WE ALSO HAVE CLIMATE

The following ditty by John Gill, trail builder on the Hahn's Peak District, is descriptive of most of it:

We were crowded in the bunkhouse -
Not a soul did dare to sleep.
'Twas midnight up at Three Forks,
And the snow was six feet deep.

It's a terrible thing in that land
To be caught in such a storm,
You're forty miles from nowhere
And no way to give alarm.

When the storm was over
And the sun began to shine.
We scooped the snow off the cattle
And they were looking fine.

We lifted our arms to Heaven
And said, "Thank God for just one thing:
Today's the Fourth of July;
It can't be long 'til spring.

#  #  #
Tramp Loggers and Skid Road Fire Fighters in Western Forests to 1925

By Mark Wyman, Illinois State University
[Presented at Western History Association, Ft. Worth, Oct. 11, 2003]

A. Fire-fighters battling the northern Rockies blazes in the summer of 1919 drew sharply contrasting comments from observers. One Forest Service officer lamented that “too little attention” had been given to hiring, “and as a result a number of cripples were sent” to the fire line, as well as many others “who were poorly shod and not used to walking or working.” Another claimed that on the Nez Perce National Forest, among new hires was a dope fiend, a man “with a bad venereal disease,” and another with “a bad rupture.” After such experiences, a Forest Service officer working on the Flathead Reservation fires stated bluntly: “hobos, or tramps, should not be engaged for this class of work . . . .”

But others saw something else in the crews put together so rapidly in 1919. A Spokane newspaperman who visited Northern Idaho’s Bear Creek fire found that the fire-fighters—many signed up along Spokane’s “skid road” section—were “not raw recruits, as a rule, for they are drawn from the ranks of unemployed lumber-jacks and other woodsmen.” They were “practical fire fighters.” Lumberjacks and miners working on the fireline won praise from another Forest Service observer, who said such “hardened to work” veterans were preferred by foremen to “the city riff-raff.”

In fact, crews fighting those 1919 fires, as in the earlier 1910 blowup and in other blazes across the Northern Rockies during those years, were drawn heavily from logging camps and railroad construction projects, but especially from that traveling working class known then as Hobos.

The label of hoboes in that era was generally applied to men who traveled from job to job—a separate group from tramps, who traveled while avoiding work, and quite distinct from bums, who never worked. One historian defines a hobo as a migratory worker, the tramp as a migratory nonworker, and the bum as a nonmigratory nonworker. A contemporary said there are hobos “who work and wander, the tramps who dream and wander, the bums who drink and wander.” Today I will focus on two groups of hoboes whose contributions to the West have been little noted, the “tramp loggers” (as they were called) and fire-fighting hoboes.

B. Hoboes emerged from Western conditions. Ex-hobo-turned sociologist Nels Anderson linked them to a “second American frontier,” a frontier moving westward some twenty years after the first, linked to the railroads’ rush to exploit the region’s natural resources. This push by capitalism into the West required an “immense reserve labor force,” as one federal investigator wrote of California, creating a migratory class of labor “because there must be.” Hoboes were “essential under the present organization of industry on a seasonal, irregular basis,” another investigator stated.

The railroad gave birth to these new Western enterprises that arose in what was essentially a labor desert. In Nels Anderson’s words, “They worked in places where no labor supply existed. . . . The frontier needed that labor force of mobile men who were versatile, who would move when not needed.” After his work with casual labor, Carleton Parker concluded, “The terms ‘hobo miner,’ ‘hobo lumberjack,’ [and] ‘the blanket stiff’ are familiar and necessary in accurate description of Western labor conditions.”

Hoboes usually “beat their way” around the West, that is, they caught rides on trains without paying. The expression was common then: The Kansas Supreme Court in 1891 discussed the case of a hobo who entered a boxcar “to beat his way over the road.” Similarly, a Northern Pacific special agent in 1916 arrested four men who were “beating their way on train No. 1.” That was near Livingston, Montana, where four years later the jailkeeper registered a new occupant one day, “Ed Hummel beating his way on No. 4.”
Wyman: Tramp Loggers

C. Those beating their way West were different, a worker argued in a letter to a newspaper in 1910: “In this western country the conditions differ a great deal from those of the east. A majority of the workers in this part of the country do not know what a home is. The only home most of us have is the roll of blankets which we carry on our backs. In ninety-five cases out of one hundred he is single and his work often compels him to travel often as far as three hundred miles in search of employment, while in the east a majority of the workers are married and therefore not transients.”

He cautioned, “We must look at the worker from a different point of view here west of the Rockies.”17

Coming from all nationalities and races, these men were alike in being drifters, not connected to jobs or families. A man who joined the “floating army” from 1914 to 1928 recalled this:

“When I left home I started drifting. I thumbed a ride out of the logging camp in Washington that was then home, climbed into a boxcar first town on the railroad I came to, walked five or six miles after I climbed off the boxcar, washed dishes for a meal, and slept that night in someone’s empty barn somewhere in the middle of Idaho. I didn’t exactly know it then, but I had entered the great world of hobo America.”18

It was a rootless life, difficult for historians to follow. We usually only get glimpses, such as that provided in an 1891 coroner’s inquest in Spokane, over the body of a man identified only as “Finn.” No one seemed to know much about him—not the owner of a lunch stand where he had worked, and surprisingly not the manager of the lodging house where Finn had stayed, who didn’t know his full name:

Q. “Is that your way of doing business?”
A. “Yes that is the way I do business; if a man wants to register I take his name but if he don’t, it is all right, any how, I don’t make it any of my business.” . . .
Q. “Do not all hotels keep a register?”
A. “This is not a hotel; it is only a Furnished Rooms House, with Rooms to let by the Day, Week or Month or Year.”

It was the same with a man who had known Finn for two and a half years:

A. “No, I don’t know if he has any relatives; I never heard him say so.”
Q. “Where did you meet him?”
A. “When he came back from the work on the construction of the new road, from the neighborhood of Moscow, Idaho.”

They finally found a woman who knew him, and she seemed to be the only person in Spokane who had much information on the man she called “a good friend of mine.” His name, she reported, was Zackery Finn. He was a Norwegian, 42 years old, with a sister back in Iowa. He had no property, and was “very much of a gentleman, as far as I know.” They asked her what was her occupation: “I am a sporting woman.” 19

D. The Western tramp logger came from this drifting, rootless army. One old-timer looking back on his years in northern Idaho’s Clearwater forests said the northern Rockies’ “short-log country” was cut almost entirely by what he called “tramp lumberjacks.” Michigan Bill Stowell, interviewed in 1976 by Samuel Schrager, remembered loggers “galloping” from Montana and Idaho to the coast and back, often not staying in one camp over ten days.20 The 1910 Census, in fact, showed that 90 percent of the workers in West Coast lumbering were single males.21 Such journeying lumberjacks were welcomed by men in their new locations, according to another old timer, “because they brought news and gossip,” as well as explaining new machinery they had worked with.22
Wyman:Tramp Loggers

And so turnover rates became ferocious in the West’s logging camps. One veteran logger said he had worked in thirty-eight different logging camps before he was twenty years old—starting as a “whistle punk,” then as a choker setter putting chains around the big logs, bucking up timber for a wood-burning steam donkey, then serving with logging railroad crews, and on to other jobs in the big woods.23 The average lumber camp worker in California in 1914 stayed only from 15 to 30 days, Carleton Parker found.24 A 1917-18 survey of thirty-nine Pacific Northwest logging camps put turnover at 660 per cent a year; six years later another study reported a turnover rate for the West Coast lumber industry as a whole at 500 per cent annually.25

But other facts of life in Western logging also affected the turnover rate. Sharp swings in the price of timber—as much as 50 per cent during a single year26—meant that men were often thrown out of work even if they preferred to stick around. Logging camps employing some 3,000 men in Washington’s Grays Harbor shut down for thirty-seven days in July 1910 because of a surplus of logs.27 Fire danger could also force a shutdown.28

Or perhaps conditions on the job caused the “disruptively high rates of labor turnover,” as one historian termed them.29 Steam power—with the aptly-named “steam donkey” and logging railroads—opened up the West’s interior after the 1890s, with chains, cables, extensive flumes, and eventually “high-lead” systems that swung logs through the air from spar poles.30 “Highball logging” became king, especially in the long-log operations in the coastal states. Cables could snap, tongs work loose, flatcars spill; and as always, falling trees could carom off others. Michigan Bill Stowell admitted that he began to avoid the Coast’s logging camps because of highballing, preferring to work instead in the short-log country where river drives were still used and the dangers seemed less life-threatening.31

That many of the victims of highball logging were hoboes is unquestioned. Death reports tell of victims whose “friends are unknown . . .” “He was practically unknown in the camp where he was at work . . .”32 Their homes and homelands, like their next of kin and often their very names, remained mysteries to authorities.

Sensing a cause and effect between logging’s high turnover and its high accident rates, a company spokesman in 1910 lamented the industry’s tradition of three crews—one leaving, one arriving, one working—and claimed that this “constant shifting of men is responsible for innumerable accidents, caused by unfamiliarity with the work . . . .”33

But living conditions may also have encouraged the three-crew tradition in logging. In 1918, a presidential commission probing the region’s labor unrest pointed its finger especially at “the unlivable condition” of many logging camps in an industry “still determined by pioneer conditions of life.”34 An old-time logger recalled the 1890s when men slept in three-deck bunks stuffed with straw, their pillow a gunny sack filled with straw with their mackinaw laid on top. “No baths,” he said, unless the employee “availed himself of a river or lake . . . .” And “In all except the longest days in summer, men carried lanterns to get back and forth to work.”35 Another old-timer told of “crowded bunkhouses, . . . dirty straw, vermin, wet clothes steaming and stinking about the central stove, men rigging together without ventilation, privacy, or means of cleanliness. . . .”36 The 1914 lumber camp investigations in California classified toilets in 42 per cent of them as “filthy.”37 Small wonder that the Spokane rescue mission required incoming residents to place all their clothing in an oven set at 300 degrees.38

In his famous 1920 article on “The Casual of the Woods,” Rexford Tugwell called the lumber camp community “a sad travesty at best,” its unlighted and unventilated bunkhouses filled with “sweaty, steamy odors” that would “assassinate the uninitiated.” Any veteran of such conditions could be seen plodding along a Northwest road with his bindle, Tugwell explained, his eyes “dull and reddened; his joints are stiff with the rheumatism almost universal in the wettest climate in the world; his teeth are rotting; he is racked with strange diseases and tortured by unrealized dreams that haunt his soul.”39

E. These men were part of the labor pool not only for logging, threshing crews, and apple picking, but also for fire-fighting.
Wyman: Tramp Loggers

Hoboies formed an important part—perhaps the majority in some cases—of the crews that battled the massive blowups of 1910 and 1919 in the Northern Rockies.

In 1910, high winds off the Eastern Washington Palouse came at the climax of a severe dry spell, and those blasts on August 20 whipped thousands of little fires in northern Idaho and western Montana into a holocaust known as the “big blowup.” Eventually the areas burned in national forests alone that summer of 1910 equaled the size of New Jersey.40

The region’s inhabitants had seen fires before but never like this. One homesteader escaping with his wife from Big Creek in the Coeur d’Alenes told a reporter that the conflagration threw giant trees into the air “like a feather,” while it “traveled as fast as any train that he ever saw and that as far as noise went, he believed that if all the battleships in the world were gathered together in the path of it and fired their guns at one time, the report would not have been heard above the terrible roar of the fires.” To fight such fires, the homesteader concluded, was “an absolute impossibility.”41

Challenging this impossibility, from the Montana Flathead District came a report that had parallels throughout the region: “Every man possible is being sought here today for duty on the fire line.”42 Railroad, logging, and mining companies and even the military dispatched firefighters,43 and the mayor of Wallace, Idaho, threatened imprisonment for any man refusing to help protect the town.44

Hoboies were abundant, of course, within the logging, mining, and railroad crews thrown into action, but increasingly the Forest Service began hunting men along the skidroad sections of railroad towns. As Lolo Forest Supervisor Elers Koch later reported, “Men were shipped from Missoula, Spokane, and Butte, until the supply of floating labor was exhausted.” Most of the firefighters were transients, he said, “unknown even to each other . . .”45 The Spokane Rescue Mission provided 125 men.46

A newly-arrived crew which had been supplied with only two bedrolls spent their first night sitting around a big campfire “talking mostly about the relative merits of the different jails they had been in.”47 The time card from a crew working out of Avery, Idaho—center of the 1910 blowup—recorded a dozen Japanese employees recruited from a Milwaukee Road construction gang, all of whom worked twelve hours every day without exception. The non-Japanese fire fighters listed on the card, however, worked variously from ten- to fourteen-hour days, with several of their names marked simply “quit” or “fired”. Some quit before they had any hours recorded, others quit after one day, and one left after four consecutive sixteen-hour days on the fire line.48

Snows and rains suddenly blessed the region on the 23rd of August, the beginning of the end for the big blowup of 1910.

One early count put the death toll in 1910 at seventy-eight, although more recently Avery historian Wade Bilbrey has put the total at ninety-one, including residents of the area.49 Many left no record of family or home, while some names were found to be fictitious. Only 29 had enough identification for their remains and wages to be delivered promptly to next of kin. Tracing went on for years, across America and Europe. The searchers’ dedication, historian Stephen Pyne concluded, may have originated in their belief that in the end, these “polygot mobs, mocked and maligned, bore the brunt of the fires.”50

Elers Koch noted that few “had a cent in their pockets when they came on a fire, nor did most of them have any permanent address to which a check could be sent.” Some of those who had put in long days on the fire lines had trouble getting paid.51

Nine years later, the massive forest fires in the region in 1919 paralleled the 1910 blowup in most ways, including tapping “floating labor.”52

But 1919 was different in one major way: it was a new political environment. The Industrial Workers of the World was at full strength, especially in the woods. One ranger recalled his confrontation with a crew that demanded “fourteen hours’ pay for twelve hours’ work,” which he finally agreed to, to avoid their wholesale abandonment of the fire line.53

For the years straddling World War I marked the high point for the IWW (or “Wobblies”), condemned by many as unpatriotic because of their bitter opposition to American involvement in the Great War, and attacked also for wartime strikes in Northwest forests. By 1919 IWW members were
Wyman: Tramp Loggers

proud of having stood up to the timber barons and the super-patriots: hadn’t they just won major improvements—finally—in logging camp conditions? For after a bitter two-month strike in 1917 by some 50,000 lumber workers, followed by an effective work slowdown, the government created the Loyal Legion of Loggers and Lumbermen as a wartime measure requiring participation by both loggers and employers, quickly bringing major improvements in camp conditions as well as the eight-hour day. 54

Carleton Parker knew the IWW well and called it “an organization of itinerants,” whose appeal was “the most alluring of the voices that offer a way out” for hoboes. 55 But as a later Forest Service report noted, “the IWW were gaining a bad name.” 56

This was evident when the sheriff of Wallace, Idaho, arrested several dozen men in 1917 and 1918 under the simple charge of “I.W.W.”, and his jail register occasionally listed such extra charges as “defaming flag and country,” or “talking against the government” in these arrests. 57

Through it all the IWW became champions of the tramp loggers. One ranger discussing crew work in the 1919 fires wrote that “Membership in the I.W.W. is almost universal.” He charged that Wobblies on the fire lines were “unreasonable, they have no patriotic motives and look at the proposition from a strictly commercial standpoint.” 58 Another ranger encountered a fire crew led by an able IWW foreman who required every firefighter to carry the organization’s red card. “He apparently handles men well,” the ranger admitted, although noting the IWW foreman tended to overpay his crew—writing down 24 hours work a day in the time book for some men, for several days in succession. 59 Thereafter, the Forest Service kept a sharper watch out for “agitators.” 60 But the I.W.W. had defenders. An assistant district forester told President Wilson’s Mediation Commission that while some men were discharged for inefficiency, “we had not a single case of sympathetic strike on the part of avowed I.W.W. in such cases. . . .” 61

Another Montana forester told the commission, “When we needed men [for fire fighting] we often sent our agent directly to the I.W.W. headquarters . . .” A Forest Service engineer reported that his entire crew was I.W.W. members, most of them “really good workers.” His best foreman was a Wobbl.

Of course, there were some problems in 1919. But in one case, the cause of the difficulty was the fact that a fire crew’s efforts were basically protecting the adjacent tract of forest owned by an unpopular logging company. After first refusing to man those fire lines, the Wobblies’ spokesman told the engineer: “We’ll go if you take charge of the crew, but not if any man from the company is made foreman.”

Defending public property was different. A district forester told the President’s Commission, “I spoke to many I.W.W. during the summer and I found that they all looked upon Government timber as property in which they had a certain proprietary interest and they were interested in protecting Government timber because they believed that their own future livelihood was tied up in that.” He knew tramp loggers well, and cautioned the Commission that “a great number of the working men in the lumber industry in this locality belong to the I.W.W.” The real target of their recent strikes he added, had been “conditions which a great many people admit were bad and must be remedied.”

F. Lookout towers, fire trails, new equipment and roads through the mountains began to appear in the West’s national forests in the Twenties, while logging camp conditions generally improved. These paralleled other changes that effectively marked the close not only of the Second Western Frontier but also of that era of the hobo. The automobile and rising Western populations removed the labor desert from the region’s employment map. When the hobo reappeared later in the Great Depression he was a different person, driven by other conditions, operating in a vastly-changed environment. 62

So it is time to reconsider the hobo. Not just a lonely character appearing in folksongs and tales, but as ex-hobo Nels Anderson described him, “One of the heroic figures of the frontier”—building railroads, harvesting wheat, picking fruit, and especially providing labor as tramp loggers and skid road firefighters across the West. 63
Tramp Loggers and Skid Road Fire Fighters
in Western Forests to 1925

ENDNOTES

1 B.W. Clark, “Memorandum for the district Forester,” USFS, Missoula, Mont., Oct. 9, 1919. [All 1919 U.S.F.S. records are from District I Archives, Missoula.]


11 Anderson, On Hobos and Homelessness, 9, 29.


13 Parker, Casual Laborer, 121.

14 Hendryx v. The Kansas City, Fort Scott & Gulf Railroad Company, 45 Kansas Reports 377-80.

15 Northern Pacific Collection, Special Agent Registers, VI, case 19844 (May 17, 1916). Minnesota Historical Society.

16 Livingston, Mont., Police Department, Docket Book III (July 4, 1919 – June 1, 1923), Oct. 19, 1920.


19 Spokane County Medical Examiner, Coroner’s Inquest, Feb. 1, 1891, Death of Zachery Finn. (Copy in Washington State Archives – Eastern Region, Cheney, Wash.) Accession 001-0558, Box 1.


23 William D. Hagenstein, interviewed by Elwood Maunder, 1960; provided by Forest History Society.

24 Parker, Casual Laborer, 79.


27 Spokane Inland Herald, July 6, 1910, 1.

28 Spokane Inland Herald, July 31, 1910, 3.


Wyman: Tramp Loggers

34 President’s Mediation Commission, *Report . . . to the President of the United States, in Department of Labor, Reports . . . 1918* (Washington: GPO, 1919), 22.
37 Parker, *Casual Laborer,* 74-75
38 Spokane *Press,* April 2, 1910, 1.
40 Pyne, *Year of the Fires,* 201.
41 Coeur d’Alene *Evening Press,* Aug. 23, 1910, 1, 4.
42 Spokane *Press,* July 13, 1910, 2; July 19, 1910, 2.
43 Spokane *Inland Herald,* July 20, 1910, p. 10; cf. July 9, 1910, 2; July 21, 1910, 2;
45 Elers Koch, “History of the 1910 Forest Fires in Idaho and Western Montana,” USFS District I Archives, Missoula, 2, 10.
46 Spokane *Spokesman-Review,* July 20, 1910, 10.
47 Elers Koch quoted in Pyne, *Year of the Fires,* 85.
51 Elers Koch quoted in Pyne, *Year of the Fires,* 101. Also see Spokane *Press,* Aug. 25, 1910, 2; Aug. 27, 1910, 2; Aug. 30, 1910, 1.
57 Shoshone County Jail Register, 1917-1965, Wallace, Idaho; entries for 1917 through 1924.
61 Information in this and the following two paragraphs is taken from Papers of the President’s Mediation Commission, 1917-1918, “Statements of U.S. Forest Service Supervisors Expressing Satisfaction With IWW Labor Performance in Montana” [Research Collections on Labor Studies, University Publications of America, 1985, microfilm owned by Winona State University, Winona, Minnesota]. Statements by Major F. A. Fenn, Mr. Rutledge, J. W. Girard.
Feb. '99 in Corvallis (OSU book store), Jim Furness, supvr of Siuslaw Nat'l Forest, told me that when Dale Gorman was supvr of the Lewis & Clark NF, he kept a copy on his desk and made it required reading for everyone new arrival to his staff.
Rufus Robinson  
Lenore, Idaho

Dear Mr. Robinson,

I've been gathering information about the early days of smokejumping; I'm a free lance writer, and will be doing articles about smokejumping for a couple of newspapers here in western Washington. This weekend I'm going to tape an interview with Francis Lufkin at the smokejumper base at Winthrop, Wash. And recently I wrote to Earl Cooley in Missoula to ask him a few questions. Earl mentioned that you also were in the first group of smokejumpers. Would you mind answering the same few questions Earl did? This is the sort of historical material which slips away unless someone stops to put it down.

--When and where did you make your first jump? What training did you have beforehand? Do you recall what type of airplane you jumped from, and what equipment you carried? Were there any particular problems in your first jumps?

Sorry to impose on your time and attention this way. But going to people such as you and Earl Cooley is the only way to preserve first-hand history.

Regards
March 16, '70

Ivan Doig

Dear Mr. Robinson —

Many thanks for your letter about the early days of smokejumping. It and the photos are very helpful. I'll return you photos to you within the next week or two, and will pass along an article I've written about early smokejumping when it's published in early summer.

Many, many thanks.

Ivan Doig  
1500h. Limien Ave N.  
Seattle, Wash. 98133
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Lenore, Idaho

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Ivan Doig
1500th Linien Ave N.
Seattle, Wash. 98133
of campaign financing, was the main political prize available at the
time. McGill began to wrest the printing contract from the legis-
lature during his term as acting governor. The contest continued
through Turney's term as secretary, and his successor, Elwood Evans,
in April, 1863, secured for his office the right to select the
public printer. For this and other reasons, Gov. Pickering generally
was at odds with his territorial secretary. It was in the context
of this internal feuding that McGilvra and other staunch Republicans
had to feel their way in territorial politics.

McGILVRA IN OFFICE

McGilvra and his family first lived in Olympia. In 1862,
he had to spend the spring and summer in eastern Washington attending
court terms. McGilvra, his wife, and the children, Floyd and
Caroline, followed the district court circuit as far east as
Lewistón, which at the time was in Washington Territory. Late in
1862 the McGilvras made a home in Vancouver. Evidently Mrs. McGilvra
stayed there with the children while McGilvra traveled on court
business and on a trip to Washington, D.C., in the winter of 1863-
64. The McGilvras lived in Vancouver about a year and a half, and
then moved to Seattle. In August, 1864, McGilvra informed his
superior, the Solicitor of the Treasury, that Seattle was his new
address. (JMJ report to Solicitor of the Treasury, Aug. 11, 1864, MP)

McGilvra's letters to the Solicitor of the Treasury sometimes
mentioned the lack of facilities for his office, but the surviving
records are not complete enough to give a detailed picture of his
Ivan Doig

Dear Sir,

I made my first jump during the summer of 1940 at McChord Field, Wash.

Our instructor showed us how to climb the parachute and how to sit it backwards and forwards.

We also practiced letting ourselves down from a hole on a rope. We carried 100' of rope in a pocket of the jump suit in case we were hung in a tree and could come down on the rope.

We had a canvas jump suit with padding and baseball masks to protect our face and hands.
as I recall we used a trailer plane.

