

# TRAINED ARMY READY TO BATTLE WITH FOREST FIRES

## National Forests Protected by a Great Organization Built Up on Scientific Principles From the Fires Which in the Past Have Destroyed Vast Wealth in Timber

WHILE the nations of Europe are at war the United States Government has a conflict of no small proportions on its hands—a conflict in which fire extinguishers take the place of rifles and high power artillery, but nevertheless a struggle which is often waged to the death. The foe against which it is carried on is the forest fire.

From July 1 to November 1 the national forests are exposed to danger from this source. In the past numerous fires have gained headway in the national forests, and it has been the work of weeks and even months to get them under control. They have destroyed timber and other property worth millions. The loss of life has been large.

The fire fighters have often accomplished wonders with the implements and resources at their command, but until recently they were not trained to fight fires on scientific principles. Then, too, the causes of forest fires, the way in which they spread and the best methods of stopping them and preventing them, had not been thoroughly studied. Often they were simply allowed to burn themselves out. Nowadays the national forests are protected from fire as carefully as a city is guarded from the same danger.

The danger and the great loss resulting from forest fires made it imperative that preventive measures should be adopted, and the Government experts carried on extensive investigations of the subject. Men were first sent into the national forests to seek out the causes of the fires and to discover a method of minimizing the danger. Then came the first measures of protection. These have been improved to such an extent that the fighters are no longer handicapped in their work. The fire break now turns back the flames, from telephone stations outbreaks give early warning of the outbreak of a fire and trained fighters have been organized into such capable bodies that few forest fires are allowed to gain much headway.

One of the things discovered by the experts sent into the forests was that the elements themselves had a great deal to do with the forest fires. During the summer months the woods become dry and an easy prey to the flames.

Then it was recognized that campers and hunters were often careless with fires, pipes and their cigarettes, sometimes starting fires which caused losses of hundreds of thousands of dollars. To obviate this cause the Government started a campaign of education regarding forest fires. People living in the wooded areas were taught methods of fire prevention and were organized into volunteer bodies for fire fighting. The most recent creation is the fire control system under direct supervision of the Government and its corps of rangers.

The Government now has an organized force of three thousand fire fighters. They are on the job every day in the year and they know where to find 30,000 volunteers when needed. The volunteers may be called out on short notice and are to be depended upon at a crisis.

Tools used in fighting forest fires are stored away in thousands of places in the national forests and each fire fighter knows exactly where these tools are located; he could find them in the dark in case of necessity. Emergency supplies are hidden away in the woods against the time of need. Roads have been built and are being built through the forests, telephone lines are being constructed to out of the way places and fire breaks are everywhere. It has been the Government's aim to perfect this system, and at the present time it comes about as close to being a system without a hitch as possible.

The second step taken after the education of the persons living in the wooded areas in matters of fire prevention was that of organization and training. This was found all important. Having only been in the forestry business for the past decade, the Government found the first steps in fire prevention a matter of experiment, and these have been improved upon as each year passed. Mistakes were made at first, as in all matters of this nature, but these were remedied. There were few men in America a decade ago who knew a great deal about forestry. Many of these acquired their training abroad and imparted their knowledge to others upon returning to this country. It was the plan to perfect an organization which would be able to care for all of the Government's forests from Maine to Florida and from Alaska to California.

The original plan has now reached such a state that all of the Government's forest preserves have been mapped for the single purpose of fire fighting. Study and hard work, it is asserted, have at last put an end to the danger of a repetition of the great fires which formerly destroyed much valuable timber. The forester fights his enemy, fire, much after the same plan that a German or an English Colonel follows in leading his regiment into the thick of the fray. Those who have made a study of fire fighting in the forests say there is a great similarity between controlling a fire of this sort and checking a hostile drive on a battlefield.

Even military methods are utilized in a modified form. Fire fighters of the forests use practically the same means of communication as armies in the field—telephones, the telegraph and fire alarm signals. Bodies of men form a firing line, they dig trenches as fire breaks and retreat and advances are made much on the same order as on the battlefield. The district forester has officers under him, and a commissary department sees that the fighters are taken care of as they march and drink. Even the wounded are cared for much as they are in time of war. Sometimes the battles rage for weeks, new fighters taking the places of those who have become exhausted in the struggle.

An intimate knowledge of a forest is absolutely essential in preparing a fire plan. It is the duty of the ranger to know the classes of danger zones in his district. The danger zones may be in the vicinity of a former logging camp, in a community where the people are known to be of a

careless disposition, in a location much used by campers and hunters, or in the forest section bordering a railroad.

The danger zones may also comprise areas where, in case of fire, great damage would be inflicted, such, for instance, as a windfall or a slash made in a logging operation. Danger zones may show a lack of water, or it may include a certain number of acres of very valuable timber which a fire would lick up quickly. The district forester is held under control by the division regulars and workers, might have a surplus of fighters.

When a fire breaks out in a certain district the regular fighters and volunteers of that vicinity hurry to it. The district patrolmen who see the fire or hear of it proceed to the nearest point of communication with the ranger of the district. There they report and await orders. It has been

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equipped with fire fighting apparatus and the men who are employed on the ranches have had experience in fighting forest fires. In case such a ranch is located in a division the ranger may be able to use it as a base, for there would be considerable foodstuff on hand and no trouble in transporting tools to the scene of the fire. The rancher is reimbursed by the Government for any inconvenience or expense caused by his place being used as a headquarters by the fire fighters.

Sawmill operators and the district rangers usually have some definite understanding before the season of forest fires opens. The crews of the mills are usually called on to fight fires and there must be an understanding as to how far they will travel from their



Watching for forest fires from Nature's lookout station.

