

A P P E N D I X

Section 1

Report on Rock Creek Fire

by

Roy Headley, Chief, Division  
of Fire Control, U. S. Forest  
Service, Washington, D. C.

Report based on a personal in-  
vestigation by Mr. Headley on  
August 1 and 2, 1939.

Ogden, Utah  
Aug. 4, 1939

Report on loss of life in Camp F-5, Co. 1212, at Rock Creek  
Fire of July 28, 1939 on Santa Rosa division of Toiyabe  
National Forest at a point near Orovada and about 50 miles  
north of Winnemucca, Nevada.

Preliminary figures give a total burned area of about 4,500 acres, 1,120 of which were inside the national forest; the remainder on outside public domain and private land.

Except for a few unimportant small clumps of small trees, the cover was sagebrush, sparse dry grass and some weeds. The sage varied in height from 1 to 4 feet and in density from practically none to a fairly dense stand. The sagebrush must have been responsible for a good deal of the reported stumbling and falling as the boys ran. Most of the ground was fairly free from rocks although at the exact point where Enrollee Kennedy seems to have broken his ankle there was a small patch of rocks on a gentle up-slope on top of a small ridge.

Most of the burned area lies in the "flat" adjacent to the highway. The remainder, where all fatalities occurred, is on the lower slopes of a typical Nevada mountain range. Steepness of slopes above the flat varied but perhaps averaged 50 percent. Horses can be ridden easily over practically all the burned area. The difference in elevation between the extreme low and high sides of the fire is estimated to be between 3500 and 4000 feet.

Because of long experience these sage and sparse grass national forests of Nevada are regarded as about as easy to protect as any in the United States. No lookout stations of the usual type are maintained and no personnel are employed especially for fire. A wind-driven fire can run as rapidly in sage as in any other fuel, but no one has as yet recalled any other instance in which there was any difficulty in getting away on the downhill side of a fire on such slopes as these. Even with the extreme rate of spread in this fire, most or all of the five men who were caught would doubtless have escaped except for the delay and diversion of Assistant Leader Tippin's attention, caused by the breaking of Kennedy's ankle. No previous loss of life is known to have occurred in fighting Nevada sagebrush fires.

The actual strike of the dry lightning which started this fire was seen from ranches in the valley below; also the start of the fire at a point  $3/4$  to 1 mile inside the national forest boundary.

A crew of seven cooperating ranchers and road maintenance men started as soon as they ate dinner. They reached the fire 2 to  $2\frac{1}{2}$  hours after it started at which time it was said to be 20 to 25 acres in size. This crew worked something over an hour before the reverse high wind occurred. They then started back at a time when the CCC crew had not yet reached the edge of the fire.

The dead are five in number—all from Assistant Leader Tippin's sub-crew: Tippin, Kennedy, James, Barker and Vitale.

As soon as the transcript of the inquest testimony can be obtained, maps prepared and testimony of surviving members of the crew typed, a complete report will be submitted by the Region. In the following pages I shall confine myself to the factors which contributed to the disaster—or which might be alleged to have contributed to it. I shall give my conclusions and recommendations at the close.

#### The Wind.

All testimony agrees that up until about 3:00 p.m. the wind was from the southwest and "hardly noticeable" as one man put it. At about 3:00 p.m. the wind suddenly started blowing from the east at a rate variously described as "a gale", "very high" or "30 to 40 miles per hour." My guess is that the 30 to 40 mile estimate is correct.

Except for this sudden high wind the fire would have been nothing but one more small sagebrush fire.

As at the tragic Blackwater fire in 1937 and the recent disastrous Black Hills fire (at which no fatalities occurred), sudden wind changes and high wind velocities started the trouble.

#### The high rate of spread.

After the high east wind started, the fire apparently ran about  $3\frac{1}{2}$  miles in  $\frac{3}{4}$  of an hour or at the rate of  $4\frac{1}{2}$  miles per hour. After piecing together various bits of evidence, I should estimate that the fire moved at the rate of 6 or 7 miles per hour across the slopes and gulches where the bodies of all but Vitale were found,—possibly a little faster for short distances than an unencumbered man could run through the sagebrush. The apparently reliable testimony of the crew of cooperators is that with the aid of horses for part of the men and, for part of the distance, a car on a slow road, they had no more than enough time to reach the highway and safety.

This is an unusually high rate of spread for any part of the country. As previously stated, no such rate of dowhill spread in sagebrush has been recalled by any one of those I have asked.

#### The accident to Enrollee Kennedy

It seems that Kennedy must have broken his ankle at or within a few steps from the spot at which the retreat started. While the ground is not too difficult, there are some rocks and at that time there was also a fairly dense growth of sagebrush.