The only problem I had was on my second jump. I went out head first and the parachute was tangled in my feet. I fell about 500’ before the chute came loose and opened up.

One of the rigger's stroked some skin of my face.

We used Eagle chutes a 30’, back pack, and a 27’ chest pack.

We had some trouble getting out of the door until there was a step mounted outside and below the door.

Enclosed picture shows step

Rufus Robinson
Gisborne album #4—logging slash flammability project, 1952-60

"Although lodgepole pine weathered and changed appearance over the 5-year period, it produced the hottest, most rapid spreading fire of any of the 5-year species tested."

(pics show dry, bonelike branches)
Gisborne
33-2, Nov. 13 '40 memo go Gis:

p. 2—One does not have to "ramble" about among fire men very long to learn that many, many of them are prone to think of fire in exaggerated terms. Then too, many district men consciously or unconsciously attempt to convey the impression that THEIR fire load was larger and more critical than someone else's.

tfoot: ...I believe that exaggerated thinking in regard to fire is at least partially a response of emotional stress. I've learned that as a rule the best fire overhead do not exaggerate conditions. They understand fire reasonably well and are not unduly affected by the excitement and complexities that go with it.
Stan Cohen, A Pictorial History of Smokejumping (1983) - many good pics
p. 44 - during WWII, Civilian Public Service Program was est. by Brethren, Mennonite and Quaker faiths for COs. 1943, CPS Smokejumper Program began. 62 men trained at Seeley Lake.
"During the height of the 1944 and 1945 fire seasons, these men were housed at the Priess Hotel on Higgins Avenue in Missoula and a parachute loft was established in the Park Hotel across from the NP Railroad Station. Crews were taken to Hale Field, the current site of Sentinel High School, for loading aboard Johnson Flying Service aircraft...." (Phil Stanley, photofinisher in Missoula, provided pics for this ch.)

Hale Field was adjacent to Missoula County fairgrounds; Johnson Flying Service moved to county airport in '54. Pics of guys packing chutes in parachute loft at Hale Field in '49.

p. 54+: CPS program ended with WWII "and a new crop of jumpers had to be recruited and trained. Most of the new men were ex-servicemen. However, a few were college students.... "The National Park Service provided funds for jumpers to be available on call for fires in both Glacier and Yellowstone parks.... A DC-3 was purchased by Johnson Flying Service which made it possible to fly larger crews to fires. 1945 was a critical fire year and more fires were jumped on than 1945."

1948, "Flooding took up most of the jumpers' time... rather than fighting fires."
Gisborne scrapbook, fire research 1922-40

Aug. 29 '39--

Missoula Sentinel: Gisborne reports on Idaho fire danger:

While vegetation is still green in appearance at elevations above 4000 feet, the absence of rain since early July has resulted in extremely dry dead fuels, such as snags, branchwood and duff. Consequently, when a fire starts in these materials, the heat liberated is sufficient to consume the green weeds and shrubs.
from Pete Steen in Santa Cruz, Dec. 18,'76:
When Pete was with PNW Station, Jerry Franklin had rep'n as rebel in the ranks, so much so Pete didn't think he could last. Story was that when a forest supvr (?) was trying to hurry roadbuilding into wilderness to beat envmtl classification, Fkln got hold of envtlsts, took them out and pointed out the road-bldg stakes.

also from Pete: he finds the timber industry ass'ns react to Jack Shepherd's The Timber Killers as vehemently as Forest Service et al did to Silent Spring -- and again, largely without having read it. He was in office of some industry honcho as the guy tried to track down hostile review of Timber Killers he'd heard about -- was surprised to find Pete had read the book.

also from Pete: he pointed out that when worked in a ranger district on the Snoqlmie (?), allowable cut did not decrease even if area like Alpine Lakes was reserved from cutting. Since budget of the district -- if you wanted a new pickup, say -- hinged on how much cut you could get out, pressure was always to cut, not conserve.
Dear Mr. Engles—

Please excuse a letter from out of the blue, but the information office of the Mt. Baker-Snoqualmie National Forest suggested that you might be able to help me with a bit of history I need for a book I'm writing.

What I need to know is this: the annual salary of a district ranger in the years 1933, 1934, 1935, and then 1939. I'm trying to describe the wage situation of a ranger during the Depression, and in looking at the files of a forest fire researcher named Harry Gisborne at the U. of Montana recently, I saw that he noted a 15% cut in his salary in 1934-5: 5% as of Jan. 1, 1934, another 5% as of July 1, and the final 5% "March or April" of 1935. But Gisborne's own salary—he was doing research at the Priest River experimental forest much of his career—was not that of a district ranger, so his actual salary figures didn't help me. So: can you tell me, from your own experience and records, what a ranger made in those years?

I might explain that the book I'm writing is a novel about a forest ranger and his family in my home area of northern Montana during the Depression. I've written a previous Montana book, This House of Sky, which was nominated for a National Book Award, and my book about the Olympic Peninsula pioneer James Swan, Winter Brothers, was made into a Channel 9 tv show last fall.

Sorry to bother you with this question, but the only way I can be accurate is to ask somebody who knows.

best regards
14 April '83

Dear Mr. Eagles--

Thanks immensely for providing the 1930's salary figures I asked you about. They help me a great deal.

best wishes
In reply to your letter of April 6, 1923:

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Salary</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1933</td>
<td>2500.00 - Basin</td>
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<td>1934</td>
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<tr>
<td>1936</td>
<td>2500 to 2700.00</td>
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Note: Below are average basic salary for District Ranger Articles:

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Salary</th>
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<tbody>
<tr>
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<td>1934</td>
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<td>1935</td>
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<td>1936</td>
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Annual salary increase in 1935 due to a bar average work load on May 1. 1935 due to opening of Beaverhead Lodge.

Annual salary increase in 1934 due to a bar average work load on May 1. 1934 due to opening of Beaverhead Lodge.

I recall the 15% reduction in salary due to depression but remember if as being effective at 10% and believing it was restored in about 1936.

I trust this may be of assistance to you.

It is possible that this region, Oregon and Washington had a higher salary rate due to the higher rate of timber sales as was involved in.

W. J. Thompson

Attention: Ira Brown
6 April '83

Dear Mr. McCullough—

Please excuse a letter from out of the blue, but the information office of the Mt. Baker-Snoqualmie National Forest suggested that you might be able to help me a bit of history I need for a book I'm writing.

What I need to know is this: the annual salary of a district ranger in the years 1933, 1934, 1935 and then 1939. I'm trying to describe the wage situation of a ranger during the Depression, and in looking at the files of a forest fire researcher named Harry Gisborne at the U. of Montana recently, I saw that he noted a 15% cut in his salary in 1934-5; 5% as of Jan. 1, 1934, another 5% as of July 1, and the final 5% "March or April" of 1935. But Gisborne's salary—he was doing research at the Priest River experimental forest much of the time—was not that of a district ranger, so his actual salary figures didn't help me. So: can you tell me, from your own experience and records, what a ranger made in those years?

I might explain that the book I'm writing is about a forest ranger and his family in my home area of northern Montana during the Depression. I've written a previous Montana book, This House of Sky, which was nominated for a National Book Award, and my book about the Olympic Peninsula pioneer James Swan, Winter Brothers, was made into a Channel 9 TV show last fall.

Sorry to bother you with this question, but the only way I can be accurate is to ask somebody who knows.

best regards
On the morning of August 22, some 14 hours after the plane carrying Dick Johnson and Clarence Sutliff had crashed, I visited the scene of the accident and interviewed those who had taken part in the rescue work. The circumstances surrounding this accident and the unusual exhibition of courage shown by the participants constitutes a high light in the region's fire control history.

Roaring Lion Canyon, the site of the accident, well deserves its name. It is a ditch, some eleven miles long and a mile deep. The canyon walls are jagged, granite cliffs, extending from the narrow canyon floor to bristling crags a mile high. The gradient of the canyon bottom is so steep that the creek is one cataract from end to end. At intervals the canyon narrows between precipitous walls, forming gateways perhaps a thousand feet deep and a little wider. It was just above such a gateway that Sutliff had selected the new camp site.

Upon approaching the site and flying between the rock walls to avoid the smoke column which roofed the canyon, Dick Johnson, star pilot of the Forest Patrol, and Clarence Sutliff in charge of fire control on the Bitterroot Forest, found that the fire had moved down canyon and was crowning furiously. Flames and billowing smoke and gases filled the valley amphitheatre where the camp site was located. Fire shut off the upper canyon, forcing the plane to turn quickly for a retreat. At that moment, the ship was in one of those canyon gateways—a narrow, or in terms of sea navigation, a strait. The ship was banked steeply to miss the near canyon wall and the fire. It had some 500 to 1,000 feet of air between its wheels and the tree tops. Horizontal space for the turn was ample but none to spare. Full power on the 330 horse-motor had many times before taken this ship out of such predicaments. When the turn was half completed and the ship had reached a point nearest the fire, a terrific rush of down draft struck the ship, pushing it straight down with four times the speed of an elevator. So great was this crushing influence that downward movement nearly equaled forward speed. As the plane settled, its circular course brought it nearer the steeply-rising canyon slope.

The down draft was caused by two influences. The canyon gateway terminated on each side in a high peak, beyond which lay deep saddles. These saddles acted as sheers or funnels through which poured the prevailing wind, cooled by its movement over the high Bitterroots and rushing to lower elevations. The second influence was the terrific updraft caused by the inferno on the canyon floor. As the fire boosted millions of cubic yards of hot air skyward, more air was sucked downward through the saddles in ridges alongside and ahead. Combined, these made a down draft seldom witnessed by man.
The moment the ship was engulfed in this earthward current, the pilot shouted to Sutliff to move back to help lower the tail. Fractions of a second later, as wings and treetops raced closer together, Dick called, "We're gonna hit!" Sutliff braced himself for the shock by jerking himself between two bundles of sleeping bags. A tip of a tree snapped like a rifle shot as the right wing met its first obstacle. Then a higher tree at the top of a rockslide caught the same wing. Dick had reached for the switch - all went black as he touched the key. The shock of the heavy wing against the solid tree trunk threw his head against the side of the ship and he was "out".

The wing was sheared. The heavy ship plummeted forward at 100 miles an hour, spinning clockwise like a rifle bullet. Its nose plowed into the pile of boulders which made up the hillside. The impact telescoped the ship from nose to behind the pilot's compartment. The spinning motion added a twist which, under momentum of the heavily-loaded cargo compartment, wrenched the fore part of the ship one-half way around. Pieces of motor, cowling, and even the tail settled over an area of half an acre. The twisted mass of wreckage rolled down the boulder slide until the stub of the left wing caught in a crevice and held.

Underneath a pile of beds, canned foods, and tools, Sutliff opened his eyes and wondered what had happened. Consciousness returned and gradually he rationalized that he was imprisoned inside a steel cage, dripping with gasoline immediately in front of a running crown fire. Escape from this prison was difficult. The ship was crushed and upside down - his right foot pinned, and his whole body numb. After a struggle the foot was losened, badly damaged, and nearly useless. At this point he could hear gasoline gurgling from mashed tanks. Oil dripping on the hot motor sizzled and crackled and the rolling billows of black smoke overhead, coupled with reflections from the fire, threw flickering shadows through the ripped cabin. It all spelled "fire". At any moment a spark from the crown fire or a burst of flame from the hot motor might ignite the gasoline-drenched wreckage.

There was no hole through which to escape. With bare hands and whatever implements were handy, he tore a hole through the ship's side and wormed his way out - dropping onto a mass of boulders. Outside the sight was more hideous - the fire was coming fast. Foot travel at best would be slow through the cliffs to the canyon bottom, some distance below. If he reached the bottom before the fire did, he would have to outrun the blaze down a trail that is barely passable, as it winds its way among the boulders. Escape from the scene did not enter into his thinking, although he realized the full danger in delaying departure from the wreckage. His concern was for Dick.

Working forward to the front of the ship and peering through a maze of tangled steel, fabric, and machinery, he saw Dick unconscious or dead, hanging head down with blood streaming from face and body. Further investigation proved he was still alive, but so imprisoned and crushed amidst the snarl of wreckage that extraction seemed impossible. He hung upside down with feet fouled by heavy steel controls, the roof of the ship caved in against him, the dash shoved back, and the cargo shifted forward to pin his whole body in a vise-like grip. His head was several feet above the boulders. If released from the grip of the wreckage, he would drop headfirst and further injury was certain. To an excitable individual the predicament would have appeared hopeless - not to Sutliff. He grasped a jagged slab from a boulder and began pounding, twisting, bending, and
tearing a hole through the framework. Almost frantically with the crudest of
primitive instruments, he tore away the best and toughest steel that man has
devised. Each time he swung his rock hammer, a splash of blood, like paint
from a dripping brush, splattered the wreckage. Cuts on his arms were running
red streams to his finger tips. He found difficulty too in bracing himself for
a solid blow or heavy lift on the leg that had been damaged in the crash. Event-
ually, after minutes which must have seemed hours, a hole was mangled through
the mess and the pilot was ready to be freed from the strangle hold of the wreck.
Sutliff had salvaged a sleeping pocket (bed) from the cargo and spread this
over the boulders to soften the blow when Dick dropped. He pried loose the last bar
and Dick fell. The shock of the fall partly brought him to consciousness; this
added to Sutliff's hopes.

Dick weighed 165 pounds, Clarence 135, but somehow Clarence tugged, lifted,
dragged, and rolled him into and out of the pits and over the giant boulders to
the foot of the hill. Sometimes they rolled and bounced together. Sometimes Dick
was hoisted bodily out of these rugged pits. At the foot of the hill Clarence
found an open spot surrounded by dense, but moist green brush on three sides and
the rock cliffs on the other. It seemed the safest spot in sight from the stand-
point of fire. Further advance toward the "shotgun" trail on the opposite hillside
was shut off by a jungle of tangled spruce reproduction, willow, and down
timber. Night was falling, and darkness would make further travel almost impos-
sible for a man physically sound. Therefore, Clarence propped Dick against a big
rock and crawled back to the wreck, dug a radio set out of the junk heap and vainly
tried to contact the world outside. Falling in this, he returned to Dick and
finding him still alive, set out for help.

With a jackknife in a bleeding hand, he started blazing a line from Dick's
location to the trail. Scrambling through the brush thickets, under and over logs,
he whittled marks to guide rescuers to the unconscious pilot. Crawling over rocks
and snarls of brush, he reached the trail. Exhausted by extreme physical activity,
and weakened by loss of blood, he dropped down for a moment's rest before start-
ing the four-mile hike down the trail. He had barely laid down when he heard
voices. These came nearer, and he called. Two CCC enrollees appeared. They
had gone A.W.O.L. from the camp at the highway, and had gone up the canyon for
pictures. Now they were fleeing, ahead of the fire.

Clarence ascertained that one had studied first-aid. Showing him the
marks on the bushes, he sent him to care for Dick. This was not easy. The boy
was reluctant to enter the jungle of fuel in the path of the fire. Neither did
he relish the idea of going alone to a dead, or worse, a dying man in the darkness.
However, he went under the persuasion and demands of Sutliff. Next, Clarence
wrote a note describing the location where Dick could be found, asked that a
horse be started for himself, if possible, to get over the treacherous trail, and
ordered a stretcher, doctors, and men to get Dick. He dispatched the boy down
the trail, cautioning him to go slowly and take no chances of injuring himself,
and thereby delaying action.

This exhibition of cool-headed action undoubtedly is a mark of more than
average ability to act and use judgment in an emergency. He took no chance on
verbal messages. He distrusted human action in exciting circumstances. Also,
he portrayed true foremanship in forcing the boys to do his will against their
fears and inclinations. Had he done less or otherwise, Dick, our star pioneer of the air in fire work, would not have lived. Sutliff could have saved himself, no doubt, without aid, had he not spent his strength and lost his blood in getting Dick away from the gasoline-drenched wreck which was so near the spark and flame of a raging forest fire.

As it developed, the CCC boy followed the knife marks through the timber and found Dick still bleeding and unconscious, but alive. He applied pressure bandages and stopped the bleeding. The other boy delivered the note, and help arrived with a stretcher during the night. Clarence staggered down the trail a short distance, but found the going too difficult. His injured ankle was swollen stiff and his wiry legs no longer responded to the demands of his nervous energies. The loss of blood and effects of shock were taking hold. He made a few more notes of instruction in his notebook and lay down for a rest. The rescue party arrived during the night, and after giving complete instructions for Dick's removal, he consented to ride the horse to the "outside". Clarence did not know until the following day that the wind currents suddenly shifted after the crash, retarding the fire in its down canyon run to the extent that it did not reach the plane wreckage.

As a happy ending, Dick was flying supplies to firefighters within a month following the crash, and, in the co-pilot's seat as observer, was none other than Clarence Sutliff. "It's all a part of the job", Clarence states. He doesn't mention the spatters of blood left on each of the jackknife blazes he whittled to save Dick's life. That is outside the general conception of "the job".

/s/ C. S. CROCKER,
Fire Inspector.
The fire which started in Roaring Lion Canyon on August 21 was spreading rapidly on August 22. Clarence Sutliff and I delivered several loads of supplies and equipment during that day to the upper fire camp, which was the only one then established.

We were making delivery by parachute and in order to deliver the supplies within a reasonable distance of the spot selected by the fire crew on the ground, it was necessary for us to fly much closer to the canyon bottom than would ordinarily be considered safe in such rugged country. Although the safety factor was not very large, the supplies were urgently needed and we, therefore, continued to go into the canyon to deliver the additional material needed throughout the day.

When we completed delivery of the supplies needed at the upper camp we selected an opening not far from the lower or eastern edge of the fire, where we planned to drop some of the equipment that would be needed by the additional crews who were on their way in there.

The fire was beginning to burn faster to the east and south, but we believed we had time to deliver the next load at the new location. This was between 5:00 and 6:00 P.M.

We left Hamilton at about 7:45 P.M. that evening and flew up the canyon toward the fire. There was considerable smoke overhead and we were, therefore, flying under it and just as low as we dared in the rough canyon on the way to the fire. The smoke formed a roof over the canyon and we had to fly under it.

Upon approaching the spot where we were to drop the equipment, we found that the fire had moved rapidly while we were gone and now reached to within approximately 300 yards of the selected camp site. It was crowning furiously in heavy timber. The canyon was not as wide at this point as where we had planned to make our turn. The extremely rapid advance of the fire forced us to turn around very close to the fire, and at this point where the canyon was very narrow. Even then it appeared that we could make it. I banked for the turn, but as we approached the other side of the canyon, we ran into an extremely strong down draft, caused by the adjacent fire, together with the shape of the topography. This pulled the ship down into the timber on an extremely rocky, precipitous slope.

I yelled at Clarence just before we struck the first tree and he apparently got behind the bundles in the rear of the ship. As we struck this tree, I was knocked out, but I remember reaching for the switches to cut the motor off.

I remembered no more until some time later. I have a dim recollection of trying to stand up in some kind of a deep hole among big rocks and looking out and upward seeing the fire crowning quite near and toward me. I felt cold but had no other sensation.
That was apparently at the point where Clarence put me down and left me as he proceeded on, marking the trail through the timber with his jack-knife.

I remembered nothing more until I awoke in the hospital the next day.

I do not yet understand how Sutliff managed to get me out of the ship. I am sure I could not have lived long, hanging upside down, bleeding as I was. Clarence had to have plenty of "guts" and plenty of headwork to knock the front of that ship apart getting me out, considering the bad shape he was in. He saved my life then and he saved it several times again by getting me off the rock slide and by doing a smart job of blazing a trail to the pack trail and then finally in giving clear directions to the two CCC boys whom he met there.

The flying that we did that day in Roaring Lion Canyon was as dangerous a job as I have done for the Forest Service. In the many years that I have been flying in Forest Fire control work, I have not had as bad a place as that to go into. We both knew it was bad, but the equipment we were delivering was needed and that is probably the reason Clarence was accompanying me as a dropper instead of having one of the other boys do it.

When Clarence got out of the plane, as badly hurt as he was, he might well have left the ship and me just as quickly as he could, considering the fire which appeared nearly on us and the gasoline all around the ship.

/s/

DICK JOHNSON,
Senior Pilot,
Johnson's Flying Service.
MEMORANDUM FOR FOREST SUPERVISOR

Reference is made to the Regional Forester's letter of April 4 relative to the rescue of Dick Johnson by Clarence Sutliff from the Airplane which crashed last August 22 in Roaring Lion Canyon.

My impression of the sterling leadership displayed by Clarence Sutliff for effecting a safe and speedy rescue of the severely injured pilot, Dick Johnson, is based on observations and events as happened in sequence during the evening and night of August 22-23.

First, the written message, itself, illustrated that Clarence Sutliff was still in command and not leaving anything to happenchance that a verbal message might otherwise accomplish. The written message was brief, terse, and to the point. I do not know whether the original was preserved, but recall that the message read something like this: "Plane crashed. Dick Johnson severely injured. Bring a doctor and stretcher to carry Johnson out. I am O.K. Bring saddle horse for me to ride out on." Signed Sutliff.

A minor detail that perhaps might be overlooked is the fact that Sutliff also impressed on the CCC messenger the time of night that he was started down the trail with the message. I judge this to be important in the following outlined respects. After meeting the boy and receiving Sutliff's written message, I asked the CCC boy how far he judged it to be up the trail and to where the plane had crashed. The boy looked at his wrist watch and answered, "I don't know how far it is but I do know that it has taken just an hour to come this far from where I left Sutliff". After noting the time as being 11:01 P.M., the boy's statement that it required one hour's travel was verified later as it required the rescue crew under my charge exactly 57 minutes to travel up the trail at a rapid pace to where we met Sutliff, who was keeping himself warm by a small camp fire in the trail. Sutliff was without coat, shirt, or undershirt. These had been removed to cover up Dick Johnson at the point where he left the injured pilot on the south side of the creek.

It was natural to inquire of Sutliff for a few facts about the crash and secure information as to extent of his own injuries. However, Sutliff claimed he was all right except that his tail bone hurt some and his left foot or ankle was wrenched a little, and then stood up to prove his own physical fitness. Moreover, Sutliff then urged me to hasten to where Johnson was lying, construct a good stretcher, and have some of my rescue crew start clearing a trail to get him out. Also, Sutliff cautioned me to examine the condition of Dick as he was bleeding badly from a cut over his left eye. He then stood up again to point out the spot below the rock slide where we would find the marked trail that would lead us to Johnson; then added, "Also try and find the plane up on the mountain above and get one of the kapoks for Dick to lie on in the stretcher". Before leaving Sutliff, we saluted to the other CCC boy, Johannes, who had been sent by Sutliff to find Johnson, and determined by return call that this CCC boy was right then at the side of the injured pilot somewhere in the jungle to the south of the creek.
Incidently, a story was recited to me by Charles Bloom as to why Sutliff sent him down the trail with the message and Johannes directed to go to the injured pilot. A brief of this story follows.

Charles Bloom, CCC truck driver, is of small stature. Johannes was big and strong. The rapid burning forest fire looked like it might catch up soon to the plane and the injured pilot. As a matter of fact, the lower edge of the crowning fire was not more than one-fortieth mile to the west of the crash. Bloom was built for speed to carry messages, but Sutliff did not overlook the fact that Johannes was the boy that could pike up and carry Johnson out over his shoulder if it came to a case of have to before other help arrived.

Other observations made on the part Sutliff played in rescuing Johnson follow. The trail marked by Clarence through the thick jungle of alders, willows and tangled dogwood in the bottom was one that no searching party would miss as he used his jackknife and notebook to post the route through this jungle.

