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SMOKEJUMPING

Missoula, Montana
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HISTORY OF SMOKEJUMPING

Prepared by the Division of Fire Control, Region 1, U.S. Forest Service

BACKGROUND HISTORY

In order to present a complete record of smokejumping, it is necessary to touch briefly on a few pertinent facts relating to earlier uses of aircraft by the Forest Service in its fire control activities.

Shortly after the close of the first World War, Chief Forester Henry S. Graves wrote the Chief of the Army Air Corps, suggesting cooperation with the Forest Service for fire detection in certain Western States. This was followed by the organization of a fire patrol, which was initiated in California and later extended to include Oregon, Washington, Idaho, and Montana. A prominent figure in the early days of the patrol was Colonel H. H. (Hap) Arnold, at that time in charge of the Western Department, and later to become World War II Commander of the U.S. Air Force.

Aerial fire control in Region 1 (Montana, Idaho, and eastern Washington) dates from the early summer of 1925 when Forest Inspector Howard R. Flint, together with Lieutenants Nick Mamer and R. T. Freng of the Air Corps Reserve, organized the Fire Patrol at Spokane. Lieutenant Freng remained only the one season, but during the succeeding decade, the names of Flint and Mamer became inseparably connected with the pioneering of aerial activities in the Northern Rocky Mountain Region.* During that period (1925-1935), aerial photography expanded from a small experimental project to large-scale production; and cargo dropping, first employed on actual fires in 1929, had become a practical means of supplying firefighters in the back country 5 or 6 years later.

The use of airplanes and parachutes for transporting firefighters was considered by a few progressive-minded foresters in the early days of the fire patrol, but for a long time the idea was discarded as being too dangerous and wholly impractical. In 1934, T. V. Pearson of the Intermountain Region of the Forest Service (Region 4) with headquarters

*Flint became fatally ill while accompanying a National Geographic expedition down the Salmon River in Idaho. He died October 14, 1935, at Missoula, Montana, where he had been flown by the late pilot, Dick Johnson. Nick Mamer was killed March 14, 1938, while piloting a Northwest airliner which crashed in the Bridger Mountains near Bozeman, Montana.

(Region 6). David P. Godwin, Assistant Chief of Fire Control, was in charge, with Lage Wernstedt representing the region and Harold King as Forest Service pilot. It was during this summer that the decision was made to abandon the bombing tests, and on Godwin's recommendation, the unexpended balance of experimental funds was authorized for carrying on a parachute jumping experiment. A contract was prepared providing for parachutes, protective clothing, and the services of professional riggers and jumpers, the Eagle Parachute Company of Lancaster, Pennsylvania, being the successful bidder. The experiment was conducted at Winthrop, Washington, on the Chelan National Forest during the period October 5 to November 15, with Beach Gill of the Eagle Company serving as consultant and collaborator - under appointment of the Secretary of Agriculture. A small group of professional jumpers, with Frank M. Derry in charge, conducted a number of dummy tests and approximately 60 live jumps were made, largely by employees of the contractor. Toward the end of the experiment, several Forest Service employees were allowed to jump into both open-field and timbered areas. There were no injuries of consequence.

The selected training outfit, consisting of Eagle 30-foot backpack and 27-foot emergency chest-pack canopies with quick-attachable harness, appeared to be satisfactory, while a two-piece, felt-padded suit, football helmet with wire-mesh face mask, athletic supporter, ankle braces, combined back and abdominal brace, and heavy logger boots completed the attire of the jumper and provided protection from the hitherto unknown hazards of timber jumping. The conclusions were that smokejumpers could land safely in all kinds of green timber cover common to the Chelan National Forest at altitudes ranging from 2,000 to 6,800 feet. Successful jumps were also made in mountain meadows, open ridgetops and on steep, boulder-strewn slopes.

1940

FIRST PRACTICAL USE OF SMOKEJUMPERS

As a result of the experiments of the previous year, Regions 1 and 6 each organized a small squad of smokejumpers for the 1940 fire season. The latter region developed its squad around a nucleus of Chelan forest guards who had jumped during the experiments of the previous fall, while Region 1 selected a project leader and sent him to Winthrop to undergo initial spring training with Region 6. The technician who had been provided by the Eagle Company for the experiment of the previous fall was retained to serve both regions through the training season.

Due to a light fire season within the Region 6 sphere of activity, their squad had little action during the summer. On the other hand, Region 1 jumpers handled nine "selected" fires in a season of the highest lightning fire occurrence on record. An analysis of the nine fires indicated a net overall saving of approximately $30,000, or nearly three times the cost of the entire project.

