THE SASKATCHEWAN SMOKEJUMPERS ¹

By D. W. KELLY ²

Born and educated in Prince Albert, Saskatchewan, Dennis W. Kelly joined the Forestry Branch of his native Province's Dept. of Natural Resources in 1947 to take charge of the only parachutist fire suppression unit in the British Commonwealth. Having obtained training as a parachutist and rigger and useful experience as an instructor in the Canadian Paratroop Corps during the war, Mr. Kelly was well equipped for the position of jumpmaster with the Saskatchewan Smokejumpers.

One possible solution to the forest-fire problem in Saskatchewan that resulted from two years of investigation and discussion by the Saskatchewan Royal Commission on Forestry was that fire fighters be transported by aeroplane. This would make remote areas readily accessible without the building of an extensive—and expensive—all-weather road system.

In its myriad lakes, northern Saskatchewan has admirable, natural landing strips fairly well distributed over the forest area. To land men on lakes, however, would not always be fast enough. Some means of dropping the men right at the location of the outbreak was what was wanted. Mr. E. J. Marshall, Director of Forests, brought back the answer from an extended tour of the North West States early in 1947 when he studied the various methods of fire suppression employed there. This answer was the establishment of a group of parachutists.

Now, when I joined the Department of Natural Resources to take over the training of these men, my experience had only been in the military type of parachuting, gained by service as an instructor with the British and American armed forces during the last war. I found, however, that the tackling of forest fires required somewhat different techniques to those employed in dropping behind enemy lines in war-time. So, on taking up service with the Saskatchewan government, I underwent a short course of training at the hands of a private firm of Air Rescue Operators who had had considerable experience in "bush jumping".

What sort of men become smokejumpers? Nowadays we proudly boast of the fact that we receive applications from volunteers all over the world—but it was not always that way. Our first crew of eight men consisted of six students from our own forestry school—literally pressed into service—an ex-paratrooper and a medical student. In training, these men acquitted themselves very well but, as an equipment hangar was demolished by fire that summer, they were unable to prove themselves in the actual field. Such were the discouraging beginnings of this world-renowned service. I'd like to point out here, though, that while it is flattering to have applications from all over the world, the best men for the job are to be found right here in Canada. We want men who have some experience of working and living in the bush.

Just as we experimented with men, so we had to try out different kinds of equipment. The first aircraft we used was a Norseman float plane equipped with a chute which extended from the doorway to one of the pontoons. While this

¹ Paper presented at the Annual Meeting of the C.I.F. in Saskatoon, Saskatchewan, October, 1955.

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was most satisfactory as far as jumping and cargo disposal were concerned, it created too much of a "drag" on the aircraft. Thus, today, we have a hole in the belly of the plane which allows the parachutist to drop freely between the floats. Any other arrangement might cause the parachute to become fouled on the tail plane. The Norseman has proved its reliability over the past nine years of operation and, at the present time, we have two of them suitably adapted for the transportation of smokejumpers.

TRAINING

As I was telling you a moment ago, we like men with some bush experience. We also like the men we select to be between the ages of 18 and 28 years, under 180 lbs. in weight, have at least a grade-ten education and be in "A1" physical condition. Once we have them, we put them through their paces. For four gruelling weeks they are subjected to physical training, how to use a parachute, and to lectures and demonstrations on first-aid, fire suppression and how to use a compass and maintain and repair all of the equipment they use.

By the end of the first week, they have to be able to run six miles, and at the end of the second, tumble safely from the back of a truck travelling at 30 m.p.h. This knack of landing in a relaxed position is one that comes only with practice and is most important if serious injury is to be avoided.

Being parachutists primarily, the men have to learn something of the mechanics and design of the "silk umbrella" and of how to manipulate it. Contrary to popular opinion, a parachute will not fall vertically on a calm day, but is designed to have a forward speed of $2\frac{1}{2}$ m.p.h. This facilitates landing. Now, while parachutes can be steered to a certain degree by spilling air from them one way or another, landing on the target is determined more by the pilot's positioning of the plane than by subsequent manipulation by the "jumper". A parachutist would require to know precisely of every air current from 1800 feet to ground level were he to guide himself unerringly to a given spot on the surface of the earth. Trial runs are made over the "target area" in each case to estimate "drift" before the men and cargo are dropped.

Before the men are sent on a fire, they have to make eight jumps—three of them in the bush. And, speaking of jumping in the bush, you may be wondering just how dangerous an assignment that is. Our record of only one serious accident—a broken hip—speaks for itself. The men wear heavy canvas, snag-proof suits, helmets and masks; and we are really more worried about our equipment in areas of dead snags and broken trees than about the safety of the smokejumpers. In bush-jumping operations, the men are never without an extra length of rope. This is something they occasionally need to lower themselves to the ground when they become "hung up" in a tree.