It required us about one hour to construct the stretcher, cut out the trail, and get Johnson out to the main trail where Sutliff was sitting. The main crew under charge of Ranger Fitzgerald caught up with us at this time, and I selected eight more men, making a total of 20 men, to help carry Johnson down the trail to the base camp at the mouth of Roaring Lion. Pilot Johnson appeared to be semi-conscious and Sutliff requested that I help him get over to look at him. The distance was about 30 feet. When Sutliff stood up, put his arm around my neck and I helped him hop this distance, it was then that I appreciated that Clarence was injured worse than he had tried to make us believe. I suggested that we take some more men and carry him out armchair style, but Sutliff refused and stated that we go on with Dick and he would wait for the saddle horse. However, his main concern was how comfortable we had made Dick in the stretcher, looked him over, tried to talk to Dick, but when satisfied that all bleeding had stopped then cautioned us to take it as easy as possible while carrying the injured man out.

After proceeding about one mile, we passed the man bringing in the saddle horse and after going two miles, or about half way to the base camp, we met Dr. Tefft and other help that had volunteered to come from Hamilton. While Dr. Tefft was looking over the injured pilot and administering such other first aid as possible, Sutliff came by on the saddle horse that had been brought in for the purpose. Sutliff stopped and did not proceed down the trail until he finished questioning Dr. Tefft as to extent of Johnson's injuries, whether Dr. Tefft had administered a "hypo" and whether an ambulance had been ordered to carry the injured Johnson to the hospital. In other words, his primary concern was for the injured pilot and not himself.

Later, the next afternoon when I had an opportunity to view the crash, it was very obvious to me that Clarence had dragged out a kapok from the wrecked plane and spread it out over the rocks at front end of the crashed plane and laid the injured pilot on it after releasing him from the seat harness and other obstructions.

Considering the nature and extent of Sutliff's own injuries, it was also judged as a remarkable performance and a mystery how he was able to drag Johnson down through about 75 yards of rock boulders to the point where he left him; and
it was also obvious to me that this had been done in order to save Johnson's life in the event that the fire would overtake the wrecked plane before help arrived. (Even while we worked in cutting out the trail to get Johnson out four hours after the crash, trees were continuing to crown out and the fire at times appeared to be making headway down the canyon.)

It is my guess that the advancing forest fire had an appalling appearance, and this feat of moving Johnson to a fairly safe place in the rock slide away from the plane stands out head and shoulders above the other acts of Clarence Sutliff that transpired after the crash. Examples of men who refuse to become panicky in face of danger and extreme emergency are rather rare compared to those cases where men act first to save their own lives. In this case Forest Service history was made and repeated. There are no doubts in any of our minds that Sutliff's action to save the life and effect the actual rescue of Pilot Dick Johnson was an outstanding act of heroism.

/s/

R. J. BOWERS,
Asst. Range Examiner.
Sept. 6, '39

Please photocopy:

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pp. 6-14
THE SPECIAL FIELD EDITION

There is an old Scotch saying that the "top may come" but if a horse is to stand up under hard work, look for "foot and ankle, bone and feather." Reading these contributions from the field, you will readily appreciate why, in spite of jalopies, airplanes, scooters, and saddle horses, the work of the Forest Service still takes a good pair of legs. Administrative officers and technical men will relive their own experiences on the trail, while others will get a good cross section of the spirit and activities of this far-flung organization.

Running through the letters and articles is an expressed appeal for extending the employment season of those who work only during the peak load of summer. There is real justification for this appeal. The problem is receiving serious consideration by Forest Service men who have administrative responsibilities, partly because of a natural interest in the welfare of all Forest Service employees, and also because of the need for trained men who have had practical experience.

Much depends upon public understanding of the problems of managing and protecting the national forests. This is one of the reasons for the work of information and education. It is not enough to give people information about using the national forests and urging them to be careful with fire. There must be public confidence, cooperation, and understanding. The people are entitled to know about what is being done and what needs to be done. This gives them an opportunity to make a fair appraisal of how their interests are being served.

Evidence that public appreciation of this particular problem is spreading appears in a recent editorial in one of the local papers, which points out that constructive work of benefit to everyone needs to be done in the national forests and that experienced men are needed to do it as well as to protect the forests from fire or other enemies. So we extend to the field men our hope that a satisfactory solution will soon be found.

- Editor.
Movies Are Bad Luck: I had been sitting in the office all day writing out different forms and studying, until five o'clock when I went home to spend a nice pleasant evening. I finished supper about 5:15 and got dressed to go to the show. After I had gotten dressed, the phone rang. Well, I thought probably it would be some friend calling, so I walked gaily up to the phone - then my ears got red, my temperature mounted, and my heart flipped over three or four times, and settled in my shoes. A completely good evening ruined because I heard an excited voice: "This is so-and-so reporting a fire at such-and-such a place." I hurriedly notified my helper, and he growled around, then changed his clothes. We left at six o'clock and at 6:45 arrived at the place where the fire was reported. We left the car at seven o'clock and hiked all over the hills until two in the morning. Then we slept until 4:30 and looked some more until seven o'clock, when we went back to where the fire was reported. Another fellow gave us different directions, and we followed them and arrived on the fire at nine o'clock. My helper said that he never in all his life thought a fire in the hills was so hard to find. We stuck with it until five o'clock in the afternoon and then we came home. This time we managed to get into the show, but that didn't do much good because we got another report and found out lightning had started a big dead fir tree smoking. We got ready and left about 4 a.m., and arrived at the fire at 7:30 a.m., then I took about three hours off and proceeded to cut the tree down (it was about three or four feet through). I still am wondering whether I cut it down or worried it off, because I was using a pulaski. When we got it down, there were dirt and ashes flying everywhere, but we had it completely out in a couple of hours, and got home at five that night. We stayed away from the show because we thought maybe it would bring another fire. Yours respectfully, Al Lane, Headquarters Guard, and Frank Risch, Helper, Deerlodge.

P.S. - There is just one suggestion I would like to make whether it can be done or not, and that is to have a fire school in every town in this national forest for about two or three days. I have been talking to more than one fellow I know, and they said they would be willing to fight a fire but they didn't know a thing about it, or what to do if they found one. - A.L.

---:::---

Trail Maintenance: I started my second year with Uncle's fire-eaters with a bang. It all went along swell till they paired me with a city dude, who figured he was out to make a reputation, good or bad.

We started out in good shape, but mile coverage dropped to practically nil when my partner realized he didn't have concrete pavements to cope with.

One day while forging up a trail, I was about 20 feet in back, when I suddenly saw him stop, turn abruptly, and come toward me. Not realizing what was wrong, I thought he had gone berserk due to the wet weather. He emitted a yelp of fear that chilled the blood, and started for high timber. When my vision was clear of any obstructions, I noticed a bear standing about a hundred feet up the trail, which was, no doubt, the cause of all the commotion. Turning around I saw our lunches and the cross-cut on the ground, and my companion in the embrace of a tall tamarack.

After taking in the scene, the bear, with a snort of disgust, turned about and headed up the trail at his own leisure, abashed by my friend's display of city heroism.

-6-
This little experience raised a doubt in my mind as to my cohort's sincerity, but I believe in time he will become hardened to life in the raw if not scared to death in the meantime. - Clifford Vinje, Coal Ridge Lookout, Flathead.

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Rest Cure on A Lookout: I feel something warm on my face - what is it? I roll over in bed. Gosh, the sun again, do I have to get up? I look at the clock - it's six o'clock, so I might just as well. I build me a fire and take a look around, see a few clouds in the southwest, call up the dispatcher, tell him all is quiet on Moose Peak, and I am going for water. Who does that guy think he is, telling me what I can do, and what I can't; you would think he was on this peak and not me. Oh well, what's the use of arguing with him - I won't go for water. Says those clouds look worse in the southwest, maybe he knows what he is talking about, after all. I see lightning off in the distance now, it is getting closer, guess I had better report in. O.K., he says, exact time 9:45 and good luck. Say, it is going to take more than luck the way that lightning is coming down - about an inch of rain is what we need - here it comes over the divide - one fire already. Here comes the rain - say, that was a little too close for comfort. Strikes coming down over - I am afraid I am going to be a very busy boy after this is over. I guess that fire rained out, sure lots of clouds hanging in Hallowatt Creek.

H--l, that ain't a cloud, that's a smoke. Shall I send it in or will it go out? Well, here goes. Dispatcher tells me I am the closest; I had better go to it. Damn this brush, why can't a fire start alongside of a trail? Where is this fire? Out comes my compass - getting close to it - there it is in that snag - that wasn't such a bad one to put out. I wonder if I can find the trail before dark - here it is. That bed is sure going to feel good tonight. There's the lookout, a mighty long ways up the hill - well, I made it. I guess I'd better tell headquarters the fire is out - everything O.K. Guess I'll go to bed. What? Is the sun up again - I just went to bed - oh, well, another day of this dull life up here. Good gosh, nothing ever happens up here. There goes the telephone - probably another fire - well - here I go again, fellows. - Dave Elder, Moose Peak Lookout, Flathead.

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In The Middle of A Dream: Coal Creek has long been known for its numerous bears, and there's been many a story told of how bears have come into cook tents during the night, filling empty stomachs. We had been camped on Coal Creek for almost three weeks, I had been assigned to sleep in the cook tent to keep out intruders.

I always had a flashlight and revolver handy. It was almost two o'clock one morning when something banging against the dishpan awoke me from a deep slumber. The first thing that flashed into my mind was a bear. I had my bed at the closed end of the tent, and could not get out. I reached for my flashlight and gun; when I flashed on my light, something started coming towards my bed. About that time I started shooting, the more I shot, the closer it came. I was almost ready to crawl to the bottom of my sleeping bag, when I noticed it was a porcupine.

The light blinded him, and he kept right on coming, when he got to the bed he started right up. I didn't know whether to shoot or hit him on the head with the gun. I did know it wouldn't be nice to have him in bed with me. It didn't take me long to decide, I shot him in the throat and he crawled under the bed and died. I got up and counted six holes in the tent. After dragging the porky outside, I went back to bed and dreamed of my check with a picture of a 40-dollar tent full of bullet holes in it. - Howard Greene, Forks Lookout, Flathead.
Number, Please: If you have ever seen a picture of a man in an information bureau trying to answer seven or eight calls at once, you have a pretty good idea of how I feel sometimes. My job is a kind of mixture - radio operator, telephone operator, assistant lookout, and maybe an assistant contactman. If one has ever been to Hemlock Butte in the Clearwater, he has a faint inkling of what the place is. Hemlock is located on the Lolo Trail through the Clearwater Forest and might be called a lookout's dream. Hemlock has as many visitors on some days as another lookout will see in a month of summers. It's all the same as living in town only better.

About two weeks ago I became aggravated with the world in general because of the following happenings - for don't we all have our troubles?

To set the scene is the first requisite of any story. Place: "office" on Hemlock Butte. There is a switchboard consisting of six telephone lines and a line to the lookout above. A desk on which there is located a Forest Service M set radio, the switchboard, assorted pencils, and a desk blotter. The time is 8:45 a.m., P.S.T., (9:45 a.m. M.S.T.) at which time the daily radio sequence schedule of Region One takes place.

Missoula is calling all stations on regular daily sequence schedule. Telephone rings imperatively - it's on the line to the ranger station. "Have you got the weather forecast yet?" "No." "When will you have it?" "Please call me back later." Return attention to hear with dismay that Missoula is already half way through with the forecast and I have copied none of it. Telephone rings again - "Get the Lochsa, please." Ring Lochsa with one hand and write with the other. Two more lines are ringing and sound very mad about it too. I connect one with this party and tell the other that the lines are busy and will he please wait.

By this time a few more lines are ringing, and it is time to do something as Missoula has just called Hemlock. At such times there is a very happy solution to my little troubles - I throw in all the switches on the switchboard! Let the parties squabble about who is going to get home and who is going to talk first! And turn my attention to the radio, "Hemlock back to Missoula - fire danger for the Clearwater 4.6, 81 men, etc." I always get a laugh out of several people trying to talk on the phone at once and calling me names - but, ah well, such things don't happen often, but it's always bound to happen at 8:45 a.m. P.S.T., when Missoula says, "The time is exactly 9:45 M.S.T."

Oh yes, I have my little troubles - but it would take quite a bit to induce me to leave this place, as it is a very nice place to be in the summer.

- Jesse L. Meredith, Clearwater,

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Spring Fever and Cowbells: I am employed as headquarters guard in the Sheridan District of the Beaverhead National Forest under Stanley M. Lukens, district forest ranger.

One of the most perplexing parts of the work connected with headquarters guard is that of contacting forest users.

On one of the recent trips into Mill Creek, a recreational area composed of three campgrounds and various places for suitable picnic spots, I had been checking fire equipment (shovel, ax, and bucket) all day long and had run up against no peculiarities. On the last trip down the creek, I rounded a corner, peered in both directions, for possible picnickers that I might have missed, and
spotted about a quarter of a mile to the east, well hidden in the brush, one very
red coupe of a late model, only the rearmost portion exposed to my line of sight.
Immediately, it became the duty of said forest employee to see if this auto was
properly equipped with fire tools. Driving up to the car, it appeared as though
no one were present. Upon further inspection I found a young couple securely
snuggled in one corner of the seat and so absorbed in the art of - I just don't
know exactly what - that the outside world remained a total blank to them. Upon
questioning the parties concerned, I discovered that they were improperly equipp
ed with the proper fire tools, and very much surprised to think anyone would disturb
them in such a remote area, much less a fire guard. With the suitable warnings,
I proceeded upon my travels, none the wiser for what I had just seen.

In the future it is my intention to have three large cowbells installed on
my truck with a specially constructed hammer to ring said bells, upon the approach
of all automobiles that are hidden from plain sight in any manner.
- Charles E. Dobson, Sr., Beaverhead.

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First Experiences: This is my first year with the Forest Service. Maybe it is
just amateur enthusiasm, but anyhow, nothing I have started for the first time has
struck me with quite so much appeal as this work, high up in the sticks among the
tall trees.

My work this summer has been in the Jefferson Division of the Lewis & Clark
National Forest, and has covered a variety of jobs all of which have been new to me.

The worst mistake I made was putting on a pair of telephone climbers with
the spurs on the opposite side of my feet. My associates, of course, gave me the
laugh, and I tried to justify my mistake by saying that the spurs put on in this
manner would enable me to climb two trees at once. Since I could not find two
trees suitably placed, I could not demonstrate this. But I still believe it can be
done.

I'll wind this up before I get started by saying if you want a downright
hearty way of spending your time, work for the Forest Service. Enjoy hard work
in the open air, eat good chuck, and sleep the sleep that knows no waking, then
you'll be happy. You will just naturally grow that way whether you want to or not.
- Robert K. Lammers, Assistant Fire Guard, Lewis & Clark.

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Solid Comfort: This being my first year on a lookout, I wondered during the long
afternoon when the sun got hot and I became tired of sitting in an old hard chair,
why the Forest Service didn't furnish an overstuffed chair and shades for the
windows.

To remedy one of these difficulties, I started out one morning with a hammer,
saw, a couple of ration boxes, mattress, blankets, a sack of sugar and a pillow.
The finished product was a davenport, something like overstuffed, only you didn't
sit so deep. I was really proud of it.

At last I had one of the problems solved. I could lean back, view the country
without wearing so many calluses and was comfortable for a few minutes until
Canyon Ferry called and said, "Say, I would like to get the numbers off the ration
boxes." I went outside, found one, climbed into the attic and found another, but no go. There were others. Then I found one at the end of my davenport. I crawled under my writing desk and got another. He still wasn't satisfied. My poor davenport! I had to go at it with a hammer, one score against my davenport.

Another is when I climb back from the water hole, up that long steep grade, sweat running down my back, my legs aching, and all the while thinking of that soft seat with a place to stretch out and rest my weary legs. I think that all the way, and when I get there what do I find? A ranger, assistant supervisor, or a fire guard, leaning back comfortable-like on my davenport. Figuring, on the stationery that I use to write my best girl with, how many windows are dirty or how far I missed the last fire I called in.

I am pretty hard to discourage, so after the ranger and assistant supervisor make an inspection trip, and the alternate and fire guard find out what is wrong with the telephone, it looks as though it might be peaceful-like around here again. I lean back on my davenport and proceed to view the country. The telephone rings. That's easy, I can reach it without getting up. "Say," he says. "Will you get those numbers off those packing boxes again? I must have left them someplace."

I can see now why some of the old lookouts that have been on the peaks for years stick to their old hard chairs and enjoy solid comfort. - T. Perkins, Helena.

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Fire Hits The Lolo: Early the evening of July 10, word reached the trail crew at the upper reaches of the South Fork of the Lolo that a dry lightning storm was headed toward the district. That was at six and by 7:30 camp had been packed on the mules and the crew headed for the ranger station; 9:45 saw them at headquarters, six miles afoot and nine by car behind us. Another hour and West Fork Butte and Lolo Springs Lookout were manned, not a minute too soon, for lightning started to drop down from everywhere.

Along about one o'clock one of these connected, and three of the bells at the station started jangling. The packer was routed out somewhere and the fire guards called out of bed and sent on their way. Lightning, they say, picks out the ridge tops, and to that I'll add that it's very careful in selecting the steepest. The fire proved to be a pitchy old snag with flames ranging up its entire length. Finally the two cut through it and the flaming torch plummeted to the ground. It plunged down the hill and lodged itself a short way below. Dirt and water were packed from a nearby ravine to cool the fire down, and by 11 o'clock they had quenched the last blaze and at one o'clock they were at the station.

The protection force had functioned suitably and a certain greenhorn had learned that water on a fire brings $30 an ounce and the only way to get fire out of punky wood is to laboriously cut it out. - Tom Lacy, Lookout-Fireman, Lolo.

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A Breezy Story: It was my first day on a lookout! Such things as mapboards, altimeters, anemometers, and even the tower itself were outright new and interesting. Joe, my companion, and I had peacefully spent the day in cleaning up the tower and were contemplating what to have for supper when it happened.

-10-
A low, dark, ominous-looking cloud had appeared over a jagged promontory known as Pilot Knob and was racing toward us. I hurriedly grabbed the phone and reported it to the station, becoming thoroughly tangled up in the unfamiliar cords, earphones, etc., as a result of my haste. In due time I freed myself and rushed to the window to watch the storm's progress. During the few minutes of "phone fighting" the swirling clouds had obstructed Pilot Knob from view and were only a few miles away.

By this time the still air had begun to stir and the tall pines were softly moaning and yet all was strangely quiet! Not a bird chirped, the noisy little squirrels had disappeared and even the insects seemed to have gone into hiding. I was beginning to feel uneasy, and as I glanced at Joe, I knew he felt the same. It was fascinating to watch the storm whip over ridges and slide down gullies.

A strong wind was now blowing and as the storm topped a small knoll some half-mile distant, it assumed galelike proportions. The tower began to tremble like a frightened animal, its guy wires taut like frozen sinew.

And then the storm fell upon us with all its fury! Heavy hail driven by the wind was crashing against our windows creating a noise that was almost deafening. Suddenly with a sickening sound of steel and wood parting, four shutters broke loose from their moorings. Instantly they were hurled over the lookout and far down the slope. As if this were not enough, the windows began to tear loose. We realized that if one side caved in, the remaining three sides would form a pocket for the wind which would result in complete destruction of the building. Desperately we threw ourselves against the window frames. Wind and hail were pouring through the gap created by the leaning windows. Pandemonium reigned supreme! As there was no lightning, Joe grabbed the phone and called the station. I can see it yet with crystallike clarity - Joe shouting into the phone trying to make himself heard over the thundering hail, both of us straining against the windows with water streaming down our faces.

Then as suddenly as it began, the storm ceased. All was quiet except the steady drip-drip of the water from the ceiling to the floor, the sun was shining as if nothing had ever happened. With a rather weak set of knees I glanced at my watch. Instead of being hours as it had seemed, the storm had lasted only ten short, thrill-packed minutes.

If, in the future, I happen across an inhabitant of the "dust bowl" who is literally bragging about the terrible winds he has witnessed, it will give me great pleasure to gently tap him on the shoulder and say, "Buddy, you ain't seen nothin' yet!"

- Gene Duncan, Lookout-Fireman, Lolo.

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Horses As Riders: Even the best of riders, whether horse or man, are sometimes caught off guard, and so it was with Bill. We were skirting a grassy knoll one morning last week working up toward the edge of timber and the forest boundary. The road, two trails through the grass, dropped down into a small gully about eight feet across and four feet deep and curved slightly at the bottom. Bill either overlooked this gully or was asleep. At any rate, he left the trailer at this point. An immediate investigation disclosed both Bill and the trailer lying on their sides. Bill was groaning like a wrestler, but he was far from wrestling. Both eyes were shut and he was completely relaxed.

I figured that maybe I should make sure his neck was broken before I finished him off. The halter rope was stretched tight but after working a couple
of minutes it finally came loose. About this time Bill opened his eyes and after looking at the trailer, he probably thought about it as I had just thought about him. He staggered to his feet, shook his head, and started for home the shortest way. - R. A. Watters, Deerlodge.

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The Art of Shingle-Staining A Cupola: Many people, believe it or not, do not know the proper technique to use in shingle-staining a cupola of a log lookout house.

The cupola on Pole Mountain is the third story of the lookout, and the roof is such a steep one that a fly wouldn't dare walk around on it without glue on his back for fear that he would roll over and not be able to land on his feet again.

The first thing to do on this job is to take a good strong rope and throw it over the top. Make it fast on both ends, preferably, on your alidade. Now hook your toe through the bale of your can of stain and proceed to skinny up the rope. Be sure to kick your foot far enough out when you feel your shins rub the end of the eave or you will lose the first can of stain on your roof sign and spoil it. The roof sign, by the way, should be on all lookouts in case an airplane crashes into the peak. The aviator can then look out his window and see how far he has to walk to get a new plane.

Now, we will assume that you are on the roof with the can of stain and a brush. Don't forget the brush the first trip because there is no place to leave the stain while you go back after the brush. You will just have to take the stain back down with you and then you will be farther behind than ever, because while you were up there, you looked over all four edges and swore that you would never go back up again if you ever got down in one piece. When you have everything on top, you wonder what method should be used for those far edges. The first method that comes to your mind is just to lean clear over and pour it on, but this doesn't work so efficiently because the stain has a funny habit of finding the small grooves and running down them. This takes about five gallons to the square foot. Well, that leaves the old brush-and-arm method.

First, you take a firm hold of the rope and slide down part way but soon find that two hands cannot hold a can, a brush, and a rope. Holding the brush with the teeth works only the way down, too. The head just refuses to take as long a sweep as your old right arm would.

You give that up and crawl back to the top, if you have enough strength left, and pull out all the slivers you have accumulated.

The next method is to hook your toes over the top and slide down face first. This works good for the first foot on the bottom but, when you try to slide back up to work the next foot, your legs bend the wrong way. When you hook your knees, you find yourself facing the sky.

Gosh, there goes the telephone, and down the rope you slide. The can of stain has no cover and you get doused from the top with it. Just as you spit this out, you feel yourself sliding down over the foot. You thought sure the shingles had soaked up long before now.

Well, at least we got 12 square feet stained, and that's better than none at all. It's time to eat, anyway. - Ed Myers, Lookout, Pole Mt. District, St. Joe.
Cooperatrix - The Female of The Species: At our Tetrault Lake fire on July 25, we had a rather mixed crowd of firefighters - guards, batters, ranchers, and picnickers. One young lady of one of the picnic groups was the star performer.

The fire, driven by a good wind, was spreading rapidly and spotting badly in the dry cheatgrass. The young lady was using her hands to throw dirt on the flames. She finally got a shovel and threw dirt wildly until Bud Fleming took time out to show her how to scatter the dirt to get the greatest good. At last she had to give up her shovel to one of the men. Looking around she saw Ranger Knapp beating out the fire with a small green jack pine. She immediately got one for herself, remarking, "Why in hell didn't someone show me that before?"

Incidentally, she is our best free-lance detector.

- William H. Bolen, D-6, Kootenai.

