



Smoke Jumpers

FOREST FIRE PARATROOPS

By
GEORGE F. CORNWALL

BACK IN THE 30's a few air-minded men in the United States Forest Service began toying with the idea that one day it might be possible to drop fire fighters by plane and parachute directly on the scene of spot fires in inaccessible regions — fires which might take many hours or even days to reach on foot or by pack train, long after they were plotted and reported to fire control headquarters. Those men stood on firm ground in arguing that all forest fires, like the trees they destroy, have tiny beginnings and if it were possible to put them out speedily after detection, many dangerous, large fires would be prevented and vast savings in timber, manpower and money would result.

By 1939 the case for "Smoke Jumpers," or airborne fire fighters, had gained many more adherents in the Service and it was agreed that experiments in this direction should be undertaken. Region Six, with headquarters in Portland, already hot on the idea, lost no time when the go-ahead signal was given. Fire control officers of this region were successful in contacting a professional parachute jumper, who, for a certain fee, agreed to make 60 test jumps under varying conditions on the Chelan National Forest in north

central Washington. The purpose of the test jumps was to determine the best type of chute to employ and to develop gear that would give maximum protection to the jumper, recognizing the extra hazards involved in getting tangled up in trees or being deposited on the top of rock pinnacles.

The Chelan experiments proved wholly satisfactory and no serious incidents occurred. At the end of the sixtieth professional jump, a number of forest officers were itching to try their hand. Several of them jumped and came off with flying colors and more enthusiasm than ever for this new



Practice jump on the Lolo National Forest in Montana. The jumper has come down in a "feather bed" of young reproduction, softest type of landing in the business, with far less shock than open ground. [U. S. Forest Service Photos]

method of attacking spot fires. In 1940, it was decided to transfer the scene of further experiments to Region One, at Missoula, Montana, since that region had also begun to explore the possibilities and besides, had the further advantage of possessing several air fields of its own, previously developed as a part of its regular plane patrol system. Missoula continued to carry on further development work through 1941 and 1942.

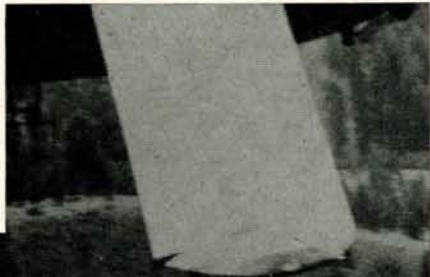
When the time came to prepare for the 1943 fire season, it was agreed that "Smoke Jumpers" would be more important than ever, because manpower to fight big blazes was certain to be scarce. Now that most of the regular

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(Right) Jumper surveys the ground below, while waiting for the signal to jump. Note his hand on the pull-ring of the breast pack chute.



(Left) Jumping with the older style breast pack chute. Hand on the rip cord ring, he pulls it when he gets clear of the ship's tail surfaces. [U.S.F.S. Photos]



crew had gone into the Army, some as parachute instructors, a wholly new organization had to be recruited. The immediate problem was to find a group of husky young lads with the necessary physical qualifications, and who were not subject to Army induction. The Forest Service found that answer among the boys comprising the Civilian Public Service group.

The would-be "Smoke Jumpers" are put through a toughening course fully as rigorous as that prescribed by any branch of the armed services. There are obstacle courses to be run and several diving and rolling exercises intended to teach candidates to relax the moment their feet touch the ground from a

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(Right) Smoke jumper falling free of the plane. The pilot chute has opened and the main chute comes trailing out. Note the step behind the wing, from which he stepped into space.





Side view of the latest model jumper's suit. Note pocket at bottom of right trouser leg, into which the rope coil is tucked. A pocket on the right sleeve carries a knife. The static-line backpack suit is shown in position.

parachute landing. The most strenuous of all is an exercise simulating a free fall and the sudden strain of the chute when it "blossoms" and checks the rate of drop. A pole rigged up with a cross arm is ascended by the student in a regular jumping suit. He snaps the end of an 18-foot rope, attached to his suit, onto a ring on the arm of the post and lets himself fall. He is thus snubbed up sharply after a drop of 18 feet, just short of a safety net. This is intended to toughen the upper leg muscles in the region of the crotch where the greatest strain is imposed by the shock of the opening chute. An interesting feature of the drop test consists of having the student pass a stone from one hand to the other in the course of the fall, intended to teach him to get his mind off the fall so that if the mechanically operated chute fails to open he will remember to pull the ring on the emergency pack.