The first actual fire jumps were made on July 12 by Rufus Robinson of Kooskia, Idaho, and Earl Cooley of Hamilton, Montana, on Martin Creek

rather serious outbreak in the North Pacific Region in late July, the value of the smokejumping unit would not have been so apparent as during the previous year. As it turned out, the jumpers again handled or reinforced nine fires, this time with an estimated saving in excess of $30,000. Also for the first time, an organized force was jumped to a threatening fire that had escaped from the initial attackers and had reached an area of 15 acres in extremely bad fuels. While the jumpers alone did not control this fire, they were able to hold it in check through the heat of a bad "burning day" until the arrival of adequate ground forces.

Through the season there were increasing demands for material on the smokejumpers from feature writers and other interested sources of news dissemination. A representative of Scientific Films took color pictures of the smokejumpers in training for a special newsreel. Paramount Pictures, Inc. entered into a contract with the Forest Service for the aerial and parachuting sequences of a forthcoming film to be adapted from a magazine story by Thelma Strabel. This filming was completed during the month of September.

1942

FIRST EFFECTS OF THE WAR ON SMOKEJUMPING

Continuing in 1942 as a Region 1 project, a further expansion led to a 4-squad unit, and only the impact of war prevented greater development. As it was, age limits and experience requirements had to be liberalized in order to secure recruits, though physical standards were not lowered.

The training season opened with only 5 experienced jumpers on hand. A considerable number had entered military service, while others were occupied as instructors with the C.A.A., or at Army and Navy parachute rigger schools, and in essential war industry. Of the 33 recruits that started training, only a few were experienced smokechasers, and to offset this deficiency, a greatly intensified program of fire control training was carried out.

The equipment situation was almost as critical as that regarding manpower, but a few chutes not acceptable to the armed services were picked up at intervals and converted. This necessitated experimentation, out of which came the outstanding development of the season, the Derry slotted chute which is maneuverable, provides easy opening, a slow rate of descent, and relatively little oxcillation. This made it possible to convert any standard flat-type chute by adding the slots and guidelines.

Considerable moisture during June and July held the fire season back, and even in August, comparatively few fires occurred which warranted the use of jumpers, although some valuable use was made of them on a few occasions. A local concentration of lightning fires in the remote area of the Bitterroot and Nezperce Forests in early September, however, more than paid for the entire season's cost of the project.

An unusual feature of the season's activities was the parachute training of rescue units from the military services, involving about 25 individuals of the U.S. Coast Guard, Canadian Air Observer Schools, and U.S. Army Air Forces. This "rescue training" began shortly after the close of the regular session and extended with few breaks until December 10. About half of those trained were flight surgeons of the Second Army Air Force and the Second and Third Arctic Rescue Squadrons.

Closely connected with this activity was the establishment of a Second Air Force Search and Rescue Section, with the Forest Service an active participant. This was initiated by Captain Frank Wiley of the U.S. Air Force.

1944

SMOKEJUMPING NO LONGER AN EXPERIMENT - MAKES ACTUAL AS WELL AS THEORETICAL SAVINGS

Anticipating a continuing shortage of smokejumper candidates, arrangements were made with Selective Service and the National Service Board for religious objectors to keep as many of the trained C.P.S. men as wished to remain through the winter and again be available as jumpers in 1944. This resulted in the retention of about 60 percent of the entire group, those retained being placed on a variety of winter projects within the three regions. In addition, the C.P.S. program was expanded in the spring to a total of 120 men and despite a proportionately smaller number of volunteers from which to make selections, the results were again very satisfactory. Distribution of the units was essentially the same as in 1943, with increases in the number of jumpers assigned to the three regions.

Training of the new men was conducted in Region 1, as was most of the refresher training for the older men and training techniques were further improved. An important new feature was the use of a public address system (field amplifier) by means of which the instructor on the ground could guide and direct the trainee through his first few jumps.

A further centralization of smokejumper use in Region 1 led to a slightly different arrangement of forces at the various bases. It was found that most effective use of jumpers could be had by holding a standby unit at Missoula continually. The squad could be raised or lowered in size according to probability of use and was kept filled from the nearby "feeder base" where 40 to 50 jumpers were kept continuously on project work.

The fire season of 1944 was hardly up to normal in most of the area covered by the jumpers, but the occurrence of lightning fires was high and there were a few bad "spots" as well as periods of concentration. Smokejumper activity was greater than ever before and well distributed

A far from complete cost analysis, covering only two of the three regions, indicates a net saving of $346,780 for the season, but in numerous cases it was apparent that the savings on a single fire might conceivably have equaled the entire figure. To a far greater degree than in any previous year, smokejumpers were used in large groups to spearhead control action on the larger and more threatening fires - often with complete success.

