidly between all the numerous elements of a specialized force it is wholly impracticable to employ the distinctive features of specialized organization, and entire responsibility for all lines of work must necessarily be left in the hands of the patrolman, the least trained, and most poorly paid and equipped man in the whole force. This is obviously inevitable, however, in the absence of lines of rapid communication. At the same time it must be kept in mind that forest telephones and other modern devices for securing intercommunication do not of themselves produce specialization in a forest protection staff, but are merely a necessary mechanical device through the use of which functional organization and centralized control are rendered feasible.

It will be readily apparent that the duties and responsibilities of the supervisory officer in a specialized staff are much more extensive and call for a far more careful training than those of any grade of employee in a non-specialized force, or even in the other units of his own organization. He must be more carefully selected, more highly trained, and, naturally, better paid. His duties in connection with fire prevention are as follows:—

Direction of Permanent Forces

The maintenance of supervisory control over the entire prevention, detection, and suppression staff regularly employed in his district is of first importance to the supervisory officer.

To do this it is essential that he be able to maintain communication with all units of this staff. This is accomplished by the proper planning of the permanent lines of communication within the district and the skilful use of the portable and emergency equipment described in this article.

The supervising officer must organize and direct the mobilization of all the forces needed to form the main and supporting lines of defence in fire suppression. While the aim of specialized forest protection is always to handle all fires in the incipient stage this ideal cannot always be maintained and though delays in detection or reporting, faulty location or other failures, some fires will prove too formidable for the "smoke chaser" alone. There are few forest regions even in the more remote parts of Canada's commercial timber-belt