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A Camper's Protest: This note was found in the register at the Yaak Campground recently: "August 8, 1939. Your campgrounds are fine, but the man that built the stoves should learn more about them, as they are of no use, as cooking must be done on top of chimney, as the stoves are too low to the ground and no fire can be kept under them. The logs along driveway are of no use and are dangerous and a nuisance. Therefore, should be taken out. Get your good stove castings at the St. Louis Brass & Iron Works, Spokane, Washington. /s/ Camper."

Evidence near the register looked as though someone had tried to back over a couple of guard posts, probably damaging the car. With all his troubles, the "Camper" seems to have left in a fairly good humor and with an eye to future betterment of the campground and a little business on the side.

Perhaps we should put a notebook in the register for campers to express their grievances, thanks and ideas. A little "cussin" and discussion might not hurt us any.

- S. Kyle Beebe, D-2, Kootenai.

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Checkers or Sanity: I have been ostracized from lookout society in the Big River District - I do not play checkers over the telephone. I've tried to avoid becoming a mountain wallflower, but my simple mind cannot grasp the intricate moves essential to the removal of enemy beans from the numbered squares.

In my eagerness for approval from the hardened devotees of the game, I, too, make a checkerboard. When the board was completed, I hastened to the phone and quaveringly voiced a challenge to Forester Lockout. Under his swift, merciless attack, my men vanished from the board. I then tried Red Flume Lockout. The forester incident was repeated to the accompaniment of fiendish chuckles from the kibitzers who followed move on their own boards.

These were but two incidents in the pitiful story of my present condition. Although I haven't touched the board for a week, a chanting dirge runs through my fevered brain over the whine of the night wind ---- 2 to 7, 3 to 6, beaten again, beaten again. Last night that chanting subsided somewhat. I have put the board in the darkest corner of the attic. It will stay there forever despite the sneers of the more expert players. Although I long for their friendship and admiration, I value my sanity more. Hence I am destined to remain ignored and alone, an outcast of the wilderness. - Winston Howard, Mt. May Lookout, Big River District, Flathead.
A Lookout’s Diary: I woke to the whir of a small alarm clock one morning a year ago and immediately shut it off, but there still persisted a faint whirring sound. I thought, "Maybe I can get a picture this time", so I grabbed my camera and headed for the crow’s nest just outside the tent. Looking toward Missoula, I could see a trimotoried cabin plane coming low, right toward me. The plane, coming from the east up Lolo Creek, had the rising sun behind it, so I waited, following the plane through my camera eye. I took two snapshots when it was just opposite me and a little below. My CCC helper was out, too, to see the spectacle, and the pilot wobbled his wings in answer to our waving. He was close enough so that we could see the supplies stacked inside the cabin.

After he disappeared, I reported in and started on my big discovery trip armed with a hatchet, camera, and lunch sack. I decided to take a short cut to the bottom of the South Fork of Lolo Creek gorge. It was a 2,000-foot drop (slide for me) and toward the bottom a tangle of alder and willow. Higher up the precipitous slope quaking aspen grew out like eyelashes from the side of the hill and were hard to penetrate without sitting down too often. My first discovery - it took me just as long to negotiate the slide down that hill as it would have to follow the 3/4-mile trail around.

On the trail now it was easier going and soon I came to the first meadows, unmarred by sheep or cattle. Through there the creek seemed to be resting before making its final long foamy dash down to the main creek. It was wide, clear, and about three feet deep and in it I could see several trout. They were undisturbed by my presence, dashing about, and often up for flies and grasshoppers.

Above the meadows the creek narrowed, rushing and twisting around the rocks; I crossed it twice on small logs, waving my arms like an autogiro before I came to the big snowslide meadows. Here several years ago on the east slope the snow had wiped all the trees away for a width of 1/4 mile. Now the semibarren slide was boulder-strewn and covered with brush and young lodgepole pine. Deer and elk signs were plentiful, but I was not lucky in seeing any for snapshots.

After lunch I started on the long climb back to the peak. A downhill water haul surely didn’t put me in condition for the discovery trip, and when I finally did reach the tent, the New Jersey lad was experimenting on doughnuts. I found they were really not too bad.

Even though I lost half my hobnails on the rocky trail, I would go again any day.

- Joe Schmitz, Lookout-Fireman, Lolo

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Bears Like Steam-Heated Dens: Bears in Yellowstone National Park are spending their winters in steam-heated hibernating dens. When Superintendent Edmund B. Rogers and Park Photographer J. E. Haynes discovered a new hot spring area on the side of Paint Pot Hill recently, they found a number of bear dens located nearby in the sidehill. It is entirely plausible, they believe, that escaping steam and the natural warmth of the ground attracts bears to the location for their long winter sleep.

- "Wyoming Wild Life."
COPY

AERIAL
Safety

Missoula, Montana
October 5, 1944

To: P. A. Thompson, Chief, Division of Fire Control, W.C.
From: C. S. Crocker, Assistant Regional Forester, R-1 (S) C.S.C.

A footnote on your memorandum of July 13 specifies that no reply is needed. This isn't a reply — just a story too good to pass up.

The Powell District boys had snowshoed over the divide and were working trails and telephone below the snow line in the Lozsa country. Their supplies came by air — too much snow on the high ridges for trucks or miles.

One grub order included among other perishables, a case of eggs — thirty dozen — making a pretty bulky package, weighing some seventy pounds in addition to chute and ropes.

This load was to be dropped at Powell Station. It's a rather tough site in the bottom of a narrow, ditch-like canyon. It's not only narrow, it's crooked as a crippled snake's track, and covered with dense white pine of the seven-log variety.

Dick cut the motor and settled down pretty low for the drop — had to crowd the tree tops because it's a darn small opening to peg with a chute. The Travelair hit a masy spot just as the dropper pushed the case of eggs out the door. The trees on the other side of the clearing were close and Dick gummed the motor — had to get her nose out of the pine needles quick. The blast of wind from the prop caught the chute before it tightened the static line. It was in the tail before it filled. There it stayed.

Away the boys went, slithering along over the twisting Lozsa like a tin-samed terrier in a cactus patch. The chute did not open — just fouled up in the tail assembly and dragged the case of eggs.

Dick picked up some clearance flying downstream. Finally he got enough to circle and climb out of the down-draft zone. Elevation came hard though, and the Bitterroot Divide looked too high, so he decided to attempt shaking off the toggle.

The first try involved climbing high enough for a dive, then snapping off the eggs in a quick recovery. No soup. Elevation was too hard to get. Next possibility appeared to be a tall, lone snag ahead on a ridgetop. Dick maneuvered about, attempting to get in position to wrap the case of eggs around the trunk of the snag for a pull-off. Again, no luck. Two reasons: First, the Creator of that snag had not planned its location for that particular purpose; and, secondly, a better look at the tail assembly proved that most of the chute's 24 load-lines were tangled around a stabilizer and each line was good for a four-hundred-pound pull. Dick decided that a jerk of nine thousand, six hundred pounds was a little severe for the spruce and fabric which comprised that twenty-year-old tail. One course remained open. He pulled for Missoula.
2-P.A. Thompson—October 5, 1944

The boys at Powell had phoned Missoula that Dick had disappeared from their view, headed down-river with a chute and cargo bundle dangling from his tail. Airport attendants cleared the sky over the field. Fire wagons and rescue outfits rushed to strategic corners of the landing strip. Preparations were thorough. Ordinarily the Johnson airport is a noisy place, but the crash of a falling snowflake would have echoed across the field as the long-faced outfit awaited Dick's arrival.

He came in fairly high. The fire wagons moved up closer to the spot where the crash was most likely to occur. Without circling, Dick headed for the runway, coming in pretty fast. Then when some thirty feet off the ground, he lifted the nose of the ship with just-short-or-stalling speed. Somehow, the case of eggs touched the ground and skidded along with hardly a bounce. The tail-skid contacted the ground, then the wheels, and the trip was finished. Bystanders began to breathe normally again. Crash wagons sort of sneaked off the field. Dick got out, examined the case of eggs and broke the quiet with the statement, "Damned if I didn't break some." Actually four dozen were damaged.

He delivered the load to Powell after lunch.

This is one of those things, Pat, which happens once in a lifetime of dropping supplies. That one time either kills you or you never try it again. I don't believe it worthwhile to caution other regions regarding this particular incident. Certainly our people here won't get their tails fouled again because of this particular maneuver, and I'm pretty sure that other pilots will avoid getting into such a jam if at all possible.
Diary
Joy H. Price
Jan 16 to Dec 14
1939
THE FORESTER,

U. S. DEPARTMENT OF AGRICULTURE,

WASHINGTON, D. C.

This book is Government property. The finder is requested to deliver it to any officer of the Forest Service, or to mail it without postage by turning and fastening the cover back so that this leaf is exposed.
Feb. 9, 1939
Met Collins at Enola. Have seen concert tonight.

Feb. 8, 1939
Left on 7 W. D. and Miss B. on 27th. Dinner with B. and Lonie. Call on B. at 3:00. Later to Broadway andали
Mr. Ivan Doig  
17021 10th Ave. NW  
Seattle, WA  98177

Dear Mr. Doig:

Because of your background and your extensive research for English Creek, we thought you might be able to provide some insight to the historical activities in the Dupuyer Creek area. Your assistance would be very much appreciated.

We are attempting to determine whether a public road existed from Johnsons Crossing to the National Forest boundary in the North Fork of Dupuyer Creek. The road location in question is more specifically defined as follows (see attached map):

Starting at about the center of Section 18, T.27N., R.8W., then running northwesterly to the 1/4 corner between sections 18 and 13 of T.27N., R.9W., then southwesterly to the center of section 13, then south and west to about the south 1/4 corner between sections 13 and 14, then westerly about 5/8 mile to a point in the NE1/4 of the SW1/4 of section 14, then southwesterly to a point on the boundary of the Lewis and Clark National Forest which is just south of the 1/4 corner between sections 23 and 22. The total length of this described section of road is approximately 3.2 miles.

We are looking for information about the historical use of the area and particularly the road. From old Teton County records we find references to sawmills in the general area around the turn of the century. We know that a Forest Service Ranger Station was constructed in the area in about 1908 and was used for a period of four or five years. Do you recall any references to this station?

Although we are interested in all types of historical activities, we are specifically trying to determine whether public access rights have been established. Therefore, your recollections regarding activities relating to
commercial uses, i.e. timbering, mining, trapping, outfitting, grazing, etc. would be of special help.

We are also curious about a road/trail which ran in a north-south direction from near the Canadian border along the Rocky Mountain Front to the Teton River or perhaps further south. We are aware of the Old North Trail. However, was this trail also known as the Pondera Trail?

We would greatly appreciate any information you could share with us. References to helpful sources and names of local informants would also help. Thank you.

Sincerely,

JOHN D. GORMAN
Forest Supervisor

cc: Hamlett
Dear Mr. Gorman—

I wish I could be helpful in regard to your letter of Feb. 7, and thereby repay a bit of the USFS's helpfulness to me over the years, but I don't have any specific information on either of your questions. In digging through my research files, I can only come up with these suggested sources which might hold some mention to the Johnson's Crossing road:

---The Lewis and Clark Forest Reserve, Montana, H.B. Ayers, GPO, 1900; extract from 21st annual report of the survey, 1899-1900, pt. V, forest reserves.
Likely this is a source your office has on hand and has already checked, but just in case. I photocopied only selected pages for my own purposes, but I see there are paragraphs about "occupancy," which might bear on the area you're interested in, and I wonder if there might be a list of ranger stations of the time somewhere in that report.

---The WPA Federal Writers Project files in Special Collections at the MSU library in Bozeman. Much of that material is anecdotal, but there were county-by-county files about stock-raising, pioneers, etc., compiled during the New Deal. I don't have the name of the current Special Collections librarian, but I've found some of those files—6 or 8 file cabinets full of them, decently indexed—surprisingly helpful.

On the Pondera Trail question, I'm afraid I'm blank. My copy of the Dupuyer centennial history simply notes that the "Fort Shaw-Fort MacLeod trail...ran through Dupuyer" (p. 6). Perhaps Dupuyer's local history expert, Jack Haynes, would know something helpful to you.

Good luck, and my regards to Cynthia Hamlett.
from old notebook:

"Bob Cornell, Fed Rec Center: original records of 1910 Wallace fire at St. Mary's Forest Service office"
Please photocopy:

P. 3-8
Pp. 15-29
Pp. 32-36
Pp. 180-181
Pp. 229-240
FIREMAN’S GUIDE

REGION 1

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
INTRODUCTORY INFORMATION

PURPOSE OF THE HANDBOOK

1. To set forth those practices which will be of greatest assistance to the fireman in the conduct of his work.
2. To establish standards of performance for those men who do the work, and those who direct and plan.
3. To provide for field men a brief description of practices, tactics and techniques resulting from the experiences of hundreds of men on thousands of fires.

USE OF THIS HANDBOOK

1. This book is designed to serve as a general guide in fire control work for all employees of the Region. Supplemental instructions will be issued by local executives to meet the detailed local requirements of each position.
2. Copies of this book will be placed in the hands of all men directly responsible for work in prevention, suppression, and suppression.
3. Each fire control employee will be expected to become familiar with that portion of this book which applies to his position, or to any job to which he is likely to be assigned.
4. The examples and problems included herein will have most value if the reader will visualize them in a country he knows well, on a fire he has fought, or in a situation he has encountered. Think of the Handbook in terms of your own job.

STRUCTURE AND INDEXING

1. For the convenience of the reader, this book is compiled in four sections.
   Section I. Includes introductory information necessary to comprehensive use and understanding of this book and its purpose. It includes a brief description of the organization, line of authority, and responsibilities in Fire Control; and a definition of fire control objectives.
   Section II. Sets forth the normal requirements and duties of the lookout, fireman, patrolman and other positions responsible for fire protection duties. It includes job descriptions and detailed problems in detection and suppression of small fires.
   Section III. Deals with suppression of large fires. Much detail of technique is omitted in this section since it is adequately covered in the preceding section, and is applicable here without repetition.
   Section IV. General informative material necessary to proper conduct of fire control work. Includes material directly related to topics in both preceding sections, but is segregated in the form of reference material to avoid repetition.
2. All four sections of this book are combined in one index. Each chapter or topic is indexed exactly as titled. For convenience in finding material, the index includes certain subjects within a topic which may not be adequately indicated in the title.
The practice of assembling men from different locations makes necessary the adoption of uniform standards for fire organization. To avoid confusion and misunderstanding, lines of authority and responsibility must be maintained in identical form on all ranger districts and forests. Briefly stated this line of responsibility is as follows:

THE REGIONAL FORESTER

The regional forester is responsible to the Chief Forester for all fire work in the Region. The regional office delegates full authority and responsibility for management of fire control to the supervisor of each forest, who exercises such authority for all action within his forest. The regional office acts as a coordinating agency and a service headquarters for the forests. It is here that the needs of the forests are considered, and general fire practices are coordinated. The regional forester and his representatives inspect forest organization and fire action with a view toward assisting the supervisor to maintain adopted standards, and to assist in training of fire control people. Likewise, such inspectors learn of new and improved methods, and carry them on to other forests. Another regional office function is to see that each forest receives its just share of fire control facilities, and that such facilities are put to the best use possible. The regional office acts as a central dispatching agency in mobilization of inter-forest personnel and equipment, and handles such all-region fire projects as development of major items of equipment, management of central fire caches and the packstock depots. The regional forester does not take charge of fire action unless specifically requested to do so by the supervisor. His office develops standards, coordinates practices, establishes policies and inspects the performance of the seventeen national forests.

THE FOREST SUPERVISOR

As administrative head of the national forest, the supervisor is responsible to the regional forester for all fire control work on his forest. He delegates full authority to his rangers for all direct action in all phases of fire control, and holds them responsible for accomplishment in accord with established standards. He assists and directs his rangers through training and inspection of their work. He inspects guards and guard camps, not to check up on the guard, but to measure the accomplishment of the ranger. He acts as coordinator of inter-district activities and mobilization, and serves as councillor and guiding supporter to the ranger in emergency problems. He interprets regional instructions and policies, and sees that rangers carry these, as well as local instructions, into effect. He directs major campaigns in fire prevention with the assistance of his rangers. On large or difficult fires, the supervisor does not usurp the authority or responsibility of the ranger. Instead, he uses this opportunity to further the experience and training of the ranger by making him "fire boss" and himself supervising the action only to the extent necessary to prevent major errors in management and to train the ranger or other fire boss. Of course, when fires occur which involve management clearly beyond the ability of the ranger, the supervisor will assume direct charge. Such instances are few. All requests for fire control facilities from central caches, or from other forests must be approved by the supervisor. Likewise, he is responsible for furnishing assistance to other units whenever possible without endangering his own forest.
absence of both. In order to satisfactorily handle fire dispatching, it is essential that
this member of the organization be an experienced lookout-fireman and have per-
sonal knowledge of the area with which he is concerned. Experience in suppression
of large fires is also necessary to complete understanding of this work.

THE HEADQUARTERS GUARD

There may be a few cases where the volume and character of work at ranger
district headquarters during the fire season does not require an assistant to the
ranger of ranger alternate or ranger dispatcher calibre. There are other cases where
the volume and character of work is such that an assistant to the dispatcher is
required.

In either case the position, termed as headquarters guard, will have responsibili-
ties approaching those of an alternate or a dispatcher, except that they may not be
called upon to make field inspections or supervise protection men or improvement
crews.

Ordinarily the headquarters guard is in reality a second dispatcher or alternate
in training.

THE LOOKOUT-FIREMAN

This position, under the supervision of the ranger, embodies the last and final
breakdown in territorial assignment for fire protection. It is the lookout-fireman
who ordinarily is responsible for detection and first suppression action on the
ground. The importance of his position is illustrated by the fact that some sixty
percent of fires are handled entirely by him. Each of these fires is a potential dis-
aster, hinged upon the competence and performance of the lookout-fireman.

As a rule, this position is filled by younger men who have been developed as
woodsmen through assignment to improvement crews, surveys, etc. A great num-
ber are selected who have had no experience in woodcraft. These must be given
an opportunity to become skilled in woods work, forest activity, and travel necessary
to successful smoke-chasing.

Selection of lookout-firemen should give consideration to (a) the physique of
the individual—he must be sound in health and alert of mind, (b) ability of the
applicant to develop to higher responsibilities, (c) number of years applicant may
be available and the amount of training and experience required to qualify him
for the job.

THE CREW FOREMAN

Each forest crew foreman has a definite responsibility in fire control. He is not
only responsible for his own training and performance in fire duties, but also for
that of his crew members.

Ordinarily the foreman is responsible to the district ranger and is provided with
specific detailed instructions concerning his project work. His fire work, except for
certain local duties, is covered in later sections of this book. Much of the success
in fire control rests upon the judgment and performance of the forest foreman since
he often leads and directs the first attack on fires. Likewise, the forest project crew
is a training school for lookout-firemen, crew foremen and straw bosses, and the
foreman is responsible for laying the foundation for advancement of these men.

It is in the regular forest crew that men learn to use tools, to acquire knowledge
of what constitutes a reasonable day's work, to work harmoniously as a unit with
others, to receive instructions and carry them into execution; and it is here that firemen first learn the feel of foremanship and thus acquire the foundation for sympathetic management of such personnel as may later be under their supervision.

The forest foreman must know the principles of organization and the tactics and techniques prescribed for fire prevention, preparedness and suppression in this book.

THE PREVENTION GUARD

The prevention guard is ordinarily responsible to the district ranger but under certain conditions may work on two or more ranger districts. Likewise there are situations when due to geographical location of prevention problems he may work under direction of the supervisor’s office.

His primary duties are to prevent fires. He has responsibility for teaching forest users to properly handle fire in the forests, to exercise tactfully the police authority necessary to obtain compliance with fire laws and to obtain evidence for prosecution of violators. The prevention guard is the Forest Service Representative to the visiting public and as such he is responsible for obtaining from all persons contacted a willingness to cooperate in preventing fires. Likewise the prevention guard is responsible for detection and suppression of fires. His special duties will be definitely stated in local instructions written to meet individual problems of the job. The general instructions in this book shall govern activities of the prevention guard in preparedness and suppression work.

THE PER DIEM GUARD

The per diem guard works under direction of the district ranger. His responsibilities are comparable to those of the lookout-fireman and insofar as preparedness, travel and suppression jobs are concerned, the instructions and responsibilities specified in this book for lookout-firemen are applicable.

The per diem guard position differs from that of the lookout-fireman’s only in that it is not a full time job. He functions only during periods when there are fires or special dangers. He usually is a rancher, forest operator or permittee, whose day to day work is not under direction of the forest service. His is an important role and one valuable to the fire control job.
TOOLS AND EQUIPMENT

The employee is responsible for all tools and equipment assigned him.

REPORT: Losses, breakages, worn out ones at once.

KEEP: Worn out and broken equipment for condemning by forest officers. Any property of the Forest Service not properly accounted for must be paid for by the person to whom it is charged.

Tentage:
Set up neatly.
Top level.
Ropes tight.
Walls straight.
Equip with asbestos rings or metal roof jacks.
Bottom free from ground to prevent decay resulting from moisture.
Avoid sharp objects.
Protect from stove, pipe.
Dry before storage to prevent mildew.
Store in dry place protected against attack by rodents.

Fireman Equipment:
Always in assigned place.
Intact and tagged.
Light always ready.
Safe from rodents and insects.
Handles tight.
Tools sharp and clean.
Rations complete and useable.
Use only on fire.
Replaced or reconditioned immediately after using.

Water Bags:
During fire season keep soaked at all times and change water frequently.
When filled, hang up.
Protect from sharp instruments.
Dry before storage.
Store in dry place.

Kitchen Equipment:
Wash and dry after use.
Rinse off soapy water before drying.
Neatly put away after using.
Coat with mineral oil for winter storage. Store in dry place.

Cars and Trucks—Government or Personal:
If used for fire shall be ready for instant get-away, and have:
- Tires inflated to prescribed pressure.
- Gas tank full.
- Oil level up.
- All lights working.
- Grease-oil card on hand and up-to-date.
- Card of instructions at hand.
Accident report forms in car.
Shovel, axe and water bucket.
Car jack, tire pump, repair kit and flares.
Spare tire and air up.
Brakes in working order.
License plates firmly attached and clean.
Battery fully charged.
Bearings greased.
All bolts tightened.

**Driver Must:**
Observe traffic and speed regulations.
Drive cautiously on curves and elsewhere.
Promptly report any accident on form provided.
Know that he may be held liable for damages resulting from accidents. All drivers of government vehicles must have public liability and property damage insurance, if driving 250 miles or more per month.
Be considerate and courteous to others.
Those who drive government cars regularly must obtain a government driver's license.

**FOOD SUPPLIES**
Have camp stocked on occupation for period of expected use.
Replenish through requisition from district headquarters. (This will not generally be at frequent or regular intervals.)
Order ahead of actual want.
Inventory supplies frequently; keep want list.
Send surplus items back to central storage warehouses.
Prevent waste of food.
Store neatly in cool, dry, protected place.
Keep away from animals, rodents and flies.
Fire guards, lookouts, etc., shall not be permitted to absent themselves from their station during possibly dangerous conditions to go after food supplies.

**IMPROVEMENT WORK**
Improvement work is an essential part of the fire control employees’ duties. Do not permit maintenance and construction jobs to interfere with necessary fire control duties. During periods when there is fire danger the district ranger is responsible for seeing that this does not happen. Men with fire duties will leave their stations or engage in other than fire duties only under specific instructions issued daily by the ranger, or by his alternate or dispatcher when either of them has been designated by the ranger to issue such instructions.

**KNOWLEDGE OF LOCALITY**
The ranger will, to the extent possible, distribute pre-season work to employees to assist them in learning their country. He will direct discovery trips, discuss with the employee pertinent points about all areas in question, and indicate on a map or by memoranda helpful information. First-hand knowledge is the best. It is essential for each fire control employee to know his country.