Assigned to Stations

Upon completion of the course last spring at Missoula, ten jumpers were sent to Region Six. These men were assigned to Redwood Ranger Station, 30 miles south of Grants Pass, Oregon, near the Illinois Valley airport, built and maintained by the Service, on the Siskiyou National Forest. Others were assigned Regions One and Four.

Jack G. Heintzelman, junior forester on the Siskiyou volunteered to head up the Oregon crew and was given initial training at Missoula. This season Mr. Heintzelman acted as squad leader and spotter. The spotter goes aloft with the jumpers, takes careful observations for bearings, picks out the most likely target and takes wind drift readings before giving the signal to jump. Wherever possible, the plane is maneuvered over a meadow or other open area to lessen the hazard of tangling on snags or dangerous rocks.

Smoke Jumper's Gear

The jumping suit worn by the forest paratroopers consists of a heavy canvas pullover with a high collar to protect the neck against scratches from limbs of trees, should the jumper be unable to guide his chute to an opening. A leather helmet, virtually the same as worn by football players, covers the head and ears, while a heavy wire mask, not unlike that worn by baseball catchers, protects the eyes and face. A wide leather belt protects the kidneys and other organs of that region, while anklets and wristlets are worn to give support to those parts. Heavy gloves complete the outfit.

"Smoke Jumpers" now wear what is known as the static cord type parachute, which is not manually operated, but functions by means of a cord attached to a running line in the plane cabin. This is about 18 feet long, designed to get the man free of the ship's tail sur-



This is the training mast, designed to familiarize the student with the feel of the chute and gear. Latest training stunt on the mast is to have the candidate drop free for 18 feet and be snubbed up by a stout rope, just short of a safety net. To take his mind off the fall, he must pass a stone from one hand to the other as he drops.



Glenn Smith in one of the earlier type chutes used on the Chelan National Forest experiments in 1939. Note the high, detachable collar, now incorporated into the suit itself. The coil of rope is now carried in a pocket near the bottom of the right trouser leg.

faces, before it jerks the pilot chute out of the pack. Jumpers also wear an emergency chute, which can be opened manually in case the main chute fails to function. Another highly important item in the jumping equipment is a coil of stout rope, useful in gaining the ground in the case of a hang-up in a tree or other obstacle. This is carried in a pocket at the bottom of the right trouser leg. A knife is carried in a sleeve pocket.

By manipulating the shroud lines of the chute, the jumper can guide the descent with remarkable accuracy, and usually avoid contact with unwelcome obstacles.

Tools Dropped by Chutes

Tools come down in muslin chutes of simple design developed by the Forest Service. The equipment for attacking the fire is merely a simplified version of a one-man fire fighting set. It consists of a Hazel hoe or Pulaski tool, combined axe and digging device; headlight; concentrated rations of the Army K type, sufficient for three days; canteen filled with water; small sleeping bag; first-aid kit; compass and matches.

Portable radio equipment can be dropped successfully by chute when necessity dictates, but owing to the



Two one-man firefighting outfits dropped on muslin chute.

scarcity of such equipment this season, instruments of this kind were not used. For signaling a safe landing, the jumper carries with him a large piece of yellow cloth, which he displays in a prescribed manner to indicate that all is well. The plane is required to remain in the vicinity long enough to ascertain if the jumper is safe.

A "Smoke Jumper" is not left to his own devices after he has dropped. As soon as he lands, provision is made at once to start to the scene with two extra pack animals, one to take out the valuable parachute and other jumping gear and the second to provide transportation for him when his job is done. The jumper is instructed to place his equipment at the nearest trail shown on his map after completing his work on the fire.

Jumping in Pairs

The practice during the past season was to work jumpers in pairs, even on small fires. In no case has a pair been forced to remain out over two days. In general, one man can handle small fires, but this year it was felt that all the practice possible should be given the men. On the Siskiyou this year, the 10-man crew made 12 jumps. Three men made two jumps each and six others each made single jumps. The tenth member was the spotter, Mr. Heintzelman, previously mentioned. Five fires were actually attacked from the air, including one which was reached at the same time a ground crew arrived. Two jumpers served as reinforcements at another fire and were the first to arrive on the scene with fire fighting tools.

The plane for the 1942 season was furnished by the S. & M. Flying Serv-



Suiting-up. Cargo to be dropped by muslin plane in foreground.

ice, based at North Dalles, Washington, about three hours distant from the Illinois Valley Airport. The base this season was considerably farther away than it would be under normal peacetime conditions. However, the plane was able to reach the southern Oregon airport on several occasions ahead of
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This jumper on the Lolo National Forest in Montana, came down in a clump of lodgepole pine trees. This serves to emphasize the usefulness of the coil of rope carried for just such an emergency.

