

Forest Facilities Vital for National Defense Purposes

BERNARD A. ANDERSON

U. S. Forest Service, Kaniksu National Forest

As we read in our daily newspapers of the progress our nation is making in the marshalling of its man-power, industrial, physical and national resources we wonder if there is any single thing which does not have its place in an "all-out" defense program. Why can't national defense be simple as in the days of Attila, Alexander or the Caesars? Then the Knight buckled on his armor, donned a visored helmet, strapped his sword to his waist, mounted his charger and rode to combat. Footmen followed with cross bows, battle axes and lances. History tells us that warriors took leave of their families and were gone for years on end. Transportation and communication as it is known today was non-existent. Once an army or legion had departed on its campaign the populace settled down to its normal routine. At least looking back casually through the years that is the way conditions seemed.

But that picture is an illusion created by the passage of time. We have a fairly good record of the Punic wars which occurred before the year 200 B. C. between Rome and Carthage. The Romans had to build over four hundred ships to carry their men over the Mediterranean. Timber had to be secured from the forests and skilled workmen—carpenters, metal workers, shipfitters—had to be trained before the keels could be laid. Materials and subsistence had to be gathered to outfit and feed several hundreds of thousands of men—no easy task in those days of great distances. Hannibal had to provide for his herds of elephants used to break the ranks of the enemy in those days, collect his hordes of Numidian horsemen, his Balearic slingers and contingents of men and supplies from dozens of different tribes. Where a single telephone line now serves the purpose, it required hundreds of messengers then to equal

the same service. Then before embarking on his campaign he had to defend himself from political usurpers bidding their time to secure possession of the country during his absence. He solved this problem by garrisoning Carthage with Spanish soldiers and Spain with African troops feeling that the foreign soldiery would be less amenable to local politicians.

So in those days, too, every one had his job to do. Every individual in this room undoubtedly has a fairly clear conception of the niche he occupies in the present emergency. As it is with individuals so it is with national, state, or private organizations. Each group is given its task in the master or "M" plan as we hear of it. The Forest Service is no exception and it is my purpose to give you some understanding of what facilities the Forest Service possesses that can play an important part in national defense.

The speakers before me have outlined the invaluable uses of wood for war purposes for housing, gunstocks, explosives, wood chemicals, gas masks, plastics, airplanes, or hundreds of other uses. First of all it is the job of the national, state and private forest organizations to protect our forests to insure a steady supply of raw materials. The guarding of those raw materials from loss by fire is unquestionably a major defense problem. But aside from fire protection the physical facilities possessed by forest administrative organizations can be utilized to such an extent by a military command that it is with that thought in mind the forest facilities have been enumerated and described.

1. AVIATION

A. Landing Fields.

The Forest Service now has approximately 3200 lookout houses and towers located in a checker board fashion over

the national forests. Under the direction of the Civil Aeronautics authority the roofs could be painted and numbered—a job which has been completed in Region 1—which would be of great assistance to aviators in cross country flight. They could also serve as listening posts for approaching aircraft.

There are eighty landing fields in existence. Many are small and unimproved and are unable to accommodate the larger planes. However, a large proportion could be improved and put in shape for almost any type of aircraft without a very great expenditure. The location of these fields in mountainous country does have the additional value of offering at least emergency landing space in areas far removed from regular air bases.

Another unique value that some of the Service fields offer is that of combat and bomber plane storage. With high parallel mountain ranges ideally located for the placement of anti-aircraft guns it would be almost impossible for an invading aerial squadron to destroy the planes on the ground as so often has been the case in the present war.

B. Aerial Photography.

Aerial surveys have been conducted by the Forest Service during the last several years. Over 130,000 square miles have been photographed of which over 80,000 square miles have been converted into maps. No other detailed surveys of this territory exist.

In the Pacific Northwest and California the Service has developed, in connection with fire scouting, methods and technique of taking photographs from the air, developing them in the plane, and delivering prints to forces on the ground all in a period of eight minutes. These methods have been inspected with interest by military authorities and, of course, can be made available to them.

C. Aerial Dropping of Supplies.

Many of the forest fires which occur on national forests occur in the back

country far from any means of transportation. The problem of dispatching and delivering of men, supplies and equipment to these remote areas has been a Gordian knot to fire protection men. If a goodly number of the fires occurring in these remote areas were to be manned and the firefighters supplied and equipped by the conventional methods of pack horse or back pack transportation it would take several days to even make a start on control thereby greatly increasing the final cost of suppression and damages.