The men wear two parachutes, both of which they learn to pack themselves. The one worn on the back is operated by a static line in the aircraft and is the one mainly used. The other, worn on the chest, is for emergencies only and is manually operated by means of a ripcord. While it is extremely seldom that a man has to use his emergency chute, one outstanding instance comes to mind. We were putting on a display for a party of visiting foresters at Waskesiu in 1948 when one of the "jumpers" had a "streamer" or "Roman candle". He hurtled earthwards for agonizing moments. Then, suddenly, when

he could only have been some 200 feet from the ground, his emergency 'chute opened up to bring him gently to earth. As if that were not enough, he was hit by a golf ball as he landed on the Waskesiu course. Some men are real gluttons for punishment!

Besides learning how to drop themselves, the men learn also how to pack and drop cargo such as radios, power-pumps, outboard motors, axes, shovels and food. While parachutes are used to drop the more fragile supplies, rations, axes and shovels may be dropped "free-fall". When no parachutes are used, the aircraft fly low over the area and can, as a result, drop their cargoes with commendable accuracy.

ON THE JOB

The Saskatchewan Smokejumpers have two headquarters—Prince Albert and Lac la Ronge. During spring and early summer, the men are trained and stationed at Prince Albert airport. However, as the fire hazard increases, they move north to the more strategic location of La Ronge.

Our complement has been doubled since those early days in 1947 when our hangar was destroyed. We now have four crews of four men each. These men are on constant alert during periods of high hazard. When the hazard drops, however, the men do other work of forest and building improvement. Thus they are kept busy during the entire six-month season. The work, of course, is seasonal unless the men are willing to do timber cruising or related work in the winter months. Such work can usually be arranged for those who want to do it. The seasonal nature of the employment is one of the adverse factors; men with the ideal make-up for smokejumping can readily obtain—if not more remunerative—more permanent employment.

When a "smoke" is sighted by tower lookout or patrol-aircraft pilot, location and any other ancillary information of the outbreak are radioed to the smokejumpers. Immediately one or two crews—depending on the size of fire—are mobilized. Since these men are but the shock troops who hold the line until reinforcements arrive, they assess the extent and severity of the fire first of all and radio the information to those at base. Frequently, of course, they can bring a small outbreak under control themselves.

A question has now probably arisen in your minds: The men seem to get in all right, but how do they get out? They have to walk out—at least as far as the nearest suitable lake. When they go they have to pack with them 90-100 pounds of equipment. The position of the nearest lake is indicated to the men on the ground by the pilot, who circles his aircraft overhead before heading towards it. As he flies on the correct course he "guns" his motor once or twice and thus enables them to take a compass shot on the disappearing plane. The aircraft returns to the "rendezvous" lake on receipt of the appropriate radio message from the men. Sometimes, in order to reach the lake, they have to wade waist-deep through muskeg. It is certainly a job that calls for good physique and stamina.

On returning to base, the men overhaul their equipment and stand by for the next alarm.

CONCLUSION

All fires have a small beginning, when it would be possible to control them with but a handful of men. In the past, the large inaccessible areas of our north-

land have suffered because no one could ever be on hand in time to do much good. With this modern method of fire fighting we have been successful in keeping our fire losses down to an extremely low level, and we are hopeful of even better things in the future when our experience over the past nine years finds tangible expression in the development of new and more effective techniques.

DISCUSSION

FOLLOWING PAPERS BY MR. F. W. Warburton and MR. D. W. Kelly

J. C. W. Irwin:

Could you tell us something of your fire prevention program?

F. W. Warburton:

We are trying to develop a fire consciousness in the people of Saskatchewan. We have a Conservation and Education Branch charged with this function. During Forest Conservation Week they put on quite a show. There is a lecturer with a truck touring in the area of the forest boundary. We also have spot announcements on the radio during the fire season.

S. W. Schortinghuis:

I am very interested in what has been said about cargo dropping. In Manitoba we use a jute cargo 'chute but we find it bulky and something of a problem to get back out of the bush. What type of parachute is used in Saskatchewan for cargo dropping, and do you think there is any possibility of getting plastic or paper 'chutes which are disposable?

D. A. Kelly:

We have found that with burlap parachutes you need a much larger canopy per pound of weight than you do with a cotton 'chute. We make all our own cargo 'chutes of the cheapest cotton obtainable with good porosity. They are expendable, though usually they are packed up and brought back to base. If not, they can be used at the fire for drying dishes and that kind of thing. The men learn how to make all the 'chutes and equipment they use.

A. E. Spaulding:

We are still looking for a cheap, effective cargo 'chute. We have experimented with plastic and find that it does not let enough air pass through. So far our experiments have not come up with just what we want.

C. E. Leitkie:

Do you have a method of marking fires so that fire crews are able to get in and find them?

F. W. Warburton:

With air-transported crews this is not much of a problem, though occasionally ground crews will not be able to locate a fire. We don't use any markers at all.

Q. Hess:

In Ontario the crews set off smoke-bombs if necessary to show their position. The aircraft then can direct the crew to the site of the fire.

H. W. Beall, Chairman:

In concluding this portion of the meeting, I should like to thank all those who have so ably presented papers and taken part in the discussions.