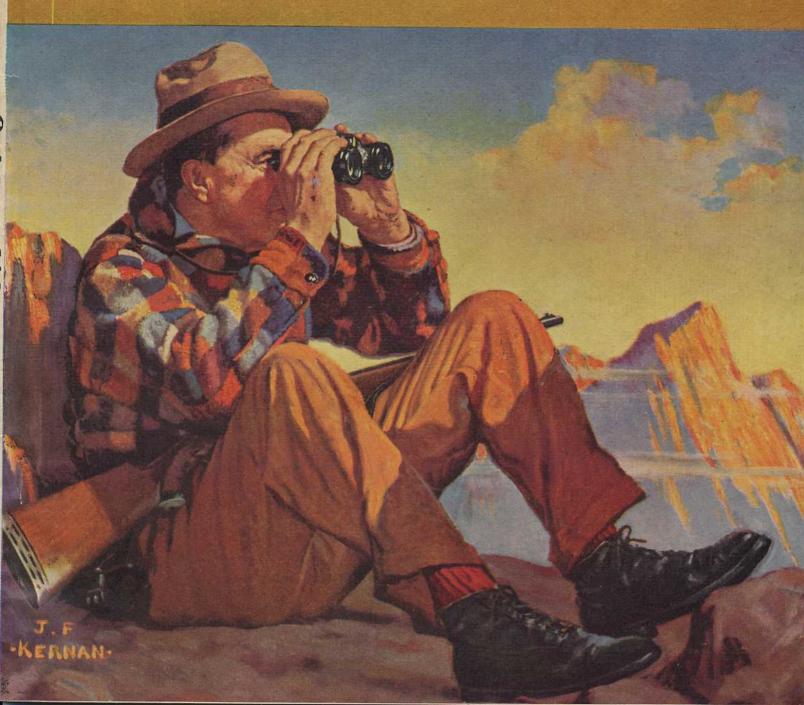
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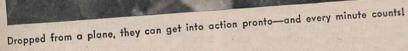
CONTENTS FOR SEPTEMBER 194	5
Firemen in the Sky	13
Shotgun Paradise	16
Deschutes Delights. Oregon rainbows, just as advertised; all he had to do was boat 'em	18
Who Believes in Signs? Anxious moments—hunting Oklahoma squirrels on property that's posted	20
Get Ready for Your Food Freezer! DON O'BRIEN Enjoy the fish you've caught, the game you've killed, all year round	22
The Happy Hunting Grounds MICHAEL CRAMOND Mouth-watering tale of the outsize deer on Vancouver Island, B.C.	24
Mama Goes Along LEONARD HALL Some anglers leave their wives behind. Not this Ozark float-trip fan!	28
Duck Hunt Down Under	30
Stalking Chucks With a Handgun	32
Useful Trinket Box WALTER E. BURTON From Sportsman's Work Bench to gunner's desk, right where it belongs	34
The Dead Swimmer HARRIS DICKSON The thing had no eyes, no brain, no heart yet the flesh carried on	36
Ben East Takes Bird Pictures for Pastime	37
This Happened to Me! THOMAS H. RAMEY The day I lost my grip	44
Hunting Seasons for 1945-46. Open seasons for game in all states and provinces	46
Arms and Ammunition	48
The low-down on chokes Angling RAY BERGMAN, Editor Natural bait is O.K. too	78
Boating	96
Camping and Woodcraft	102
Dogs	118
The Health of Your Dog DR. JAMES R. KINNEY Game Gimmicks GUS MAGER	120
What's on Your Mind?	10

OUTDOOR LIFE, a journal for the dissemination of trade and technical into mation to the sporting-goods industry and to sportsmen

COVER PAINTING BY J. F. KERNAN

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BY ROB F. SANDERSON

U.S. Forest Service photos

ATE SUMMER, 1943. The mountainsides had been tinderdry. Rangers in Yellowstone National Park, Wyoming, spent the long hours of the brilliant days sitting in lookout towers and scanning the timber on distant slopes. One observer saw a wisp of smoke trail high above the trees. His binoculars jumped and he refocused them more sharply. This was it—FIRE—and the word radioed back to park headquarters.