**The Knowledge Required Includes:**
- Roads and trails.
- Topography—stream courses, ridges and peaks.
- Natural fire-breaks.
DIARY

Every employee is required to keep a daily notebook record of work and important occurrences. The first leaf shall show:

Name
Lookout or other
District
Forest

1940

For each day use one or more pages, but do not put more than one day on a page.

Head page thus: (Sample for Lookout-fireman)

WEDNESDAY, JULY 1

6:00 a.m. to 6:20 in observatory—looked area over intensively.

7:00 a.m.—Breakfast over, dishes washed and test calls to Bungalow Station.

8:00 a.m. to 1:00 p.m.—Helped Bill Head cut out 10 logs on Trail No. 10 between mile posts 1 and 4, returned to Cook Mt. 2 p.m.

2:05 p.m.—Reported Bungalow Station. Received weather forecast of probable electric storms. Told by Brown to go on lookout duty.

3:00 p.m.—Thunder clouds appearing over Rocky Ridge, traveling NE wind 15 miles per hour. I reported this in.

3:15 p.m.—Lightning over Weitas Creek with light rain. Several strikes located, recorded and reported to headquarters.

3:45 p.m.—Storm passed over Moose Mt.

3:50 p.m.—Richard Roe trail maintainer came in from Indian Grave.

3:55 p.m.—Thin smoke appeared azimuth 280 degrees Sec. 5, T. 2 W., R. 14 N., reported this to Brown, dispatcher at Bungalow.

4:00 p.m.—Started to fire. 4:58 p.m.—arrived at fire. 5:25 p.m.—controlled fire. Put fire out at 7:10 p.m., filled out smokechaser report form and left 8:20 p.m. Returned to lookout at 9:50 p.m., reported at once to headquarters. Richard Roe attended lookout duty during my absence.

Maint. Trail No. 10—5 hours. Fire No. 8—6 hours.

(Sample for Crew Foreman.)

Chas. Briggs, Trail Crew Foreman.

7:00 a.m.—Breakfast over, telephone test call made to O'Hara Station, all okay.

8:00 a.m.—Started 6-man crew rebuilding trail up Ratchall Creek, 2 men swimming, 4 men grading tread.

1:10 p.m.—Messenger called crew to O'Hara because of forecasted probable lightning storms.
2:00 p.m.—Lightning occurring on Coolwater ridge with light rain, fire reported
2:30 p.m. Sec. 6, T. 32 N., R. 8 E., took 2 men in car. Left at 2:35 p.m.
Drove to point 1/2 mile of fire, arrived with Short and Jones at fire 3:25
p.m. Fire controlled at 3:40 p.m. Fire out at 4:10 p.m. Made out Smoke-
chaser Report Form 592 on fire and arrived at O'Hara 6:30 p.m.

Work on Trail No. 43—4 hours.
Suppression Fire No. 61—5 hours, 30 minutes.

DESCRIPTION OF JOBS AND RESPONSIBILITY

THE RANGER ALTERNATE

The ranger alternate’s job in fire control is very similar to that of the ranger
since, as in other district work, he must be prepared to take the ranger’s place at
any time. He must be able to:

- Gain the respect and support of the district employees.
- Assume charge of all fire control operations as directed by ranger.
- Instruct and train temporary employees in their duties.
- Inspect work of employees and correct errors.
- Do any field job required in fire control work on the district.
- Make suggestions for improving fire control plans and practices.

He Must Study and Become Familiar With:

- Forest Service fire control policies.
- That portion of the District Fire Control Plan including:
  - Fuel type maps and overlays.
  - Transportation system maps.
  - Index maps.
  - Detection responsibility maps.
  - Detection coverages.
  - Patrol coverages and scheduled trips.
  - Smokechaser responsibility maps.
  - Smokechaser travel time coverages.
  - Man-power placement maps and tracings.
  - Communication maps and tracings.
  - Organization, improvement and equipment plans, manning policy, etc.
  - Instructions to each man in the organization.
  - Those portions of the Fire Control Handbook that pertain to his job.
  - Fire Dispatcher Action Record and Dispatcher Guide Charts.
  - Azimuth circle and parallel rule functions.
  - Fire problems of his district, special hazards, etc.
  - Forest procedure in regard to:
    - Allotments.
    - Expenditures.
    - Records and reports.
  - Fire Danger Chart and the Forest Fire Danger Meter.
  - Methods and requirements of taking fire danger measurements.

His Principal Fire Control Duties Include:

- Instructions and training of fire control employees both in training camps and on
  the job.
- Inspection of fire control stations, crews, fire packs, caches and fire action of any
  nature.
Report on the form provided complete findings and action taken by him on all inspections.
Taking corrective action wherever needed.
Seeing that permittees comply with fire control requirements.
Instructions and assistance to cooperators.
Action on going fires.

In the Absence of the District Ranger It Is His Duty to:

Assume charge of the district organization.
Keep the men in the fire organization alert and ready.
Work with the dispatcher in getting correct, speedy fire action.
Handle all reports and district work as scheduled.
Keep close daily contact with all district personnel.
Promptly advise the ranger or, in the ranger’s absence, the supervisor of any important developments.
Take charge of any fire that gets beyond control of first-line forces, unless relieved by the ranger or supervisor.
When large fires occur the alternate must act quickly on his own responsibility.

If he cannot get in touch with the ranger, he should lose no time in taking the following action:

Completely calculate the probabilities (Fire Dispatcher Charts and Action Record).
Dispatch men, supplies and equipment commensurate with the job.
Provide transportation, and where necessary lunches, meals and lodging for men while en route to the fire.
Decide on special equipment and order if needed.
Have the fire scouted before arrival of crew.
See that fully adequate overhead is provided. There shall be no hesitancy in calling the supervisor for overhead if the district cannot supply it as quickly.
Provide guides for crews en route to fires.
See that all routes are plainly marked at intersections of roads and trails.
Provide necessary communication.
Provide for necessary follow-up action, and take direct control of action in field.
(See “Fire Boss Job Description” fire suppression chapter of this Handbook for further details.)

Responsibility:
The alternate is responsible for action taken by him in the same degree that the ranger is.

He Is Accountable to the Ranger for:

Compliance with outstanding instructions.
Adherence to his schedule of work.
Promptly reporting failure or weakness in the organization.
Taking necessary corrective measures.
All actions taken by him.
Complete cooperation between ranger and alternate can be brought about by:
- Current written instructions by the ranger.
- Frank discussion of plans, jobs and methods as questions arise.
- Interchange of copies of inspection records.
- Current memorandums and reports.
- Trip plans for the alternate coordinated with the ranger’s.
- Definite, clear-cut job plan and assignment of authority.

**DISPATCHER (RANGER DISTRICT)**

The dispatcher is the ranger’s assistant at the headquarters station and has certain administrative and fire control duties to perform.

**The Dispatcher Must Be:**
- Mentally alert and able to decide and act quickly and surely.
- Willing to work long hours, day or night when fires occur.
- Physically able to do hard manual labor.
- Able to do clerical work, keep records, charts and make reports.
- Qualified for lookout and fireman’s positions.
- Generally familiar with improvement work.
- Familiar with the district in which he works (the more detailed his knowledge the better).
- Thoroughly informed on the communication and transportation systems and problems affecting travel to fires.
- Always courteous to forest users and visitors, as well as pleasant in dealing with employees of all classes.
- Thoroughly acquainted with the district fire plan and facilities for dispatching to fires.

**Duties:**

While the dispatcher is expected to do other administrative work, his principal job is fire control. Routine duties include keeping:
- Food supplies stocked to quantity required.
- Orders from field promptly filled.
- Current want list from various stations.
- Stock on hand invoiced and arranged in orderly fashion.
- Equipment repaired and stored in the place selected.
- List of equipment needs available for ranger.
- Fire cache and packs ready for immediate use.
- Fire control trucks and cars ready at all times.
- Useless equipment segregated for condemning.
- Ranger and alternate informed on everything requiring their decision or action.

**Records and Reports:**

- Dispatcher’s daily log or diary.
- Data on “Dispatcher Action Record.”
- Data on “Current Fire Record” (if used).
- Fires, by classes on district fire maps.
- Accurate fire labor costs and man-power by days.
- Meal records.
- Monthly district payroll to supervisor.
- Currently, occurrence and status of fires to supervisor.
Supervisor’s number for reportable fires.
Fire data to supervisor on Form 929 reports.
Daily fire weather and organization data as called for.
Additional information required by ranger.

Dispatching Duties Consist of:
Receiving and recording all reports on fires.
Checking to obtain any additional possible lookout readings.
Determining correct location of fire on map.
Informing ranger or alternate as soon as practicable.
Assigning men to go to fires as directed or as circumstances dictate.
Checking information with men before starting them to fires.
  Correct Form 17 R-1 data.
  Best route to fire.
  Accurate location on fireman’s map.
  Correct compass backsight nearest visible lookout.
Calculating probabilities of spread and man-power needs on going fires in the absence of the ranger and alternate or when directed to do so by either of them.
Preparing necessary “Fire Dispatcher Action Record.”
Initiating necessary follow-up action.
Keeping informed on any going fire.
Currently advising ranger and supervisor of conditions.
Taking immediate steps to re-man points vacated by men sent to fires.
Checking reserve forces and equipment that might be needed.
Recording all important facts and action taken.
Training lookouts over telephone by giving them problem fires, checking orientation and accuracy of reporting, map reading, etc.

General Duties Consist of:
Acting in charge of district in absence of ranger and alternate during which times he will be governed by instructions from ranger and alternate.
Receiving and making communication test calls.
Sending or receiving radio messages.
Keeping informed as to forest users.
Cheerfully dispensing information to inquirers.
Keeping informed on district activities.
Informing all stations as to time and fire weather forecasts.
Attending to any other clerical duties assigned by ranger.
Keeping headquarters office and yards clean and neat.
Recording fire danger measurements, weather forecasts and rainfall data.
Maintaining property records.
Bringing organization maps up-to-date by calling neighboring dispatchers each week and obtaining information regarding any changes in their organization which has significance to his district.

LOOKOUT-FIREMAN

The positions of lookout and fireman are usually combined in one man called lookout-fireman.

The instances where a man is hired solely for lookout work or fireman’s work are very few. Since there are some such cases brought about by special needs for smokechaser coverage or detection coverage, the specifications and instructions for
lookouts and firemen are kept separate. The lookout-fireman is responsible for compliance with both sets of instructions.

THE LOOKOUT

Detection of fires is one of the most vital features of fire control. The lookout man is a key man in the fire control organization. As such he must be continuously on the job. No leaves of absence are granted during dangerous fire weather.

Quick control of fires and elimination of dangerous hangover fires require prompt detection, accurate location and intelligent reports promptly made to the dispatchers. Follow-up reports on progress of fires is an important part of the lookout’s work.

The Lookout Man Must Have:

Good eyesight, strong and healthy physique.
Sufficient education and intelligence to make accurate observations, calculations and reports.
Alertness and be willing to work long, tedious hours.
Thorough knowledge of his territory.
Training in the details of his job.
Integrity—being on the job.
Skill in the use of all detection equipment.
Ability to distinguish between real and false smokes.
Carefulness.
Speed consistent with accuracy.

To Handle His Job Successfully He Must Be On the Job and Know:

Principles and use of the compass.
Use of the alidade and azimuth circle.
How to orient a mapboard or firefinder.
Map reading in all details.
Identification of physical features with map.
Weather measurements, reporting and use.
How to calculate areas of fires observed.
How to distinguish and record on his map all false smokes in his territory.
Lightning storm action, how reported.
Location of lakes, mountains, creeks, ridges, ranches, roads and trails within his range of vision.
What a small fire looks like.
Difference in appearance between smoke and fog.
Gauging the progress of a fire by the smoke column and by use of mapboard and alidade.
All details of fireman’s job.
Communication and transportation systems of his area.
Where the danger areas within his territory are located and the extent and location of blind areas.

Equipment:

*Each lookout shall be equipped with:*

1. One of the four kinds of firefinders:
   (a) Osborne firefinder with map and azimuth circle.
2. Complete fireman's pack.
3. A complete set of record forms which consists of:
   (a) Lookout Fire Report Form 17 R-1.
   (b) Diary book.
   (c) Lightning storm report (if station is selected as observation point).
   (d) Lightning strike record.
   (e) Fireman's Report, Form 592.
   (f) Necessary rain, wind gauge and other fire weather forms.

The equipment must be checked against this list for completeness. A tag listing the contents of the fireman's pack is attached to the pack. It must be used as a check of the completeness of the pack and a record of inspections.

**Preparedness:**

Advance preparation for fires is necessary. Fires often occur in groups over a period of a day or more. The lookout man must be prepared for long and continuous duty on the lookout or in going to fires.

Other men may be sent to work from his station to assist in covering all of the fires. On such occasions there is little time to do chores.

Everything must be in readiness for such emergencies:
- Lookout windows clean and view unobstructed.
- Mapboard base solidly set and working parts oiled.
- Map clean and kept oriented, checked daily and before each reading, or series of readings.
- Alidade sights with hair or wire always provided and in alignment—extra hair or wire on hand.
- Firefinder clear of obstruction—not used for table or shelf.
- Report forms and pencil readily at hand.
- Telephone in working condition.
- Test calls as directed by the ranger.
- Mapboard light working—batteries strong.
- Other lights—cleaned—filled—ready.
- Fireman's pack complete and ready. (Water bag soaked and canteen refilled daily.)
- Tools in proper condition for use.
- Hand pumps if required oiled and near packs or attached.
- Twenty-four hour water supply on hand.
- Two weeks' wood supply—stove size.
- Adequate food supplies on hand.
- Car as specified in "General Instructions."
- Saddle horses tied up and ready to go throughout daytime (7 am. to 7 p.m. if horse is required).
Lightning Storms:

The following points should be observed when lightning storms occur:

1. Report thunderheads to the ranger station when they appear.
2. Give location and direction the storm is traveling.
3. Pass the word on to other lookouts and dispatchers.
4. Have mapboard orientation checked and ready.
5. Be on lookout all during the storm, day and night; do not let meals interfere.
6. Watch continually for “hot” strikes.
7. Keep a record of the location of all strikes toward ground; use form provided.
8. Mark the locations on a map.
9. Telephone the information to ranger headquarters immediately.
10. Check all strikes on the record which develop into fires.

Watch the location of all strikes intensively during the succeeding days and nights.

Detection:

Detection work must be:

1. Systematic in procedure.
2. Accurate in each detail.
3. Unfailing in regularity.
4. Constant in alertness.

Minimum Requirements Are:

1. A systematic, complete, intensive observation of the visible areas consuming at least 20 minutes of each daylight hour during periods of danger. The ranger or alternate will schedule observations when he considers it necessary.
2. Observations must start at a given point and follow around clockwise to the starting point systematically viewing each ridge and canyon as it falls within the range of vision.
3. Scheduled night observations under detailed instructions by the district ranger when danger of fires justifies such action.
4. Means for orienting the firefinder at night. Distinct marks, coinciding with daytime orientation points, shall be placed on the walls inside the cabin.
5. Recorded bearings, location and description of all beacons, trash burners and other recurring smoke or lights.
6. A posted record of visible “false smokes” including all objects which may be mistaken for smoke, showing the section, township and range, azimuth reading and brief description.

“False Smokes” may include:

Distant rock slides.
Alder thickets on which light frequently resembles smoke.
Saw mill smokes, railroads, etc.
Fern patches.
Bodies of dead timber.
Dust—sheep, roads, etc.

Reporting Fires:

Accurate fire locations are necessary.
Complete information as indicated on left margin of the “Lookout Fire Report.”
All of it is essential in dispatching. The information supplied by “Lookout Fire Report” shall give the dispatcher a true picture as far as possible of the fire as seen directly or indirectly from the lookout station.

Fire Reports by Lookouts Must Be:

- Accurate.
- Thoroughly checked.
- Promptly communicated to dispatcher.
- Supplemented by adequate additional notes of fire behavior as seen from lookout, from discovery to time last smoke is seen.

The Following Order Will Be Observed:

- Notify dispatcher that a fire is seen.
- Recheck map orientation.
- Get azimuth reading.
- Identify topography progressively from lookout to the fire.
- Locate and spot fire on the map.
- Check azimuth and location.
- Fill in the Lookout Fire Report.
- Telephone the information to the dispatcher.

Travel to Fires:

The lookout man is also a fireman, and it is his duty to go to fires when so instructed. (See Fireman’s Instructions.)

Lookout Inspection:

The lookout man shall be furnished with the inspection outline used by forest and Regional Office inspectors. He will use this outline as a guide to inspect himself so that nothing will be missed in keeping his accomplishments to the desired standard. He will also check his own performance weekly in accord with the “Guard’s Weekly Inspection Chart” shown in Section 4 of this book.

The ranger may and is encouraged to require each employee to make thorough periodic self inspections, and to fill out the inspection report form to be checked by the ranger or his alternate at the next visit made for the purpose of inspection and training.

In every case the inspector will furnish a copy of his report to the man inspected and will freely discuss both satisfactory and unsatisfactory items. Needed corrections will be made at the time.

Lookout Patrols:

Patrols on foot, horseback or by car are necessary from many lookout points to cover areas not otherwise seen. The district ranger shall issue written instructions and schedule designating the frequency of patrol trips, the regular or special equipment to be carried, the time consumed on each trip and places and length of observations.

The Minimum Requirements Are:

- Patrol routes from each point to be numbered.
- A sign posted at the take-off, with the name of the lookout point and number of the patrol, indicating the direction to take.
- Patrol route plainly marked to observation point or points with blazes, tags or other adequate marks.
Provision at observation points of lookout trees, L-6 lookout towers or other structures to raise the observer above brush, trees, etc., when necessary.

Scheduled telephone reports to designated station while away from regular station.

The Ranger Shall Furnish Each Lookout Man With Supplemental Written Instructions Covering:

Patrols, frequency and time of test calls, responsibility zone, improvement work, water trips, emergency action and weather records.

THE FIREMAN

The Fireman Must Be:

Able-bodied with good eyesight.
Willing to stand hardships and hard work.
Qualified to do lookout work.
Able to take care of himself in the woods.
Acquainted with his territory and its topography in detail.
Trained in the details of his job.
In constant physical condition to undergo severe hardships.

He Must Know How to:

Read a map in detail.
Use the compass and map skillfully and find his way through the woods with them.
Use all communication facilities, instruments and devices available for his use.
Use axe, grub hoe, shovel and other equipment with skill.
Care for his tools and equipment.
Do trail and telephone line repairs.
Do his own cooking.
Size up a fire and plan where and how to attack it.
Fight fire under the various conditions probable within his territory.
Distinguish between mineral soil and cluff.
Make a fire line safe.
Mop up inside the fire line.
Determine unfailingly whether a fire is dead out.

Cool down and stop spread of a hot fire by:

Use of dirt in an effective way.
Use of water where that is faster than dirt.
Building the right kind of fire line. (Robbing fire of fuel.)
Preventing fire from spotting or crowning.

The fireman will be held responsible by the ranger for immediate attack of fires to which he has been sent, and for the use of the best suppression tactics and technique in controlling and putting out fires.

He will go to fires outside of his district whenever the ranger, alternate or dispatcher requires it. He must be ready to start to fires at all times, day or night. He will never delay start in order to cook or eat a meal after he has orders to go.

He Must at All Times Keep:

Himself neat and appropriately dressed.
Twenty-four hours water supply on hand.
Two weeks wood supply—cut up—stove size.
Buildings and grounds in a neat and sanitary condition.
Fireman's pack complete and ready to go.
Horse ready to go in daytime (hours specified by ranger, otherwise 7 a.m. to 7 p.m.).
Car ready as specified in "General Instructions."
Phone working. (Proved by regular scheduled test calls.)
Available to phone call day or night unless absence authorized.
Watch checked with headquarters—correct time.
"Lookout Fire Report," Form 17 R-1, notebook and pencil near phone.

Lightning Strikes:
The fireman, if not located at a lookout point, will:
Take compass bearings on nearby lightning strikes.
Obtain distance by the method described in lookout instructions under "Recording Lightning Strikes."
Report them to ranger headquarters.
Locate strikes on map.
Search for lightning strikes when so directed.

Receiving Reports:
The procedure in reporting fires and receiving reports should follow uniform practices so that error in relaying location and failure to get complete information is less likely to occur.

When a fire is reported to the fireman and he is instructed to go to it, he shall proceed as follows:
Take all information indicated on such form as provided for this use. Always write down location and instructions.
Mark location on his field map and decide the best route to take. CHECK THIS DETAIL WITH DISPATCHER.
Determine compass back sight on lookout, check with dispatcher and enter with other notes on location of the fire and carry with him.

When the Fireman Discovers a Fire His Procedure Shall Be:
Fill out "Lookout Fire Report" as completely as possible.
Mark location and best route of travel on his map.
Telephone the information to ranger headquarters.
Ask for instructions.
If communication with ranger headquarters is impossible, call a neighboring station or, if no one can be reached by phone, leave a note telling location and when he left for fire.
When a fire is discovered from some point away from communication, if fireman can reach phone or radio and report without changing escape of fire, he should do that. If fire is in dangerous condition and within his reach, he should leave note on trail or road where he leaves for fire, stating location of fire, time of day, date and route he takes.
If instructions as to preparedness have been followed, not over five minutes should elapse from the time the fireman receives the report until he starts for the fire. Get-away time in excess of this must be explained to the ranger.
Travel to Fire:
To delay starting to a fire on account of darkness invites defeat.
Start immediately whether day or night.
Travel continuously at night as well as day.
(Exceptions to these rules shall be taken only upon the specific approval of the
man in charge of the district in each instance.)
Fill canteen at start of trip and refill en route if possible so that canteen is full
on arrival.
Take quickest route to the fire location.
Travel by road or trail is often quicker, though the distance is greater.
Make frequent observations en route, using lookout trees, open slopes or points.
Use back sight reading on lookout point to get on line when possible.
If the fire is seen at any time pick an easily identified landmark near it.
Mark take-off point on trail, giving direction taken.

Extinguishing Small Fires:
The fireman must be familiar with and make use of the most effective methods
and technique of stopping fires and putting them out. He must appreciate the neces-
sity of stopping every fire as soon as possible and before 10 a.m. of the day following
discovery. Many fires will be corralled long before that time. An explanation is
required for each fire not corralled before 10 a.m. because it then becomes an extra-
period fire, will be exposed to the danger period of the day, and may for that rea-
son become a conflagration.

Experience, training and good judgment are invaluable assets in fire fighting.
The following suggestions will not replace them but will serve to refresh the
memory of the man who knows something about the job. Disregard of one or more
of the points listed have been responsible for many fires getting away.

Upon Arrival at Fire:
Make note of the time, size of fire by dimensions, width and length. Place fire-
man’s pack in a safe place.

In Sizing Up the Fire to Determine Points to Attack, and Methods to Use,
Consider That:

Extreme heat is always dangerous and must be dealt with first.
It may cause fires to crown, throw spots or spread fast.
Fire travels faster uphill than down.
If slope is steep fire brands may roll downhill, starting more fires.
Fire high up in snags or trees may defeat efforts on the ground by throwing
sparks.
Wind generally blows up slopes in daytime.
Wind fans a quiet fire into a dangerous one.
Fire is generally worst from 1 p.m. to 5 p.m. Danger increases 7 a.m. to 4 p.m.
Decreases 7 p.m. to 7 a.m.
Ordinarily fires do not spread rapidly in duff.

Attack—Controlling Fire:
Cool hot spots with mineral soil. Use lots of dirt and reduce flames as first step.
Look outside the main fire for spot fires. If any are found, cool them down and
make them safe.
Rob fire of top fuels to stop spread, scatter ignited fuels well back inside and throw unignited fuels outside.
Cut off points of fire burning toward bare fuel.
If fire is not too hot make your line directly at the edge; scrape and shovel the edge back into burned area.
If fire is too hot to work the edge, locate line where there is greatest assurance of holding it. Avoid sharp angles on slopes. Trench out snags, etc.
Shovel and scrape edge of fire into burned area.
Cool down hot fires under low branching trees inside the fire with dirt, to prevent crowning.
Fell all burning snags or trees that have fire too high to put out without felling, being careful to prevent fire from spreading when they fall.
On steep slopes cut a deep trench, or bank up duff and debris below fire and cover with mineral soil, to catch rolling embers.
Systematic well-directed action and steady pace are most effective.
Over-exertion does not pay.
For additional details see suppression sections in this Handbook.