Then, marked plainly on the fire maps, are shown the methods by which a fire may best be fought. Running here and there through the danger zone on the map will be seen the black line indicating burned or cleared fire lines, about a timber sale, a small or an experimental plot, or the line may indicate an advance preparation in the form of considerable inflammable material which may be ignited and made to serve as a backfire, thus stopping the great fire itself with a foe of its kind.

One of the preventive measures against campers' fires consists in establishing a campers' register. This is maintained at one of the range stations on the main travelled route to the favored resort of the campers. The fact that the names and addresses of campers are registered with the ranger plays an important part in preventing forest fires.

Each ranger has his own field to cover. He has his watch towers, instruments and telephones, so that he is in a position to give an instant alarm in case of fire. The ranger's district is cut up into natural fire protective units by being divided into patrol divisions. The main idea is to marshal the fighting forces in the quickest and most effective way possible. The implement caches are more or less permanent and a complete knowledge of their location is possessed by every ranger.

Early in the fire fighting work it was found that ease of communication was one of the most important things in order that the lookouts, the patrol men and the rangers might locate each other in the shortest possible time. This is the way the headquarters camp of the patrolman is equipped with a telephone which is connected with the headquarters of the district ranger, and also with a lookout commanding the entire division. The patrolman has two fire protective units by being divided into patrol divisions. The main idea is to marshal the fighting forces in the quickest and most effective way possible. The implement caches are more or less permanent and a complete knowledge of their location is possessed by every ranger.

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found that disastrous results often follow the concentration of all the regular fighters at one point in the district, as much territory is left unprotected.

Much after the order of a regiment going into battle the forest fighters set about their work. In case a single regiment is able to accomplish the desired result the remaining regiments are held in reserve. It is the duty of the district ranger to study the situation, determine what men are needed to accomplish a certain result and hold his other assistants in reserve. As each farmer or stockman available is marked by a dot on the fire map the ranger is able to tell in advance the number of men he will be able to recruit at each ranch or camp.

Many of the big ranches are

work and the compensation the men will receive. Whenever possible the terms of transportation, pay and subsistence of volunteers are also settled in advance.

It is also necessary and almost important to determine in advance the means of transportation and bases of supplies. For this purpose lists are made showing the location of all houses, pack outfits and wagons in the district that it is possible to hire at need. The ranger also lists the country stores, where supplies are often obtained, and then makes investigations to determine whether the merchants' stocks are adequate.

During the fire season the ranger makes many visits to the points of greatest elevation in his division. From there he looks out over the

country to see if any column of smoke is giving warning of trouble to come. When the fire fighting system was inaugurated the crests of mountain ranges, isolated mountain peaks and other natural points of vantage were made use of for this purpose. With the development of the forest protection idea it was found that nature had not provided lookout stations at all points where they were required. There are wide areas in the West covered with a wealth of timber that are almost as level as a parlor floor, and in some places the mountain tops are densely covered with trees, so that no outlook is offered.

One of the solutions to this problem is the artificial watch tower. The first one of these was constructed in Arkansas, where the Government's timber land is level. The ranger in this locality is hardly able to see more than a hundred yards in any direction, and before the construction of the watch tower was forced to climb the tallest of the trees in an effort to cover a portion of his territory.

The first towers were of lumber; now there are many of them made of steel. The Government's great forests are now studded with long legged watch towers, as they are not considered expensive when the protection they afford is considered.

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Each station is equipped with a mounted map. The ranger finds his exact position and determines the location of the fire. He is able to tell that the fire is on a certain line, he can see that it is beyond certain landmarks and that it is nearer than certain others. He telephones the exact angle of the fire's direction to headquarters. By this time another

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Congress, since the great forest fires of 1910, has been comparatively liberal in providing funds for the fire fighting. With this money, with the development of preventive measures and with increasing knowledge of the best method of conducting a campaign the Government experts are beginning to feel that they have about conquered the fire peril. The fires of five years ago left behind a roster of nearly 100 lives lost and a financial loss to the Government and private individuals amounting to many millions of dollars.

country to see if any column of smoke is giving warning of trouble to come. When the fire fighting system was inaugurated the crests of mountain ranges, isolated mountain peaks and other natural points of vantage were made use of for this purpose. With the development of the forest protection idea it was found that nature had not provided lookout stations at all points where they were required. There are wide areas in the West covered with a wealth of timber that are almost as level as a parlor floor, and in some places the mountain tops are densely covered with trees, so that no outlook is offered.

One of the solutions to this problem is the artificial watch tower. The first one of these was constructed in Arkansas, where the Government's timber land is level. The ranger in this locality is hardly able to see more than a hundred yards in any direction, and before the construction of the watch tower was forced to climb the tallest of the trees in an effort to cover a portion of his territory.

The first towers were of lumber; now there are many of them made of steel. The Government's great forests are now studded with long legged watch towers, as they are not considered expensive when the protection they afford is considered.

Rangers, starting from a central headquarters, ride each day to all of the stations on their divisions and take observations. Telephones connect the stations with headquarters, and when a fire is noticed a report may immediately be made. The men at headquarters then start the battle.

Each station is equipped with a mounted map. The ranger finds his exact position and determines the location of the fire. He is able to tell that the fire is on a certain line, he can see that it is beyond certain landmarks and that it is nearer than certain others. He telephones the exact angle of the fire's direction to headquarters. By this time another

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The ranger on his rounds.



A woodland lullaby in a Government forest.



A national forest headquarters.

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