The testimony is clear that Kennedy was good on his feet and in good physical condition. One witness testified that Kennedy was singing as the fire climbed the hill. The accident must be recorded, therefore, as one of the things which could happen to anyone.

To the combination of sudden high wind, extreme rate of spread down hill and unlucky timing mentioned hereafter, was added one more mishap—a compound fracture of an ankle at the worst possible moment.

With the possible exception of Barker, all evidence shows that all five of the killed boys could and would have escaped despite everything else—if only the accident had not happened to Kennedy.

Vitale, although handicapped by poor eyesight and broken glasses, actually made Rock Creek at about the same time as Powers who walked comfortably down this route to safety. But Vitale crossed this route and climbed a steep slope until he either collapsed from exhaustion or was overtaken by the flames, when within less than a quarter mile of bare rocks and safety. If Assistant Leader Tippin had been free to keep his crew together, it is safe to assume that Vitale would not have wasted his strength climbing away from the natural and best route to safety.

#### The factor of timing.

If every step from discovery of the fire to arrival at the fire had clicked a little faster, 30 minutes would have been saved. If the CCC crew had reached the fire 30 minutes before it did, some of the fire edge would probably have been dirted down. In that event the boys could have stepped into the burnt ground and safety, in one of the customary ways of escaping when a grass or sagebrush fire gets out of hand. If the crew had been 30 minutes later, the down hill run of the fire would have given warning while the boys were all in an excellent position to retire safely. Instead, they had gotten just near enough to be within reach of the run of the fire and not near enough to have dirted down any fire edge. Any such places where the edge had been dirted down would have been open gates to safety on the burnt side. The ranchers testified that if they had wished, they could have gone into the burn. They went down the hill only because of concern for their ranches and car.

#### Training.

The belief is held by some that fire training of enrollees is an important safety measure. In reporting what he knew of public reactions, one local man said—"They say,—'why do they send these untrained boys to fight fire.'" In deference to this belief, a particular effort was made to determine whether all boys concerned had gone through the spring fire training as required.

The statements of the boys when typed, will show pretty conclusively that the five dead boys had all had the spring fire training. One of the surviving members of the crew, who was working in the kitchen, said he had only "watched it through the window." Another, a garage helper, missed the May training at this camp but said he had had fire training one or more times at other camps where he had been employed. All other members of the crew which left camp with Foreman Timmons had the May 1939 fire training.

Foreman Timmons definitely refused to take to this fire any boys from some 60 replacements just received, who had not had fire training.

According to my present information, there was no signed roster of boys who had received training, as required by Assistant Regional Forester Kinney's CCC Safety circular of April 4, 1939.

I believe that the then Acting camp superintendent had withheld some truck drivers from fire training in order to get a car of lumber unloaded.

It is my opinion, long held and reinforced by this tragedy, that most of the dependence placed on training of enrollees for safety is an illusion.

Training of leaders, foremen and others of higher rank is important. The best they can be given is none too good and the most they can be given is none too much. Any training of enrollees which will increase the likelihood that they will stay with and obey their foreman or leader is also important—although no one should expect to make undisciplined and inexperienced boys obey fully and stay together in times of stress by merely talking about it. Something can also be accomplished in some instances by telling boys about falling limbs and snags and rolling rocks. But beyond that, the idea of attaining safety from fire by training enrollees is a dangerous illusion—dangerous, because it leads to an erroneous feeling that something real has been accomplished and thereby retards the search for safety training of real value.

In this particular instance I can think of no way in which the conventional training of enrollees made or could have made any difference in loss of life.

Nevertheless, these appalling disasters must be stopped, if possible. Furthermore, there is a core of pertinent truth in the cry "why do they send these untrained boys to fight fire."

Under "recommendations" is offered a plan which, viewed optimistically, might possibly have saved one or two lives in this case and which seems to me to be sound and practicable for general application.

#### Physical fitness of enrollees.

There is a question about Barker. I know of no way to make sure whether he was or was not physically fit. He seems to have given out in a climb which the others stood in good shape—possibly because in his kitchen job he had not been sufficiently hardened for climbing. He may have been injured in a fall early in the retreat.

At any rate, Powers, the last man of the original retreating file to escape, helped Barker for awhile and the evidence strongly suggests that Tippin and James were helping Barker when all three were overtaken and their bodies left close together by the flames.

Testimony as to Barker's physical condition was not unanimous but was mostly to the effect that he was athletic, good on his feet and in good condition.

There is apparently no way to determine with certainty why Barker was unable to keep up with those who retreated successfully.

My inclination is to say that Vitale should not have been in the crew because of his poor eyes and broken glasses; but he proved he had enough strength to attain safety, if he had only taken the right route—as Enrollee Powers fully expected him to do.