SMOKE JUMPERS

(CONTINUED FROM PAGE 13)

oncoming electrical storms, the usual signal for "Smoke Jumpers" and plane to be ready to go into action. Larry Moore of the S. & M. organization served as pilot for the Oregon crew. The ship used on the Siskiyou was a seven-place Fairchild high wing monoplane, powered with a 450-horsepower motor.

SPOTTER'S REPORT ON JUMP

JACK HEINTZELMAN

FOLLOWING a freak scattered lightning storm July 22, the Siskiyou National Forest was set up with three possible smokejumper shows; all three in inaccessible portions of the Illinois River country. At 4:30 p. m., Larry Moore, pilot; Frank Derry, R-1 parachute instructor; Gerit Roseboom, and Floyd Yoder, jumpers; and myself, left the Illinois Valley airport to scout a possible smoke in T. 37 S., R. 11 W., W.M.

After a careful scrutiny of the country in question, we returned to the airport, having seen no fire. Roseboom and Yoder made practice jumps on the landing field and we called it a day.

At 9:52 a. m., July 23, Supervisor Obye O.K.'d a smokejump on a fire reported by York Butte and Serpentine Point lookouts between Nome and Labrador Creeks, T. 37 S., R. 10 W. S. 12, W.M. I hurried down to our partially completed parachute loft and gave Marvin Graeler and Winton Stucky, who had been previously chosen for the next jump, instructions as to the fire location, policy on suppression action, and equipment to take. The crew swung to and the station truck was loaded with equipment.

At 10:32 a. m., we left for the airport, arriving at 10:40 a. m. Graeler and Stucky suited up and the remainder of the crew assisted in the suiting and the loading of cargo into Larry Moore's seven-passenger Fairchild airplane. By 11:30 a. m., we were ready to go and found our first stumbling block. The pilot was unable to obtain permission to leave the ground due, either to communications difficulties or trouble in obtaining clearance from the C.A.A. By 11:45 a. m., we were clear-

ed and Moore, Derry, Graeler, Stucky, and myself took off the field. We circled the field gaining elevation and headed northwest towards Pearsoll Peak, a prominent lookout point south of the fire. I took the opportunity to point out the country to the jumpers in an endeavor to familiarize them with prominent landmarks and to keep them oriented. We passed Pearsoll on the west and turned towards York Butte. This bearing took us towards the location of the fire. Frank Derry was first to see the fire and pointed it out to me. It was a snag burning on a ridge top between Nome and Labrador Creeks. We chose a small basin south of the fire and dropped a test chute. It indicated only minor wind drift.

Jumpers Leave Ship

We were ready to go now. The jumpers had been posted on the situation at hand and Moore circled into the jumping line and Graeler, the first jumper, was on his way at 12:18 p. m. His chute had a good opening and his descent was quite straight. He managed to dodge several trees, slipped off the crown of another and landed on the ground in brush about 300 yards from the fire. We circled at 2500 feet, waiting for Graeler's signal, but couldn't locate it in the brush. Finally, we dropped down to about 500 feet and saw



This chute "canopied" over a cluster of young trees from which it must be carefully detached.

a yellow cross which indicated that he was O. K. Again we gained elevation and dropped Stucky, who landed close to Graeler. We dropped down and dropped two one-man outfits on a muslin cargo chute. It reached the ground. The last step was to circle and drop a falling-saw on a burlap chute. The combination was very hard to get out of the door and resembled a flying trapeze, bouncing loosely. Finally it straightened out and landed midway between the jumpers and the fire. The entire jumping show had taken 28 minutes.

We circled out of the canyon and headed down the Illinois River to check other suspicious spots but found no smoke.

Returning to the airport, we passed over the fire but could see no signs of activity. The O.K. signal was still out but no other signals were visible. We landed at the Airport at 1:30 p. m., and I posted Art Cribb, who was taking three suppression crew members to the fire, on the fire location.

Two obvious needs were noted on this trip. Better signalling through larger signal streamers and the use of radio was deemed advisable. Binoculars would have been a great help.

As this was my first spotting job for a fire jump, Frank Derry's help and advice was greatly appreciated. I also was glad Frank was present, as we had the opportunity to discuss the merits of various jumper shows seen on the trip.