Headquarters marked the fire's position with a colored pin on the big map that papered one wall. The chief shook his head, for fifteen miles of winding, climbing, horse trails were the only means of reaching the remote and now spreading



What the well-dressed smoke jumper wears. His outfit includes football helmet, stout wire mask, steel-rib body belt, tough shirt and trousers, and boots with ankle braces

blaze. Quickly a group of rangers gathered equipment and set out for the area on horseback. Meanwhile the chief was making a phone call.

Missoula, Montana—regional headquarters of the U.S. Forest Service—was 300 miles to the northwest. But Missoula is the headquarters and training center for the Forest Service's "Sky Firemen," so the emergency call from Yel-



Spectacular, this business of rushing smoke jumpers to a remote forest fire. Wildlife is better protected; the Forest Service is building wilderness airfields which you will be welcome to use; and helicopters—able to land and take off most anywhere—are rapidly being perfected. All this is great news for sportsmen!

Fire-fighting supplies about to be dropped from a Forest Service plane, in answer to a hurry call. Smaller aircraft, equipped with two-way radios, supply spot photographs and other information for the guidance of the ground crew. At right, trainees practice on the "letdown rig." where they learn how to work free from a tree-tangled chute and finish their descent by rope

lowstone was directed there: "Send us some smoke jumpers!" A few minutes later the parachutists were in their special suits, chutes securely harnessed, and a flying fire wagon roared off the runway, winging southeast.

When the horseback rangers arrived, weary from a fifteen-mile mountain trip, they found the smoke jumpers had not only parachuted safely from the sky but had completely encircled the fire with a ditch it couldn't leap over.

It was an historic day for the smoke jumpers. It was far down the trail from 1919, when the Forest Service and U.S. Army pilots coöperated experimentally in forest patrol by plane, and the airplane lost to the lookout tower. But the diaper days of aviation are now over and smoke jumping had proved to be a quick, economical, and practical method of fire control.

The parachute idea started in 1934, when extensive experiments were made near Ogden, Utah. Thomas V. Pearson, of the Forest Service, dropped supplies, man-size dummies, and men from planes. All landed safely, but the administrators feared serious hazard if men stepped off over heavily timbered areas.

So for five years the idea smoldered. Then a new project was organized, with David P. Goodwin in charge. Parachutists dropped into one of the densest stands of timber in the Chelan National Forest, Washington, landed successfully, and more experiments followed.

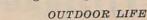
In 1940 came the first use of well-organized, scientifically equipped and trained smoke jumpers. Much credit for developing and perfecting methods and equipment is due Evan W. Kelley, the regional forester in Missoula, Montana. In five years his faith and ambition developed the smoke jumpers from a handful of pioneers to more than 300, all of them trained at his Missoula station. Incidentally, the reputation they built up attracted guest trainees from both American and Canadian armed forces.

Using parachutists was never a publicity stunt with the Forest Service. When it expanded its smoke-jumper units, began using more planes, and started dropping large quantities of supplies in the backwoods, to sustain and equip fire and construction crews, there was only one reason—air transport was cheaper, more efficient. As

soon as war conditions permit, our key forest men plan to mushroom their aviation facilities simply because they are out to do a job, and a better job can be done from the air.

Let's view a typical wilderness operation. It's a marvel of precise coordination. As soon as a fire is spotted from an observation plane or lookout tower the message is radioed to head quarters, where one or more transport planes (depending on the size of the fire) take off with a load of smoke jumpers. After traveling miles in minutes, they jump near the fire. Firefighting tools and supplies are dropped in burlap chutes and the fight starts in

Meanwhile, if the fire is large or spreading rapidly, scout planes have circled and photographed the area. Now they drop finished pictures to the fire boss on the ground, giving him





This trimotor plane kept 200 men supplied with food and equipment while for three days they fought a raging forest fire near Bull Lake, Montana

complete information on which to direct control operations. By means of twoway radio sets, scout planes tell ground men of places where the fire has hopped the control line, and advise them if there if any danger of being cut off by fires to their rear.