Among the many events and occurrences of the year, the following are of greatest importance:

1. Death of Pilot Dick Johnson in an airplane crash near Jackson, Wyoming, March 2. Dick was one of the ablest of mountain pilots and one of the first to fly the smokejumpers.

2. First experimental "air control area" set up in Region 1. Two million acres of roadless wilderness, including parts of the Flathead, Lewis & Clark, Lolo, and Helena Forests, handled by air detection and smokejumpers to the exclusion of most of the ground forces. This became known as the "Continental Unit," because of its location adjacent to and on both sides of the Continental Divide.

3. The training and equipping of 14 officers and enlisted men from various Alaskan and Canadian stations of the Air Transport Command as parachutists. This was conducted at Missoula in March and June. The purpose was to provide additional personnel to jump with paradoctors on search and rescue missions.

4. First active participation of smokejumper and Army paradoctors together in rescue missions. Two instances involving severely injured smokejumpers were successful. A third concerned a hunting accident in which the victim was brought out alive but died within a week, and the fourth instance involved two Army fliers, both of whom were found to have been killed in the crash. In two other cases, smokejumpers parachuted unaccompanied by a paradoctor to aid and pack out injured men. The total number of recorded rescue jumps for the year in Region 1 is 55.

5. Training of the 555th Battalion of Negro paratroops in timber jumping and firefighting to combat Japanese balloon fires. This was conducted at Pendleton, Oregon, by parachute instructors from Missoula. Since the balloon menace did not materialize, the 300 paratroopers were used as auxiliary suppression crews on large fires in Regions 1, 4, 5, and 6.

6. Procurement of two UC-64 Noorduyn-Norseman airplanes by loan from the Army and their use for transporting smokejumpers in Region 6.

In summarizing the activities of 1945, it may be said that, while smokejumping has been regarded as successful for a number of years, this was the first season in which its importance was fully demonstrated. For the first time, Region 1 had a force of 150 well-trained

1947

EXPANSION - SMOKEJUMPING EXTENDS TO THE MEXICAN BORDER AND INTO CANADA

Highlights of the 1947 season are more important for their long-range significance than for the immediate results obtained.

There was little change in the size of the project, but with 55 percent of the 1946 organization available at the beginning of the season, the job of recruiting and training was not such a prodigious problem as it had been in the previous year. As would be expected, the 1947 squads were more effective, and despite the mildness of the season, there were numerous "critical" fires adequately handled.

There was a drop in the number of smokejumper fires over the previous year, the total being 131 for the Region 1 unit, and no cost analysis was made, as it was felt that previous estimates had served their purpose and that no question existed as to the economy of this method of firefighting. A total of 576 individual jumps were made to fires and an additional 37 jumps on rescue missions involving five separate cases, one of which was participated in by Dr. Amos Little.

Newsworthy facts of the 1947 record are as follows:

1. Regions 4 and 6 developed training centers and conducted their own parachute training. Previously this had been carried on at one large central camp near Missoula.

2. A foreman and 8 jumpers from Region 1, and a Noorduyn-Norseman plane with pilot from Region 6, were detailed to the Gila National Forest in southern New Mexico for the period May 25 to June 25. This was in response to a request from Region 3 (Arizona and New Mexico) for an experimental trial at smokejumping during the spring season of lightning fires in the Gila Wilderness Area.

3. The Provincial Forest Service of Saskatchewan, Canada, developed a smokejumper project after representatives had conferred with the regional office at Missoula. Region 1 parachute technicians gave advice and the actual training of smokejumpers was accomplished by a commercial firm headed by a Canadian who had been trained as a rescue jumper at Missoula during the war.

4. Death of Dave Godwin, newly appointed national fire control chief, in an airlines crash in the Virginia Mountains on June 13. More than any other individual, Dave was responsible for the initiation of the "Parachute Project" and his continued interest and support contributed much to its success.

5. Smokejumpers from the Missoula base participated in combined aerial attacks on two fires that were bombed from the air as a part of the Forest Service - U.S. Army cooperative fire bombing project. Smokejumpers also participated as ground crews during the fire bombing experiments in the Missoula area.

the fire in the routine manner that would ordinarily have been effective. The sudden blowup trapped 16, of whom only 3 escaped. The tragedy was in no way connected with the jumping activity and would undoubtedly have occurred had a crew of ground-transported men been caught in a similar situation.