"SMOKE JUMPER'S" REPORT

MARVIN GRAELER

ON JULY 22, Frank Derry, instructor parachute rigger, arrived with our plane and pilot to give us our first practice jump in the Siskiyou National Forest. Instead, a lightning storm on the evening of the same day provided an actual fire jump for Winton Stucky and myself.

At 9:55 a. m., on the 23rd, Jack Heintzelman informed us that there was a good possibility of jumping to a fire and that Stucky and I had been selected to make the jump. We loaded

our equipment in a truck and left for the airport at 10:32 a. m.

Upon arrival at the airport, Stucky and I immediately suited up and the rest of the crew checked our fire fighting equipment and stored it in the plane ready for dropping. We were ready to take off at 11:30, but had to wait until our pilot, Larry Moore, obtained permission to take off.

We received our O.K. at 11:45 and Heintzelman, who was to do the spotting, Derry, Moore, Stucky and myself took off in our plane, a seven-place Fairchild powered by a 450 horsepower engine. We gained altitude rapidly and headed northwest toward Pearsoll Peak and York Butte, as the fire was on one of the ridges between the two. Jack pointed out peaks and other landmarks to orient us and to familiarize us with the country.

We sighted the fire, and saw it was a snag burning on a ridge top which ran north and south, with the north slope dropping down into the Illinois River. The ridge was flanked by Nome Creek on the west, and Labrador Creek on the East. These, together with York Butte, which lay directly across the Illinois and north of the fire, were pointed out to us. Since the fire was on a narrow, sharp ridge, we chose a basin south of the fire as our jumping spot. Jack cautioned me to hold to the Nome Creek side as the east slope was very steep and the rock slides we saw looked anything but good for jumping. I rode the step as we came in for the jump.

Dropping Straight Down

With the cut of the motor and the clap of Jack's hand on my shoulder, I stepped off. Falling straight with feet down, I received very little shock as my chute, one of the new Derry slotted Irvins, blossomed out above me. It was as easy an opening as I have had. We had been dropped higher than usual and I spent the first few moments experimenting by slipping and getting the feel of the chute. I held into the wind and came nearly straight down. Jack's spotting was so good that I had no difficulty in working to the spot we had chosen for landing. The ridge side was covered with heavy brush and the largest opening between groups of tall trees was less than 100 feet across. I turned with the wind as I neared the trees and used my guide lines to avoid trees and land in the open. As I came in the perimeter of the chute caught on a top limb of a tall pine and the chute was partially

collapsed. The chute slid off and I dropped 20 feet before it opened again. In landing among a group of madrona trees about 30 feet high, my foot caught in the fork of one and tipped me up so that I slid down the tree head first, giving me a full view of the canopy as it settled over the tops of the madronas. My landing thus broken, I landed easily in some dense underbrush. I unhooked myself from my harness, took off my jumping suit, and laid out the yellow cross to tell the plane I was all right. The men in the plane had some difficulty seeing my signal as there were no clear open spaces, but I finally saw their streamer showing they had.

Stucky Lands Nearby

Stucky jumped and came nearly straight down and landed 30 feet from me. His fall was also broken by the madrona trees. He jumped a 30-foot Eagle chute and rode down facing east, or exactly opposite from the direction I came down. The cargo chute was dropped with our fire packs and landed 200 yards farther from the fire than we were. We were 250 yards from the fire and 100 yards from the top of the ridge. The saw was dropped in a burlap chute and landed 30 feet from Stucky, who had gone up the ridge to sight the fire. We retrieved the saw chute and after some searching found our muslin chute with the fire packs. As the brush was very wet under foot, and our chutes were off the ground, we decided to leave them and proceed directly to the fire.



Jumper frees himself from entanglement of parachute and slips from suit to get at the fire.

We took only a canteen and our fire tools, as the brush was very dense and we wanted no unnecessary equipment. It took an hour and a half from the time we left the airport until we arrived at the burning snag. Forty-five minutes after I landed, we began our attack on the fire. The burning snag was on the extreme crown of the ridge and leaned toward the north slope. It was burning about 30 feet up and soon after we arrived began to throw sparks. Since the underbrush was still wet, we decided to fell the snag before we had completed the brushing out. We felled it along the ridge toward the north slope. When it hit it broke at the point it was burning. The spot was hot for awhile, but by 3:05 p. m. we had it cooled down and under control. Leaving Stucky with the fire, I started back to our packs for food. I miscalculated my direction and missed the chutes and packs in the brush. I went completely around the ridge and ended up on Labrador Creek, finally returning to the fire without the food. Stucky then left while I stayed with the fire.