Mop-Up—Putting Fire Out:
Trim off low tree branches, remove fuel from around trees and snags.
Turn logs or chunks on slopes, so they cannot roll.
Scatter burning fuel near edge back into burn.
Separate burning logs and spread rotten wood, duff and embers.
Dig out underground fire. Don’t bury it.
Cut and scrape fire from logs, chunks, stumps, snags, trees, etc.
Throw mineral soil forcibly into burning cracks and weather checks.
Use dirt in the same way as water to put fire out.
Mix burning fuels with mineral soil, turn over, dig up and stir repeatedly.
If water is used soak all sides of fuel, turn over, feel for live fire and drench again.
Burying stump roots may carry fire under trench to outside fuels. Dig them up.
White, fluffy ashes indicate heat; feel them out.
Search nearby snags and tree tops for fire.
Look well outside fire line for spot fires.
Repeatedly look over, dig up and feel over burned area for smoke or hot spots.
Investigate stumps and roots of smouldering underground fire.
Feel around fire edge with bare fingers for hot spots.
See that there is an absolutely clean line cut to mineral soil around the entire edge of the fire and that nothing can roll across this line.
Before leaving spend sufficient time feeling and moving fuels to make absolutely sure the fire is out—dead out.

Returning From Fire:
A complete report on Form 592, Fireman’s Report, must be made out before leaving the fire. A copy will be sent to the ranger at the first opportunity. Complete notes will be required covering reasons for any delay or difficulty experienced in finding or suppressing the fire. These should describe the methods used to overcome the difficulty.

Mark route from fire to intersection with trail or road.
Report to headquarters from first telephone reached.
Get copies of waybills at time of loading and have them signed when load is delivered.
Know highway traffic regulations applying to territory in which he is assigned.
Pass a Government driver’s examination and carry a driver’s license at all times while operating a motor vehicle.

When Going to Fires He Shall:
Before leaving get location of fire and place to unload.
Know or find out best route to take.
Make note of name of man in charge at fire.
Find out most essential equipment to go on first load.
Make best time possible without taking undue chances.
If possible, phone ranger or headquarters when load is delivered.
Lose no time in returning for second load.

THE PACKER
The packer should understand and be chosen with the idea that he is an essential part of the fire control organization and that his responsibilities do not end with packing alone.

The Packer Must Be:
A man who understands and likes to handle stock.
Physically fit and willing to work long, irregular hours.
Able to understand and follow all instructions.
Capable of making accurate, essential packer’s reports.
Thorough and fast in cargoing packs and in loading stock.
Qualified to do fireman’s work.
Eager and willing to go through to fire day or night.
Willing to do other jobs assigned him.

Packer Must Know How and Be Expected to:
Handle stock quietly and effectively.
Never rope to catch stock, except as last resort.
Feed properly—economically.
Train green stock.
Give green or unruly stock sufficient work to keep them gentle.
Wrangle stock at daylight and in hot weather have them on the trail in time to take full advantage of cool morning travel.
Prepare loads and cargo packs the night before.
Weigh side packs, number and stack in individual loads.
Estimate weight carefully when scales not available.
Ask for waybill, have receiving person sign for goods received.
Return receipt to headquarters.
Pack anything transferable by pack animal.
Protect packed materials from damage or losses.
Always take the mail.
Do own cooking when necessary and keep clean camp.
Make his own way over rough, untraveled routes.
Repair minor damage to trails and telephone lines.
Report to headquarters important damage seen on lines or trails.
Keep daily record of trips, loads, animals used and other data called for by ranger.
Keep up daily diary, recording important data.
Special Care of Stock:

- Keep shod up. Have shod every six weeks.
- Save and use serviceable used shoes. Don’t use shoes worn thin or sprung out of alignment.
- Keep backs free from saddle sores.
- Brush and/or curry backs before saddling.
- Adjust saddle to animal. Avoid changes afterwards.
- See that animal’s number and name is on saddle.
- Never tie lead rope to front animal’s tail.
- Use ½-inch tail ropes attached to saddle tree.
- Balance loads at start, check frequently, keep balanced.
- Train stock to reasonably fast walk.
- Refrain from trotting loaded animals, except in case of extreme emergency.
- Water stock at every good opportunity while traveling.
- Let cool off before watering when animals are hot.
- Inspect stock for injuries at end of each trip. Shoes, etc.
- Treat cuts, sprains and bruises immediately.
- If sore back develops, find cause and remedy it.
- Bath tender backs with cool salt water. (Not cold nor hot.
- Trim mules’ manes and tails at least once each month.
- Never heat an animal quickly if it has been on dry feed.
- Do not experiment with ailing animals—when you cannot diagnose the case or have no approved remedy available call the ranger for instructions. He will specify treatment or call a veterinarian.
- Many so-called home remedies are dangerous—avoid them.
- Make sick animals as comfortable as possible. Always keep head and back uphill if on sloping ground.
- Maintain even normal temperatures by blanketting.
- Provide hay, straw, boughs, blankets or some other dry bed for the animal to lie upon.
- Never drench through nostrils.
- Use mechanical rather than medicinal remedies where possible—usually a rectal injection of warm water is more effective than the best of chemical purgatives.

Feeding Pack Stock:

- Use green feed whenever possible, even though it means increased wrangling time, except in case of urgent fire needs.
- Take stock to feed, do not turn out to make their own way.
- When hay and grain are fed, avoid waste, make and use rack for hay and nose bags for grain. Never feed grain on the ground.
- Frequent small feeds are preferable to a few larger feedings.
- See that stock tied up over night have level ground to stand on, free of objects which prevent lying down.
- See that salt is provided regularly at minimum rate of three pounds per animal per month fed in boxes or salt troughs.
- Do not water or feed oats to animals until they are cooled off at end of trip.
- Water before feeding.
- Use of conventional hobbles is preferable to picketing.

Care of Equipment:

- Keep rigging and halters repaired currently.
- Replace worn rope, straps and other parts before they fail.
Stack dry saddles, blankets and pads in order on dry spot, if available, and cover with canvas.
Keep “half-breeds” properly padded with dried, curled bear grass or hair.
Frequently clean blankets and pads of matted hair or caked dirt patches.
See that blankets are washed whenever necessary.
Keep pack equipment and supplies protected from porcupine, bear, rats, etc.
Store grain to prevent damage by rodents.

Fire Requirements:
Keep stock in good condition for fire call throughout fire season.
Always report in to headquarters when passing a telephone on a trip during dangerous fire conditions as instructed by the ranger.
Be informed concerning forest fire laws and regulations, and observe them.
Have necessary axe, shovel and waterbucket.
Carry other fire equipment required.
Keep constant sharp lookout for fires.
Determine map location of fires seen.
Be a qualified fireman. (See fireman instructions.)
Put out small fires near route of travel.
Report to headquarters at first chance, any fires seen.
When packing to fires have the following information:
A map showing the location of fire camp, best route to travel and point to leave road or trail.
List of equipment most essential to pack first.
Name of men in charge of fire camp.

THE FOREST CREW FOREMAN

The forest crew foreman must be able to:
Stand hardships and hard work.
Take care of himself and men under adverse conditions in the woods.
Use the compass skillfully.
Read a map in detail.
Find way through the forest with map and compass.
Set up camp in a convenient and workmanlike manner.
Organize and handle men on fire efficiently.
Instruct men in best methods of fire and improvement work.
Teach men to use tools properly.
Keep tools and equipment in A-1 shape.
Act as lookout or fireman when necessary.
Keep essential records accurately.
Make simple telephone repairs.
Understand and follow written instructions.
Keep a wholesome crew spirit.
Hold the respect of the men under him.
Maintain discipline in crew.

Organization:
The improvement foreman may have charge of a crew on trail, road, tower house construction or other forest improvements. Regardless of the size of his crew or nature of his assignment, his responsibility is the same for the action of his crew in being prepared for, going to and suppressing forest fires.
The crew will be trained as an overhead unit composed of firemen, foreman, cook, timekeeper, subforeman, straw boss, camp boss, saw crews, etc., depending on the number of men in the crew. Thus his crew may be used to overhead a crew of hired firefighters; it may be used as a unit on small fires or men may be drawn from it for smoke-chasing and other specific fire jobs.

Early in the season the crew will be organized and trained in fire action, an organization plan made and an outline of action and specific instructions issued.

The foreman must be familiar with the plan and test his crew as to their ability to carry it out. He must also understand the different methods of fire fighting and be able to handle men efficiently both by the squad method and by assignment of a section of line to each man. (See fire suppression chapter of this Handbook.)

Foreman and crew in whole or in part must be prepared to take quick action on fires anywhere they are directed to go by the ranger or dispatcher.

The Foreman Must Have:
Communication working. (Proven by daily test.)
Some man or men in crew trained and designated as “Crew Firemen.”
Fireman packs and crew packs complete, hung up under shelter and ready for use.
Tags on all packs showing contents and checked with contents of pack.
Fire equipment outfit and plow, trencher or pump unit if so equipped, ready for quick get-away.
“Fire Report” blank Form 592, or other approved form, near telephone or radio, for receiving and reporting information on fires.
Drivers or driver instructed and familiar with their duties if trucks used.
Trucks in shape as required under “General Instructions.”
Crew or part of crew held in camp during dangerous fire weather, when directed by ranger or person in charge of district.
Shoes and other personal equipment of crew members in shape for cross-country travel and service on fires.
 Provision, if practicable, for fire calls out on the job. Prearranged system for loading men and equipment.
Prepared lunch ready to facilitate quick feeding en route or at the fire.

Fighting Fire:
On large fires the plan of action will have been mapped out by the fire boss, and the foreman instructed generally in writing as to his part of the job. On smaller crew fires the foreman may be in charge of the fire unless relieved by the ranger or his alternate.

The Following Practices Are Important:
Make use of rules under instructions to firemen, under “Extinguishing Small Fires.”
For larger fires see fire suppression chapter of this Handbook.
Use every opportunity to instruct men in firefighting methods, use of tools, safety, proper care with tools, etc.
Correct faulty or useless work at once.
Someone must stay with every fire until it is out—dead out.
See that a reliable man is assigned.
Report:

If a fireman is replaced by a foreman and his crew, he must fill out his part of the fireman’s report and give it to the foreman, who is responsible for completing the report.

Forms 592 are in all fire packs and must be filled out before leaving the fire.
An accurate time record must be kept for all men and this accounted for as between firefighting and the regular job on which the crew may be engaged.
Keep detailed notes covering any delays or difficulties experienced and reasons for any lost line or “blow-ups.”

Action During Lightning Storms:

Get in touch with ranger headquarters at once and act according to special instructions when a lightning storm is approaching. See that all preparations for going to fires are complete. Have all members of crew watch for strikes and smokes. After the storm, if so directed by the ranger, patrol to pick up possible fires.

Travel to Fires:

Before leaving for a fire:
Get all the information indicated on the margin of “Lookout Fire Report” Form 17 R-1, or other form provided, and check with dispatcher.
Determine method and best route of travel.
Ascertain from the ranger the part the crew will take in the organization on the fire.
Figure the back sight reading on lookout, record in notebook and check with dispatcher.
When sending firemen to fire, see that they have complete information on the fire and route to travel and are completely equipped.
Provide marked line from best point on trail for take-off across country to the fire.
Keep men together while traveling.
Men may carry backpack tools and equipment if not on road.
Use smoke-chaser tactics for searching out a fire. (See Instructions for Fireman.)

THE PER DIEM GUARD

The best qualified men are selected from communities within or adjacent to the forest and appointed annually as per diem guards. They must be men who are interested in fire control work and willing to cooperate in the detection and suppression of fires within their own or adjacent neighborhood. It is also desired, so far as possible, they be available as smoke-chasers, straw bosses of foremen in case of real need at other points.

Due to the special nature of the job assigned a per diem guard, the ranger shall furnish him special written instructions or memorandum of agreement annually which will supplement the following general qualifications and statement of responsibilities.

The Per Diem Guard Should Be:

A leader in his community.
Experienced and trained in fire control work.
Thoroughly familiar with his territory.
Willing to work long hours on fire.
CAMP BOSS

Responsibility and Authority:

The camp boss is directly responsible to the sector boss or if stationed at the base of supply remote from the fire, to the district ranger or other designated officer. His duties are a combination of clerical and administrative work. He should, as far as possible, relieve the sector boss or fire boss of all duties regarding camp set-up, orders for supplies, men and equipment, care of equipment, feeding, timekeeping, compensation for injury cases, communication and transportation.

Jobs:

1. Provides transportation for men, supplies and equipment.
2. Setting up camp according to the plan and location directed by the officer in charge.
3. Organizes the staff set-up necessary to handle the various jobs in connection with camp operation.
4. Issuing necessary orders and instructions and supervising work of cooks, timekeepers, tool sharpeners, truck drivers, packers, communication men and others placed under his supervision.
5. Ordering men, supplies and equipment as directed by the sector boss or other officer under whose direction he is working.
6. Establish, as soon as possible, communication with headquarters and other camps or parts of the line.
7. Keep communication channels functioning, messages recorded and brought to the attention of the right persons.
8. Receive and post fire weather reports and forecasts and see that fire boss gets them promptly.
9. Obtain men for camp detail, including messenger service, etc., and direct their work.
10. Take charge of setting up fire camp. (Refer to charts and instructions for fire camps.)
12. Locate stable well away from camp, below water supply and down wind.
13. See that serving tables are set up according to T-shaped or L-shaped plan to provide for double line feeding.
14. Learn when the first meal is needed and the number of men to be fed.
15. Furnishes this information to cooks and checks to make sure that the meal is being prepared.
16. See that men are fed, equipped, checked and in readiness for line duty as required.
17. Have all water bags soaked ready for use.
18. Have garbage holes dug and toilets constructed at least 100 feet from camp, road or trail and below water supply and down wind from camp.
19. Have toilets and garbage pits sprinkled with lime daily.
20. Rope or fence off kitchen and office quarters.
21. Provide for warm-up fires away from kitchen on cold nights and mornings.
22. Have canvas on hand for extra shelter in case of stormy weather.
23. See that kitchen is neat, orderly and convenient; supplies off the ground and protected from weather.
24. Have double lunches prepared and sacked as required.
25. See that cooks provide appetizing and sufficient lunches. Insist on variety.
26. See that there is no undue waste of supplies from any cause.
27. Instruct cook in best use of Fire Camp Cook Book.
28. See that sufficient supply of cooking wood is maintained.
29. Check food supply orders and cut out items not on standard supply lists.
30. Replenish food supplies from open stock lists; not with boxed unit rations.
30a. Prompt recording of all receipts and issue of supplies.
31. See that soapy dishes are well rinsed by two dippings in hot water.
32. Have tool sharpener keep extra saws, axes and other tools sharp and ready for the fire line.
33. See that tools are placed in racks labeled with number of crew and name of foreman.
34. Check timekeeper's records for conformity to existing instructions.
35. See that bedding is carefully stored, checked out and accounted for.
36. Designate sleeping areas and make assignments.
37. Have men roll, mark, check in and stack their beds each morning as they get up.
38. Keep headlights and caps locked up, charge them out and check them in.
39. Care for medicine kits and issue contents as needed.
40. See that Forms CA-1 and CA-2, complete with proper witness statements, are made up for all injuries.
41. Provide personal commissary for men and see that timekeeper issues and charges it.
42. Settle all time disputes at camp and approve time slips for all men released.
43. Inform ranger headquarters of number of men released and their destination.
44. Instruct and check timekeeper regarding daily record of perimeter, area and held line of fire and number of men working, and phone these data to ranger headquarters each evening.
45. Schedule trucks; see that they keep excess equipment hauled from camp on return trip.
47. When pasture is used, require packers to wrangle stock at daylight.
48. See that sufficient supply of dry feed is on hand (when used) and that it is not wasted.
49. Require pack trains to go out with full unit loads; maintain schedule.
50. See that all lights are ready for use.
51. Keep in touch with fire boss regarding camp moving, tools, equipment and supplies, stock to be maintained and orders to be sent out.
52. Sit in on evening planning of next day's fire action.
53. Keep posted on crew placements and progress of fire.
54. Breaks camp and sees that it is properly cleaned up.
55. Sees that all tools and equipment are returned to proper destin
FIRE CACHE GLOSSARY

Fire Equipment.

**Name to Use in Ordering.**

**Description of Item.**

100-Man Outfit—New mess kit for 100 men. Tools same as two standard 25-man outfits plus two supplemental 25-man outfits. Can be used as two separate 50-man units. One hundred and ten beds in outfit.

50-Man Outfit—Consists of one standard 25-man outfit plus one supplemental outfit. Fifty-five beds. Cannot be split into two separate units.

25-Man Outfit—Regular R-1 standard, mess, tools, and bed unit complete. Thirty beds. (Only two crosscut saws will be sent with each 25-man outfit going to eastern forests.)

25-Man Supplemental Outfit—To be used in building up standard 25-man outfit to 50-man capacity. Eliminates duplications which occur when two standard 25-man outfits are used together. Twenty-five beds.

Eastern Supplemental Tool Package—With each 25-man outfit sent to the eastern forests, a supplemental tool package will be included. This package consists of 4 ladies’ shovels, 4 pulaskis, 6 water bags—five-gallon man-pack.

1 to 15-Man Backpack—Outfits designed to fully equip units of 5, 10 or 15 men for backpack trips to fires. Includes rations for one day. Can be ordered in 5-man units if desired.

Fireman Pack—Tools and equipment for one man. Rations for one day.

Plow Unit—Standard R-1 unit. Specify if horses are desired. One day’s grain and hay will be shipped when horses are ordered.

Pump Unit—Includes Pacific pumper, accessory box, 1,500 feet of hose and ten gallons of gasoline.

Telephone Communication Kit—Includes one standard wall telephone, batteries, arresters, ground rod and take-up reel.

Radio—Type M—Includes long-range receiver and transmitter, complete with antenna and accessories. Generators are required if used away from commercial power lines. Specify if generator is needed. Operators will be sent with all radio equipment unless otherwise specified.

Crew Fire Rations

30-Man One-Day Rations—Sufficient food to feed 30 men for two days. Not suitable to feed 30 men one day since it consists of four hot meals and two double-sack lunches, all varied. Order kind of bread desired—fresh, canned or without either.

Emergency Travel or Spike Camp Lunch—One box containing lunch, coffee, cups and can in which to make coffee for 30 men. Designed for use when a better meal than the sack lunches is desired. Okay for quick first meal in fire camp or for use in hauling men long distances. Rations will be furnished with fresh bread unless otherwise specified. Zwieback will be furnished for rations to be put in storage.

100-Man Ration Follow-up—A follow-up ration for use after the first day or two on fire. Contains staple food, such as meat, potatoes, canned foods, dried vege-
Name to Use in Ordering.

Description of Item.

tables and fruits, etc. Enough for 100 men one day. Order bread separately. (Itemized list shown later in this chapter.)

200-Man Ration Follow-up—A ration prepared for use in large camps after the first day or two. Suitable for 200 men one day, or 100 men two days. Order bread separately. (Itemized list shown later in this chapter.)

Airplane Delivery Meals—Any standard ration unit will be dropped with parachutes as requested. For spike camps or over-night crew stops on the line where mess equipment is not available or desirable, order emergency travel or spike camp lunch. Lunches sacked and ready for use will be dropped upon special request.

Fire Commissary Box—Tobacco, gloves, socks, etc. Twenty-five men.

Open-Stock Supplies—Itemized list on Form R-1.8. Provide open-stock subsistence as early as practicable—better liked and cheaper.

(All outfits described above are itemized in Section 4, Fireman’s Guide.)

DESCRIPTION OF OUTFITS

100-Man Outfit:

Tools and work equipment comprise two standard 25-man outfits and two 25-man supplemental outfits. This provides 110 beds. The only difference between this and two 50-man outfits is that a mess kit is used which greatly facilitates preparation of meals in large camps. Cooking utensils are of large capacity. Nested boilers are used instead of increasing the number of small kettles or skillets. These outfits should be ordered when it is known that camps of 100 or more men will be used. Can be split into two 50-man units if necessary. Cannot be broken down into 25-man outfits.

50-Man Outfit:

Consists of one standard 25-man outfit, plus one supplemental outfit, 55 beds. This unit is preferable to one-half of a 100-man outfit for use by crews of 30 to 60 men, since cooking outfit includes utensils which are better adapted by size and design for feeding crews of this size. Cannot be split into two 25-man units. Certain items necessary to operation of separate camps are not provided in duplicate.

25-Man Outfit:

The standard 25-man outfit is a complete tool and camp unit designed to fully equip a crew of 25 men. It includes 30 beds. The extra five beds are to provide for overhead, transportation men, etc. The tools provided are of such variety as to meet the need of any fuel type encountered in Region One.

25-Man Supplemental Outfit:

In equipping crews of more than 25 men, the supplemental 25-man units should be used. These units are prepared and ready at central warehouses, and their use with the standard 25-man tool and mess layouts eliminates duplication of such items as clocks, grinders, etc. When ordering be sure to state whether you need the regular 25-man unit, the 25-man supplemental unit or a combination of both.

Eastern Supplemental Tool Package:

This package of equipment is added to each 25-man outfit sent to eastern forests. Its purpose is to increase the number of digging tools to a higher ratio with clear-
ing tools. This is necessary in view of light clearing job in the more open fuel types of eastern Montana. With each 25-man outfit sent to the eastern forests, a supplemental tool package will be included. This package consists of 4 ladies' shovels, 4 pulaskis, 6 water bags—five-gallon man-pack.

**One to 15-Man Backpack Outfit:**

This backpack outfit is assembled in three units, each adequate for equipping a crew of five men. Likewise, packs number 1 to 10 are satisfactory for a 10-man crew, and the complete outfit is designed to equip a crew of 15 men and give them rations for one day. Additional rations may be added if desired. Pack No. 1 is suitable for equipping a single smokechaser.

<table>
<thead>
<tr>
<th>1-5-10-15-Man Outfit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Axe, D.B., 3½ lb., with light sheath</strong></td>
</tr>
<tr>
<td><strong>Bags. 2-gal., water</strong></td>
</tr>
<tr>
<td><strong>Bags, 5-gal., water, man-pack</strong></td>
</tr>
<tr>
<td><strong>Bucket, tin, 6-quart</strong></td>
</tr>
<tr>
<td>** Batteries, No. 950**</td>
</tr>
<tr>
<td><strong>Canvas mantees, lightweight, for carrying</strong></td>
</tr>
<tr>
<td><strong>Compass, box. pocket</strong></td>
</tr>
<tr>
<td><strong>Cups, tin, nested</strong></td>
</tr>
<tr>
<td><strong>Canteen, 1-quart, Army</strong></td>
</tr>
<tr>
<td><strong>Files, 8&quot; for axe or saw</strong></td>
</tr>
<tr>
<td><strong>Kits, small, medical</strong></td>
</tr>
<tr>
<td><strong>Maps, smokechaser size</strong></td>
</tr>
<tr>
<td><strong>Pack frames,Clark</strong></td>
</tr>
<tr>
<td><strong>Electric headlight</strong></td>
</tr>
<tr>
<td><strong>Pumps, hand, with hose</strong></td>
</tr>
<tr>
<td><strong>Rations, 1 man-day</strong></td>
</tr>
<tr>
<td><strong>Saws, 4½&quot;, S.C., with sheath and handles</strong></td>
</tr>
<tr>
<td><strong>Saws, 3½&quot;, with sheath</strong></td>
</tr>
<tr>
<td><strong>Shovels, det. handles or lady</strong></td>
</tr>
<tr>
<td><strong>Sponges, dresser</strong></td>
</tr>
<tr>
<td><strong>Scoops, axe, hand</strong></td>
</tr>
<tr>
<td><strong>Tools, Pulaski, with light sheath</strong></td>
</tr>
<tr>
<td><strong>Wedges, 2½ lb. felling</strong></td>
</tr>
</tbody>
</table>

Supervisors may make additions or adjustments to suit particular needs.