Experiments in picking up jumpers and jumper equipment by helicopter were conducted as a part of the helicopter experiment carried on at Moose Creek Ranger Station in the Bitterroot National Forest, but these tests were inconclusive and it was planned to continue them another year.

1950

ANOTHER LIGHT SEASON - SMOKEJUMPERS BECOME MOVIE ACTORS

With minor exceptions, Region 1 was "soaking wet" all summer long and a flurry of action on Labor Day was all that brought the season's smokejumper activity above that of 1948. The Region 1 group handled 51 fires, with a total of 188 jumps, of which 44 were to one fire on the Salmon Forest in Region 4, Idaho.

As in 1948, jumpers were scattered widely over the region to obtain maximum benefit to project work, only a small crew of 20 to 50 men, being held on call in or near Missoula.

During late summer Twentieth Century-Fox began production at Missoula on a motion picture featuring the jumpers. Personnel from the smokejumper project took part in training and jump sequences, served as extras, operated equipment and helped build scenery. All of this was at the expense of the motion picture company.

Other events of the year are:

1. Continuation of the helicopter experiments.

2. First use of aerial photographs for jumper spotting.

3. Completion of the section on "Aerial Attack Forces" of the Region 1 Fire Suppression Plan. Indicates need for a force of 240 jumpers.

4. Death of Jerry Verhelst of the Montana Aeronautics Commission in a Northwest Airlines crash near Butte, Montana, November 7. A former Johnson Flying Service pilot, he had flown smokejumpers on many operational and training missions in the past.

1951

A SHORT, BUSY SEASON - YELLOWSTONE PARK ESTABLISHES JUMPER UNIT

The smokejumper season of 1951 in Region 1 started late, developed to a high peak, then dropped off almost completely - all within about a

1953

BUSIEST SEASON IN HISTORY - ALL SMOKEJUMPING RECORDS SHATTERED

An extremely dry July, followed by an alltime record for number of August lightning fires, gave the Region 1 smokejumpers their heaviest workout since the project started. For about 3 weeks beginning August 7, the demand for jumpers was consistently greater than the supply, and had the men been available, the record of 994 jumps to 236 fires in Region 1, plus 133 additional jumps outside the region, would have been greatly exceeded. In addition to the above, 19 jumps were made in Region 1 by jumpers from Regions 4 and 6.

Other smokejumper units likewise experienced a busy season and the all-Service jumping totals far exceeded any previous year.

The aerial delivery of equipment and supplies (paracargo) has in recent years become almost entirely a job of the smokejumpers in Region 1. During 1953 more than 200 tons of fire supplies, not including smokejumper cargo, 30 tons of treated timber for lookout towers, and lesser amounts of other material were delivered within the region by airplane and parachute.

Other features of the 1953 season include: (1) Schooling of a special-service detachment of 12 jumpmasters in smokejumper techniques, equipment, and training, conducted at Missoula during May and June. (2) Construction of the Missoula Aerial Fire Depot continued on schedule.

1954

MISSOULA AERIAL FIRE DEPOT ACTIVATED

During early spring the Region 1 smokejumping base and fire warehousing were moved to the newly developed facilities 7 miles west of Missoula. On September 22, President Eisenhower dedicated the new base, this ceremony and the air show drawing a crowd estimated at more than 30,000.

Region 1 smokejumping was very light, second only to 1948 in this respect, with but 174 jumps to 47 fires in the region. Except for Region 3, all regions using smokejumpers had light fire seasons. The Region 3 crew, now operating from Silver City, New Mexico, was increased to 18 and made 105 jumps to 40 fires.

1955

Another easy fire season in Region 1 with only 303 jumps to 56 fires. The Region 3 crew (3 men from Region 4, 3 from Region 6, and 12 from Region 1) accumulated 123 jumps to 30 fires. These men, all experienced smokejumpers, normally report to Silver City about May 15 and return to their home regions about July 15 in time for the peak of fire activity in the Northwest.

Officers of the Province of Saskatchewan's Department of Natural Resources report that they still maintain and rely heavily upon the smokejumper unit initiated in 1947. This crew, now numbering 16, is trained and normally headquartered at Prince Albert airport, moving to a base at Lac LaRonge for critical periods. This is a unique outfit. They take action upon an average of 20 fires a year on which jumping is unnecessary, usually landing on a nearby lake. But the unit is trained to jump when necessary and takes action upon an average of 5 jump fires a year. They use the Noorduyn-Norseman as a jump plane, exiting through a hole in the belly because of the floats. Jump gear is patterned after the equipment developed by the U.S. Forest Service smokejumpers.