Ground Crew Arrives

At 6:00 p. m. Art Cribb and three suppression crew members arrived to help us mop up the fire and pack our jumping equipment. They had left the ranger station at 1:52 p. m. Two of the crew and I went back and helped Stucky take down the chutes. When we returned to the fire at 9:00 a. m., Art had nearly completed the mop up job so Stucky and I ate our first meal since 6:00 that morning. By 1:00 a. m. the next morning the last spark was out, but we thought it best to wait until daylight before packing out.

We left the dead fire at 8:00 a. m. on the 24th and hiked down the ridge to the river, and then upstream two miles to the pick-up. We stopped for a breakfast of iron rations at Oak Flat and arrived at the ranger station in the early afternoon.

Several things are apparent to me since making an actual fire jump. Our signals were inadequate and a radio would have been helpful. The compass, if carried down by the jumpers would be useful in locating cargo chutes which drift too far. Sleeping bags seem to be just excess bulk. Items such as tomato juice, more water, and lemons would help and would not have to be packed out. We learned that one can work too hard at the start and it would have been better to have completely brushed out the spot where the

snag fell so as to rob it of additional fuel. The saving of time and the fact that a smokejumper is in better condition to work when he gets to a fire outweighs any disadvantages the extra equipment may cause.

MY FIRST FIRE JUMP

WINTON STUCKY

ON JULY 23, 1943, Marvin Graeler and I were called upon to make the first fire jump of the 1943 fire season. It was 11:45 a. m. when our pilot, Larry Moore, opened the throttle of his Fairchild and we made a smooth and fast take-off and rose rapidly into the clear, blue sky; Frank Derry, our instructor; Jack Heintzelman, our capable spotter, and Graeler and I were on our way over the rugged peaks of the Siskiyou National Forest.

We flew in a northwesterly direction for approximately 30 minutes until we located our fire, which was near the Illinois River. York Butte was directly to the north of the fire and Labrador

Creek was on the east side of the ridge and Nome Creek on the west side.

Graeler was the first man to jump, and he landed in a plot, approximately 100 feet in diameter, surrounded by tall pines. I was ordered to jump soon after and I landed in the same plot just thirty feet from Graeler. We immediately put out our streamers and then our cargo chutes and saw were dropped to us. All the chutes landed safely on the ground and as soon as we were able to retrieve them, we took our equipment and set out for the fire, which was only 300 yards from our landing place. We had thick brush to hike through and rocks to crawl over to get to our fire, which was a burning snag. The fire was started by a lightning storm which had passed the previous day.

Soon Under Control

We immediately went to work on the fire upon arrival, and at 3:05 p. m. the fire was under control.

At 6:00 p. m., Art Cribb and three suppression crew members came stumbling through the brush and over the rocks, and with their help we had the

fire out late in the evening. Two of the suppression crew members, Graeler and I, went back to our landing plot and retrieved the parachutes and other equipment we had left there. We brought our packs back to the site of the fire to wait until morning before we began our hike down the ridge to our trail.

We ate our first meal at 9:30 p. m., since the breakfast we had in the morning at 6:00 a. m.

In the morning we checked over our fire to pronounce it definitely extinguished, and then started on our journey down the ridge to the truck that was waiting for us. After several hours of toiling and sweating, climbing over rocks and brush, we finally reached our truck and then we were able to relax. We arrived back at the ranger station in the early afternoon and thus ended my first fire jump. I consider this experience as one of the highlights of my life. I was favorably impressed by the efficiency in which the jumpers were spotted and also in the way the cargo chutes were dropped to us. This method of fire fighting, in my own opinion, is one of the most efficient ways to combat forest fires.

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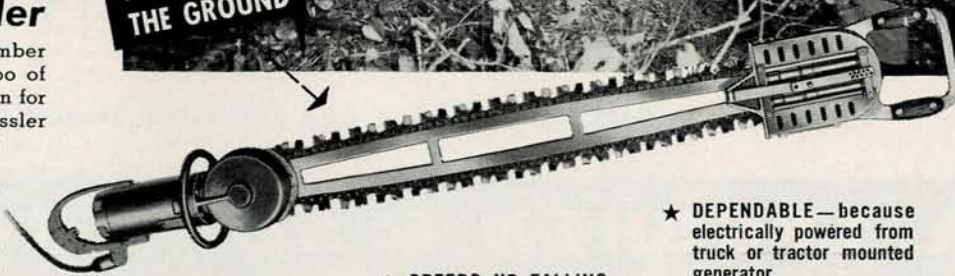
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