**Fireman Pack:**

The types of firemen's outfits set up as standard for this Region are listed below. The supervisor will designate that unit best adapted to meet the needs, and where necessary, make additions to or adjustments in units to meet the particular needs of a specific area. The addition of a mess kit is optional but not essential to the use of the present rations. The addition of a hand pump is also optional. Where finances
have not permitted the use of the headlight type of electric lamp, the Stonebridge lanterns, carbide lamps or palouser and candles may be substituted. The latter three are not stocked by the Procurement and Supply Division.

Fireman's Outfit No. 1:
1 pack frame and piece of canvas to cargo load.
1 pulaski tool with light sheath.
1 shovel with detachable handle.
1 file, 8-inch.
1 water bag, 2-gallon.
1 canteen, 1-quart or 1-gallon.
1 compass, pocket.
1 lamp, palouser and 3 candles or 1 electric headlight.
1 map, fireman's report, pencil and notebook.
1 small emergency medical kit.
Emergency rations as set up for the position.
(Approximate weight exclusive of water and rations, 19 pounds.)

Fireman's Outfit No. 2:
1 pack frame and piece of canvas to cargo load.
1 pulaski tool with light sheath.
1 saw, sectional, with scabbard and handles.
1 shovel with detachable handle.
1 file, 8-inch.
1 water bag, 2-gallon.
1 canteen, 1-quart or 1-gallon.
1 compass, pocket.
1 lamp, palouser and 3 candles or 1 electric headlight.
1 map, fireman's report, pencil and notebook.
1 small emergency medical kit.
Emergency rations as set up for the position.
(Approximate weight exclusive of water and rations, 25½ pounds.)

Fireman's Outfit No. 3:
1 pack frame and piece of canvas to cargo load.
1 axe, D. B., handles with clip sheath.
1 shovel, hazel-hoe combination, with handle.
1 file, 8-inch.
1 water bag, 2-gallon.
1 canteen, 1-quart or 1-gallon.
1 compass, pocket.
1 lamp, palouser and 3 candles or 1 electric headlight.
1 map, fireman's report, pencil and notebook.
1 small emergency medical kit.
Emergency rations as set up for the position.
(Approximate weight exclusive of water and rations, 22 pounds.)

Emergency Backpack Outfits. The outfits listed below are designed to be used by crewmen, emergency men and other employees who do not function in the same manner as regular firemen.
Crew or Emergency Fireman’s Outfit, Desirable:

1 pack frame.
1 pulaski tool with light sheath.
1 shovel, with detachable handle, or ladies’ shovel.
1 file, 8-inch.
1 water bag, 2-gallon or 1-gallon canteen.
1 lamp, palouser and 3 candles or carbide.
1 small emergency medical kit.
1 map.
Emergency rations as set up for the position.
(Approximate weight exclusive of water and rations, 17 pounds.)

Crew or Emergency Fireman’s Outfit, Acceptable:

1 pack sack (may be homemade).
1 shovel, short handle.
1 axe, D. B., handled.
1 grubhoe, with handle.
1 lamp, palouser and 3 candles or carbide.
1 water bag, 2-gallon or 1-gallon canteen.
1 file, 8-inch.
1 map.
Emergency rations as set up for the position.
(Approximate weight exclusive of water and rations, 21 pounds.)

Plow Unit:

2 pads, saddle.
2 saddles, decker, large.
2 blankets, saddle.
1 bucket, water, canvas.
1 chain, log, light steel, tested with 2 hooks.
4 chains, butt.
1 clevis, with grab hook to fit chain.
12 links, open, cold-shut.
1 plow, complete No. 155 Oliver, or equal.
1 plow share, extra.
1 plow bolt set, extra, complete.
1 wrench, monkey, 8-inch.
1 wrench, plow.
1 wrench, special bolt.
4 singletrees, heavy.
4 mantas, pack.
4 ropes, cargo.
2 bags, nose.
80 lbs. hay, baled.
50 lbs. oats.
1 pair handles, plow, extra.
1 bag, water, 2-gallon.
1 comb, curry.
1 brush, horse.
**Supplemental Equipment Suggested:**

- 2 jugs, water, 5-gallon, M. P.
- 1 hammer, single-jack.
- 1 pair handles, plow, extra.
- 1 pair handles, saw, C. C.
- 1 kit, first-aid.
- 1 kit, veterinarian.
- 1 lantern, gas, with mantles.
- 1 outfit, horseshoeing.
- 1 peavy, light-weight.
- 1 saw, C. C., felling.
- 1 shovel, ladies'.
- 1 tool, pulaski, sheathed.
- 2 wedges, felling.

**Loose Tool Outfit (10-Man):**

Many fires on or adjacent to roads are handled by crews working out from the project camp. On such fires camp and mess equipment is usually unnecessary. When regular standard crew outfits are used on these fires serious loss and damage occur to the extra tools, lights, mess kits, sharpening outfits and other unused camp equipment. Use of standard crew outfits in such cases results in delay and extra work in breaking down and reassembling the more complicated and unused units.

To avoid this, a "loose tool outfit" has been designed which contains:

- 5 tools, pulaski.
- 1 saw, 5½, C. C.
- 2 handles, C. C.
- 5 shovels, lady.
- 1 hammer, S. J.
- 2 wedges, felling.
- 1 kit, first aid, packet.
- 2 files, 8-inch.

These outfits will be made up from forest-owned equipment, or through purchase from forest funds. They should be kept intact for fire use and will be kept with crews on the project. Number and distribution of these units will be in accordance with the approved equipment plan.

**Power Pumphers:**

The use of pumps on fires is encouraged, but forest officers in charge of fires must see to it that they are used only when a distinct advantage is gained by their use, that experienced nozzle men are provided and that the pump does not become a plaything. There is danger in tying up a large force of men in a pump crew to the detriment of extending control line around the fire.

Power pumps are rather delicate pieces of mechanism and easily get out of order. They shall be carefully tested at the end of the fire season, and any necessary repairs or adjustments made during winter, and must be checked before the beginning of the fire season. After transportation to a fire, each pump should be checked at distribution point before sending to the fire line. While power pumps are in actual operation, there should be someone in constant attendance to guard against accident to the machine, such as a clog in the cooling circuit or heating due to other cause. Hose shall be tested at the close of the season. The usual requirement is 1,500 feet of 1½ inch discharge hose with each power pump.
Complete instructions for the use of the power pump are packed in the box with the pump.

Mixed gas and oil held over winter shall never be used in pumper.

Pumper man upon emptying one-gallon can of mixed gasoline-oil fuel shall immediately mix another gallon, 1/4 to 1/3 pint of oil per gallon of gasoline, for ready use. Never pour fuel into motor tank without first thoroughly shaking.

*Keep chamois skin absolutely clean and always strain fuel through chamois skin into fuel tank.* The Coleman filtering funnel with special filtering fabric may be substituted. Be careful not to spill gasoline over pumper when filling.

Always empty pumper tank of remaining gasoline and rinse well with clean gas and drain carburetor. Also drain water out of pressure gauge pipe when there is any lengthy period of nonuse. Remove gas tank intake brass tubing in order to thoroughly drain tank. Do not spill gasoline on motor or magneto.

Before storing pumper away, pour oil into pumper intake opening and spin motor with spark off. This lubricates inside of pump.

In starting motor, brace foot against frame lug and do not press down on gasoline tank too hard when pulling starting cord. In stopping motor for short time, do so at stopping button and not at carburetor. If shut off at carburetor, starting again will be difficult. Do not tamper with carburetor unnecessarily after adjustment. See that pumper is properly lubricated for starting, then pour a few drops of oil on shafts every ten to fifteen minutes while running.

See that cooling system is functioning, make certain that water flows from all four motor-head drain pipes. If water fails to drain from one drain pipe, it may be forced through it by placing your fingers over the others. If this fails, stop motor immediately and clean pipe line. Do not run water-cooled motor without water passing through it. Drain water away from motor and make certain it does not splash up motor. Do not use muddy water or allow drains from motor to foul the water supply.

If pumper suction fails, pour water into intake hose, raise above motor, then spin motor a few times with spark off. Then place intake in water. Protect intake suction from mud or sand by placing it in a bucket, on a flat stone by suspending it from a pole laid across pool, or by placing on weighted-down canvas.

Use hose wrench for tightening connections at pump only. With hose gaskets in place, hand-tightening for the hose line is sufficient. Do not kink hose for any reason whatsoever. Use Siamese pump outlet at pump so pressure may be cut off from motor for easier starting.

When pumper is shut down temporarily, retain water in delivery pipe by shutting off valve at pumper outlet. *Be sure to open this valve before starting pumper again.*

The delicate mechanical parts of the motor must not be tampered with by anyone except an experienced pump mechanic.

Directions for starting Pacific motor are to be found on top of gasoline tank. A record of hours run must be kept by the operator. In order to facilitate setting up of pumper, tool kit may be packed with pumper in engine box.

*Pumper operator must be with running pump continuously to see to proper lubrication and stop and start pump at signal from hose men.*
Do not permit smoking or open flame near pumper or gasoline containers. Always use electric flashlights for close lighting. If other lights are used, keep at safe distance.

Place main gasoline supply several feet away from pumper to avoid unnecessary danger. Some pumper tanks have an air cut-off valve at gasoline intake. Be sure this is opened for running.

Pacific Pump Accessory List:

10 handles hose, containing:
30 pieces, 50 feet, 1 1/2 inch hose, or 1,500 feet in all.
1 box, weight about 100 pounds, containing:
1 Pacific pumper.
1 instruction book for pumper operator.
1 contact screws and points, catalog No. UF-11.
1 breaker blades and points, catalog No. UF-10.
1 magneto wrench and gauge, catalog No. UF-537.
1 magneto file for breaker points and spark plugs.
1 pump record and test card.
1 instruction card for testing pump.
1 pencil and forest instructions.
1 box, accessory, weight about 100 pounds, containing:
1 packing nut wrench.
2 nozzles with 2 extra nipples 1/2 inch and 3/8 inch holes.
3 Siamese couplings, with valves
1 suction hose with strainer.
1 copper screen for suction hose strainer.
1 chamois—to strain gasoline. Keep clean.
1 1-quart measure.
1 1/2-pint measure.
1 funnel, tin, medium-sized.
2 frames, pack.
1 pack cover, 6 x 7.
1 yard cleaning cloth.
20 hose gaskets.
4 spanner wrenches for hose.
1 pair auto pliers.
1 wrench, crescent, 6 inch.
1 screwdriver, 6 inch.
2 starter ropes.
2 extra spark plugs.
1 lb. cup grease (soft).
1/2 gallon lubricating oil (Quaker State, medium).
1 wrench, Stillson, 10 inch.
1 coil stovepipe wire.
1/4 bar Fels-Naptha soap for gas line connections.
1 flashlight, 2-cell, with 2 cells and 1 bulb extra.
1 ball martini rope, 1/8 inch, for tying hose.
3 feet friction tape, for ignition wires.
1 copy of this list.

Note: Use 1 Siamese on pump outlet, other in hose line.
1 box, containing:
   6 buckets, canvas, water
   4 tin cups or tomato cans
Put in another box if feasible.

1 box, containing:
10 gallons standard grade gasoline unmixed. Hereafter do not mix this supply of gasoline except as needed on the job. Do not use Ethyl gasoline.

1 box, containing:
   1 gallon of standard grade gasoline with ½ pint of Mobile A No. 30 or Conoco Germ-Processed No. 30 oil thoroughly mixed,
   1 gallon of Mobile A No. 30, Conoco Germ-Processed No. 30 or other brand oil approved by the fire office.

1 package containing:
   2 shovels.
   1 peavy, light-weight.
   1 pulaski and sheath.

Report on Use. A record of use for each pumper is required. These records will provide a history of each machine and will eventually determine the value of the various types in use. This record will establish a systematic plan for inspection and reconditioning of these costly implements.

A form indicating identification and running time of each pumper will be kept with the machine. This record will be filled out each time the pumper is operated. When the running time totals 100 to 150 hours the pumper will be due for complete mechanical inspection and will be shipped to the Spokane warehouse for such service. The record of operation will accompany the pumper. After reconditioning the pumper, the repair shop will replace the old operation record with a new form on which will be recorded the date of repair, the machine inspector's signature and an entry of zero in the column for running time. Thus a new record of service will be started.

USE AND CARE OF LIGHT

Listed below in their respective order of preference are the various kinds of lights now in use by fire control forces. As rapidly as possible the less desirable types are being replaced by the more satisfactory electric flashlight type:

1. Electric flashlight (headset type).
2. Palouser (can and candle).
3. Stonebridge lantern (candle type).
4. Carbide lamp (miners').
5. Mantle lanterns, gasoline (for camp use only except in special cases).

Electric Flashlight:

1. Keep extra set of batteries available.
2. Keep extra bulb in bulb clamp in rear cap.
3. Prevent accidental battery drain by fastening a piece of stiff cardboard over contact button with a piece of adhesive tape or by removing batteries when storing light in pack or tool cache. Cardboard placed between batteries will also prevent accidental drain.
4. Keep connection nuts tight on headset. Roughen threads or swedge slightly to prevent loss of nuts.
5. Never leave batteries in case over winter.
Palouser:
1. Carry extra candles (plumbers'). Use a wire bail for convenience in carrying.
2. Be careful that shortened candles do not drop out and start a fire.

Stonebridge Lanterns:
1. Carry extra candles (plumbers').
2. To clean mica windows clean in very hot soda water or use kerosene and rag.

Carbide Lamps:
1. Fill lamp bottom 2/3 full of carbide.
2. Use miners' size carbide (1/4 inch).
3. Set valve lever on notch marked "off."
4. Open cap on top of lamp and fill water container full of water.
5. Screw bottom on tightly. Turn water on slowly by turning lever to left two or three notches and permit the air in the lamp to escape through the tip for a few seconds; then light with the lighter attached to the reflector.
6. To light, cover the reflector with palm of hand, hold a few seconds, then draw the hand downward quickly. Rubbing the hand over the wheel makes a spark which lights the gas. If hand is held too long, a loud report is produced but does no harm.
7. When lamp has been lighted, regulate flame by turning lever which controls the flow of water into the carbide one or two notches at a time. Do not flood your carbide as your lamp will not burn properly.
8. Keep the lamp clean when not in use.
9. Use new felt when the old one becomes hard.
10. Clean tip with special No. 37 tip cleaner or with a strand of emergency wire when necessary.
11. When through using the lamp, do not let the flame burn out—this clogs the tip with carbon.
12. When the flame begins to die down after water has been turned off, blow it out.

Mantle Lanterns:
1. Always use transparent mantle protector globe and metal lamp top provided with each light.
2. Preheat generator tube thoroughly before turning on gas.
3. Never fill gas reservoir over 2/3 full with gasoline as air space must be left.
4. Never open refill cap with lamp lighted, in a closed room with an open flame therein or near an open flame anywhere.
5. Replace broken mantles as soon as possible.
6. Clean generator lips only with special cleaner provided or with a fine emergency wire strand.
7. Extra generators, mantles and gasoline should be kept available.
8. Do not use colored gasoline of any kind as it will soon plug generators. Hi-
test or aviation gasoline is best suited.
9. Never try to light a lamp or lantern upon which new mantles have been placed until the wax has been completely burned off.

TORCHES

Whatever method is used in controlling a fire, a certain amount of burning out may have to be done. Torches are faster and more effective than firing by hand and are provided as a means of speeding up the work.
The Propane Torch:

Propane is a liquefied gas which is highly inflammable when released from pressure.

The propane torch unit comprises a heavy cylinder and a burner connected by hose and tubing. The cylinder is fitted with a valve and the tube above the burner with an operating valve. The cylinder or tank is strapped to a pack frame for backpacking. To use the torch, the valve on the cylinder is first opened and then the gas is released into the burner by opening the operating valve. The torch must be ignited at the extreme end of the burner. It cannot be ignited through the holes in the sides. Full instructions are packed in the box with the torch.

To use the instructions intelligently, forest officers must remember that propane, under pressure in the tanks, is a liquid and does not become a gas until released. When released, it is highly inflammable at temperatures above 40 degrees F.

In filling the torch cylinder the supply tank must be elevated to allow the liquid to flow downward. The pressure in the torch cylinder must be reduced by cooling, and that in the supply tank raised by warming. The supply tank may be kept in the sun and the torch cylinder cooled in a stream.

Propane gas will blister the skin and care should be used in handling the pigtail connection after closing the valves in both tanks on account of the gas remaining in it.

**100-RATION LIST**

(Subsistence Supplies for 100 Men for One Day)

<table>
<thead>
<tr>
<th>Flour:</th>
<th>Sugar:</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, 3/25-lb. or 2/3 bale</td>
<td>Sugar, 20/5 1/4 bale</td>
</tr>
<tr>
<td>Bread, 1-lb. loaves 100</td>
<td>(5 lbss.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leavening:</th>
<th>Vegetables:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baking powder 3 lbs.</td>
<td>Beans, lima, 10 lbs. 1 sack</td>
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<tr>
<td></td>
<td>Beans, navy, 10 lbs. 1 sack</td>
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<tr>
<td></td>
<td>Onions 12 lbs.</td>
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<td></td>
<td>Potatoes 50 lbs.</td>
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<td></td>
<td>Macaroni, 2/1-lb. 3/8 case</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cereals:</th>
<th>(3 pkgs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolled oats, 9 lbs. 1 sack</td>
<td>Vegetables, Canned:</td>
</tr>
<tr>
<td>Rice, 3 lbs. 2 sacks</td>
<td>Corn, 21/2's 3/8 case (9 cans)</td>
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<tr>
<td></td>
<td>Carrots, 24/2 1/2 case (12 cans)</td>
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<tr>
<td></td>
<td>Pork &amp; beans, 72/8 1/2 case (24 cans)</td>
</tr>
<tr>
<td></td>
<td>Sauerkraut, 24/2 1/2 case (6 cans)</td>
</tr>
<tr>
<td></td>
<td>Tomatoes, 24/2 1/2 case (12 cans)</td>
</tr>
<tr>
<td></td>
<td>Sweetspuds, 24/2 1/2 case (12 cans)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meat and Lard:</th>
<th>Canned Fruit:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ham, 12-14 lbs. 10 lbs.</td>
<td>Fruit in 8-oz. cans for lunches, 72/8 2 cases</td>
</tr>
<tr>
<td>Bacon, 8-10 lbs. 13 lbs.</td>
<td></td>
</tr>
<tr>
<td>Roast beef, 24/2 1/4 case</td>
<td></td>
</tr>
<tr>
<td>Shortening, 2 lbs. 2 pails</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dairy Products:</th>
<th>Beverages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter, 2 lbs. .6 tins</td>
<td>Coffee, 1 lb. 10 cans</td>
</tr>
<tr>
<td>Milk, tall (48) 1 case</td>
<td>Tea, black, 1/4 lb. 1 pkg.</td>
</tr>
<tr>
<td>Cheese, 1 lb. 10 cart.</td>
<td>Orangecade base—8 oz. 16 cans</td>
</tr>
<tr>
<td>Eggs, fresh—30 doz. 1 case</td>
<td>Lemon concentrate—8 oz. 8 cans</td>
</tr>
</tbody>
</table>

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Dried Fruit:
- Apricots, 5 lbs.......................... 1 can
- Prunes, 5 lbs............................ 2 cans
- Raisins, 1 lb............................ 3 cans

Relishes, Extracts, Spices:
- Pickles, dill, No. 2½ can........... 5 cans
- Pepper, black, 4 oz................ 1 can
- Salt, 3 lbs............................. 2 sks.

Soaps, Etc.:
- Soap, laundry.......................... 12 bars
- Soap, toilet........................... 12 bars

Miscellaneous:
- Candles (6)........................... 3 sets (18)

Order Bread Separately.

200-RATION LIST
(Follow-up)

Flour:
- White, 3/25 lbs. or.................. 1 bale
- Bread, 1 lb. leaves.................. 200

Leavening:
- Baking powder........................ 3 lbs.
- Soda..................................... 1 lb.

Cereals:
- Rolled oats, 9 lbs.................... 2 sks.
- Rice, 3 lbs............................. 4 sks.

Meat and Lard:
- Ham, 12-14 lbs....................... 80 lbs.
- Bacon, 8-10 lbs........................ 30 lbs.
- Roast beef, 21/2....................... 1/2 case
  (12 cans)
- Shortening, 2 lbs..................... 1 pard

Dairy Products:
- Butter, 2 lbs.......................... 12 tins
- Milk, half (48)....................... 2 cases
- Cheese, 1 lb........................... 30 cartons
- Eggs, fresh—30 doz.................. 2 cases

Beverages:
- Coffee, 1 lb........................... 20 cans
- Tea, black, 1/2 lb.................... 2 pkgs.
- Orangeade base—8 oz............... 32 cans
- Lemon concentrate—8 oz........... 16 cans

Sugar:
- Sugar, 20/5........................... 1/2 bale
  (10 sks.)

Vegetables:
- Beans, lima, 10 lbs.................. 2 sacks
- Beans, navy, 10 lbs............... 2 sacks

Order Bread Separately.

Onions................................. 24 lbs.
Potatoes................................. 100 lbs.
Macaroni, 21/4-lb..................... 1/2 case
  (6 pkgs.)

Vegetables, Canned:
- Corn, 21/2's.......................... 1/2 case (12 cans)
- Carrots, 21/2...... 1 case (21 cans)
- Pork & beans, 72/8... 1 case (72 cans)
- Sauerkraut, 21/2½ 1/2 case (12 cans)
- Tomatoes, 21/2½.... 1 case (24 cans)
- Sweet potatoes, 21/2½ 1 case (24 cans)

Canned Fruit:
- Fruit in 8-oz. cans for
  lunches, 72/8...................... 1 case

Jam:
- Strawberry, 21/20—1/2 case....... 12 cans
- Apricot, 21/20—1/2 case........... 12 cans

Dried Fruit:
- Apricots, 5 lbs..................... 2 cans
- Prunes, 5 lbs......................... 4 cans
- Raisins, 1 lb.......................... 8 cart.

Relishes, Extracts, Spices:
- Pickles, dill, No. 2½ can......... 10 cans
- Pepper, black, 4 oz.............. 1 can
- Salt, 3 lbs............................ 2 sks.

Soap, Etc.:
- Soap, laundry......................... 20 bars
- Soap, toilet.......................... 20 bars

Miscellaneous:
- Matches, 20 cartons................ 1/4 case
- Candles (6)........................... 4 sets (24)
28 March '83

Dear Mike,

Just a quick note of thanks for all your help last week, and a paperback token of appreciation—sorry I've run low on hardbacks. I did get down to the regional office, where Jud Moore was very helpful. Didn't manage to get to the interviewing—Hank Viche was down with flu, couldn't get hold of Cooley and Milodragovich the day I tried, and I got off onto more research than intended in the archives. But I'll be back through town later this year, and will have digested the material better by then anyway. The stuff you loaned me looks especially valuable. I'll take good care of it.

all best

[Signature]
FIRE-CAMP COOK BOOK

For 30 Men

REGION I
1940
IMPORTANT

The emergency food supplies sent in with the outfit were assembled with the expectation that the menus and instructions in this guide would be followed. By following these suggestions, you will have sufficient quantities of the different articles to meet the requirements of the meal. Do not substitute unless it becomes absolutely necessary.

Open the boxes as designated and called for by the different menus.

These emergency meals are based upon breakfast and supper being served in camp, with the lunches in all cases being carried and eaten either on the trail or on the fire line.