If the job is prolonged, returning planes may drop food and supplies daily. In August, 1939, while fire raged near Bull Lake in the Kootenai National Forest, northwestern Montana, a trimotor plane made three trips and dropped seventy-two individual bundles, in order to keep the 200-man fire camp properly equipped.

O MATTER how much they know about parachuting, smoke jumpers must be seasoned fire fighters and woodsmen, or they are valueless. Trainees must be from 21 to 35 years of age; weigh less than 190 pounds; and pass an exacting physical exam. Any men showing excessive nervous reaction after a jump are eliminated.

Then comes the exhaustive course of training in Missoula. A rigorous physical-conditioning program sweats out oven the most active woodsmen. Drops are made from towers, to accustom chutists to the shock experienced upon landing-it's about the shock you'd get after dropping from a twenty-foot wall-and the trick of landing without ankle sprains or other injuries is taught Because chutes sometimes get hung up in trees, men practice lowering themselves on "letdown rigs," from supposedly tree-caught chutes, using a long coil of rope carried in a pocket near the knee.

Each man wears special boots with ankle braces, tough trousers with a low crotch and legs that fasten under the feet, a stout wire face mask, a football helmet, and a steel-rib body belt. With every group of smoke jumpers dropped to a fire goes a two-way radio, measuring 3 x 3 x 11 inches, by which they can keep in touch with the outside.

An outgrowth of the work at Mis-

soula is the Search and Rescue Service now operating in both Canada and the United States. Parachute-trained physicians and special rescue workers are ready to drop to any downed plane in timbered mountain country where other help might be days in arriving. By and large, army airmen make up the squads; but the original Forest Service squad still operates out of Missoula. The first "para-physician" was a young Montana doctor who had worked with the Forest Service as a fire guard during his medical-school vacations, and volunteered to parachute to a Forest Service plane which was forced down in the Idaho mountains.

Smoke jumping and fire fighting require airplanes with special characteristics. They must carry a heavy pay load, fly slow enough for accurate parachute jumping, be able to land and take off from short makeshift wilderness runways, and perform well in the thin upper air, where severe down drafts and loss of wing lift are common.

The two best-suited aircraft are veterans of the skies—the Ford trimotor and the single-engine Travelair. Helping these big planes out are little L-5 Stinsons—two-passenger monoplanes which do spotting and scouting, give vital info over their radio transmitters, and take over-the-spot aerial photos for ground crews below. As no Fords or Travelairs are now manufactured, the expanding fleet of service ships is ripe for substitutes.

EW to the service is the Noorduyn Norseman, a 450-horsepower plane hauling the phenomenal pay load of 2,400 freight pounds. The Norseman, a Canadian plane, was a prewar favorite of the bush pilots who transported trappers and prospectors into the trackless wilds of northern Canada. When diminished military needs release more Norseman, the service would like a fleet of them. This summer the new Norseman will do its first tour of duty on floats, operating off the myriad

lakes in Superior National Forest in the famed Arrowhead region of northern Minnesota.

The Forest Service began developing its own wilderness landing areas in 1936. More than thirty have now been constructed, and the enlarged postwar fleet will require many more. Except for the few in "primitive areas" (which are for the man who wishes to walk or pack in and enjoy his sanctuary in peace and quiet), these fields will be open to sportsmen.

F THE men from the Forest Service who are now in the armed forces, about ninety will return familiarized with airplanes and flying, and will doubtless continue their "cons-airvation" careers. Others who have won their wings may sign up too—and thus the Forest Service will be repaid for training some of the first Army paratroopers. But the main thing is for them to be seasoned foresters and fire fighters; airplanes are just a rapid means of getting to the fire.

The service is constantly on the alert for new equipment. It has a laboratory in Portland, Oregon, where it designs and builds its own radio equipment; it has developed a baby tractor and ditcher which someday may be carried in larger airplanes; it looks forward to a specially equipped fire-fighting jeep, and to other war gadgets which can be adapted and modified for its own use.

A bright spot on the future horizon is the helicopter, which promises to revolutionize methods of forest fire control. With conventional, fixed-wing planes a point of diminishing returns sets in—at 109 planes, according to a recent survey—whereas at least 300 helicopters could be used to advantage. Present helicopters however, are too small; what the service needs is a cargo job carrying 1,500 pounds or more of freight.