All the others seem to have been physically fit considering how young they all are. But I believe it is practicable to be more sure about physical fitness. A plan to that end is included under "recommendations."

#### The Part played by Foreman Timmons.

Since this is likely to be a controversial point, I have given it special attention. It has been hinted that he more or less consciously sent Assistant Leader Tippin and eleven enrollees into the most dangerous sector; that this is shown by the fact that he gave Tippin one more man than he took himself; that Timmons should not have divided his crew; that he did not show proper concern for the sub-crew under Tippin; and that he did not keep sufficient track of the men he took with himself.

The evidence is overwhelming that Timmons took the worst of it instead of giving Tippin the worst of it. Timmons went himself toward what was the head of the fire until the wind changed. He gave Tippin the trail to follow, the easiest slopes to work on and what was then the side and rear of the fire rather than the front. He sent Tippin toward the sector where he had seen men working as he approached the fire. The sector Timmons took included the worst climbing and the roughest ground. Timmons had to retreat once as he approached his portion of the edge.

It should be remembered that until the wind changed on this fire, there was nothing in Nevada fire history or fire experience to suggest danger—except the general principle that all fires are dangerous.

The next to the worst thing I can say about Timmons' division of the crew at a point about 1 mile from where the edge of the fire then was, is that I am sure I would not have done it. As a matter of getting the most effective work done on a fire, I have a strong personal bias against the too common tendency to fight a fire on too many fronts. The worst thing I can say is another "if." If Timmons had kept the entire 25-man group together until they reached the edge, the tragedy might not have happened. Without a map and a good deal of study on the reader's part it is impossible to present all the alternatives that might have happened. Enough to say that, obviously, if Timmons had taken all men by the same route he took toward what was then the worst part of the fire, all would have escaped, barring accidents such as happened to Kennedy.

But there is another side to it. I am pretty much alone among fire control men in my aversion to fighting on too many fronts. Moreover, as soon as I had reached the edge I would undoubtedly have sent part of the crew each way, thus soon losing direct observation and control of the men. Also, if Timmons had kept the entire crew together and had taken the exact route Tippin did (a quite possible thing) the loss of life might have been even greater than it was.

To stop these sagebrush and grass fires does not require the slow, heavy work involved in a timber and deep duff fire. The flames in the sage must be dirted down and any grass fire must be dirted or beaten or scraped out. With the flames stopped, the fire tends to go out quickly. Thus a well managed crew moves fast along the edge. But the fire may readily start up here or there after such treatment. Hence, plenty of men must be left to patrol and watch. The inevitable result is a pretty wide distribution of men later if not at the start; and it is usual practice to distribute men rather widely at the start. Timmons was following what he had been taught.

When Timmons says he was prevented by the smoke from seeing what was happening on the down hill side where Tippin and his men were, I believe him. The evidence one can still read on the ground, bears him out. I do not remember that we asked him the specific question but I presume he shared the general confidence in Tippin and felt that Tippin could take care of himself and his men. Timmons had no reason to fear such a thing as the broken ankle.

When Timmons came down that night he thought all his men were with him or accounted for. By accident and a good deal of digging, we were the first to discover that Timmons had two more men than he thought he had. In the company clerk's list of the men who started from camp, two men were omitted. In the count before leaving camp (by counting off by boys, I believe), two men were missed. Timmons thought he had 23 men including himself. He had 25 including himself. He did not count the whole crew again except to count off 11 men to Tippin. Consequently, when two men got behind in Timmons' group; ran when they saw the group ahead running from the fire; and then hid out in the rocks until evening; Timmons did not miss them. This sounds bad and it is bad; but I know too well how hard it is to count and keep track of even grown men to be surprised or critical at Timmons' failure to get a correct count in the hurry and confusion. With all the camp records and checks, no one else discovered the discrepancy until we stumbled on it 5 days after the fire.

Since disciplinary action against Timmons may be considered, it may be worthwhile to marshal the arguments, pro and con, in parallel columns.

For discipline of Foreman Timmons

1. He violated para. 3, Sect. 1, Chapter 12 of CCC Safety Regulations of 1938. This paragraph requires that "no enrollees shall be sent to fires except under the supervision of a foreman . . ."

Against discipline of Foreman Timmons

1. What Timmons did was not even a technical violation of this regulation. The men were all under his supervision. From the point where Timmons expected to reach the edge of the fire it would have been no farther to the far end of the sector he assigned to Tippin than to the far end of the sector Timmons took for himself. Tippin's sector was definitely the easier as of the time when the men were divided. Direct personal supervision of all boys on such a job is not possible.