READ THE MENUS BEFORE STARTING PREPARATION

All menus are sufficient for 30 men.

ORGANIZATION

The kitchen organization will ordinarily consist of a cook and two flunkies for a 30-man camp. Usually, an additional flunky will be provided for each additional 25 men in the crew.

The cook is in immediate charge of the kitchen and directly responsible to the camp boss or fire boss for its management. The cook alone is responsible for the proper cooking of each article on the menu, for properly serving meals at the time set by the camp boss, and for keeping the kitchen in a clean and sanitary condition.

The camp boss or fire boss will set the time for serving meals, specify the number of days' supply of provisions which will be kept in stock, see that an ample supply of wood for cooking purposes is maintained at all times; notify the cook each evening whether dinner will be served in camp the following noon, or whether the men will carry individual lunches, and have general supervision of the camp.

The cook should assign definite duties to each of the men under him so that each man will know his job.

The camp boss will keep a check of the food supplies on hand, so the number of days' rations in stock will not fall below or accumulate above that set by the fire boss, and each evening will furnish a list of shortages to the sector boss or fire boss, who will order the supplies.
Form RL-F8a, "Fire Camp Order Sheet and Inventory," should be used for this purpose.

ESTABLISHING THE KITCHEN

Upon arriving at the spot selected for the camp, the camp boss will ordinarily detail two or more men to assist the cook and flunkies in setting up the kitchen.

The kitchen should be located at a point where water can be obtained with the least effort.

The men should, in all cases, be quartered below the source of water supply.

The first need in a new camp is the open fire. The cook will designate the site for this, and his men will build the fireplace according to the following directions:

Dig a trench about three feet long, 18 inches wide, and a foot deep. This trench should run in the direction of the prevailing wind, which in a valley or creek bottom is generally up or down stream. Cut two small logs about three feet long and six inches in diameter; lay one of these crosswise at each end of the trench, cut two shallow notches about ten inches apart, near the center of each log and in these lay the fire-irons, which are in two sections and must be screwed together. They will be found in the mess box, or in separate tool package. Start a good fire the entire length of the trench and turn it over to the cook.

After the open fire is prepared, the tables for work and serving should be built.

The cook's work table should be built first and should be about eight feet long and three feet wide.

The serving table should be about 16 feet long and 2-1/2 feet wide.

As everyone will stand when using these tables, they should be higher than ordinary; the length of an ax and handle is a good height.

In order to assist in rapid feeding of the men in the larger camps, the serving table should be laid out in a T-shape so that two lines of men can be supplied.

The work table is built by driving stakes about three inches in diameter into the ground for legs, with crosspieces, of the same material spiked on top and a cover of small poles laid lengthwise for a temporary top. As fast as empty boxes are available, they can be taken apart and the pieces nailed on top of the poles. A stake about six
feet long is also driven into the ground at each end of the
table near the center. To this is spiked a cross-bar ex-
tending the entire length of the table and about two feet
above it. Nails are driven into this so the cook can hang
the different tools and utensils within reach when working.

The serving table is built in the same way, except,
if desired, instead of driving stakes in the ground for
legs, blocks of wood about 18 inches in diameter set on
end may be used.

"Follow-up Ration," in 100 and 200 man-day units are
available upon requisition. The rations are listed in the
back of this book.

SANITATION

Scrupulous cleanliness will be insisted upon in the
handling, keeping, and serving of food. Flies are always a
menace; therefore, the only recourse is to protect all food
from them.

Dishes will be washed immediately after each meal,
in hot water, using plenty of soap so as to remove every
particle of grease, and after rinsing in clean hot water,
dried with clean towels. After washing, they will be
stored in boxes kept for that purpose and covered with
clean towels so as to protect them from dust, ashes, and
flies.

All garbage, kitchen refuse, and slops will be de-
posited in a garbage pit, and covered with earth at least
three times per day. Alongside the receptacles furnished
for the men to deposit their used plates, cups, etc., in,
a box or other receptacle for plate scrapings or garbage
will be provided. The inside of these boxes will be scald-
ed after each meal.

TABLE OF MEASUREMENTS

The approximate capacity of the different cooking
kettles contained in the STANDARD 25-MAN K&K OUTFIT is as
follows:

#1 Large washboiler . . . . . . . . . 14 gallons
#2 Boiler, cover . . . . . . . . . . . . . 7 "
#3 Half-oval boilers, each . . . . . 20 quarts
#4 Larger, round boiler . . . . . . . . 16 "
#5 Second large, round boiler . . . . . 15 "
#6 Third large, round boiler . . . . . 9 "
#7 Small, round boiler . . . . . . . . . 6 "

# THESE NUMBERS ARE SHOWN IN THE RECIPES TO INDICATE
BOILERS TO BE USED.
#1 - Wash boiler;  
Capacity, 14 gals.

#2 - Boiler cover;  
Capacity, 7 gals.  
(Can be used as dish pan.)
#3 - Two half-oval boilers; Capacity, 20 qts., each.

#4 - Largest round boiler; Capacity, 16 qts.

#5 - Round boiler; Capacity, 13 qts.

#6 - Round boiler; Capacity, 9 qts.

#7 - Round boiler; Capacity, 6 qts.
METHOD OF USING TWO ROUND BOILERS AS DOUBLE BOILER

In cooking oatmeal mush, stews made from ragon, and like dishes which are liable to burn if placed in direct contact with dry heat, a double boiler, by means of which the kettle containing the food is kept in a bath of boiling water, is very essential. The round boilers furnished with each 25-man outfit can be used for this purpose, by placing an inverted tin plate in the bottom of the outside boiler for the food container to rest upon.

In this way, the #7 round boiler can be used inside the #5, the #6 inside the #4, or the #3 and #4 inside the #1. When it is necessary to have two double boilers at one time, any two of the larger or three of the smaller boilers can be placed in the #1 boiler at one time.
**SUGGESTED CAMP LAY-OUT**

Stoves - Note: One stove up to 50 men.  Two stoves - 75-200 men.

Food Supply

Kitchen equipment

Cook's work table  
3' x 6" - 30" high

Boxes for garbage, dirty dishes

16 to 20 feet

Dish-up  Flunkies

Coffee  Sugar  Milk

Cups  Jam  Food

Pickles, butter, etc.

Coffee  Sugar  Milk

Food  Cups  Jam

Double-line feeding kitchen  
(50 200 men)

Crew men help themselves to plates, silverware, bread, butter, etc.  Flunkies serve hot food and coffee.

Filled dishes are sent from line in opposite directions thus eliminating the congestion of a single-line table.

Food line 1/2 on each side.

-3-
DOUBLE SACK LUNCH
For Fire Line or Hiking

This lunch will be served in the individual paper sacks furnished for that purpose and will not be used for regular meals in camp. If served according to the following instruction, there is ample for 30 double lunches.

This lunch is packed in a box marked "Sack Lunch." Each box contains a complete double lunch for 30 men and consists of the following articles:

- 2 Cans Boiled Ham, 1½ - 1¾ lbs
- 3# Cheese
- 4 Cans Jam
- 30 8-oz. cans Pork and Beans
- 22 1½ loaves Bread or 13 sandwich loaves (sliced)
- 60 8-oz. cans Fruit, or 30 Fruit and 30 Tomato Juice
- 36 Lunch Sacks (cellophane-lined)
- 36 Paper Spoons
- 2 Can Openers
- 1 Slicing Knife
- 4½ Can Butter
- 1 Brush; pasty

Each individual lunch will consist of:

- 2 Meat sandwiches
- 1 Cheese sandwich
- 2 Jam sandwiches
- 1 Can pork and beans
- 2 Cans Fruit, or 1 Fruit and 1 Tomato Juice
- 1 Paper spoon

packed in individual sacks

Instructions for Preparing

Slice the meat about four slices to the inch.
Slice the bread about two slices to the inch.
Slice the cheese lengthwise five slices to the inch.

Lunches for use on the fire line will be prepared the night before, in order that there shall be no delay in furnishing them to the men when instructed to do so.
FIRST SUPPER

Packed in box marked "1st Supper."

This meal requires about one and one-half hours to prepare and must be the first hot meal served in camp, unless otherwise instructed by the foreman. Upon notice from the foreman that this meal is to be served, the cook should get busy on its preparation while the flunkies unpack the mess equipment and wipe all the tableware and dishes with clean, dry towels. The cooking utensils should be washed and rinsed before using.

MENU

Meat
Beef Stew

Coffee

Dessert
Canned Fruit

Butter  Bread  Jam
Sugar  Milk
Salt  Pepper

The meal will consist of the following articles:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stew</td>
<td>14 cans</td>
</tr>
<tr>
<td>Roast Beef</td>
<td>6 cans</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>3 cans</td>
</tr>
<tr>
<td>Carrots</td>
<td>3 cans</td>
</tr>
<tr>
<td>Peas</td>
<td>4 cans</td>
</tr>
<tr>
<td>Bread (sliced)</td>
<td>8 loaves</td>
</tr>
<tr>
<td>Butter</td>
<td>2 lbs</td>
</tr>
<tr>
<td>Sugar, cube</td>
<td>1</td>
</tr>
<tr>
<td>Peaches</td>
<td>6 cans</td>
</tr>
<tr>
<td>Jam</td>
<td>3 cans</td>
</tr>
<tr>
<td>Coffee</td>
<td>1</td>
</tr>
<tr>
<td>Milk</td>
<td>4 cans</td>
</tr>
<tr>
<td>Pepper</td>
<td>1</td>
</tr>
<tr>
<td>Salt</td>
<td>1</td>
</tr>
</tbody>
</table>

To prepare this meal, proceed as follows:

Place large wash boiler (or #1), half full of water, on fire to furnish supply of hot water and to use as double boiler.

RECIPES

Beef Stew

14 cans stew
6 cans roast beef
3 cans tomatoes
3 cans carrots
4 cans peas
Salt and pepper
Mix the stew, tomatoes and carrots in the large round boiler (or #4). Place this boiler in the large wash boiler (#1) previously filled half full of water, and let simmer, stirring often. This will make a double boiler. About one-half hour before serving time add the roast beef and peas. Season to taste with pepper and salt. Keep in boiling water until ready to serve. Serve very hot. THIS CANNOT BURN OR SCORCH IF YOU FOLLOW THESE INSTRUCTIONS.

Coffee

Fill the two #3 boilers to within four inches of the top with fresh, cold water; add 4-1/2 tin cups level-full of coffee to each boiler; cover, place on fire, and bring slowly to a boil. As soon as it boils remove from fire and add one cup of cold water to settle grounds. Keep in warm place until ready to serve. Do not let it simmer.

---0---

Open the fruit, jam, butter, and milk. Slice bread. Set out butter in pudding dishes. Set out fruit, jam, bread, salt, pepper, sugar.

---0---

Always have flunkies serve liquids and hot food-stuffs to men in order to properly apportion food and to prevent unnecessary delay.

---0---

SEE THAT YOUR GASOLINE LANTERNS ARE MADE READY TO USE IN THE MORNING. GENERATE WITH A CANDLE ON COLD MORNINGS.
FIRST BREAKFAST

Packed in box marked "1st Breakfast."

Breakfast in a fire camp is always served very early and must be ready on time. Get the serving time from the foreman the evening before. Allow not less than two hours to get this meal ready.

MENU

Fruit
Grapefruit

Cereal
Oatmeal Mush

Meat
Fried Ham

Fried Potatoes

Coffee

Butter        Sugar        Bread        Milk        Jam
Salt

The meal will consist of the following articles:

Grapefruit........ 6 cans, #2
Oatmeal........... 1 2½-lb. sack
Ham................ 1 7- to 9-lb. can
Potatoes, white.... 6 cans, #2
Coffee, white..... 1 3-lb. can
Bread (or Zwieback)... 8 1-lb. loaves
Butter............. 2 lbs.
Jam................ 3 cans, #2
Sugar.............. 1 5-lb. carton (special)
Milk.............. 10 cans, talls
Salt.............. 1 ½-lb. can, slip-top cover
Pepper............ 1 2-oz. can

To prepare this meal, proceed as follows:

Place large (or #1) boiler, half full of water, on fire to furnish supply of hot water.

RECIPES

Oatmeal Mush

Fill the #5 boiler to within four inches of the top with fresh water; place on fire. When boiling, add one
heaping tablespoon of salt and stir in slowly 2 1/2 lbs. oatmeal. Cook slowly for five minutes, then set kettle in one of the half-oval bake pans kept about half full of boiling water on the fire to cook slowly. This will make a double boiler and will not scorch. FOLLOW THESE INSTRUCTIONS. Keep very hot until ready to serve.

Coffee

Fill the two #3 boilers to within four inches of the top with fresh, cold water; add 4-1/2 tin cups level-full of coffee to each boiler; cover, place on fire, and bring slowly to a boil. As soon as it boils, remove from fire and add one cup of cold water to settle grounds. Keep in warm place until ready to serve. DO NOT LET IT SIMMER.

Fried Ham (Use 1/2-round frying pan.)

Split ham lengthwise and cut into slices about 1/4-inch thick. Fry quickly. Do not let the ham dry out before serving.

Save the ham fat for frying potatoes.

Fried Potatoes (Use 1/2-round frying pan.)

Take six cans potatoes (#2 1/2 size), open and drain them. Then slice and fry. Salt and pepper to taste. If there is not sufficient ham fat, use a piece of butter.

Milk for Cereal

Place six cans of milk in the #5 round boiler, add six milk cans full of fresh, cold water. Heat, if desired.

Fruit

Open six cans of grapefruit and place in small, round boiler.

---0---

Open three cans of jam; slice bread; open can of butter and milk for coffee. Set out butter in pudding dishes. Set out grapefruit, jam, bread, salt, pepper and sugar.

---0---

ALWAYS have flunkies serve liquids and hot food-stuffs to the men in order to properly apportion food and prevent unnecessary delay.

---0---

SEE THAT YOUR GASOLINE LANTERNS ARE MADE READY TO USE IN THE EVENING. GENERATE WITH A CANDLE ON COLD EVENINGS.

-13-
SECOND BREAKFAST

Packed in box marked "2nd Breakfast."

MENU

Fruit
Orange Drink

Cereal
Milk Toast

Meat
Fried Ham

Fried Potatoes

Coffee

Butter  Bread  Jam
Zwieback
Sugar  Milk  Salt  Pepper

This meal will consist of the following articles:

Orangeade Base... 3 8-oz. cans  Butter...... 3 lbs.
Lemon Concentrate. 1 8-oz. can  Jam.......... 3 cans, #2
Toast (Zwieback).... 8 6-oz. pkgs.  Milk......... 14 cans, talls
Ham (whole)....... 1 can, 7½-9½  Sugar....... 5 lbs. in
Potatoes, White.... 6 cans, #2  carton
Coffee ............ 1 3-lb. can  Salt........ 1½ lb., in can
Bread ................ 6 1-lb. loaves  Pepper..... 1 2-oz. can

To prepare this meal, proceed as follows:

Place large (or #1) boiler, half full of water, on fire to furnish supply of hot water.

RECIPES

Orange Drink

The following recipe makes two gallons of orange drink:

Take two gallons of water (use #6 vase and fill to within 2½ inches of top). Add two level cups sugar; add three cans orangeade base and one can lemon concentrate (8-oz. cans). Be sure to stir well in order to dissolve the sugar.

If you are careful in mixing, you will have a very satisfying and healthful drink.
Coffee

Fill the two #3 boilers to within four inches of the top with fresh, cold water; add 4-1/2 tin cups level-full of coffee to each boiler; cover, place on fire, and bring slowly to a boil. As soon as it boils, remove from fire and add one cup of cold water to settle grounds. Keep in a warm place until ready to serve. Do not let it simmer.

Fried Ham (Use 1/2-round frying pan.)

Split ham lengthwise and cut into slices about 1/4-inch thick. Fry quickly. Do not let the ham dry out before serving.

Save the ham fat for frying potatoes.

Fried Potatoes (Use 1/2-round frying pan.)

Take six cans potatoes (#2 1/2 size), open and drain them. Then slice and fry. Salt and pepper to taste. If there is not sufficient ham fat, use a piece of butter.

Milk Toast

Place eight cans of milk and eight cans of hot water in #5 boiler. Add one pound of butter and heat thoroughly in double boiler to prevent scorching. Use arrangement as shown on page seven of the Cook Book. Serve toast or Zwieback in bowls and add hot milk as the men desire it.

---0---

Open three cans jam; slice bread; open can of butter and milk for coffee. Set out butter in pudding dishes. Set out jam, bread, salt, pepper, and sugar.

---0---

Always have flunkies serve liquids and hot foodstuffs to men in order to properly apportion food and prevent delay.

---0---

SEE THAT YOUR GASOLINE LANTERNS ARE MADE READY TO USE IN THE EVENING. GENERATE WITH A CANDLE ON COLD EVENINGS.
30-MAN

SPECIAL TRAVEL - SPIKE CAMP - EMERGENCY LUNCH

To be packed in the standard knockdown, table-top type ration box:

<table>
<thead>
<tr>
<th>Items</th>
<th>Amount</th>
<th>Items</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ham, canned</td>
<td>5-6#</td>
<td>Spoons, dessert</td>
<td>4</td>
</tr>
<tr>
<td>Sandwich spread, canned</td>
<td>4-5#</td>
<td>Knives or paddles (for</td>
<td></td>
</tr>
<tr>
<td>Jam, canned, #2</td>
<td>3 cans</td>
<td>spreading)</td>
<td></td>
</tr>
<tr>
<td>Cheese, canned</td>
<td>2 lbs.</td>
<td>Can openers</td>
<td>2</td>
</tr>
<tr>
<td>Bread, sliced</td>
<td>10 lbs.</td>
<td>Dippers, tin</td>
<td>1</td>
</tr>
<tr>
<td>Butter, canned</td>
<td>2 lbs.</td>
<td>Knife, slicing</td>
<td>1</td>
</tr>
<tr>
<td>Coffee, canned</td>
<td>3 lbs.</td>
<td>Brush, butter</td>
<td>1</td>
</tr>
<tr>
<td>Milk</td>
<td>4 cans</td>
<td>Plates, paper, deep</td>
<td>36</td>
</tr>
<tr>
<td>Sugar, cube</td>
<td>4 lbs.</td>
<td>Spoons, paper, long</td>
<td>36</td>
</tr>
<tr>
<td>Mustard, 4-oz. jar</td>
<td>1 lb.</td>
<td>Cups, paper, large</td>
<td>36</td>
</tr>
<tr>
<td>Pickles, dill, #2½ can</td>
<td>1 lb.</td>
<td>Bags, paper, lunch</td>
<td>2</td>
</tr>
<tr>
<td>Fruit, 8-oz. cans</td>
<td>1 jar</td>
<td>Sacks, flour, large</td>
<td>1 box</td>
</tr>
</tbody>
</table>
| Fruitcake                    | 2 cans    | Matches, safety              | 10 ft. |}

The primary purpose of this lunch is to facilitate the feeding of fire crews while en route to fires, emergency meals on reaching fire and when crew is needed in action, in out-of-the-way spike camps, etc. It is so designed that it can be used for preparing sack lunches (singles for 30 men), as well. This lunch should be used only for such emergencies and not for regular sack lunch or meal purposes.

*NOTE:* This lunch will be furnished with fresh bread unless requisitioned "For Storage." Four six-ounce packages Zwieback and six 1-lb. cans of brown bread will then be substituted for the fresh bread.

---0---

See following page for serving instructions.

-14-
100-RATION LIST
(Subsistence Supplies for 100 men for 1 day, or 50 men 2 days, or 25 men 4 days, etc.)

FLOUR
White, 3/25#... 2/3 bale
          (2 sks.)
LEAVENING
Baking powder... 3 lbs.
CEREALS
Rolled Oats, 9#... 1 sack
Rice, 3#... 2 sacks
MEAT AND LARD
Ham, 12-14 lbs.... 40 lbs.
Bacon, 5-10 lbs.... 15 lbs.
Roast beef, 24/2... 1/4 case
          (6 cans)
Shortening, 2#... 2 pails
DAIRY PRODUCTS
Butter, 2 lbs.... 6 tins
Milk, tall (48)... 1 case
Cheese, 1 lb.... 10 cart.
Eggs, fresh...
            30 doz... 1 case
BEVERAGES
Coffee, 1 lb.... 10 cans
Tea, black, 1/4-lb... 1 pkg.
Orangeade base,
      8-oz... 16 cans
Lemon concentrate,
      8-oz... 8 cans
SUGAR
Sugar, 20/5... 1/4 bale
          (5 sks.)
VEGETABLES
Beans, lima, 10#... 1 sack
Beans, navy, 10#... 1 sack
Onions... 12 lbs.
Potatoes... 50 lbs.
Macaroni, 24/lb... 1/8 case
          (3 pkgs.)
VEGETABLES, CANNED
Corn, 24/2"s... 3/8 cs. 9cns.
Carrots, 24/2½"... 1/2 " 12 "
Pork & Beans, 72/8... 1 3/ " 24 "
Sauerkraut, 24/2½... 1 4/ " 6 "
Tomatoes, 24/2½... 1 2/ " 12 "
Sweet spuds, 24/2½... 1 2/ " 12 "
CANNED FRUIT
Fruit in 6-oz. cans
for lunches, 72/8... 2 cs.
JAM
Strawberry, 24/14-1/6... cs. 6 cans
Pinecot, 24/1... 1/6 cs. 6 cans
DRIED FRUIT
Apricots, 5 lbs.... 1 can
Prunes, 5 lbs.... 2 cans
Raisins, 1 lb.... 3 cart.
RELISHES, EXTRACTS, SPICES
Pickles, #2½... can... 5 cans
Pepper, black, 4-oz... 1 can
Salt, 3 lbs.... 2 sks.
SOAPS, ETC.
Soap, laundry... 12 bars
Soap, toilet... 12 bars
MISCELLANEOUS
Matches, 20 cartons... 3/20 cs.
Candles (6).... 3 sets
          (18)

ORDER BREAD SEPARATELY

-20- Revised 4-1-40
WAYS OF PREPARING MEAT VARIETIES

Meat Pie

1 can beef stew
1 small onion cut fine
2 tablespoons butter

Place above ingredients in pan and cook for about 15 minutes. Make a biscuit dough using:

1 cup flour
\( \frac{1}{2} \) teaspoon salt
2 teaspoons baking powder
4 tablespoons shortening

Mix well together, using finger tips, then add enough milk, a small amount at a time to make a soft dough. Pat out to about 1 inch in depth and cut into small biscuits. Place close together on top of meat mixture. Bake in hot oven about 20 minutes or until biscuits are nicely browned. Any small amounts of left-over vegetables such as carrots, string beans, peas may be added to the stew mixture. Also left-over meat, such as ham, roast beef and even fried bacon can be cut in small pieces and added.

Baconized Corn and Macaroni

1 cup macaroni
3/4 cup white sauce (medium)
\( \frac{1}{2} \) cup canned corn
\( \frac{1}{2} \) teaspoon salt
1/8 teaspoon pepper
3 slices bacon

Cook the macaroni until tender in plenty of boiling water, salted. Drain. Add to white sauce seasoning, corn and cooked macaroni. Pour in baking dish and over top lay the bacon cut in squares. Bake 15 minutes or until bacon is crisp.

Italian Ham

1 pound sliced ham
\( \frac{1}{2} \) pint canned tomatoes
4 small peeled onions
pepper

Cut ham an inch thick. Put in a covered frying or roasting pan. Slice onions over the ham. Add tomatoes, a generous sprinkling of pepper and a \( \frac{1}{2} \) cup of water. Cover and bake one hour in a moderate oven, remove ham to platter and make a gravy of the tomato juice and drippings, adding a tablespoon of flour with a little water to a cupful of gravy.

Baked Ham and Sweet Potatoes

Mash 1 1/2 cups sweet potatoes and season with salt and pepper to taste. Add a little canned milk (enough to make