The U.S. Bureau of Land Management is preparing to activate a 17-man smokejumper unit at Fairbanks, Alaska, in June 1959. For the first season, the men will all be experienced smokejumpers, recruited from the various Forest Service units and given refresher training at Missoula. Assuming continuation of other units on the 1958 scale, the roster of smokejumper crews will shape up about as follows for the summer of 1959:

AGENCY	BASE	NUMBER	REMARKS
Forest Service			
Region 1	Missoula, Montana	129	4 financed by Glacier Park
	Grangeville, Idaho	16	Subbased from Missoula
Region 3	Silver City, New Mexico	(24)	Early season - detailed from other units
Region 4	McCall, Idaho	70	
	Idaho City, Idaho	20	
Region 5	Redding, California	26	
Region 6	Winthrop, Washington	40	
	Cave Junction, Oregon	30	
Yellowstone Park	West Yellowstone	5	Train at Missoula
Bureau of Land Mgmt. U.S. Dept. of Interior	Fairbanks, Alaska	17	Train at Missoula
Saskatchewan	Lac LaRonge	16	Headquarters at Prince Albert
Total		369	

REGION ONE FOREST FIRE STATISTICS

Year	Class A	Class B	Class C+	Total	Light-ning	Man-caused	Acres NF area burned	Acres burned in protection boundary
1908	451	113	115	679	131	548	20,115	20,115
1909	910	137	125	1,172	83	1,089	17,545	22,392
1910	987	153	442	1,582	221	1,361	2,573,172	2,725,796
1911	206	76	106	388	111	277	5,271	6,920
1912	172	66	29	267	67	200	889	2,974
1913	279	130	98	507	92	415	2,584	3,090
1914	1,012	536	363	1,911	714	1,197	99,727	114,433
1915	670	262	105	1,037	634	403	14,480	16,872
1916	410	128	57	595	311	284	8,915	9,133
1917	766	462	391	1,619	222	1,397	135,148	171,907
1918	604	332	238	1,174	569	605	44,408	58,067
1919	910	740	608	2,258	885	1,373	1,329,276	1,514,554
1920	1,092	477	147	1,716	1,281	435	47,069	56,199
1921	820	327	189	1,336	419	917	22,922	33,280
1922	782	316	107	1,205	637	568	27,182	47,642
1923	503	106	42	651	428	223	13,953	16,699
1924	785	401	166	1,352	691	661	33,172	51,576
1925	1,082	367	107	1,556	1,242	314	53,386	65,911
1926	805	295	207	1,307	978	329	340,791	439,026
1927	910	127	21	1,058	885	173	1,389	1,389
1928	839	209	73	1,121	791	330	33,838	47,819
1929	1,222	490	237	1,949	1,272	677	241,516	321,615
1930	1,306	233	52	1,591	1,236	355	7,807	9,907
1931	1,099	290	141	1,530	947	583	129,460	161,028
1932	971	173	64	1,207	803	405	8,891	14,067
1933	752	189	52	993	654	339	8,866	11,559
1934	882	258	107	1,247	813	434	318,993	344,772
1935	1,157	181	60	1,398	958	440	8,748	14,492
1936	1,435	234	73	1,742	1,353	389	41,028	48,386
1937	1,328	188	43	1,559	1,155	404	2,774	4,321
1938	1,258	145	29	1,432	1,140	292	2,144	2,997
1939	1,456	292	83	1,831	1,373	458	34,082	42,323
1940	2,698	699	198	3,595	3,109	486	35,714	45,674
1941	1,201	107	22	1,330	1,196	134	659	1,059
1942	820	177	48	1,045	867	178	1,619	4,416
1943	596	184	48	828	538	290	2,397	5,450
1944	1,156	249	74	1,479	1,227	252	6,779	13,163
1945	823	302	107	1,232	912	320	25,412	35,913
1946	1,223	280	51	1,554	1,314	240	5,131	9,805
1947	1,265	255	39	1,559	1,321	238	1,854	3,630
1948	322	47	7	376	270	106	2,306	2,408
1949	1,287	292	52	1,631	1,346	285	7,729	10,295
1950	554	96	16	666	529	137	315	1,130
1951	746	156	32	934	776	158	731	2,145
1952	755	202	30	987	630	357	2,101	4,583
1953	1,265	449	87	1,801	1,357	444	8,528	11,569
1954	608	109	14	731	580	151	624	1,009
1955	659	127	19	805	619	186	2,267	2,521
1956	924	172	39	1,135	930	205	2,456	3,616
1957	800	195	19	1,014	755	259	2,051	2,607
1958	1,067	209	41	1,317	1,069	248	3,346	5,197
1959	630	163	30	823	567	256	1,425	1,992