



Forest ranger visits a party of campers at Moose Mountain, Saskatchewan.

FORESTS AND FIRES

The Great Task of the Official Protectors of Canada's Timber.

By H. R. MacMILLAN

FOR every foot of timber that has ever been cut in Canada by lumbermen at least seven feet have been destroyed by fire. That is one of the statements made by Mr. H. R. MacMillan, the author of the following article, in his report to the Government on "Forest Fires in Canada." The conservation of the forest is one of the big problems in national resources. The disaster in Porcupine and the recent half-million-dollar blaze in British Columbia have impressed its importance upon the country. In his article, Mr. MacMillan discusses as an expert the causes of forest fires and suggests methods of preventing them.

THE forest areas of Canada lie unbroken across the continent full three thousand miles from east to west and stretch tracklessly four hundred to one thousand miles northward from the utmost fringe of settlement. Officials seek, with three or four hundred thousand dollars and a few hundred men, to keep fire out of

ing-posts, the drifting dribbles of pioneers, who every summer thread the water courses through the forest on the lookout for trade, timber, minerals, fur or sport, and the homemakers whom the tide of immigration is forcing from the prairie into the woods.

Fire protection came almost too late to this territory. Field men of the Forest Service covering 203,300 square miles of land, all originally heavily timbered, reported in 1909 that only seventeen per cent. of it, 34,384 square miles, still carries timber, and that there is positive evidence that twenty per cent., about 54,700 square miles, has been devastated by fire within the last forty years. Still another officer, who spent last summer estimating the timber on about 10,000 square miles along the proposed line of the Hudson Bay Railroad reports that the whole region has been burned and reburned to a desert condition, and that only about ten square miles of the original 10,000 are now covered with merchantable timber.

The destruction of such a large proportion of the timber has made the protection of the remainder still more imperative, and, as the forces available for the policing of this wooded empire are ridiculously inadequate—\$62,000 was spent and 96 men employed in 1909—the most efficient organizing of the protective force has required some generalship.

During the ten years that the fire police have been on duty it has been learned that, while fires are prevalent from snow-melting to snow-fall, they are most frequent in early spring before the vegetation becomes green, in the hot, dry spells in mid-summer and also after the first frost in the fall.

Of 653 fires reported in 1909, railroads caused 202, settlers clearing land 177, campers and travellers 145, hunters, prospectors and lumbermen 56, lightning and natural combustion 63, and Indians 10. With the exception of lightning and natural combustion, which were responsible for only ten per cent. of the total number, the forest fires of Canada in 1909 were due to preventable causes.

Though legislation has always required that railways operating on Dominion Government lands must keep the right of way clear of inflammable material, plough fire-guards on each side of the track and carry efficient spark arresters, experience has always proven that nearly all

the timber tributary to the line was burned before the road was completed by fires emanating from the construction camps. What was not burned then was sure to be burned when the road started operating, for government fire-rangers were not empowered to inspect locomotives, and there were too few of them to inspect the condition of the right of way along the 1,650 miles of railroad operating through timber on Dominion Lands. Consequently the provisions of the law were rarely observed, the engineers and firemen poked holes in the fire-protective screens, the right of way was left covered with debris, dead timber and dry grass, fire guards were not constructed, and all through the summer every heavily-loaded train showered forth its hail of sparks and left behind it a few acres or square miles added to the growing Canadian desert.

The chief difficulties in the way of preventing fires from railway construction and operation have been overcome. All railroads building through timber on public lands are now required by law to follow the instructions of the Forest Service in the handling of fire and inflammable material, and to pay half the cost of the protective system maintained by the Forest Service. This policy was first tested on the Grand Trunk Pacific, where 180 miles of line were constructed through timber west of Edmonton. The construction work was divided into twenty-mile beats; on each was a ranger who patrolled the beat once every day during the fire season, and in control of the whole construction work was an officer of the Forest Service who superintended the work of the rangers and notified the contractors when and how they must burn their brush and slash. The construction of this 180 miles of railroad lasted three years. The route lay all the way through inflammable forest and the right of way had to be cleared by fire, yet so well was that fire kept in control that only about forty acres of forest were injured by fire. This record in Canadian railroad building cost only about \$100 per mile, half of which was paid by the Government, half by the railroad company.

Certain officials of the Forest Service have received from the Dominion Railway Commission power to inspect locomotives at divisional points, and others have been appointed to inspect the condition of the right of way through timbered land. The using of fire-protective devices, and the clearing of the right of way, which will be required by these men, will greatly decrease the number of fires starting from railroads. Some fires are sure to start as long as coal is used for fuel, and the Forest Service is arranging to employ sufficient men on patrol along all railroads traversing timbered country to extinguish fires in their incipient stages.

After the railroad the dangerous element is the settler. Now that homesteading is not confined to the prairie, but is becoming more common in the timbered districts beyond the prairie, settlers by the clearing of their land and by general carelessness constitute a serious menace to the neighbouring forest. Legislation has been secured in each western province which prohibits the setting of fire unless the means be provided for restricting it to private lands, which provides a fine for allowing a fire to escape control and which specifies certain dangerous seasons during which land may not be cleared by fire. The Forest Service undertakes that every settler, whatever be his origin and



Party of Rangers with camp outfit laying out a season's work.

that vast inflammable area, and always they are partially successful in that great task.

The world's greatest stretch of forest under one system of fire protection is that administered by the Federal Forest Service of Canada. This comparatively new department numbers among its duties the elimination of forest fires from an area extending westward from the Albany River and Hudson's Bay to the Pacific Ocean, and running away northward a two months' journey to Great Slave Lake and the head waters of the Thelon River, where begins the caribou-inhabited tundra. Altogether there is here a wooded area of about 700,000 square miles, almost totally devoid of thoroughfares, excepting the winding, connecting maze of rivers and lakes. This area is practically empty of people excepting the semi-permanent red and white population which centres around the trad-



The dead forest. Timber along railroad construction lines is usually dead before the work is finished.