For discipline of Foreman Timmons

2. He gave Tippin the worst of it and took the best of it for himself.
3. He did not show proper concern for Tippin's crew after the blow up came.
4. He should have come down sooner and acted as general fire boss, coordinator and director of rescue work until arrival of the District Ranger.
5. He should have known that two of his own boys were missing.
6. He should not have taken boys of questionable fitness for work.

Against discipline of Foreman Timmons

2. The testimony of men who know and the evidence on the ground are overwhelmingly to the contrary.
3. He could not see what was happening and had no reason to assume that the downhill run of the fire was any worse where Tippin was than where Timmons himself had to retreat and sidestep.
4. He had no reason to suspect the occurrence of a tragedy. He could not properly leave his boys alone on the line. From experience in the same watershed in 1937 he knew such a fire could run up hill fast enough to make it difficult for even a mounted man to escape uphill. Timmons and his boys were on the uphill side.
5. He should, but the fact that he did not know of the presence of two extra men and therefore did not miss them is not surprising. Handling men enroute to and on a fire is not and cannot be like close order drill on a parade ground.
7. He definitely refused to take untrained boys. He asked and received Army permission to take camp overhead workers. He had no way of knowing about Vitale's eyes and Barker's weakness—if he was weak.

The part played by Assistant Leader Tippin:

Tippin and James undoubtedly lost their lives because they tried to help Kennedy and probably Barker. Powers testifies clearly that when he looked back he saw Kennedy between James and Tippin and with his arms around their shoulders. This is exactly the way an effort should have been made to help out a man with one useless leg. Tippin and James should be recommended for award of the medal for heroism in fire fighting.

Testimony was clear that at the spot at which Tippin's crew stopped to rest and from which they later turned back, Tippin gave a short safety talk.

There is some evidence that Tippin gave the order to retreat after the rancher-cooperators had started; but the evidence also shows that Tippin's position did not permit him to see what the fire was doing as soon as the ranchers could.

In studying the lay of the ground and the run of the fire, one inevitably wonders why Tippin left the trail and worked over on an adjoining ridge. Viewing the scene after the fire, it looks as though Tippin would have had a better route to the fire and a much better chance to escape if he had stuck to the trail. The accident to Kennedy would probably not have happened if on the trail.

Testimony of various witnesses supplies a fairly clear answer. Tippin was maneuvering toward what was then the rear of the fire. If at that time, he had any thought of danger, that was exactly what he should have done.

#### The line of approach to the fire.

It is possible and would not be surprising for the lines of approach to be questioned. The fact is that no other general approach was logical or practicable. To make this possible criticism mean anything, it would have to be interpreted as saying that the men should have gone around to the uphill side of the fire which later proved to be the rear of the fire. But the uphill side is normally the dangerous side and was so in this case until the sudden change of wind.

#### Conclusions.

My conclusions are as follows:

1. The loss of life was the result of a combination of adverse circumstances and an accident which could not have been foreseen or guarded against.
2. No negligence, incompetence or blame can be attributed to any one connected with the fire.
3. Study of the disaster suggests certain constructive future steps which are desirable generally and which, in this particular case, might have saved one or two lives.

#### Recommendations.

1. That no disciplinary action be taken against anyone concerned.
2. Associate Regional Forester Rice is glad that Mr. Fechner has ordered that no boys under 18 be taken to fires; but believes that a further step should be taken. No boys should go to fires unless and until the camp commander, the camp superintendent and the camp doctor have jointly certified that each boy has attained a sufficient degree of mental and physical maturity to justify using him on fires in the zone of probable action.

Captain Seitz, Commander of F-5, adds the excellent suggestion that this certification be attended with some formality. A card certificate could be prepared and signed by the three officers. The boys would usually prize such a certificate. Much might be made of the device for morale building.

After study of this situation in the light of other experience, I would add the following: The certificate would not be issued until after a full day spent in hiking over trails and rough ground and actual work on dummy fire lines. An examination by the doctor should be given immediately after the day's exertion to search out cases of poor hearts, lungs or other weaknesses which might have previously been missed.

The day's work should be reasonably strenuous. It might include some running over rough ground for training as well as testing.

Plenty of observers should accompany the file. Such a test might disclose some foremen who could not take it and should not be permitted to go to fires.

This day of real test and training would be in addition to any training now prescribed. The major purposes would be as follows:

- (1) To weed out boys who cannot be depended upon to obey foremen and leaders.
- (2) To weed out boys who cannot or will not keep up and keep together because of physical weakness, laziness or poor mental attitudes.
- (3) To weed out boys having miscellaneous defects which should be considered sufficient reason for exclusion from fire fighting crews.
- (4) To give real training in and familiarity with the kind of climbing, cross country hiking and work involved in fire fighting.

/s/  
ROY HEADLEY  
Chief, Division of Fire Control