In an effort to cut down this first attack time, about four years ago the Forest Service began experimenting with the dropping of supplies and equipment on fires. Previous to this time there had been little or no experimenting with the dropping of supplies from airplanes. The Service, therefore, had to start from scratch. Dozens of methods were tried, all more or less revolving around four general principles:

1. The loose pack method—in which a small quantity of supplies is discharged in loosely tied gunny sacks.
2. The tight pack method—in which the supplies are wrapped in excelsior and heavily roped canvas.
3. Bundles wrapped in canvas and dropped with a retarding wool burlap sack chute.
4. Bundles lowered by a conventional chute.

At the present time dropping technique has reached a point where it is possible to drop cross-cut saws, radios, hot meals or eggs with almost no breakage. The hot meal by the way consists of roast beef, mashed potatoes, gravy, fruit, sliced fruit cake, coffee and ice water.

While the figures are not as yet available some idea of the importance of the dropping facilities available and of perfected techniques can be gained by a review of Region I's record during the 1940 season. Over 400,000 pounds of fire equipment were moved, of which 148½ tons were dropped on fires. A

good share of this tonnage was delivered to fire fighters at a greater distance than the Germans supplied their forces at Narvik. Crews of a maximum of 400 men were fed by air transportation alone. Think what that would mean to an army in wartime, operating in mountainous and inaccessible country—perhaps similar to the terrain in which Greek and Italian forces are struggling in Albania at the present time. Military authorities have detailed men to inspect Forest Service equipment and analyze methods employed, all of which are available to them.

D. "Smoke Jumpers."

Last year the Forest Service commenced experimenting with the dropping of parachutists or "smoke jumpers", as they have become nicknamed, on fires in rough mountainous terrain. The difficulties confronting those in charge of the experiments seemed insurmountable at the start. The parachuting of men in precipitous mountain areas in a civilian pursuit was a revolutionary idea that seemed the product of day-dreamers. But with "Safety to the man" as a criterion the "Day Dreamers" persisted. Out of the experiments has evolved a technique which presents a distinct contribution in aerial warfare to those in charge of our national defenses.

Aside from the military use to which this development can be put it offers a unique method of apprehending saboteurs in any inaccessible place. In the event of an incendiary operating in any certain area "smoke-jumpers" could be dropped at strategic points to block avenues of escape and then if he should be observed from the plane patrol he could be literally pounced upon from the air.

In peace time incendiary in our forests do not constitute the major problem of fire protection. But in wartime, if we can judge by what is happening in Europe today, it is going to be a nightmare to forest administrators in

the fire season. A modern bomber can carry thousands of incendiary bombs in a single load. What would happen to our forests if a bomber or two scattered its load in the middle of August? The average forest can handle from fifty to a hundred lightning fires set in a single day but that is a somewhat different problem. The "smokejumper" may be the answer for a speedy decisive attack on the various sets. If the national, state, and private protection agencies aren't able to handle the situation it is entirely conceivable that the smoke pall which will result will so reduce visibility that military planes in many sections of the country will be immobilized.

A further result of such an attack might be the necessity of diverting hundreds of thousands of men to fire fighting from other needed defense projects at a time when they could least be spared.

E. Communication.

A network of over 63,000 miles of telephone lines now furnishes communication on the forests covering remote areas where commercial lines are nonexistent. These could be of vital military importance.

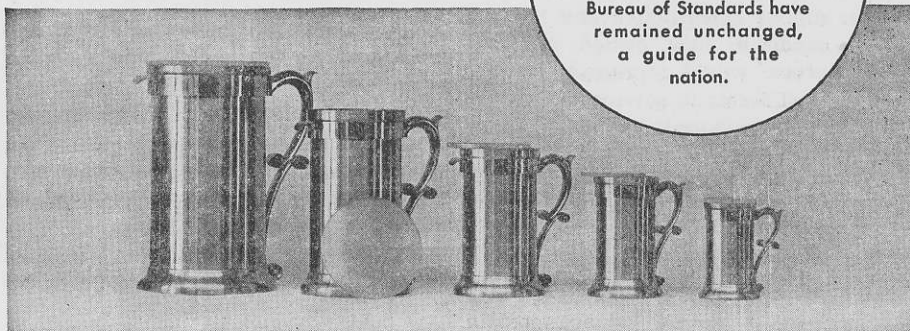
In addition the Forest Service has in operation 3,000 radiophones of the portable type. They have already participated in military air games. Extensive maintenance facilities for both telephone and radio communication are a part of Forest Service equipment.