For wilderness work the conventional (Continued on page 116)



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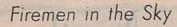
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(Continued from page 15)

plane has definite drawbacks. First, there is a limit to the stuff that it is practicable to parachute. Chutes cost money, and both they and their load are frequently damaged. Then too, there are items like baby tractors which do not lend themselves well to chuting. Again, men and supplies parachuted in cannot be as conveniently chuted out. So it is usually best to land the plane and unload in the normal way. This is why the many wilderness airports have been built.

But airport construction is expensive, and many areas are so rugged that satisfactory runways for regular planes cannot be laid out. The helicopter would answer this problem, for it can land on any mountain meadow or clearing, and if none existed a small clearing could be improvised at a fraction of the expensive airport cost. Too, when parachuting is necessary, a helicopter's slow speed makes for greater accuracy.

If the helicopter lives up to its promise, a dozen or so former smoke jumpers now in the paratroops will be welcomed back to the Forest Service but in the foreseeable future may find themselves as outdated as pony-express riders. For instead of "hitting the silk," helicopter passengers will climb out sedately on the ground.

How far will developments go? Some theorists see future fires fought entirely from the air with chemical bombs and sprays; but the practical-minded, having experimented with such methods, shake their heads. About half the supply of chemicals is laid down in the wrong places, owing to the difficulty in aiming from a fast-moving plane and to the unpredictable air-current drift, and the extremely heavy weight of liquid chemicals makes them impractical for plane transportation. For the present, the plane's chief function is rapid transport of conventional means of fire fighting.

Despite its adventuresome flavor, the air war against forest conflagrations is not likely to displace the land war. Where good roads lead to the fire area, trucks, tractors, supplies, and men can wheel in promptly and the heavy equipment can do effective work. The real job for air transport lies in the vast roadless wilderness of our Western mountains, where lightning can start a dozen or more blazes which, unless checked promptly, may spread and join into huge areas of blistering inferno. Fire roads have been built through

many of these areas at considerable cost, but they are expensive to maintain, and vast acreages are still unreachable by roads. Pat A. Thompson, chief of the fire-control division of the Forest Service, highlighted the present crisis when I was in his office in Washington, D. C.

"Right here in my desk I have an approved appropriation of \$5,000,000 for fire-road construction in one national forest out West. A large irrigation project is dependent on this forest area for its water reservoir. The problem is whether to go ahead and start building the roads-or to hold off in hope that the helicopter cargo plane will materialize before the roads could be completed.'

Merely on the grounds of road maintenance, such a helicopter would make these roads obsolete. Will it be available in two or three years? Manufacturers say yes. If so, they should save us not

Page 116—OUTDOOR LIFE



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only millions of dollars of fire-road money, but a vast amount of wildlife and timber which cannot be protected either by roads or by present airplane methods.

Meanwhile the Forest Service expands her fixed-wing airplane fleet and her smoke jumpers, justly proud of past accomplishments and content to let the record speak.

Here is some more of that record: In 1940, the first year in which smoke jumping had passed the experimental stage, squads parachuted onto nine fires in the Selway wilderness area, on the Idaho-Montana border—at a cost averaging less than \$250 a fire. Seasoned control men estimate that ground attack, besides being slower, would have cost \$3,000 a fire.

Lightning set a series of fires there that summer, in the Moose Creek ranger district. The two remotest fires were a dozen miles from the nearest road. Smoke jumpers—two to each blaze—promptly brought them under control, and in neither case did the flames spread over more than a quarter of an acre. By contrast, six of the other fires, in similar timber, handled by ground crews only, burned from 100 to 1,100 acres and cost from \$1,000 to \$13,000 to control.

With such a record in their first year of operation, it is no wonder that the number of smoke jumpers has increased by leaps and bounds. In 1940 there were 16 men; 1945 finds 330 seasoned sky firemen on the alert to snuff out flames which might otherwise devastate huge tracts of timber, cost thousands of dollars—and cause thousands of wildlife casualties.

Page 117-OUTDOOR LIFE



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