F. Roads and Trails.

Transportation routes have been extensively developed within the national forests. A summary of these facilities is as follows:

1. Forest highways—23,500 miles. These highways are comparable to first class State highways.
2. Development of roads—83,900 miles, commonly called truck trails. These roads are narrow but safe for a maximum of 35 miles per hour.
3. Foot and horse trails—137,000 miles.

National Standards for half pint to gallon measures as furnished to the states by action of Congress in 1836. For over a century these measures of the National Bureau of Standards have remained unchanged, a guide for the nation.



FIXED STANDARDS...

Fully dependable as the National Standards for capacity measures are Mallinckrodt A.R. Chemicals. Analytical accuracy is facilitated and made more certain because of their precision. Every Mallinckrodt Analytical Reagent is made to pre-determined standards of purity with the most sensitive devices known to chemical science.

Send for new catalogue of Mallinckrodt Analytical Reagents and other chemicals for laboratory use. It contains detailed descriptions of chemicals for every type of analytical work . . . gravimetric, gasometric, colorimetric or titrimetric.

ALWAYS SPECIFY REAGENTS IN MANUFACTURER'S ORIGINAL PACKAGES



DISTRIBUTED BY

C. M. FASSETT COMPANY, INC.

19-21-23 West Main Street
Spokane, Washington

SHAW SURGICAL CO.
620 S. W. 11 Ave., Portland, Oregon

MALLINCKRODT CHEMICAL WORKS
ST. LOUIS CHICAGO NEW YORK PHILADELPHIA

All roads and trails were designed and constructed by Forest Service personnel to meet the peculiar needs of transporting timber products, supplies, and materials incident to the development and everyday administration of the forest resources.

The tools and mechanized equipment used in similar construction and in operating condition now owned by the Forest Service would represent an extremely vital factor in solving transportation problems faced by a modern army. Such machinery is equally adaptable for the extension of present roads, construction of army bases or airports. As an indication of the quantities of such material on hand, Region I alone could furnish over 100 bulldozers. Incidentally the bulldozer, the almost indispensable tool of road builders, is a Forest Service engineer's invention.

The fleets of trucks now in use in carrying on every day business if commandeered by the military authorities could move tens of thousands of troops in a matter of hours. If comparisons are in order, the trucks of the Forest Service would make the transportation furnished by General Gallienne to his taxicab army out of Paris in 1917 look like small potatoes indeed.

An additional means of transportation has not received a great deal of publicity. The National Forests in Alaska include many islands and thousands of miles of coast line. Forest officers perform their every day duties in a well equipped fleet of boats and could render invaluable service in the patrol of our coast line keeping a lookout for suspicious activities and in assisting in the selection of locations for defense installations on or near coast lines.

And, last but not least, thousands of fully equipped pack animals are available for transportation of supplies and materials in roadless areas. Pack strings carrying 200 lbs. per mule load per day can move a tremendous amount of supplies.

G. Maps.

One of the paramount needs of mili-

tary men is accurate maps. Every national forest has been mapped and maps of $\frac{1}{4}$ ", $\frac{1}{2}$ " and 4" scales are available. These maps are accurate and give in detail physical improvements on the ground in addition to locations of bench marks, triangulation points, and general planometric survey data. In many cases they give topographic data as well. Relief models and relief maps have been made of certain areas.

2. TRAINING FACILITIES

A national defense program of the magnitude of our present program calls for technicians and skilled craftsmen by the tens of thousands. Mechanization is the order of the day and the more mobile military forces become the greater is the demand for mechanics.

Of necessity the Forest Service has had to train personnel to care for its own equipment. It has had to establish and equip shops to maintain the equipment. Those same shops scattered on every forest ranger district, and in every one of the 619 CCC camps in national forests offer the most ideal facilities for training mechanics and technicians in a variety of mechanical skills.

No doubt there are many other facilities that the Forest Service possesses which could become invaluable in the defense program; as for instance, the every day equipment used in feeding and caring for the physical needs of fire fighters. It was possible for the central service of supply unit here in Spokane last summer to put equipment at points as far away as five hundred miles in sufficient quantities to care for 17,000 men within 48 hours. Those of you who are familiar with the details and difficulties of organizing, assembling, and dispatching equipment in such quantities know that the performance of that job deserves commendation.

Time alone can tell to what extent the National Defense Board will draw on the facilities of forest operators, the State, and U. S. Forest Service.